Project

SHD Development at Cooldown Commons Phase 3

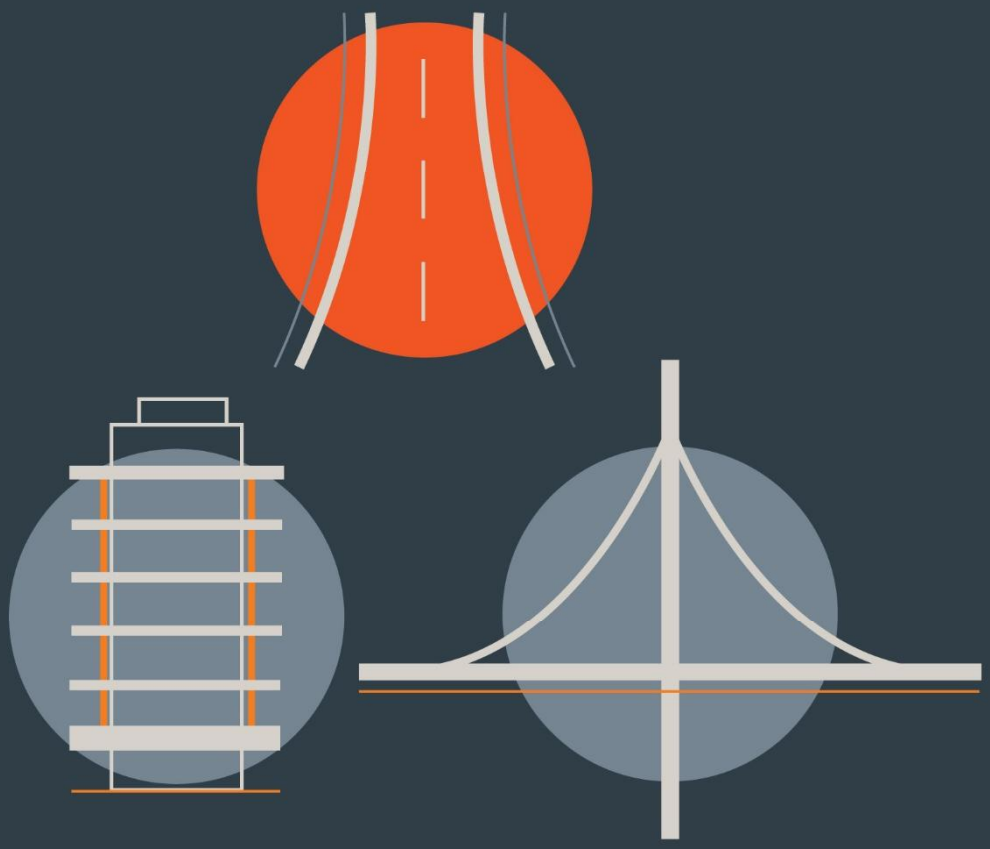
Report Title

TRAFFIC AND TRANSPORT ASSESSMENT REPORT

Client

Cairn Homes Properties Limited

TRANSPORTATION



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CONTENTS

1.0 INTRODUCTION 6

1.1 BACKGROUND 6
1.2 SCOPE 6
1.3 METHODOLOGY 7
1.4 REPORT STRUCTURE 8

2.0 RECEIVING ENVIRONMENT 10

2.1 LAND USE 10
2.2 LOCATION 10
2.3 EXISTING TRANSPORTATION INFRASTRUCTURE 11
2.4 LOCAL AMENITIES 18
2.5 PROPOSED TRANSPORT INFRASTRUCTURE 18
2.6 ROAD SAFETY REVIEW 23

3.0 POLICY FRAMEWORK 26

3.1 SOUTH DUBLIN COUNTY DEVELOPMENT PLAN 2016-2022 26
3.2 FORTUNESTOWN LOCAL AREA PLAN MAY 2012 27
3.3 DEVELOPMENT CONTROL 29

4.0 CHARACTERISTICS OF PROPOSALS 33

4.1 PLANNING HISTORY 33
4.2 CURRENT PROPOSALS 33

5.0 TRIP GENERATION AND DISTRIBUTION 43

5.1 CURRENT TRANSPORT MODAL SPLIT 43
5.2 TRAFFIC SURVEYS 45
5.3 TRIP GENERATION 46
5.4 COMMITTED DEVELOPMENT 49
5.5 TRIP DISTRIBUTION & ASSIGNMENT 51
5.6 TRAFFIC GROWTH 51
5.7 ASSESSMENT SCOPE 52
5.8 NETWORK IMPACT 53
5.9 MITIGATION STRATEGY 56

6.0 NETWORK ANALYSIS 58

6.1 INTRODUCTION 58
6.2 JUNCTION 1: CÚIL DÚIN VIEW/CITYWEST AVENUE/FORTUNESTOWN LANE SIGNAL CONTROLLED JUNCTION 58

6.3 JUNCTION 6: CITYWEST AVENUE/SITE ACCESS SIGNAL CONTROLLED JUNCTION 61
6.4 WESTERN PRIORITY CONTROLLED SITE ACCESS JUNCTION 63
7.0 SUMMARY AND CONCLUSION 66
7.1 OVERVIEW..... 66
7.2 SUMMARY..... 66
7.3 CONCLUSION..... 70

APPENDICES

APPENDIX A TRICS Database Outputs

APPENDIX B Traffic Flow Diagrams

APPENDIX C TRANSYT Output Files

APPENDIX D PICADY Output Files

1.0 INTRODUCTION

1.1 BACKGROUND

1.1.1 DBFL Consulting Engineers (DBFL) has been commissioned by Cairn Homes Properties Ltd. to compile a Traffic and Transport Assessment (TTA) for a proposed development will consist of the construction of 421 no. residential units within 9 no. blocks ranging in height from 1 – 13 storeys, retail/commercial/office units, residential amenity space, and open spaces along with all associated site development works and services provisions to facilitate the development including parking, bin storage, substations, landscaping and all services. A full description is provided in the statutory notices and in Chapter 3 of the EIAR.

1.1.2 The proposals form Phase 3 of the Cooldown Commons development lands and include amendments to previously approved planning application schemes including a small section of Pl. Ref. ABP302398 and replaces a previous approved planning application (Pl. Ref. SD16A/0078) on the subject site which will be discussed in further detail within Section 4 of this report.

1.1.3 The report has been produced to address any potential concerns that An Bord Pleanála may have pertaining to the level of influence of the proposed development upon the local transportation system.

1.1.4 During the development of this report, traffic turning count surveys have been commissioned specifically for this assessment, with the objective of providing background information relating to existing traffic movement patterns across the local road network. This information has been supplemented with data obtained from site audits of the local road network, subsequently enabling the identification of existing local travel characteristics and an appreciation of the local receiving environment from a transportation perspective.

1.2 SCOPE

1.2.1 The purpose of this TTA is to quantify the existing transport environment and to detail the results of assessment work undertaken to identify the potential level of any transport impact generated as a result of the proposed residential development. The scope of the assessment covers transport and related sustainability issues including means of vehicular access, pedestrian, cyclist and local public transport connections.

The principal objective of the report is to quantify any level of impact across the local road network and subsequently ascertain both the existing and future operational performance of the local road network.

1.3 METHODOLOGY

1.3.1 Our approach to the study accords with policy and guidance both at a national and local level. Accordingly, the adopted methodology responds to best practices, current and emerging guidance, exemplified by a series of publications, all of which advocate this method of analysis. Key publications consulted include;

- '*Traffic and Transport Assessment Guidelines*' (May 2014) National Road Authority / TII;
- *'Traffic Management Guidelines'* Dublin Transportation Office & Department of the Environment and Local Government (May 2003);
- *'Guidelines for Traffic Impact Assessments'* The Institution of Highways and Transportation;
- Sustainable Urban Housing: Design Standards For New Apartments Guidelines For Planning Authorities, as published by the Department of Housing, Planning and Local Government (DHPLG), December 2020;
- South Dublin County Council Development Plan 2016-2022; and
- Fortunestown Local Area Plan 2012.

1.3.2 Our methodology incorporated a number of key inter-related stages, including;

- Background Review: This important exercise incorporated three parallel tasks which included (a) an examination of the local regulatory and development management documentation; (b) an analysis of previous 'transport' related, strategic and site specific studies of development and transport infrastructure proposals across the Citywest area, and (c) a review of planning applications to establish the legal status of various third party development schemes that were either considered within the strategic

'transport' studies or which have emerged and received full planning permission since.

- Site Audit: A site audit was undertaken to quantify existing road network issues and identify local infrastructure characteristics, in addition to establishing the level of accessibility to the site in terms of walking, cycling and public transport. An inventory of the local road network was also developed during this stage of the assessment.

- Traffic Counts: Junction traffic counts in addition to vehicle queue length surveys were undertaken and analysed with the objective of establishing local traffic characteristics in the immediate area of the proposed residential development.

- Trip Generation: A trip generation exercise has been carried out to establish the potential level of person trips and subsequently vehicle trips generated by the proposed residential development.

- Trip Distribution: Based upon both the existing and future network characteristics, a distribution exercise has been undertaken to assign site generated vehicle trips across the local road network.

- Network Analysis: Further to quantifying the predicted impact of vehicle movements across the local road network for the adopted site access strategy more detailed computer simulations have been undertaken to assess the operational performance of key junctions in the post development 2022, 2027 and 2037 development scenarios.

1.4 REPORT STRUCTURE

1.4.1 As introduced above, this TTA seeks to clarify the potential level of influence generated by the proposed development upon the local road network and subsequently ascertain the existing and future operational performance of the local transport system. The structure of the report responds to the various stages of this exercise including the key tasks summarised below.

1.4.2 Chapter 2 of this report describes the existing conditions at the proposed development location and surrounding area, whilst Chapter 3 provides a summary of the relevant

transport policies that influence the design and appraisal of the subject residential proposals.

1.4.3 A summary of the proposed development itself is provided within Chapter 4.

1.4.4 Chapter 5 outlines the trip generation exercise carried out and the adopted methodology for applying growth factors to establish design year network traffic flows and the predicted scale of impact upon the local road network.

1.4.5 The operational performance of key local junctions are assessed for the 2022 Opening Year and the 2027 (Opening Year +5 years) and the 2037 (Opening Year +15 years) Horizon Years are summarised within Chapter 6.

1.4.6 The main conclusions and recommendations derived from the analysis are summarised in Chapter 7.

2.0 RECEIVING ENVIRONMENT

2.1 LAND USE

2.1.1 The subject lands are zoned *"Objective RES-N – To provide for new residential communities in accordance with approved area plans"* within the South Dublin County Development Plan 2016-2022.

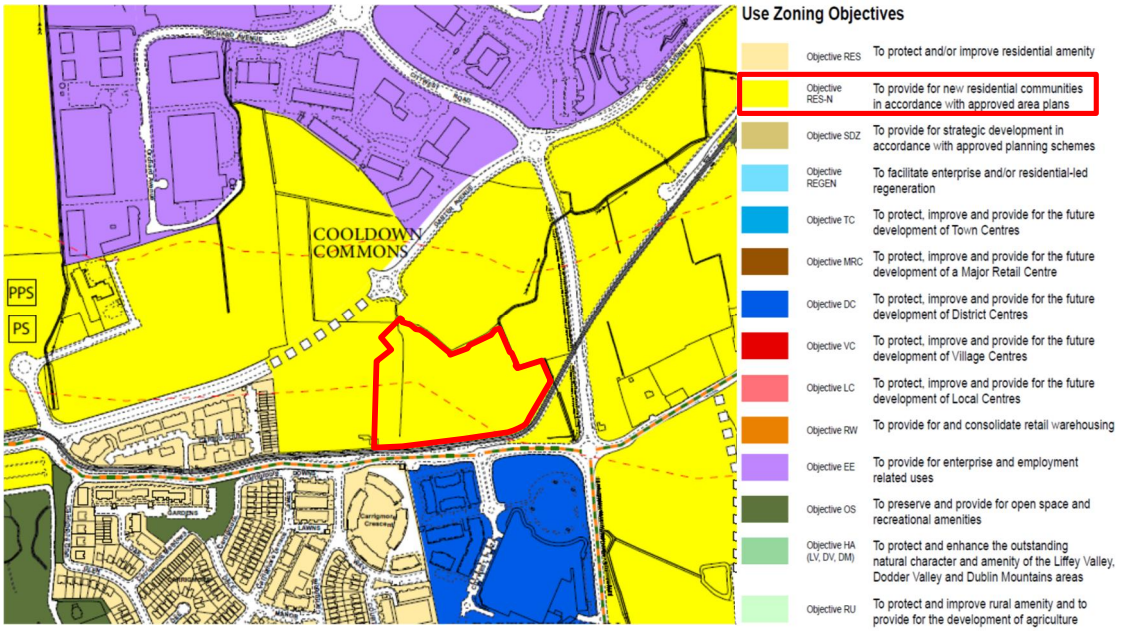


FIGURE 2.1: SDCC Land Use Zoning (Extract of Map 8 SDCC Development Plan 2016-2022)

2.1.2 The surrounding area predominantly consists of a mix of residential developments, residentially zoned lands and business parks. A number of the Citywest Business Campus units are located to the north and northeast of the subject site. The permitted Cooldown Commons Phase 2 development lands (Pl. Ref. ABP302398) are situated immediately to the west of the subject development site (a section of which is proposed to be amended as part of the subject proposals) whilst the permitted development Pl. Ref. SD16A/0210 lands are situated immediately to the northwest of the subject development site.

2.2 LOCATION

2.2.1 The general location of the subject site in relation to the surrounding road network is illustrated in Figure 2.2 below whilst Figure 2.3 indicatively shows the extent of the subject site boundary and neighbouring lands. The subject Citywest site is located approximately 6.6km west of Tallaght and 14.8km southwest of Dublin City Centre.

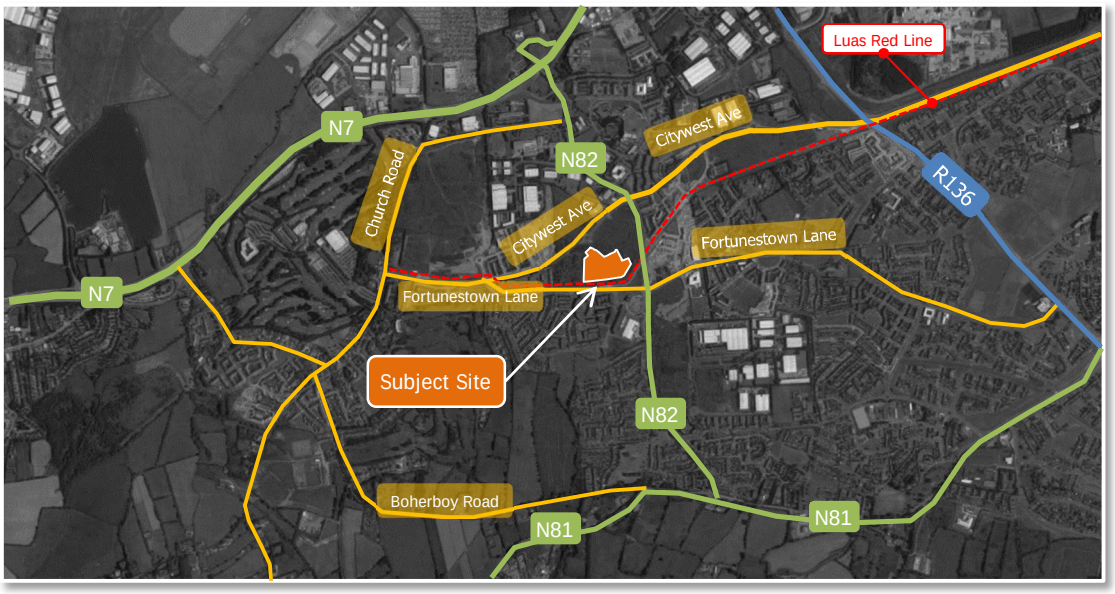


FIGURE 2.2: Site Location (Source Google Maps)

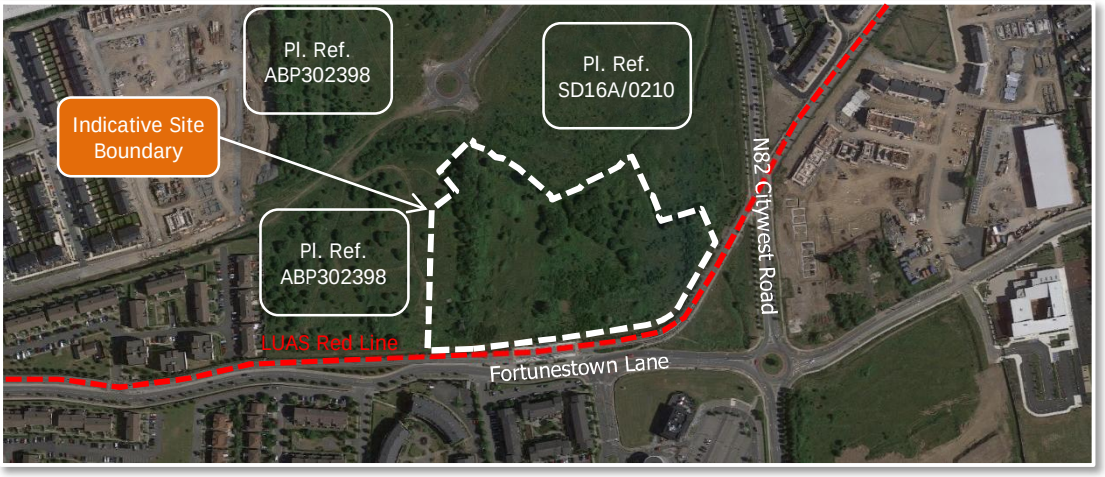


FIGURE 2.3: Site Boundary

2.2.2 The development site is bounded to the south by the Fortunestown Lane corridor and LUAS Red Line whilst the north / eastern boundaries comprise undeveloped (permitted development) residentially zoned lands. The western boundary comprises a residential development (Pl. Ref. ABP302398) which is currently under construction.

2.3 EXISTING TRANSPORTATION INFRASTRUCTURE

Road Network

2.3.1 To the north of the subject site, the Citywest Avenue Extension corridor runs in an East-West direction. The central section of this corridor has recently been constructed as part of the adjacent development site (Pl. Ref. ABP302398) which provides a through

route between the N82 Citywest Road corridor to the east and the Fortunestown Lane corridor to the west. Travelling in a westerly direction on Citywest Avenue leads to the Fortunestown Lane / Citywest Avenue signal controlled junction and subsequently the Fortunestown Lane / Garter Lane signal controlled junction. To the north Garter Lane provides a direct route to the N7 southbound carriageway, whilst to the south Garter Lane / Church Road leads to the village of Saggart, located approximately 1.5km away.

2.3.2 Travelling eastbound on Citywest Avenue Extension from the subject site leads to a four-arm roundabout junction with the N82 Citywest Road. Travelling southbound from this roundabout junction, Citywest Road terminates at a three-arm junction with N81 Blessington Road providing access to Blessington (located approx. 17km to the south west) and Tallaght (located approx. 5km to the north east).

2.3.3 Travelling north on the N82 Citywest Road provides access to the N7 northbound and southbound carriageways via Junction 3. The N7 provides convenient access to destinations including Rathcoole, Naas and Kildare to the southwest (as well the strategic M7, M8 & M9 motorways). The strategic M50 motorway (northbound and southbound) is accessible via the M50 Junction 9 located approximately 6km to the northeast whilst Dublin City Centre is accessible via the Naas Road corridor and is located approx. 16km away.

Existing Cycling and Pedestrian Facilities

2.3.4 The recently constructed section of Citywest Avenue in the vicinity of the subject site benefits from dedicated verge segregated pedestrian / cycle facilities on both sides of the corridor as presented in Figure 2.4 below. The cycle and pedestrian facilities are differentiated by surface type and provided at the same level.

FIGURE 2.4: Citywest Avenue Cycle / Pedestrian Facilities

2.3.5 Fortunestown Lane currently benefits from a footway and cycle track on the southern side of the corridor (Figure 2.5). Currently pedestrian only facilities are in place on the northern side of this corridor.

FIGURE 2.5: Pedestrian & Cycle Facilities on Fortunestown Lane

2.3.6 The Citywest Road corridor benefits from verge segregated footways on both sides of the road carriageway in addition to street lighting.

FIGURE 2.6: Pedestrian Facilities on N82 Citywest Road

2.3.7 The Greater Dublin Area Cycle Network Plan details the GDA's existing and proposed Cycle Network incorporating Urban, Inter-urban and Greenroute networks. The subject site is located within the sector designated as the "Dublin South West". Figure 2.7 illustrates the existing cycle infrastructure in the vicinity of the subject site at the time the Plan was published in December 2013.

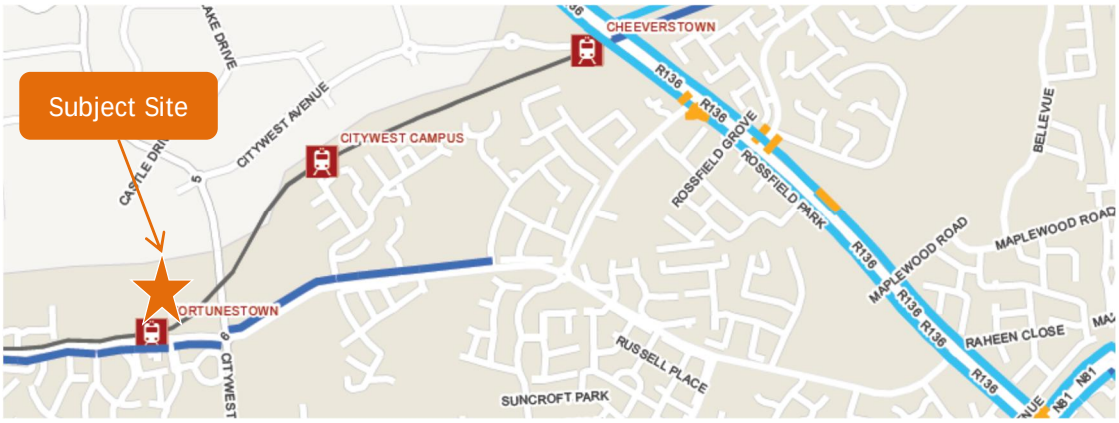


FIGURE 2.7: GDA Cycle Network Plan Existing Cycle Facilities (Extract of Sheet E6)

Public Transport – Bus

2.3.8 The subject site benefits from excellent public transport accessibility levels including both light rail and bus-based services. Dublin Bus operates three routes that serve the subject site locale including the number 69 (Fleet Street – Rathcoole), the number 65b (Citywest – Poolbeg Street) and the number 77a (Citywest – Ringsend Road). All three routes provide links from the subject site's general vicinity to the city centre via alternative routes thereby serving different catchment areas between Citywest and the City Centre including Clondalkin (Route 69), Terenure (Route 65b) and Firhouse (Route 77a). There is also a route number 77x which provides a daily weekday service from Citywest to UCD Belfield from Mondays to Fridays only. Go-Ahead Bus route 175 is also easily accessible from the subject site which operates between Citywest and UCD. A summary of the aforementioned bus service frequencies is presented in Table 2.1 below.

Bus Route	Weekdays		Saturdays		Sundays & Bank Holidays	
	To City Centre	From City Centre	To City Centre	From City Centre	To City Centre	From City Centre
DB 65b	18	20	17	19	15	15
DB 69	24	17	24	17	10	10
DB 77a	56	52	46	46	32	34
DB 77x	1 service	-	-	-	-	-
GA 175	34	35	17	16	16	15

DB = Dublin Bus, GA = Go-Ahead Bus

TABLE 2.1: Bus Service Frequency (No. of Services per Day)

2.3.9 The local Bus stops are all within walking distance of the subject site are illustrated in Figure 2.8 below.

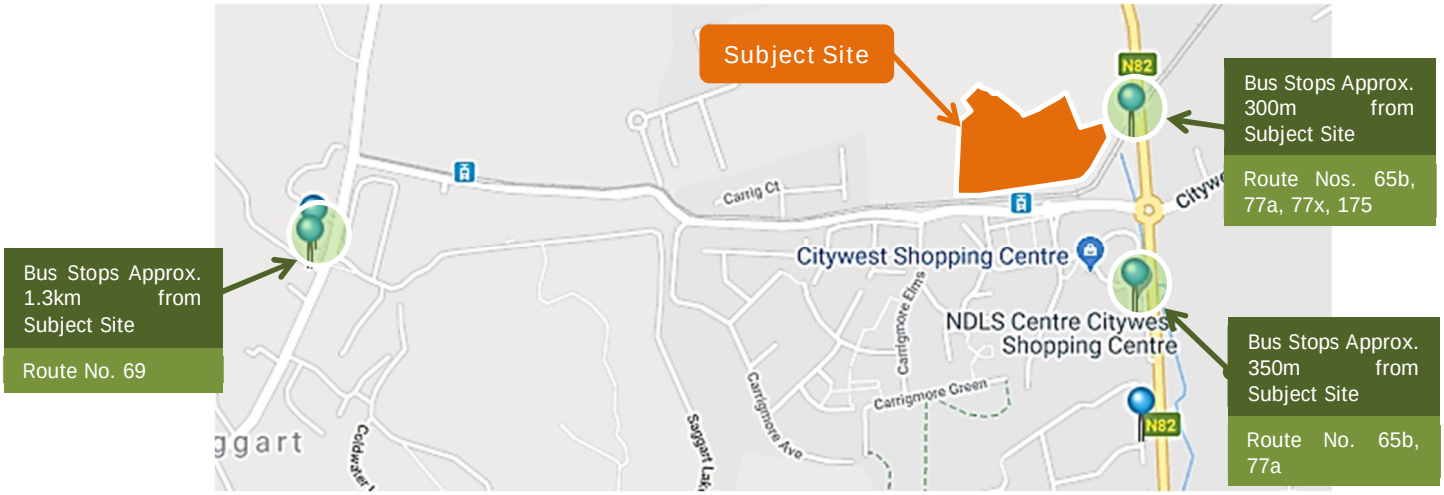


FIGURE 2.8: Bus Stop Locations

2.3.10 In addition, Dualway Transport provides a daily service (Route 311) from Newcastle/Rathcoole to The Square, Tallaght from Mondays to Fridays only, with the exception of Wednesdays when there are 2 services.

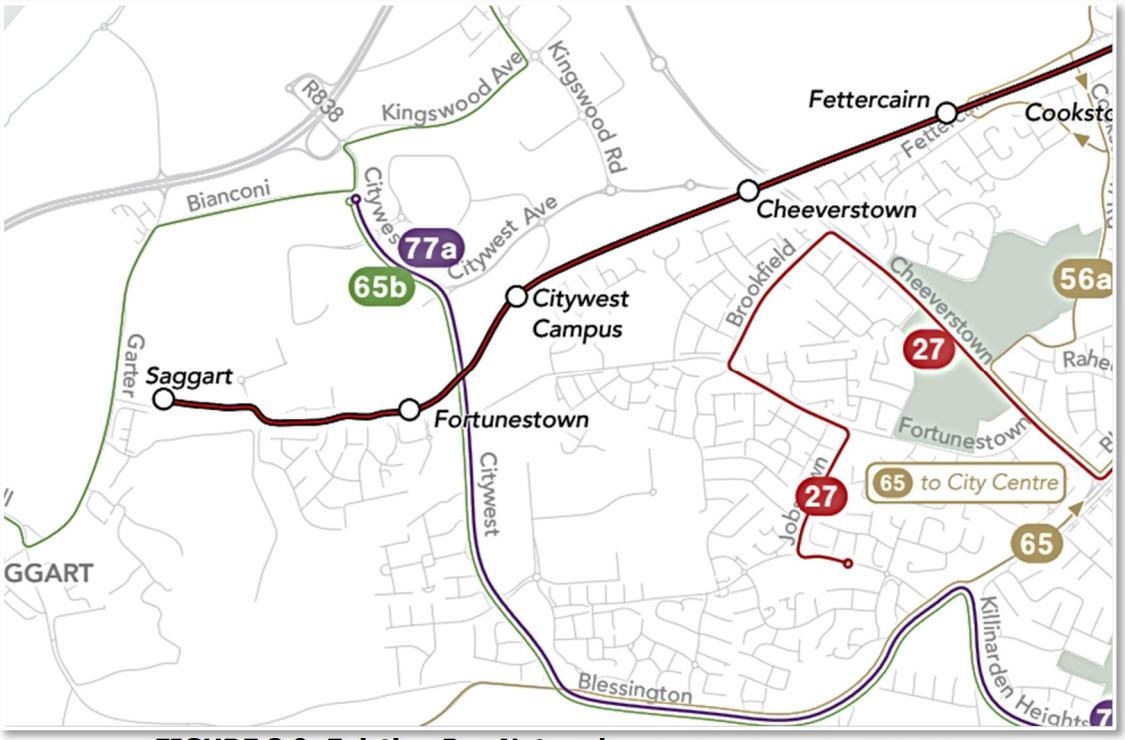


FIGURE 2.9: Existing Bus Network (Extract from Map 1 Bus Connects Dublin Bus Network Redesign)

Public Transport – LUAS Services

2.3.11 The subject site is conveniently located to benefit from LUAS Red Line services. The 'Fortunestown' interchange is located within a short convenient walking distance and is located adjacent to the south eastern section of the subject site. A pedestrian

connection is proposed between the subject site and the Fortunestown Luas interchange as presented in Figure 2.10 below. The Red Line currently operates between Saggart / Tallaght and The Point. At the Belgard interchange, the LUAS Red line branches in two directions; to Saggart and to Tallaght.

2.3.12 Table 2.2 below lists the frequency with which the Fortunestown LUAS service operates.

FIGURE 2.10: LUAS Interchange in the Vicinity of the Subject Site

Link	Weekdays		Saturdays		Sundays & Bank Holidays	
	Peak	Off-Peak	Peak	Off-Peak	Peak	Off-Peak
Saggart – Belgard	9-10	10-15	12	12-15	10-12	12-15
Belgard – Busáras	3-5	6-15	6-7	6-15	10-11	10-15
Busáras – The Point	4-10	10-15	12	12-15	10-12	11-15

TABLE 2.2: LUAS Service Frequency (minutes)

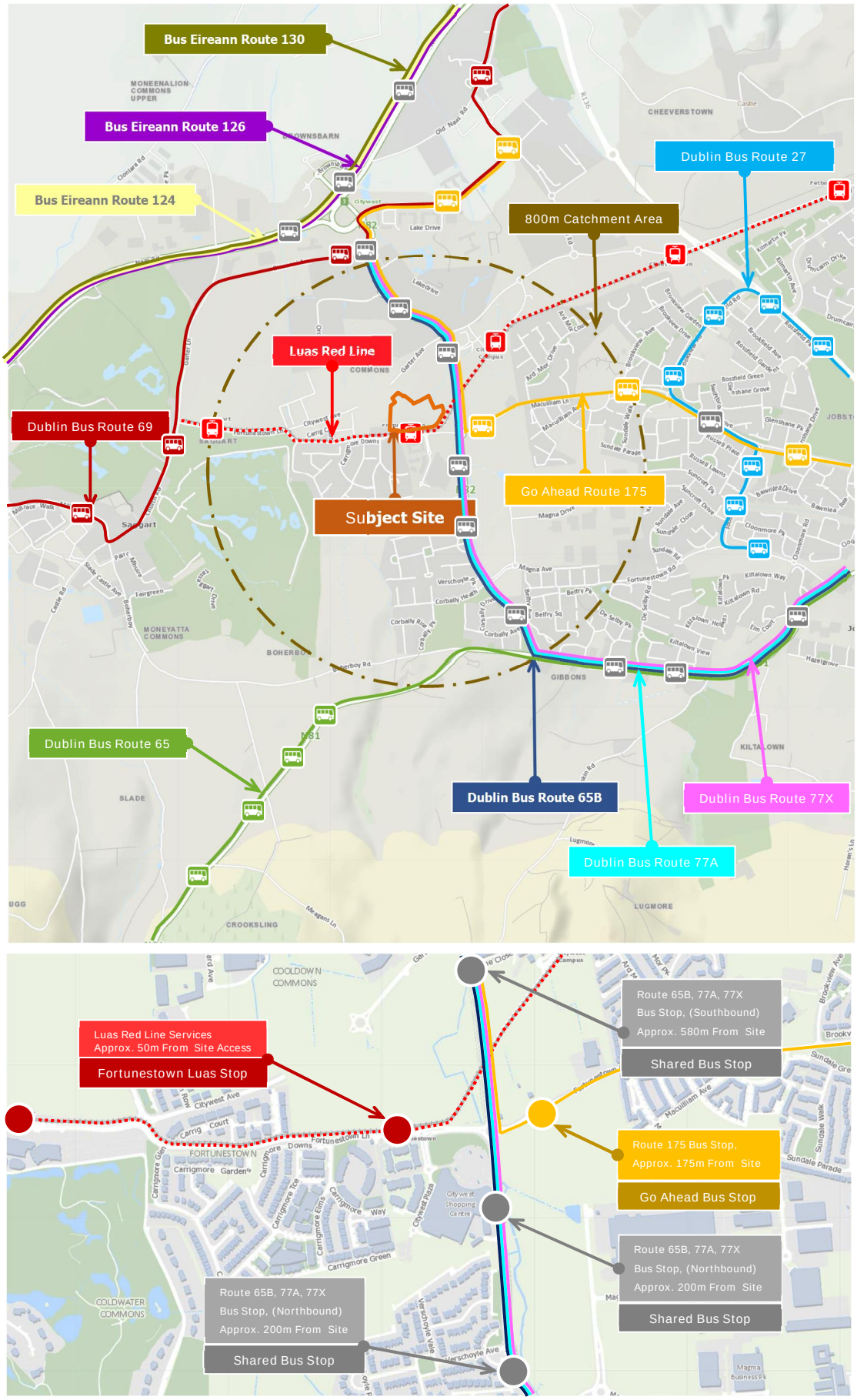


FIGURE 2.11: Public Transport Linkages

2.4 LOCAL AMENITIES

2.4.1 As illustrated in Figure 2.12, the proposed development site is well placed in terms of the availability of and access to local amenities. There are a number of primary and post primary schools within 2km of the subject site. These include Scoil Aoife, St. Mary's National School Saggart, Citywest & Saggart Community National School and St Aidan's Community School.

2.4.2 The subject site also benefits from good access to local retail and leisure facilities. Lidl and Citywest Shopping Centre are both within 5 minutes walking distance from the subject site. Additionally, Centra Saggart and Dunnes Stores are approx. 1.7km to the south-west of the site. Citywest Hotel & Golf Club are located to the west of the site and can be accessed via Church Road.

2.4.3 Furthermore, the subject development site is well places to benefit from local employment opportunities at Citywest Business Campus and the National Digital Park both located to the north and Magna Business Park located in the south.

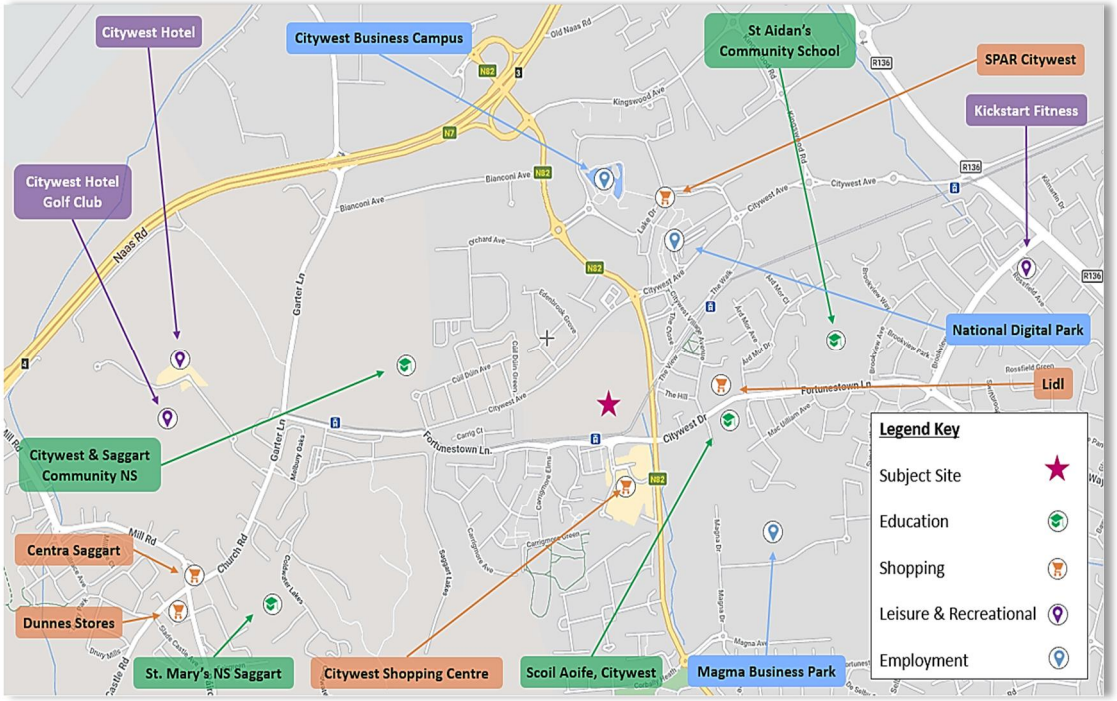


Figure 2.12: Local Amenities around Subject Site

2.5 PROPOSED TRANSPORT INFRASTRUCTURE

Cycle Network Proposals

2.5.1 In December 2013, the NTA published the report entitled 'Greater Dublin Area Cycle

Network Plan'. The report summarises the findings of a comprehensive body of work detailing a proposed Cycle Network incorporating Urban, Interurban and Green route networks covering the six county council areas that together form the defined Greater Dublin Area (GDA).

2.5.2 The subject site lies within the "Dublin South West Sector" as outlined within the Dublin Greater Area Cycle Network Plan (2013). Figure 2.13 below illustrates the cycle network proposals in the vicinity of the subject site as outlined within the Plan.

2.5.3 The Dublin South West Sector *"extends outward from the twin corridors of Camden Street and Clanbrassil Street in the city centre, through the inner suburbs of Rathmines and Harold's Cross, to serve the areas of Terenure, Kimmage, Walkinstown, Tallaght, Firhouse and Rathfarnham."*

2.5.4 Routes 9C and 9D pass the subject site (Figure 2.13) on Fortunestown Lane and Citywest Road (N82) respectively. Route 9C "*is an alternative to the Harold's Cross route from Route 8C at Clogher Road via Stannaway Road west of Kimmage and then along Wellington Lane to join Route 9A at Spawell to connect to Tallaght. It also provides a continuation from Route 9A west of Tallaght via Fortunestown and Citywest to Saggart"*. Route 9D *"would provide a traffic-free option branching off Route 9A at Kimmage Cross Roads and following the River Poddle Greenway to Tymon Park where a new bridge is required over the M50 in the centre of the park to connect with Castletymon Road and rejoin Route 9A. West of Tallaght it provides a loop through Jobstown along the N81 and then northward into Citywest".*

2.5.5 Route 8A and a Greenway is proposed to pass the subject site to the north on Citywest Avenue Extension. Route 8A "*follows Crumlin Road past the Children Hospital, Bunting Road to Walkinstown, through Ballymount to cross the M50 at Junction 10 and out to Citywest/Fortunestown via Belgard"*.

2.5.6 Furthermore, there are proposals for the Slade Valley Trail located to the west of the subject site. The Slade Valley Trail is a *"potential route southward from the villages of Rathcoole and Saggart along the upper reaches of the Camac River to Brittas at the edge of the Dublin Mountains. This route is an alternative to the very busy N81 Blessington Road and opens up access to a network of quiet rural roads in West Wicklow.*

FIGURE 2.13: Proposed Cycle Routes (Extract of Map N6 GDA Cycle Network Plan)

2.5.7 The Fortunestown LAP proposes a "Green Link" through the subject site boundary which joins with proposed green links on the Citywest Road. The LAP also proposes the link to run alongside the existing LUAS lines as indicatively illustrated in Figure 2.14 below. It is an objective of the LAP to *"Achieve an integrated network of safe pedestrian and cycle routes in line with 'A Proposal for Connected Walking and Cycling Routes through the Parks, Open Spaces and Roads of South Dublin County' (2006) by utilising links through and along parks, open spaces and green corridors. (Objective AM8)".*

FIGURE 2.14: Green Infrastructure Framework (Extract of Fig 5.5 Fortunestown LAP)

Road Infrastructure Proposals

Citywest Avenue Extension

2.5.8 The Fortunestown Local Area Plan (2012) included the objective *"AM10"* for the provision of a new Primary Road (Figure 2.15) which will run in an east-west direction from Fortunestown Way to Citywest Road. Objective AM10 states:

> *"That Citywest Avenue (and its extension when constructed) will act as a primary movement corridor that bypasses the District Centre and allows the junction between Fortunestown Way/Lane and Citywest Road to be upgraded to a pedestrian and cyclist friendly junction."*

2.5.9 This section of the Citywest Avenue has been delivered as part of the adjacent permitted development scheme Pl. Ref. ABP 302398.

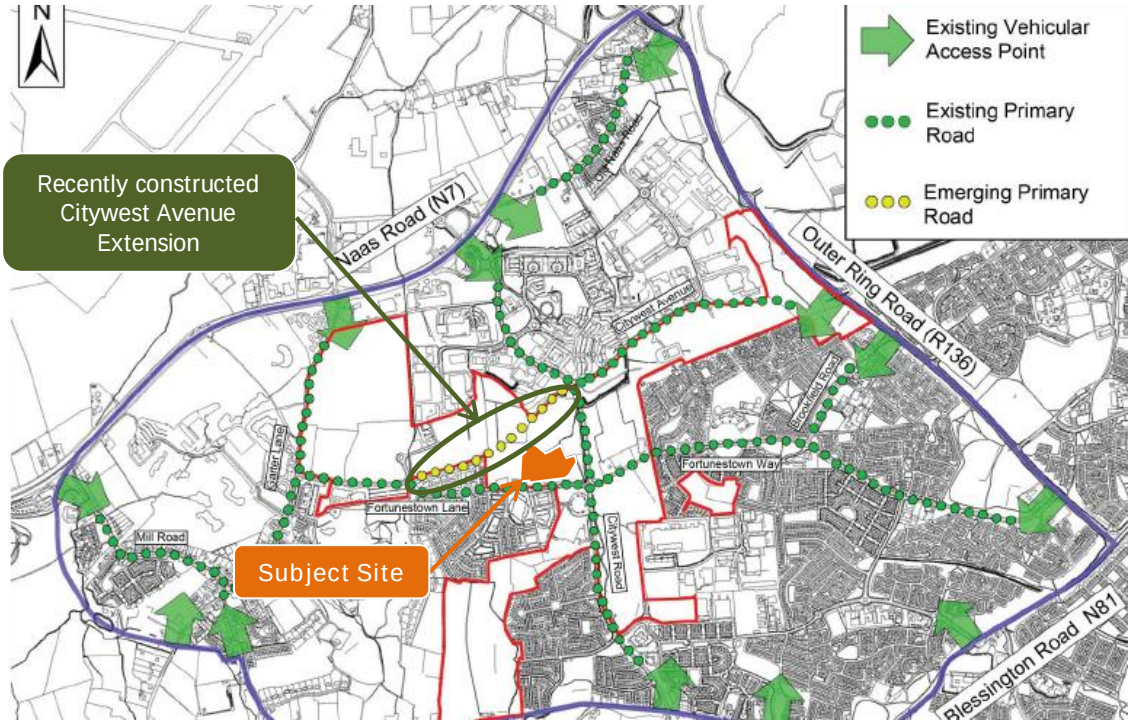


FIGURE 2.15: Proposed Road Infrastructure (Extract of Fig 4.2 Fortunestown LAP)

Public Transport Proposals

2.5.10 BusConnects is an initiative launched by the NTA with the aim of overhauling the bus system in the Dublin Region. This initiative includes review of bus services, the core bus network which comprises radial, orbital and regional core bus corridors. It also includes enhancements to ticketing and fare systems as well as transition to a new low emission vehicle fleet.

2.5.11 This initiative in the proposes to implement a redesign of the existing bus network. The fundamental changes to the network expected would be as follows:

- Increasing the overall amount of bus services. Providing new and frequent orbital services connecting more outer parts of the city together;
- Simplifying the bus services on the key radial into "spines" where all buses will operate under a common letter system and buses will run very frequently and be more evenly spaced;
- Increasing the number of routes where buses will come every 15 minutes or less all day;
- The frequent network would become a web-shaped grid, with many interchange opportunities to reach more destinations. Everywhere that two frequent routes cross, a fast interchange is possible;
- Additional service would be provided at peak hours to limit overcrowding.
- developing a state-of-the-art ticketing system using credit and debit cards or mobile phones to link with payment accounts and making payment much more convenient;
- implementing a cashless payment system to vastly speed up passenger boarding times;
- revamping the fare system to provide a simpler fare structure, allowing seamless movement between different transport services without financial penalty;
- implementing a new bus livery providing a modern look and feel to the new bus system;
- rolling out new bus stops with better signage and information and increasing the provision of additional bus shelters; and
- transitioning to a new bus fleet using low emission vehicle technologies.

2.5.12 The Dublin Area Bus Network Redesign (which has gone through three rounds of public consultation before reaching the now final version) aims *"to provide a network designed around the needs of Dublin today and tomorrow, rather than based on the past".* Figure 2.15 below presents the proposed public transport provision in the vicinity of the subject development site as per the emerging Dublin Area Bus Network Redesign.

2.5.13 As part of the BusConnects proposals, the proposed development will benefit from branch D2 which will operate between Citywest and Clare Hall via City Centre. The route will operate along Citywest Road every 15 minutes on weekdays and 15-20 minutes on weekends.

2.5.14 A new orbital route S8 will provide a link between Citywest Road and Dún Laoghaire via Tallaght and Sandyford. This all-day service will have a frequency of one service every 20 minutes on weekdays (every 15 minutes at peak) and every 30 minutes on weekends. Orbital route W6 is a western orbital operating between Maynooth, Celbridge, Saggart, Citywest, and Tallaght via Celbridge, Saggart and Citywest. The W8 is proposed to operate one service every 30 minutes.

2.5.15 Radial route 58 is proposed to operate every 60 minutes between Rathcoole and Dublin City Centre whilst peak hour express route X58 (existing route 69X) will offer a direct route between Rathcoole and Dublin City Centre.

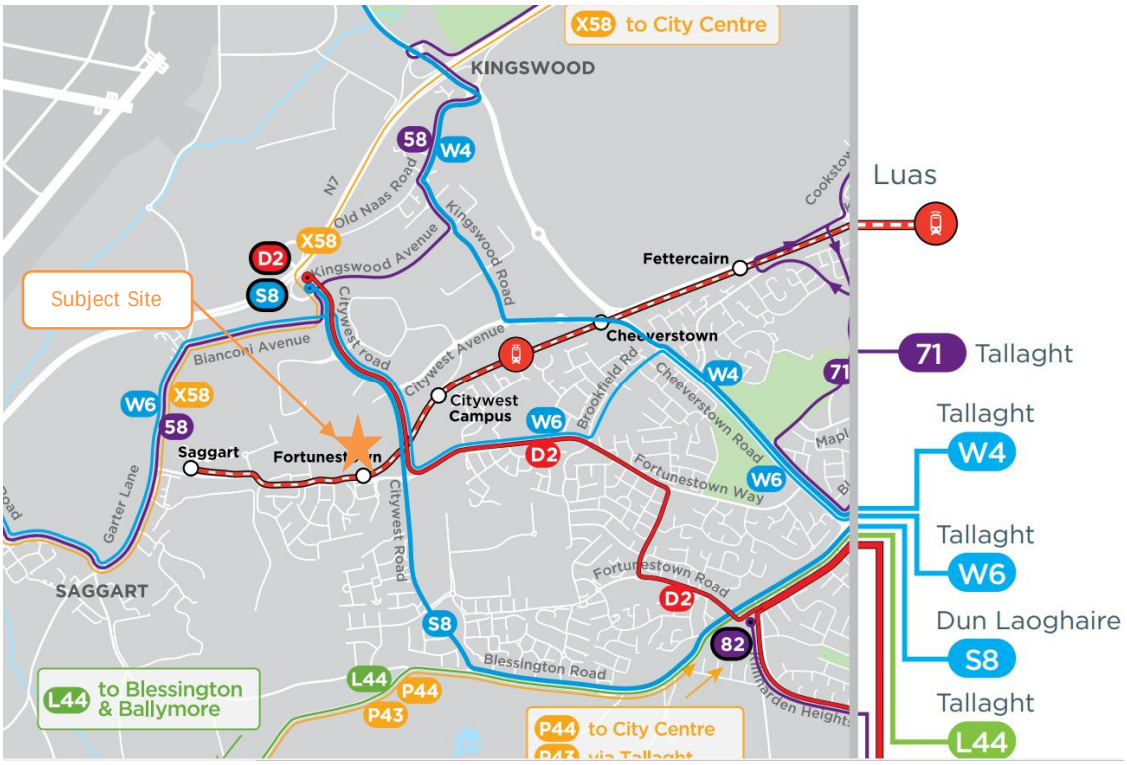


FIGURE 2.15: Dublin Bus Network Redesign (Extract from Map 2 of Bus Connects)

2.6 ROAD SAFETY REVIEW

2.6.1 With the objective of ascertaining the road safety record of the immediate routes leading to/from the subject site, the collision statistics as detailed on the Road Safety Authority's (RSA) website (www.rsa.ie) have been examined. The RSA website includes basic information relating to reported collisions over the most recent twelve-year period, from 2005 to 2016 inclusive.

2.6.2 The RSA database records detail where collision events has been officially recorded such as the when the Garda being present to formally record details of the incident.

2.6.3 Table 2.3 below summarises the RSA Collision Data in the vicinity of the proposed development.

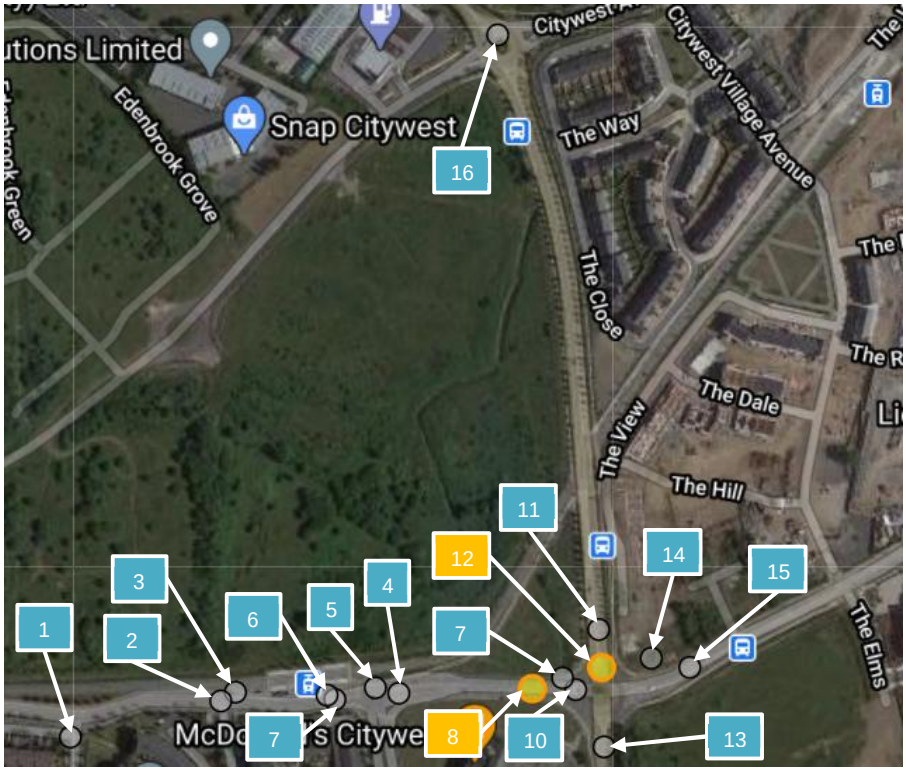


FIGURE 2.16: RSA Collision Data (www.rsa.ie)

Ref	Severity	Year	Vehicle	Circumstances	Day	Time	Casualty
1	Minor	2010	Car	Other	Fri	1600-1900	1
2	Minor	2013	Car	Other	Sun	1000-1600	1
3	Minor	2005	Undefined	Rear end, straight	Thurs	1600-1900	1
4	Minor	2015	Bus	Rear end, straight	Fri	1000-1600	1
5	Minor	2016	Car	Rear end, straight	Wed	0700-1000	1
6	Minor	2005	Car	Other	Sun	1600-1900	1
7	Minor	2007	Motorcycle	Unknown	Sun	1900-2300	1
8	Serious	2008	Car	Single Vehicle Only	Thurs	2300-0300	3
9	Minor	2005	Car	Other	Fri	1600-1900	5
10	Minor	2012	Car	Other	Tue	1900-2300	1
11	Minor	2007	Car	Rear end, right turn	Tue	1600-1900	1
12	Serious	2014	Motorcycle	Unknown	Mon	0700-1000	1
13	Minor	2014	Car	Pedestrian	Wed	1000-1600	1
14	Minor	2009	Car	Pedestrian	Sun	1900-2300	1
15	Minor	2007	Car	Head-on conflict	Sun	1900-2300	1
16	Minor	2016	Bicycle	Other	Fri	1600-1900	1

TABLE 2.3: RSA Collision Data (www.rsa.ie)

2.6.4 The review of the RSA data reveals that the local road network exhibits a good safety record considering the volume of traffic traveling across the local road network. The analysis of the RSA data suggests a small concentration of incidents at the N82 Citywest Road / Fortunestown Lane junction and the Fortunestown Lane / Citywest Shopping Centre roundabout. Nevertheless, with the full implementation of Citywest Avenue will result in less traffic travelling through these junctions which would in turn contribute to improving road safety at this junction. In addition, the recent upgrade of the N82 Citywest Road / Fortunestown Lane junction from roundabout controlled to signal controlled is expected to improve the safety performance of this junction. In summary the review confirms that no significant safety concerns are evident across the local road network.

3.0 POLICY FRAMEWORK

3.1 SOUTH DUBLIN COUNTY DEVELOPMENT PLAN 2016-2022

3.1.1 The South Dublin County Development Plan 2016-2022 sets the broad development framework for the county and the development areas within its administrative boundary. In the context of the subject proposals, the following are the relevant transport and development objectives set out in the plan: -

Housing Policy

"Policy 6 – Sustainable Communities: It is the policy of the Council to support the development of sustainable communities and to ensure that new housing development is carried out in accordance with Government policy in relation to the development of housing and residential communities."

Housing Objective

"H2 Objective 1: To ensure that sufficient zoned land, which could be serviced by sufficient public transport and road capacity, continues to be available at appropriate locations to satisfy the housing requirements of the County and to support and facilitate the development of housing lands based on the Settlement Strategy outlined in Chapter 1 Introduction and Core Strategy."

Transport & Mobility Policies

"Policy 1 – Overarching: It is the policy of the Council to promote the sustainable development of the County through the creation of an integrated transport network that services the needs of communities and businesses."

"Policy 2 – Public Transport: It is the policy of the Council to promote the sustainable development of the County by supporting and guiding national agencies in delivering major improvements to the public transport network and to ensure existing and planned public transport services provide an attractive and convenient alternative to the car."

"Policy 3 – Walking and Cycling: It is the policy of the Council to re-balance movement priorities towards more sustainable modes of transportation by prioritising the development of walking and cycling facilities within a safe and traffic calmed street environment."

"Policy 4 – Strategic Road and Street Network: It is the policy of the Council to improve and expand the County-wide strategic road and street network to support economic development and provide access to new communities and development."

Transport & Mobility Objectives

"TM1 Objective 4: To prioritise new road construction that provides access to new communities and development areas and supports the economic development of the County."

"TM1 Objective 4: To support the delivery of sufficient public transport and road capacity to facilitate sustainable new development in the County."

"TM2 Objective 3: To generate additional demand for public transport services through integrated land use planning and maximising access to existing and planned public transport services throughout the network."

"TM2 Objective 4: To create an interlinked network that maximises the efficiency of existing services, reduces overall journey times and facilitates easy exchanges between modes and/or routes."

"TM3 Objective 2: To ensure that connectivity for pedestrians and cyclists is maximised in new communities and improved within existing areas in order to maximise access to local shops, schools, public transport services and other amenities, while seeking to minimise opportunities for anti-social behaviour and respecting the wishes of local communities."

3.2 FORTUNESTOWN LOCAL AREA PLAN MAY 2012

3.2.1 The subject site lies within the Fortunestown Local Area Plan lands (Figure 3.1) and as such is governed by the specific policies and objectives outlined with the Fortunestown Local Area Plan (2012). In the context of the subject proposals, the following are the relevant transport and development objectives set out in the plan:

Local Area Plan Objective AM1

"That future development will be mainly focused around the four Luas stops, especially the Fortunestown Stop at the District Centre and will create or facilitate direct routes to these stops."

Local Area Plan Objective AM2

"That all planning applications for residential and employment development are required to provide or integrate with direct, safe and attractive pedestrian and cyclist routes to public transport stops."

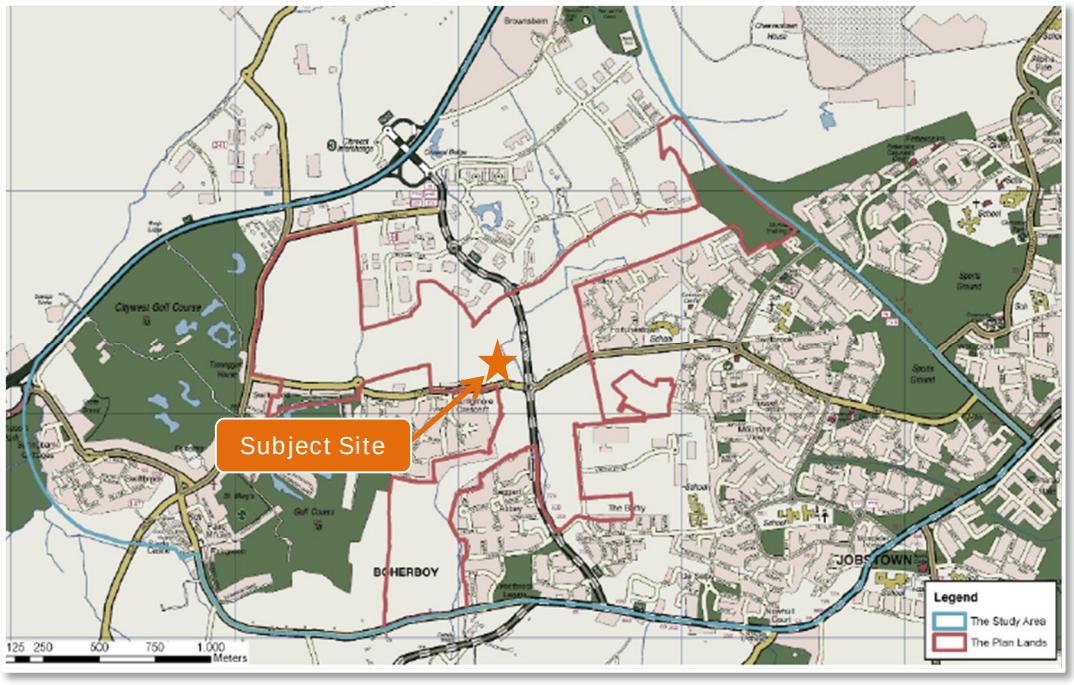


FIGURE 3.1: Fortunestown LAP Area (Extract of Fig 1.1 Fortunestown LAP 2012)

Local Area Plan Objective AM3

"Encourage cycling within and through the Plan Lands by creating an open ended and integrated network of safe and accessible cycle routes that serve primary, secondary and tertiary streets and spaces. Cycle paths that correspond with vehicular routes shall be provided on-street on both sides and shall be separated from pedestrian routes."

Local Area Plan Objective AM6

"That pedestrian routes are provided on both sides of every street and through every public space in a manner that creates direct and indirect links with nodal points, civic uses, public open spaces and with the District Centre."

Local Area Plan Objective AM7

"To create a network of pedestrian routes between destinations including housing, business parks, employment areas and public transport stops and to make walking, cycling and the use of public transport a priority."

Local Area Plan Objective AM9

"To ensure that development within the Plan Lands is based on a grid layout."

Local Area Plan Objective AM12

"That movement corridors within new developments are based on a grid format that avails of every possibility to link into the existing street network and provide efficient connections to existing local facilities. The grid shall align with desire lines and link sites to specific destinations. Footpaths shall be provided on either side of every street and shall be direct, safe, barrier free and overlooked by development."

3.3 DEVELOPMENT CONTROL

Car Parking Standards

3.3.1 In order to determine the appropriate quantum of vehicle parking for the proposed development, reference will be made to the following guidance:-

- Chapter 4 of Sustainable Urban Housing: Design Standards For New Apartments Guidelines For Planning Authorities, as published by the Department of Housing, Planning and Local Government (DHPLG), December 2020; and
- Table 11.23 of the current South Dublin Council County (SDCC) Development Plan (2016-2022).

Department of Housing, Planning and Local Government (DHPLG, December 2020)

3.3.2 The subject site location, adjacent to the Luas Red Line Fortunestown interchange on Fortunestown Lane, can be classified as a 'Central and/or Accessible Urban Location' as it is '*within reasonable walking distance (i.e., up to 10 minutes or 800-1000m) to/from high capacity urban public transport stops (such as Dart or LUAS)'.*

3.3.3 In relation to car parking, within 'Central and/or Accessible Urban Locations', the DHPLG document states:

- *'In larger scale and higher density developments, comprising wholly of apartments in more central locations that are well served by public transport, the default policy is for car parking provision to be minimised, substantially reduced or wholly eliminated in certain circumstances. The policies above would be particularly applicable in highly accessible areas such as in or adjoining*

city cores or at a confluence of public transport systems such rail and bus stations located in close proximity'.

- *These locations are most likely to be in cities, especially in or adjacent to (i.e., within 15 minutes walking distance of) city centres or centrally located employment locations. This includes 10 minutes walking distance of DART, commuter rail or Luas stops or within 5 minutes walking distance of high frequency (min 10 minute peak hour frequency) bus services.'*

3.3.4 As outlined within the DHPLG design standards for new apartments, the subject site can be classified as 'Central and/or Accessible Urban Locations' due to its location, adjacent to the Luas Red Line Fortunestown interchange on Fortunestown Lane. Accordingly, the opportunity is available to consider car parking provision (quantum) below the local development management standard requirements.

South Dublin County Development Plan 2016-2022

3.3.5 The South Dublin County Development Plan 2016-2022 (Section 11.4.2, Table 11.23) states the following in relation to car parking:-

- *'It is the policy of Council to take a balanced approach to the provision of car parking with the aim of meeting the needs of businesses and communities whilst promoting a transition towards more sustainable forms of transportation.'*
- *'Tables 11.23 and 11.24 set out the Maximum Parking rates for non-residential and residential development. Parking rates are divided into two main categories:*
    - *Zone 1: General rate applicable throughout the County.*
    - *Zone 2 (Non Residential): More restrictive rates for application within town and village centres, within 800 metres of a Train or Luas station and within 400 metres of a high quality bus service (including proposed services that have proceeded to construction).*
    - *Zone 2 (Residential): More restrictive rates for application within town and village centres, within 400 metres of a high quality public transport services (includes a train station, Luas station or bus stop with a high quality service)'.*

3.3.6 With regard to the proposed development schedule (residential and non-residential), the associated SDCC *Maximum Zone 2* car parking requirements are outlined in Table 3.1 and Table 3.2 below.

Unit Type		No. of Units	Development Standard		Quantum Permitted/ Required	
			SDCC Zone 2	DHPLG	SDCC Zone 2	DHPLG
Apartment	1-bed	126	0.75 / unit	*"...minimised, substantially reduced or wholly eliminated..."*	95	*"...minimised, substantially reduced or wholly eliminated..."*
	2-bed	249	1 / unit		249	
	3-bed	10	1.25 / unit		13	
Duplex	2-bed	18	1 / unit		18	
	3-bed	18	1.25 / unit		23	
Total Residential Maximum Permitted					398	-

TABLE 3.1: Car Parking Standards - Residential (Maximum)

Land Use	GFA (m^2) / No. of Rooms	SDCC Development Standard (Zone 2)	Permitted/Required
Retail / Commercial (D3)	$285m^2$	1 / $25m^2$	11
Retail / Commercial (E1)	$434m^2$	1 / $25m^2$	17
Office	$376m^2$	1 / $75m^2$	5
Total Non-Residential Maximum Permitted			33

TABLE 3.2: Car Parking Standards – Non-Residential (Maximum)

3.3.7 In response to the above local development management standards, the scheme is permitted to provide up to a maximum of 398 no. on-site car parking spaces within the proposed development for residents and 33 no. car parking spaces for non-residential land use (assumed Zone 2 development due to the subject site's close proximity to Luas services).

Electric Vehicle Parking Standards

3.3.8 Reference has been made to Section 11.4.3 of the South Dublin County Council Development Plan (2016-2022) which outlines the minimum car parking provision required for electric vehicles. Accordingly, the development plan requires that "*all developments shall provide facilities for the charging of battery operated cars at a rate of up to 10% of the total car parking spaces*".

Disabled Parking Standards

3.3.9 The development management standards does not specify a rate of disabled car parking provision however the note within Table 11.23 references Part M of the Building Regulations 2010 (as amended). Accordingly, disabled car parking spaces is required at a rate of 5% of total car parking provision.

Cycle Parking Standards

3.3.10 Reference has been made to the South Dublin County Council Development Plan (2016-2022) which outlines the minimum cycle parking provision sought for new developments within the area governed by SDCC and Section 4.17 of the aforementioned DHPLG requirements. The cycle parking standards applicable to the subject development are detailed in Table 3.2 below whilst Tables 3.3 and 3.4 provide a summary of the subsequent residential and non-residential cycle parking requirements respectively.

Land Use	SDCC Standard		DHPLG Standard	
	Long Stay	Short Stay	Long Stay	Short Stay
Apartment	1/5 apts	1/10 apts	1 / bed	1/2 apts
Duplex	1/5 apts	1/10 apts	1 / bed	1/2 apts
Retail / Commercial	1/5 staff	1/50 sqm		
Office	1/200 staff	1/200 sqm		

TABLE 3.2: Cycle Parking Standards

Block	Number of Units			SDCC Requirement		DHPLG Requirement	
	1 bed	2 bed	3 bed	Long Stay	Short Stay	Long Stay	Short Stay
D1	31	41	-	14	7	113	36
D2	17	39	-	11	6	95	28
D3	16	48	-	13	6	112	32
D4	4	46	10	12	6	126	30
E1	28	42	-	14	7	112	35
E2	30	33	-	13	6	96	32
Duplex	-	18	18	8	4	90	18
Total Residential Cycle Parking				85	42	744	211
				127		955	

TABLE 3.3: Residential Cycle Parking Requirements

Land Use		SDCC Requirement	
		Long Stay	Short Stay
Retail / Commercial (D3)	3 staff / 285 sqm	1	6
Retail / Commercial (E1)	5 staff / 434 sqm	1	9
Office	376 sqm	3	2
Total Non-Residential Cycle Parking		5	17
		22	

TABLE 3.4: Non-Residential Cycle Parking Requirements

4.0 CHARACTERISTICS OF PROPOSALS

4.1 PLANNING HISTORY

4.1.1 The subject development site forms part of an overall site that previously received planning permission (SD16A/0078) in January 2017 for the construction of a mixed-use development comprising 129 residential units that included 6 detached houses, 52 terraced houses, 47 duplex units and 24 apartments as well as shops and crèche on the subject application site. Accordingly, the subject proposals supersede the extant planning application on the subject development lands.

FIGURE 4.1: Indicative Boundaries of Previous Planning Application Sites

4.2 CURRENT PROPOSALS

4.2.1 The subject development proposals seek permission for the construction of 421 no. residential units within 9 no. blocks ranging in height from 1 – 13 storeys, retail/commercial/office units, residential amenity space, and open spaces along with all associated site development works and services provisions to facilitate the development including parking, bin storage, substations, landscaping and all services.

4.2.2 The residential development units comprise 385 apartment units and 36 no. duplex units as summarised in Table 4.1 below. The aforementioned neighbourhood centre facilities are proposed to be located within Blocks D3 and E1.

Block		1 bed	2 bed	3 bed	Total
Apartments	D1	31	41	-	72
	D2	17	39	-	56
	D3	16	48	-	64
	D4	4	46	10	60
	E1	28	42	-	70
	E2	30	33	-	63
Duplex	F1	-	6	6	12
	F2	-	6	6	12
	G	-	6	6	12
Total		126	267	28	421

TABLE 4.1: Cooldown Commons Phase 3 Accommodation Schedule

4.2.3 Further details of the development proposals including the site layout are illustrated in the architects' drawings as submitted with this planning application.

FIGURE 4.2: Proposed Development Site Layout

Vehicle Access

4.2.4 Access to / from the subject site is proposed to be via two locations on Citywest Avenue. Figure 4.3 below (DBFL Roads Layout: 190003-DBFL-RD-SP-DR-C-1001) which illustrates the recently constructed Citywest Avenue signal-controlled junction. The second site access will also be available in the form of an emerging priority-controlled junction constructed to the west as part of the adjoining Cooldown Commons Phase 2 development (Pl. Ref. ABP302398).

4.2.5 A potential third access that could be used by residents in the future will be a new priority junction that will be constructed as part of the permitted development to the northeast of the subject site (Pl. Ref. 16A/0210).

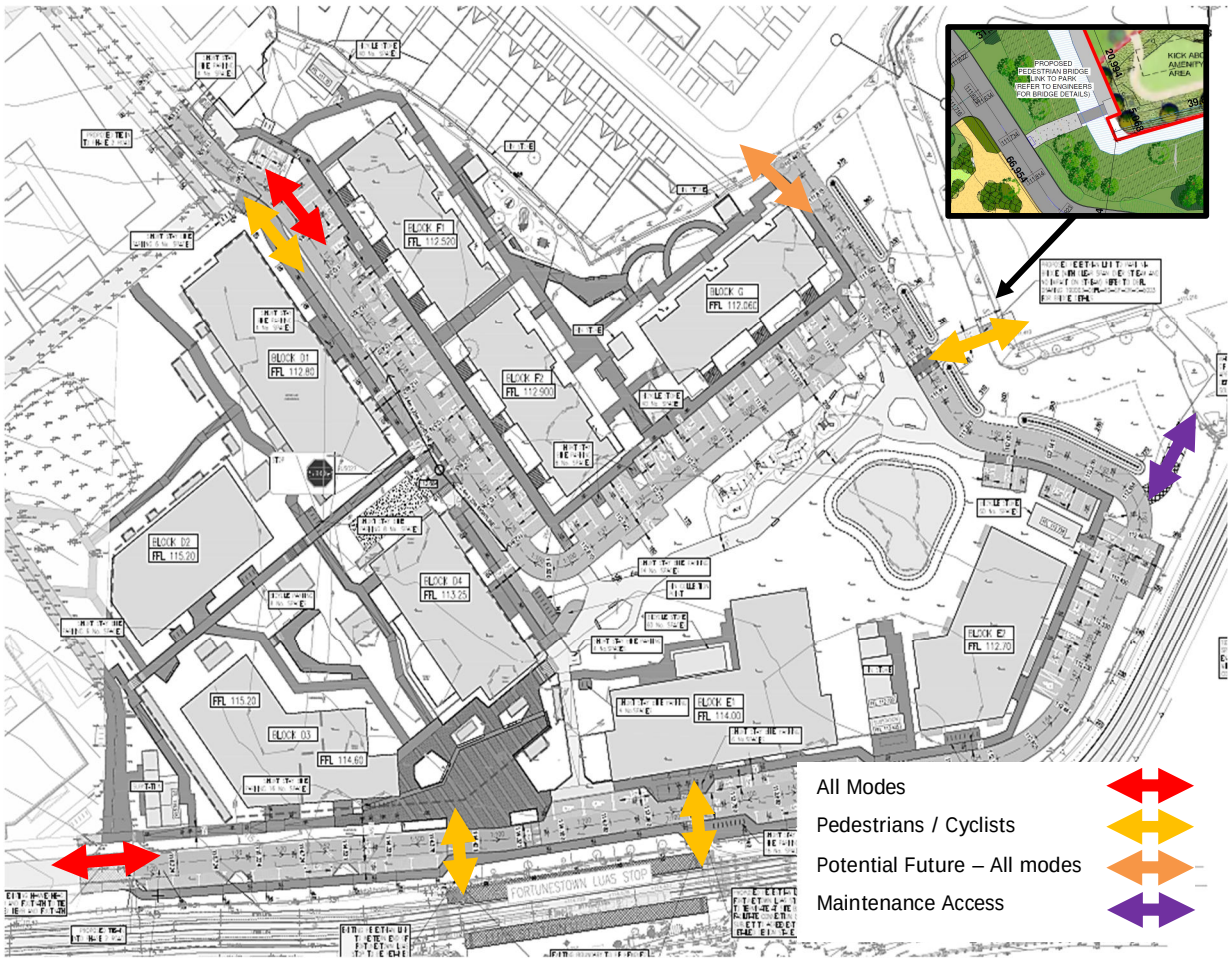


FIGURE 4.3: Site Access Strategy

Pedestrian / Cycle Access

4.2.6 In addition to the aforementioned vehicle access locations which both pedestrians and cyclists will also avail of, a new dedicated non-vehicular access point (in addition to an

emerging non-vehicular connection permitted as part of the adjacent Cooldown Phase 2 development Pl. Ref. ABP302398) is proposed in the south west of the site providing direct access to Fortunestown Lane and the Fortunestown LUAS interchange as presented in Figure 4.4 below. An additional non-vehicular connection is proposed between the subject site and the park to the east via a proposed new bridge across the existing stream (Figure 4.3 above).

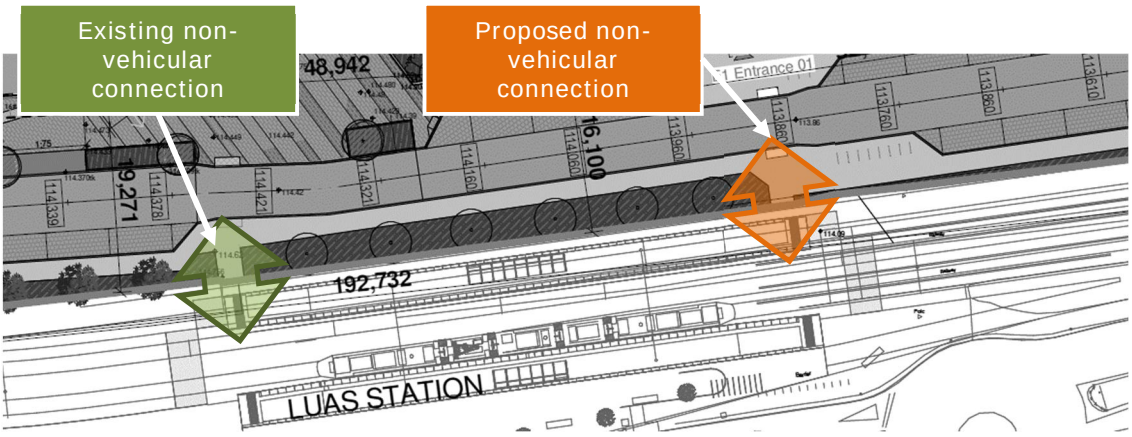


FIGURE 4.4: LUAS Pedestrian Accessibility

Car Parking

Car Parking Provision

4.2.7 Car parking is proposed to be provided at surface and basement level. The emerging proposals incorporate a total of 289 no. car parking spaces comprising 108 no. surface level car parking spaces and 181 no. basement level car parking spaces. A summary of car parking provision is detailed in Table 4.2 below.

Unit Type	SDCC	DHPLG	Proposed	
	Zone 2	Central/Accessible	Surface	Basement
Apartment	357	*"...minimised, substantially reduced or wholly eliminated..."*	38	181
Duplex	41		59[1]	-
Retail (D3)	11		5	-
Non Residential (E1)	22		4	-
Luas Set Down	-		2	-
Total	431	-	289	

1 Inclusive of 1 no. accessible set down car parking space

TABLE 4.2: Proposed Car Parking Provision

4.2.8 The total car parking provision on site has been determined with regard to the proposed development schedule and the associated SDCC and DHPLG car parking requirements. The SDCC County Development Plan car parking standards require a 'maximum'

provision of 398 no. residential car parking spaces (excluding 33 no. non-residential car parking spaces) which is higher than that proposed (278 no. residential spaces proposed). Nevertheless, the DHPLG states that "*planning authorities must consider a reduced overall car parking standard and apply an appropriate maximum car parking standard*" for the apartment / duplex developments at locations described as *'Central and/or Accessible Urban Locations'*.

4.2.9 A total of 219 no. car parking spaces are proposed for the apartment units whilst 59 no. (inclusive of 4 no. visitor spaces and 1 no. accessible set down space) are proposed for the duplex units. This quantum equates to a provision of 0.57 parking spaces per apartment unit and 1.64 spaces per duplex unit. Accordingly, an overall car parking / residential unit ratio of 0.66 spaces per residential unit is proposed.

4.2.10 It is expected that visitor trips to the non-residential units will predominantly originate within the local area and therefore it is not expected that these land uses will generate a demand for car parking as that suggested in the local development management standards for new stand-alone non-residential developments. Nevertheless, a total of 9 no. car parking spaces are proposed for the non-residential units including 5 for the retail unit at Block D3 and 4 no. for the non-residential units proposed at Block E1 which is considered more than enough to accommodate any staff or visitors that must travel by car.

4.2.11 An additional 2 no. car parking spaces have been provided adjacent to the proposed Luas pedestrian access facility to accommodate set down practices.

Residential Car Parking Rationale

4.2.12 The subject scheme proposals include for an overall provision of 278 no. residential car parking spaces of which 97 no. spaces are proposed the surface level and 181 no. within in the basement facility (Ref. Figure 4.5). The proposed 278 no. residential car parking spaces lower than the maximum required within SDCC development plan which requires a maximum of 398 no. residential car parking spaces. Nevertheless, this level of car parking provision is considered appropriate due to the following:-

- High quality Luas services available immediately adjacent to the subject scheme and accordingly, the application of the DHPLG recommended "*reduced overall car parking standard"* is deemed appropriate for a development on the subject site;

- A much higher cycle parking provision is proposed compared to the development plan minimum requirement (as discussed in more detail below) thereby ensuring travel by bicycle to / from the subject development site is a viable mode of travel;
- A car parking management regime will be implemented by the management company. All of the proposed development's on-site car parking facilities whilst accessible via public roads will not be located within public areas (i.e., areas adopted by the local roads authority). Accordingly, the proposed developments on-site car parking spaces, including the basement and surface car parking facilities, will remain within the control of the appointed management company. A management regime will be implemented by the development's management company to control access to these on-site apartment car parking bays thereby actively managing the availability of on-site car parking for residents / visitors and to prevent potential misuse as an informal LUAS Park & Ride. The residents within one of the proposed residential apartments will NOT include the ownership of a designated parking space. Nevertheless, all residents of the proposed residential scheme will have the opportunity to apply to the management company for both a (i) residents car parking permit (updated annually or upon return of same permit) to the management company to gain access to a dedicated (assigned) on-site car parking space or (ii) a visitor's car parking permit (which will be issued electronically and subject to time restrictions). A nominal charge will be applied to obtain a permit with the objective of covering the associated management and enforcement costs. Each permit will enable the resident (or visitor) to park a vehicle within a specific assigned parking bay within the basement or surface level car park for a defined period of time. This management regime will enhance the availability of on-site car parking, ensure that every resident who needs car parking can avail of an on-site car parking space whilst residents that do not own a car are not unnecessarily assigned a car parking space.

4.2.13 In addition, should the demand arise at a future time, 1 no. proposed duplex visitor space could be reassigned in order to accommodate a car share facility. A car share facility has a number of benefits including; i) the reduction of the number of cars on the road and therefore traffic congestion, noise and air pollution; ii) minimised demand for car parking; iii) increased use of public transport, walking and cycling as the need for car ownership is reduced; and iv) Car sharing allows those who cannot afford a car the opportunity to drive, thereby encouraging social inclusivity.

Electric Vehicle Parking

4.2.14 The subject scheme proposals include for the provision of 29 no. electric vehicle car parking spaces. 18 of these are proposed at basement level which accounts for 10% of the car parking provision within the basement. In addition, 10% of surface level car parking spaces (11 no.) will be dedicated to EV vehicles. Ducting will be provided so that electric charger facilities can be easily retrofitted at all car parking spaces at a later date.

FIGURE 4.5: Basement Level Car Parking Provision

Disabled Parking Spaces

4.2.15 The subject scheme proposals include for the provision of 17 no. dedicated disabled car parking spaces (9 no. located at the basement and 8 no. spaces located at surface

level) which accounts for 5% of the overall car parking provision.

Motorcycle Parking

4.2.16 Whilst the development plan does not provide a recommended motorcycle parking provision, the subject development scheme proposes a total of 13 no. motorcycle parking spaces within the basement facility.

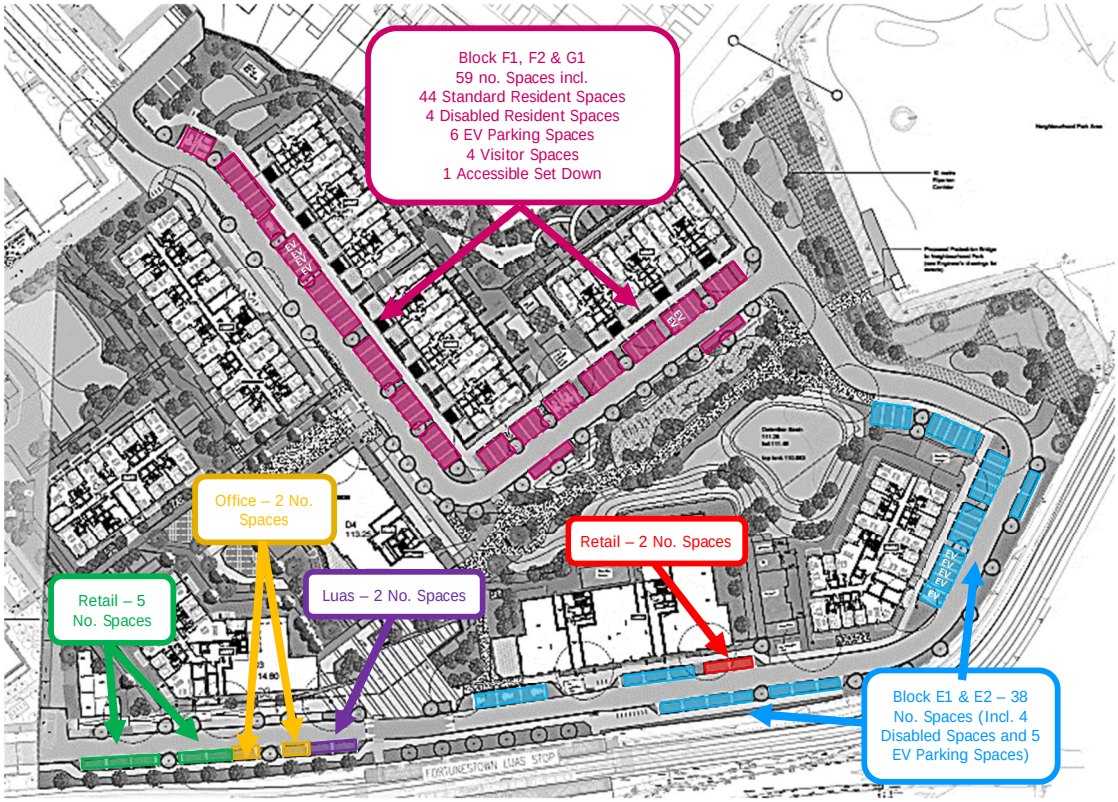


FIGURE 4.6: Surface Level Car Parking Provision

Cycle Parking

4.2.17 A total of 650 no. bicycle parking spaces are proposed as part of the development scheme comprising 330 no. long stay spaces at basement level (Ref. Figure 4.7), 200 no. long stay at surface level and 120 no. short stay spaces at surface level (Ref. Figure 4.8).

4.2.18 Table 4.3 below provides a summary of the proposed cycle parking provision compared to both the SDCC and DHPLG requirements. The proposed provision of 650 no. cycle parking spaces is 501 spaces higher than the SDCC development plan minimum requirement of 149 cycle parking spaces.

4.2.19 The proposed 627 no. apartment / duplex cycle parking (long and short stay residential cycle parking) provision is 500 no. spaces higher than the development plan (394%

higher) and leans towards the DHPLG guidelines (34% lower). Accordingly, the proposed provision of residential cycle parking represents a good compromise between the development plan and DHPLG cycle parking standards.

Block	SDCC Requirement		DHPLG Requirement		Proposed	
	Long Stay	Short Stay	Long Stay	Short Stay	Long Stay	Short Stay
Apartment (D1-D4)	50	25	446	126	328[1]	60
Apartment (E1,E2)	27	13	208	67	116	31
Duplex	8	4	90	18	80	12
Retail / Commercial (D3)	1	6	-		2[1]	6
Retail/Commercial (E1)	1	9	-		1	9
Office	3	2	-		3	2
Total	90	59	744[2]	211[2]	530	120
	149		955[2]		650	

1 Located at basement level
2 Residential cycle parking only

TABLE 4.3: Proposed Bicycle Parking Provision

FIGURE 4.7: Long Stay Bicycle Parking at Basement Level

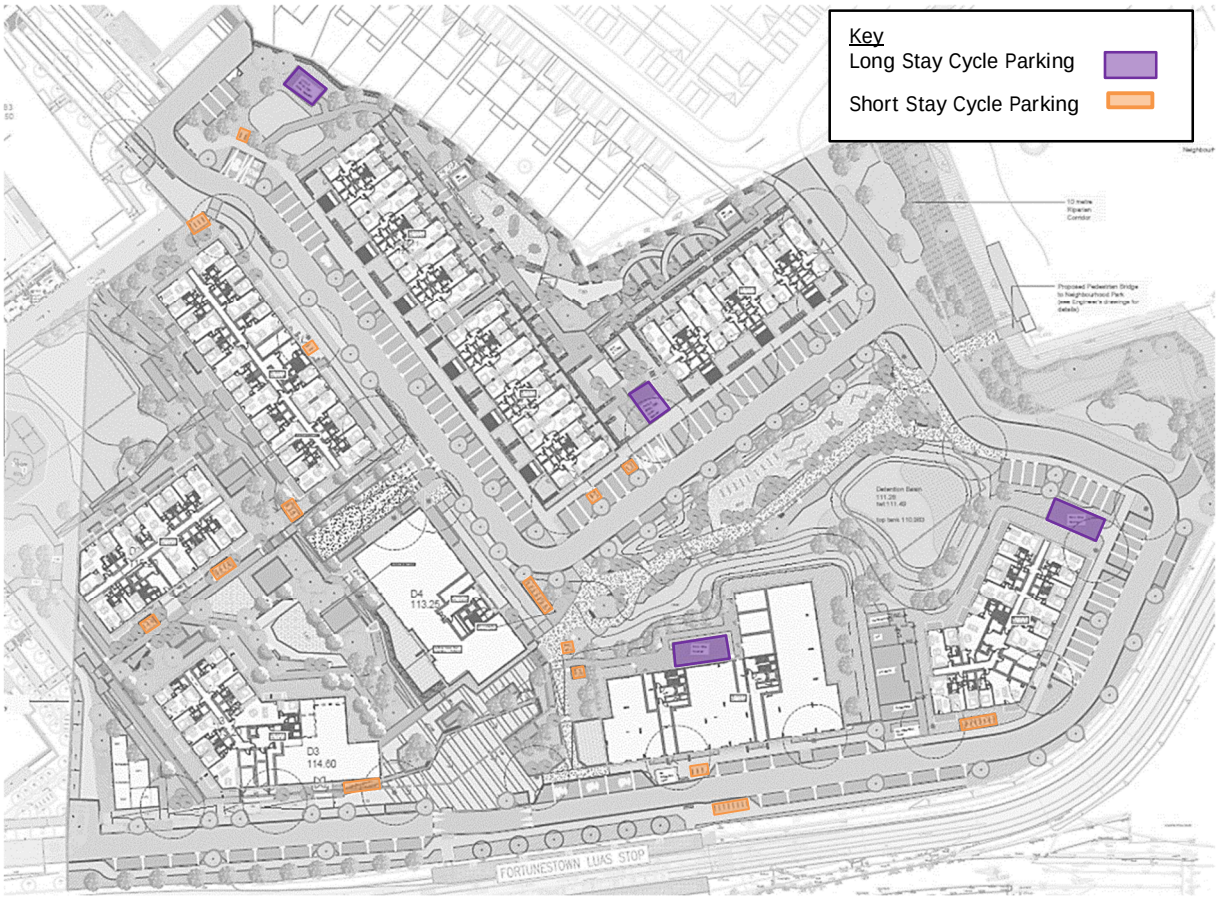


FIGURE 4.8: Long & Short Stay Bicycle Parking at Surface Level

5.0 TRIP GENERATION AND DISTRIBUTION

5.1 CURRENT TRANSPORT MODAL SPLIT

5.1.1 The Central Statistics Office's SAPMAP (Small Areas Population Map) data has been investigated to determine the travel trends within the local vicinity of the subject residential development.

5.1.2 A number of residential developments close to the subject site were analysed to establish current commuter trends in the area of Citywest/ Saggart. This analysis will form the basis of the initial travel characteristics that could be generated by the proposed residential development.

5.1.3 Figure 5.1 below illustrates the areas selected for this analysis. These residential sites were selected due to their proximity to the subject site and as such best represents the development's future travel trends.

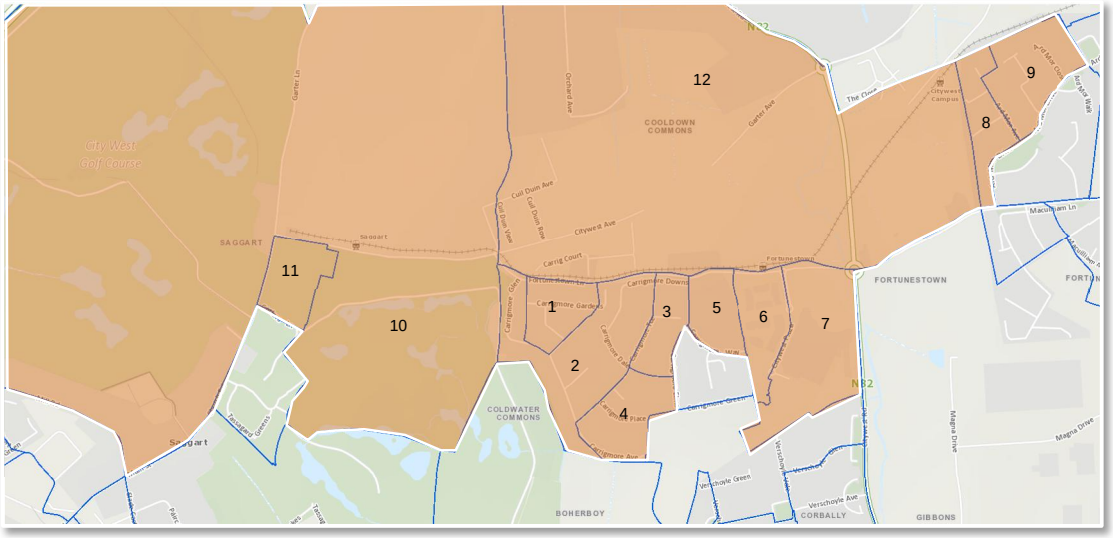


FIGURE 5.1: Residential Areas of Interest for Trend Analysis
(Source : http://census.cso.ie/sapmap/)

5.1.4 The local residential areas analysed include the following:

1) Carrigmore Gardens
2) Carrigmore Glen, Carrigmore Avenue, Carrigmore Dale
3) Carrigmore Manor, Carrigmore Place, Carrigmore Grove
4) Carrigmore Downs Houses
5) Carrigmore Crescent
6) Fortunes Walk, Fortunes Lawn
7) Citywest Shopping Centre

8) Ard More Dale, Ard Mor Lawn
9) Ard Mor Park
10) Bionconi Ave, Citywest Golfing Apartments
11) Tasagard Greens
12) Cooldown Commons

5.1.5 The analysis highlighted the trend in modes used by the residents when travelling to work and school / College from their homes. The summary of the 2016 data for the aforementioned 12 selected sites have been summarised and illustrated in Figure 5.2 below.

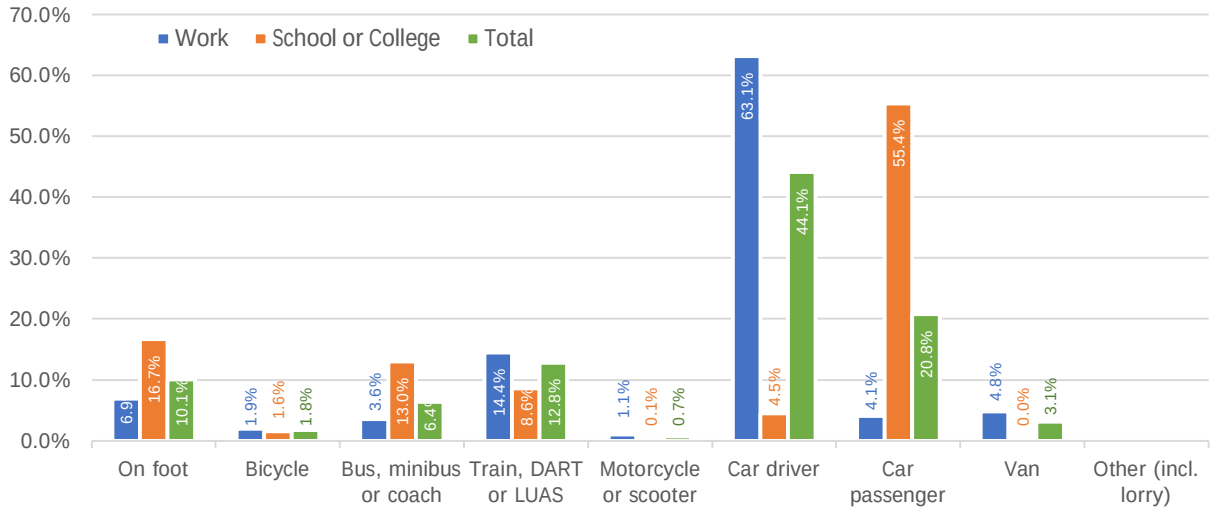


FIGURE 5.2: 2016 Modal Split for Existing Residential Developments (Citywest/Saggart)

5.1.6 The above graph indicates that the car is the primary mode of transportation in the study area with 67.2% and 59.9% travelling as either car driver or car passenger to work and school / college respectively in 2016.

5.1.7 18% of residents of the adopted study area use public transport (3.6% by bus, 14.4% by LUAS) as a mode of transport to travel to work whilst 21.6% (13% by bus, 8.6% by LUAS) of residents travelling for educational purposes do so using public transport.

5.1.8 The analysis reveals that 8.8% work trips are undertaken using active modes of travel whilst active travel trips to school / college account for a 18.1% mode share.

5.1.9 Table 5.1 below presents the shift in mode of travel within the adopted study area between the 2011 and 2016 census years (before and after the LUAS availability). This shows a reduction of 11.1% travelling by car to work / school / college in 2016 compared to the 2011 census data.

5.1.10 Rail based travel increased by approximately 11% from 2011 to 2016 whilst travel by bus reduced by approximately 3.6%.

5.1.11 Active travel modes remained relatively constant between the two census years with an increase of 0.4% cycling to work / school / college and an increase of 2.9% walking to work / school college.

Mode of Travel	2016	2011	Difference
Car / Van	47.2%	58.3%	- 11.1%
Car Passenger	20.8%	18.9%	+ 1.9%
LUAS/ DART/ Train	12.8%	2.1%	+ 10.7%
On Foot	10.1%	7.2%	+ 2.9%
Bus	6.4%	10.0%	- 3.6%
Bicycle	1.8%	1.4%	+ 0.4%
Motorcycle	0.7%	0.9%	- 0.2%
Other	0.2%	1.2	- 1.0%

TABLE 5.1: Modal Split Comparison 2011 vs 2016

5.2 TRAFFIC SURVEYS

5.2.1 In order to establish the existing up to date local road networks traffic characteristics and subsequently enable the identification of the potential impact of the proposed residential development, a traffic surveys were commissioned and undertaken by an independent specialist survey firm Tracsis Ltd over two number three-hour survey periods from 07:00 to 10:00 in the AM and again from 16:00 to 19:00 in the PM period on Tuesday 11th February 2020 at the following six junctions:

- Junction 1 – Citywest Avenue / Fortunestown Lane signalised junction;
- Junction 2 – N82 Citywest Road/ Citywest Avenue 4-arm roundabout junction;
- Junction 3 – Fortunestown Lane / N82 Citywest Road/ Citywest Drive 4-arm signal controlled junction;
- Junction 4 – Fortunestown Lane / Garter Lane signal controlled junction;
- Junction 5 – N82 Citywest Road/ Bianconi Avenue 3-arm priority controlled junction
- Junction 6 – Citywest Avenue / Pl. Ref. ABP302398 permitted emerging development signal controlled junction

5.2.2 The analysis of the survey results established that the local weekday AM and PM peak hours currently occur between 08:15 – 09:15 and 16:30 – 17:30 respectively.

5.2.3 In order to analyse and assess the predicted traffic generation from the proposed residential development upon the local road network, an area wide traffic model incorporating these local junctions have been created by DBFL.

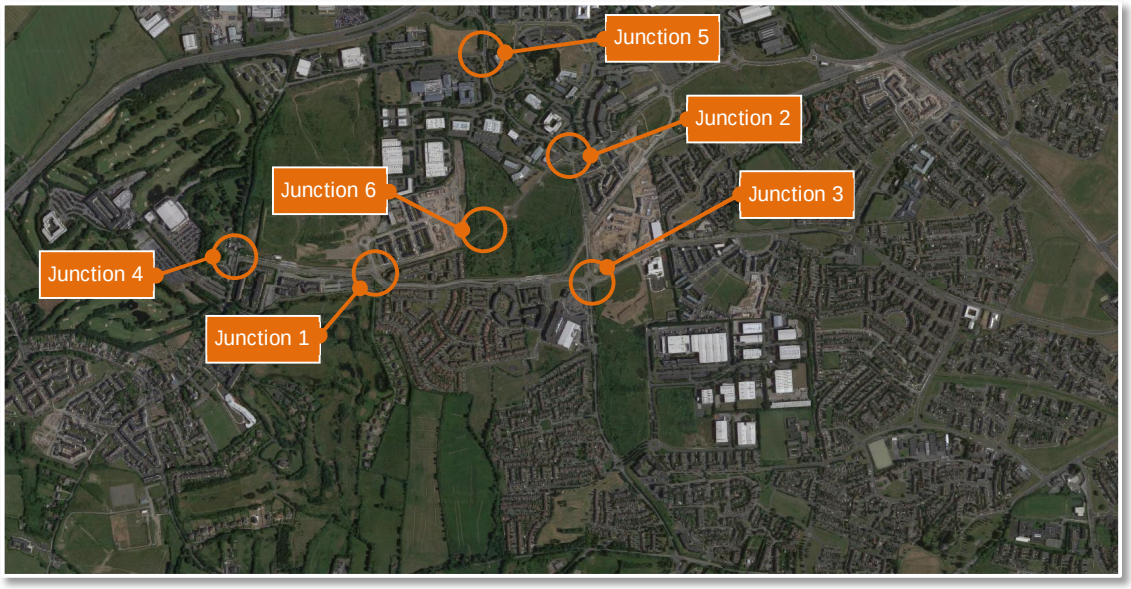


FIGURE 5.3: Junctions Surveyed

5.2.4 The 2019 peak hour weekday traffic flows are presented in Figure 1 as included within Appendix B.

5.3 TRIP GENERATION

5.3.1 Due to the subject site's convenient location and its high levels of accessibility to LUAS services, a review of trip generation rates at comparable located residential sites which exhibit comparable accessibility opportunities was undertaken in order to determine the most realistic trip generation levels for the proposed development. Following an analysis of existing residential developments which are located in close proximity to Luas lines, the following sites have been adopted by DBFL as representing appropriate 'donor' sites in terms of trip generation characteristics. As such the selected sites are as follows:-

- Elmfield Residential Development (153 no. apartments) is conveniently located within 170m walking distance from the Gallops Luas interchange; and

- Tullyvale Residential Development (400 no. apartments) is conveniently located within 220m walking distance from the Cherrywood Luas interchange.

5.3.2 In order to determine the potential trip generation for the subject development site, the average trip rates for the two 'donor' sites has been used.

5.3.3 Based on the trip rates calculated from the adopted donor sites (Table 5.2), potential peak hour traffic generation is calculated on a development of 418 no. apartments.

Residential Development	AM Peak Hour			PM Peak Hour		
	Arr	Dep	2-Way	Arr	Dep	2-Way
Elmfield (153 no. apartments)	0.040	0.283	0.323	0.198	0.131	0.329
Tullyvale (400 no. apartments)	0.067	0.241	0.308	0.107	0.092	0.199
Average Trip Rate	0.054	0.262	0.315	0.152	0.111	0.264

TABLE 5.2: Donor Site & Proposed Residential Development Vehicle Trip Rates

5.3.4 In order to estimate the potential non-residential trip rates, a review of trip generation factors contained within the TRICS database was carried out. The TRICS derived non-residential vehicle trips assume that all trips generated by the non-residential land uses will be new external vehicle trips. Notwithstanding the above, it is predicted that the non-residential land uses will predominantly serve the proposed new residential units and the existing residential units in the vicinity of the subject development site. Accordingly, the non-residential TRICS predicted vehicle trips have been discounted to take this into account. Table 5.3 below presents the predicted non-residential vehicle trip rates incorporated in the subject assessment.

Land Use	AM Peak Hour			PM Peak Hour		
	Arr	Dep	2-Way	Arr	Dep	2-Way
Retail	3.874	3.503	7.377	5.614	5.985	11.599
Discounted Retail	2.324	2.102	4.426	3.368	3.591	6.959
Office	1.790	0.505	2.294	0.165	1.771	1.936
Discounted Office	1.074	0.303	1.376	0.099	1.063	1.162

TABLE 5.3: TRICS derived Non-Residential Trip Rates

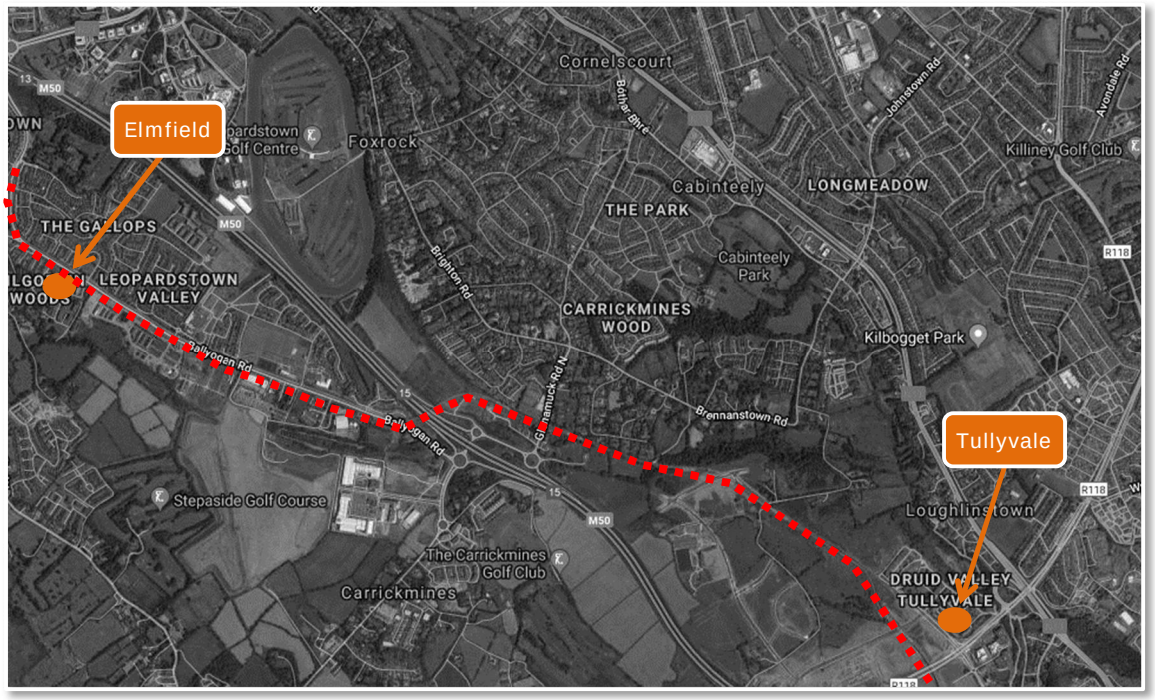


FIGURE 5.4 : Location of Adopted Apartment Donor Sites

Person Trips

5.3.5 Based on the mode share proportions derived from the Census 2016 data in Section 5.1 above, the total person trips can be estimated. As introduced above, the vehicle trip rates have been predicted using the TRICS database.

5.3.6 It has been assumed that the predicted vehicle trips generated by the subject residential development correspond to the proportion of vehicle trips derived within the Census mode share data. Table 5.4 below presents the predicted person trips generated by the subject residential development during the AM and PM peak hours.

Mode of Travel	Mode Share (%)	AM Peak Hour		PM Peak Hour	
		Arr	Dep	Arr	Dep
On Foot	10.10%	7	26	17	14
Bicycle	1.8%	1	5	3	2
Bus, minibus or coach	6.4%	5	16	11	9
Train, DART or LUAS	12.8%	9	32	22	18
Motorcycle or scooter	0.7%	1	2	1	1
Car / Van driver	47.2%	34	119	81	65
Car passenger	20.8%	15	53	36	29
Other	0.2%	0	1	0	0
Total Person Trips		72	253	172	138

TABLE 5.4: Proposed Development Predicted Person Trips

Vehicle Trip Generation

5.3.7 For the purpose of this assessment and utilising typical construction rates it has been assumed that the 36 no. duplex apartments and apartment / non-residential units within Blocks E1 & E2 (133 apartments) could be complete and occupied by the end of the adopted 2022 Opening Year, whilst the remaining 252 apartments and Block D3 retail unit could be constructed sometime before the adopted 2027 Future Design Year.

5.3.8 Based on the above trip rates (Table 5.1 & 5.2), potential peak hour vehicle traffic flow has been calculated based on the total development quantities. Table 5.5 summarises the predicted AM and PM peak hour traffic generated by the proposed development.

Year	AM Peak Hour			PM Peak Hour		
	Arr	Dep	2-way	Arr	Dep	2-way
2022 Opening Year	11	38	49	27	22	49
2027 Future Design Year	34	119	153	81	65	146
2037 Future Design Year	34	119	153	81	65	146

TABLE 5.5: Proposed Development Trips Per Design Year

5.4 COMMITTED DEVELOPMENT

5.4.1 With the objective of providing a robust appraisal we have included third party committed developments that have the potential to generate additional vehicle movements across the local road network above that have been established by the commissioned traffic surveys.

5.4.2 A total of nine number third party committed developments have been identified, which being located in close proximity to the proposed residential development, may generate an impact upon the local road networks existing traffic characteristics. These committed developments, as introduced below comprise different development land uses including residential and commercial.

- Site 1 – Residential Development (Planning Ref: SD15A/0095) – 224 no. dwellings
- Site 2 – Residential Development (Planning Ref: SD16A/0210) – 112 no. dwellings
- Site 3 – Residential Development (Planning Ref: SD15A/0127) – 400 no. dwellings

- Site 4 – Office Development (Planning Ref: SD16A/0420) – 4 storey office building of 13,250m^2
- Site 5 – Residential Development (Planning Ref: SHD3ABP-302398-18 / ABP302398) – 459 no. dwellings
- Site 6 – Residential Development (Planning Ref: ABP-300555-18) – 526 no. dwellings
- Site 7 – Residential Development (Planning Ref: SD18A/0014) – 78 no. dwellings
- Site 8 – Mixed Use Development (Planning Ref: ABP-305556-19) – 290 apartment units and associated residential amenity facilities, a childcare facility, 4 retail units and 2 café/restaurant units
- Site 9 – Residential Development (Planning Ref: SHD3ABP-305563-19) – 488 no. dwellings.

FIGURE 5.5: Committed Development Locations

Committed Development Trip Generation

5.4.3 In order to establish the potential quantum of vehicle traffic generated by the nine no. third party development trips, the South Dublin County Council's online planning system has been referenced and each third-party scheme's corresponding TTA report was obtained and reviewed. The vehicle trips derived from this exercise have been incorporated as committed development within the Excel based network traffic

assignment model developed by DBFL for the subject development proposals.

5.4.4 At the time the traffic surveys were undertaken, an audit of the construction progress of each of the committed development schemes was undertaken. A "percentage complete" value was assigned to each committed development and the total flows predicted to be generated by each scheme has been discounted accordingly.

5.5 TRIP DISTRIBUTION & ASSIGNMENT

5.5.1 The distribution of proposed development traffic as proposed by DBFL is presented in Figure 6 as included in Appendix B of this report. The subject development trips have been distributed to the surrounding road network based on the existing observed traffic movements.

5.6 TRAFFIC GROWTH

5.6.1 In reference to the County Development Plans land use zoning maps (No. 8) the proposed residential development site in parallel with the neighbouring nine number committed developments (Section 5.4) cover the vast majority (if not all) of the available development lands across the Garter Lane / Fortunestown Lane area. Accordingly, in the absence of any other local development of a material scale in the future (up to the adopted 2037 Design Year) the identification of the most appropriate network growth rate seeks to predict exclusively the potential for any increase in 'through' traffic numbers and not local traffic volumes. In this situation, we believe the application of a TII derived 'central' growth rates are more than sufficient to consider the potential for any increase in non-local 'through' traffic.

5.6.2 The TTA adopts an Opening Design year of 2022 and Future Design Years of 2027 (Opening Year +5 years) and 2037 (Opening Year + 15 years) as per TII guidelines. Although traffic growth may not increase at the rates once predicted, to ensure a robust analysis of the impact of traffic upon the local road network we have adopted growth rates using the Transport Infrastructure Ireland (TII) traffic projections. Table 6.1 (Unit 5.3 – Travel Demand Projections) within the TII Project Appraisal Guidelines provides Annual Growth Factors for the different regions within Ireland. The subject site lies within 'Dublin Metropolitan Area' with the growth factors as outlined within Table 5.6 below.

Metropolitan Area	Low Sensitivity Growth				Central Growth				High Sensitivity Growth			
	2016-2030		2030-2040		2016-2030		2030-2040		2016-2030		2030-2040	
	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV
Dublin	1.0146	1.0280	1.0034	1.0116	1.0162	1.0295	1.0051	1.0136	1.0191	1.0328	1.0087	1.0172

TABLE 5.6: National Traffic Growth Forecasts: Annual Growth Factors (Extract from Table 6.1 PAG)

5.6.1 Applying the annual factors as outlined in Table 5.6 above for the adopted Opening Year of 2022 and Future Design Years of 2027 (Opening Year +5 years) and 2037 (Opening Year +15 years), the following growth rates have been adopted to establish corresponding 2022, 2027 and 2037 baseline network flows.

	2020 to 2022	2020 to 2027	2020 to 2037
Central Growth	1.0327	1.1191	1.2036
	3.27%	11.91%	20.36%

TABLE 5.7: Growth Rates

5.6.2 It is noted that the TII Project Appraisal Guidelines states that *"the central growth rates are intended for use in project appraisal with the low and high growth rates to be used as sensitivity tests for economic and environmental impacts."*

5.7 ASSESSMENT SCOPE

Assessment Scenarios

5.7.1 Two different traffic scenarios have been assessed, namely (a) the 'Base' (Do-Nothing) traffic characteristics and (b) the 'Post Development' (Do-Something) traffic characteristics.

5.7.2 The 'Base' traffic scenario takes into account the potential level of traffic that could be generated by the 'committed development' in addition to the existing flows (with TII growth rates applied) travelling across the network.

5.7.3 The proposed development traffic flows are then added to the network's 'Do Nothing' (Base + Committed Development) traffic flows to establish the new 'Post Development' traffic flows.

5.7.4 In summary the following scenarios are considered: -

Do Nothing

- A1 – 2022 Base Flows + Committed Developments
- A2 – 2027 Base Flows + Committed Developments
- A3 – 2037 Base Flows + Committed Developments

Do Something

- B1 – 2022 Do Nothing (A1) + Proposed Development Flows
- B2 – 2027 Do Nothing (A2) + Proposed Development Flows
- B3 – 2037 Do Nothing (A2) + Proposed Development Flows

Assessment Period

5.7.5 The AM and PM peak hour flows have been identified as occurring between 08:15 - 09:15 and 16:30 – 17:30 respectively. These peak hour periods form the basis of the 2022, 2027 and 2037 network assessments.

Network Vehicle Flows

5.7.6 The following figures as included in Appendix B present the vehicle flows across the local road network for each of the adopted development scenarios: -

- Figure 25 – 2022 Do Nothing
- Figure 28 – 2022 Do Something
- Figure 26 – 2027 Do Nothing
- Figure 29 – 2027 Do Something
- Figure 27 – 2037 Do Nothing
- Figure 30 – 2037 Do Something

5.8 NETWORK IMPACT

5.8.1 The Institution of Highways and Transportation document 'Guidelines for Traffic Impact Assessments' states that the impact of a proposed development upon the local road network is considered material when the level of traffic it generates surpasses 10% and 5% on normal and congested networks respectively. When such levels of impact are generated a more detailed assessment should be undertaken to ascertain the specific impact upon the network's operational performance. These same thresholds are reproduced in the NRA (now TII) document entitled *Traffic and Transport Assessment Guidelines* (2014).

5.8.2 In accordance with the IHT and TII guidelines we have undertaken an assessment to establish the potential level of impact upon the key junctions of the local road network. To enable this calculation to be undertaken we have based the analysis upon the 2022 Opening Year and the 2027 and 2037 Future Design Year scenarios.

5.8.3 The analysis has demonstrated that the proposals will generate a subthreshold impact upon all off-site junctions during the AM and PM peak hours during all adopted design years. The impact at the main site access constructed as part of the adjacent Cppldown Commons Phase 2 scheme is considered material as in the Future Design Year, with the entire development in place, an impact of greater than 10% is predicted.

5.8.4 Table 5.8 below details the specific scale of network impact predicted at each of the key local junctions during the 2022, 2027 and 2037 design years.

Ref.	Junction	Design Year	AM Peak Hour	PM Peak Hour
1	Cúil Dúin View / Citywest Avenue / Fortunestown Lane signal controlled Junction	2022	1.20%	1.69%
		2027	3.45%	4.79%
		2037	3.26%	4.56%
2	Citywest Avenue / Citywest Road / Citywest Avenue roundabout Junction	2022	1.39%	1.39%
		2027	4.09%	4.05%
		2037	3.85%	3.81%
3	Citywest Road (N) / Fortunestown Lane (E) roundabout Junction	2022	0.50%	0.45%
		2027	1.49%	1.32%
		2037	1.39%	1.23%
4	Garters Lane / Fortunestown Lane signalised Junction	2022	0.61%	0.92%
		2027	1.82%	2.76%
		2037	1.70%	2.59%
5	Citywest Road / Bianconi Avenue priority controlled Junction	2022	0.24%	0.51%
		2027	0.71%	1.50%
		2037	0.66%	1.41%
6	Citywest Avenue / Edenbrook Green / Cooldown Commons Phase 3	2022	7.79%	9.46%
		2027	20.93%	24.77%
		2037	20.18%	24.08%

TABLE 5.8: Proposed Developments Network Impact

5.8.5 In Table 5.9 (AM Peak Hour) and Table 5.10 (PM Peak Hour) the predicted impacts have been categorised for the 2037 Future Design Year. During the AM peak hour, with the exception of Junction 6, the subthreshold impacts range from *Not Significant* to *Imperceptible*, whilst impacts at Junction 6 are classified as *Very Significant*.

	Junction - Nature of Impact (Additional Vehicular Traffic on key Junctions)	Impact Scale	Impact Significance
1	Cúil Dúin View / Citywest Avenue / Fortunestown Lane signal controlled junction	3.26%	Not Significant
2	Citywest Avenue / Citywest Road / Citywest Avenue roundabout Junction	3.85%	Not Significant
3	N82 Citywest Rd/ Bianconi Avenue	1.39%	Not Significant
4	Garters Lane / Fortunestown Lane	1.70%	Not Significant
5	N82 Citywest Rd/ Fortunestown Lane	0.66%	Imperceptible
6	Citywest Avenue / Edenbrook Green / Cooldown Commons Phase 3	20.18%	Very Significant

TABLE 5.9: Network Impact Categorisation 2037 AM Peak Hour

5.8.6 Similar to the AM peak hour, during the PM peak hour, with the exception of Junction 6, the subthreshold impacts categorised as *Not Significant*, whilst impacts at junction 6 are classified as *Very Significant*.

	Junction	Impact Scale	Impact Significance
1	Cúil Dúin View / Citywest Avenue / Fortunestown Lane signal controlled junction	4.56%	Not Significant
2	Citywest Avenue / Citywest Road / Citywest Avenue roundabout Junction	3.81%	Not Significant
3	N82 Citywest Rd/ Bianconi Avenue	1.23%	Not Significant
4	Garters Lane / Fortunestown Lane	2.59%	Not Significant
5	N82 Citywest Rd/ Fortunestown Lane	1.41%	Not Significant
6	Citywest Avenue / Edenbrook Green / Cooldown Commons Phase 3	24.08%	Very Significant

TABLE 5.10: Network Impact Categorisation 2037 PM Peak Hours

5.8.7 Figure 5.6 below details the total amount of two-way vehicle trips that will pass through the key off-site junctions in the 2037 Future Design Year and the resulting percentage increase in traffic flows as a result of the traffic generated by the proposed development.

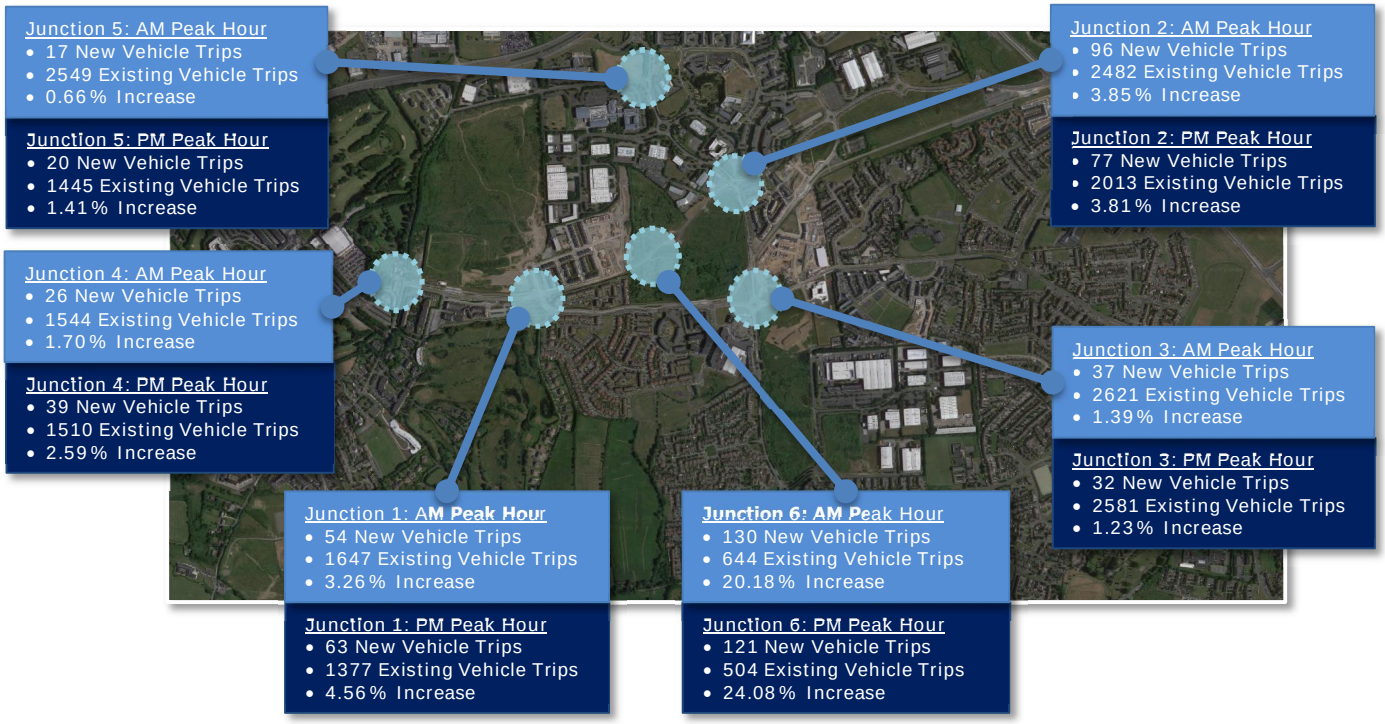


FIGURE 5.6: Increase in Vehicle Trips Generated Through Key Of-Site Junctions (2037)

5.8.8 Based on the predicted network impact discussed above, the following 2 no. junctions have been subject to more detailed assessment;

- Junction 1: Cúil Dúin View / Citywest Avenue / Fortunestown Lane signal controlled junction; and
- Junction 6: The main site access for the proposed Cooldown Commons Phase 3 (Garter Avenue / Citywest Avenue / Edenbrook Green junction).

5.8.9 In addition, as introduced previously, the subject development site will be also accessible by an additional future priority junction on Citywest Avenue located to the west of the main signal controlled site access. Accordingly, this priority controlled junction has also been subject to detailed assessment.

5.9 MITIGATION STRATEGY

5.9.1 A package of integrated mitigation measures has been identified to off-set the additional local demand that the proposed residential development on the subject zoned lands could potentially generate as a result of the forecast increase in vehicle movements by residents of the scheme. The strategy includes specific measures for both the construction and operational stages of the proposed development.

Construction Stage

5.9.2 The Construction Environmental Management Plan (an outline CEMP accompanies the application) and the associated Construction Traffic Management Plan (CTMP) in addition to the applications accompanying Construction and Waste Management Plan will incorporate a range of integrated control measures and associated management initiatives with the objective of mitigating the impact of the proposed developments on-site construction activities.

Operational Stage

5.9.3 With the objective of mitigating the potential impact of the proposed development as predicted in Section 5.9 above during its operational stage, the following initiatives and associated timescale for their implementation have been identified and subsequently form an integral part of the subject development proposals.

- Management – A Mobility Management (MMP) is to be compiled with the aim of guiding the delivery and management of coordinated initiatives by the scheme promotor. The MMP ultimately seeks to encourage sustainable travel practices for all journeys to and from the proposed development.
- Car Share - The proposed apartment car parking provision, is lower than the development plans maximum standards. This reduction is due to developments' close proximity to the Fortunestown Luas Stop; the proposed high cycle parking provision and the DHPLG's guidelines for apartment developments which states; "*planning authorities must consider a reduced overall car parking standard and apply an appropriate maximum car parking standard*". Due to these factors, should the demand arise at a future time, 1 no. proposed duplex visitor space could be reassigned in order to accommodate a car share facility.
- Cycle parking provision - A total of 650 no. bicycle parking spaces are proposed as part of the development scheme comprising 330 no. long stay spaces at basement level, 200 no. long stay at surface level and 120 no. short stay spaces at surface level. The proposals are 501 cycle parking spaces higher than the SDCC' development plan minimum requirement of 149 cycle parking spaces and represents a good compromise between the development plan requirements and the DHPLG requirements (955 residential cycle parking spaces).

6.0 NETWORK ANALYSIS

6.1 INTRODUCTION

6.1.1 The operational assessment of the local road network has been undertaken using the Transport Research Laboratory (TRL) computer package Junctions 9.0 (PICADY) for priority controlled junctions and TRANSYT for signal controlled junctions.

6.1.2 When considering a priority controlled junction, a Ratio of Flow to Capacity (RFC) of greater than 0.85 would indicate a junction to be approaching capacity, as operation above this RFC value is poor and deteriorates quickly whilst when considering a signalised junction, a Degree of Saturation (DoS) of greater than 90% would indicate a junction to be approaching capacity.

6.1.3 For the TRANSYT analysis, a 60-minute AM and PM peak period has been simulated between 08:15 to 09:15 and 16:30 to 17:30. For the PICADY analysis, a 90-minute AM and PM peak period has been simulated between 08:00 to 09:30 and 16:15 to 17:45. Traffic flows have been entered using an Origin-Destination table for the peak hours.

6.1.4 In order to analyse and assess the impact of the proposed development on the surrounding road network, a traffic model of the key junctions were analysed for the schemes following opening and design years:

- 2022 Opening Year
- 2027 Future Design Year (Opening Year +5 years)
- 2037 Future Design Year (Opening Year +15 years)

6.2 JUNCTION 1: CÚIL DÚIN VIEW/CITYWEST AVENUE/FORTUNESTOWN LANE SIGNAL CONTROLLED JUNCTION

6.2.1 The results of the operational assessment of Cúil Dúin View / Citywest Avenue / Fortunestown Lane Signal Controlled Junction during the weekday morning and evening peaks are summarised in Tables 6.1 to 6.3 below. The arms were labelled as follows within the TRANSYT model:

Arm A: Fortunestown Lane (South-East)
Arm B: Fortunestown Lane (West)
Arm C: Cúil Dúin View (North)
Arm D: Citywest Avenue

2022 Opening Year

6.2.2 The 2022 Opening Year TRANSYT results indicate that the existing Cúil Dúin View / Citywest Avenue / Fortunestown Lane Signal Controlled Junction will operate well within capacity for both the "Do-Nothing" AM and PM peak hour scenarios with maximum Degree of Saturation (DoS) values of 65% and 50% accordingly predicted.

6.2.3 The introduction of the subject development traffic in the 2022 Opening Year results in zero increase in the maximum DOS value during the AM peak hour and a 2% increase predicted in the PM peak hour. A copy of the TRANSYT output file can be found in Appendix C.

Peak Hour	Arm		Movement	Do-Nothing			Do-Something		
				DOS (%)	Mean Delay (s)	MMQ (PCU)	DOS (%)	Mean Delay (s)	MMQ (PCU)
AM	A	Fortunestown Lane (E)	L	33	20.10	4.83	33	20.10	4.83
			S,R	62	70.69	7.46	62	70.86	7.51
	B	Fortunestown Lane (W)	S,L	34	44.12	6.09	35	44.24	6.19
			R	40	50.51	6.96	40	50.51	6.96
	C	Cúil Dúin View	S,L	65	57.66	11.87	65	57.85	11.96
			R	28	47.11	4.66	28	47.11	4.66
	D	Citywest Ave	S, L	57	82.58	3.65	64	88.07	4.25
			R	34	70.36	2.16	37	71.22	2.34
PM	A	Fortunestown Lane (E)	L	45	18.26	7.08	45	18.81	7.19
			S,R	20	56.06	2.41	21	56.18	2.48
	B	Fortunestown Lane (W)	S,L	21	38.62	3.69	22	38.81	3.88
			R	40	46.75	7.66	41	47.72	7.73
	C	Cúil Dúin View	S,L	42	64.91	4.23	44	65.25	4.38
			R	27	60.87	2.69	27	60.87	2.69
	D	Citywest Ave	S, L	50	66.71	5.08	52	66.39	5.53
			R	24	57.87	2.44	24	57.93	2.48

TABLE 6.1: 2022 Opening Year Peak Hour TRANSYT Analysis

2027 Future Design Year

6.2.4 The 2027 Future Design Year TRANSYT results indicate that the existing Cúil Dúin View / Citywest Avenue / Fortunestown Lane Signal Controlled Junction will operate well within capacity for both the "Do-Nothing" AM and PM peak hour scenarios with maximum Degree of Saturation (DoS) values of 75% and 55% accordingly predicted.

6.2.5 The introduction of the subject development traffic in the 2027 Future Design Year results in an increase in the maximum DOS value of 1% during the AM peak hour and a 2% increase predicted in the PM peak hour.

Peak Hour	Arm		Movement	Do-Nothing			Do-Something		
				DOS (%)	Mean Delay (s)	MMQ (PCU)	DOS (%)	Mean Delay (s)	MMQ (PCU)
AM	A	Fortunestown Lane (E)	L	36	22.42	5.73	42	24.97	6.12
			S,R	69	75.02	8.6	70	75.51	8.71
	B	Fortunestown Lane (W)	S,L	43	50.48	6.98	47	53.1	7.44
			R	48	54.87	7.95	55	60.26	8.36
	C	Cúil Dúin View	S,L	75	59.63	15.64	76	60.43	16.06
			R	26	43.80	4.66	26	43.8	4.66
	D	Citywest Ave	S, L	65	91.84	4.04	66	83.32	5.32
			R	43	70.86	3.17	44	68.79	3.6
PM	A	Fortunestown Lane (E)	L	51	20.15	8.25	53	22.32	8.84
			S,R	25	56.08	3.11	27	56.41	3.33
	B	Fortunestown Lane (W)	S,L	31	51.66	4.3	31	47.92	4.92
			R	48	50.89	8.87	52	54.38	9.13
	C	Cúil Dúin View	S,L	51	64.81	5.94	54	65.95	6.38
			R	24	57.59	2.66	24	57.59	2.66
	D	Citywest Ave	S, L	55	69.82	5.46	57	66.38	6.66
			R	27	49.51	3.88	31	53.5	4.09

TABLE 6.2: 2027 Future Design Year Peak Hour TRANSYT Analysis

2037 Future Design Year

6.2.6 The 2037 Future Design Year TRANSYT results indicate that the existing Cúil Dúin View / Citywest Avenue / Fortunestown Lane Signal Controlled Junction will operate well within capacity for both the "Do-Nothing" AM and PM peak hour scenarios with maximum Degree of Saturation (DoS) values of 77% and 55% accordingly predicted.

6.2.7 The introduction of the subject development traffic in the 2037 Future Design Year results in an increase in the maximum DOS value of 1% during the AM peak hour and a 4% increase predicted in the PM peak hour.

Peak Hour	Arm		Movement	Do-Nothing			Do-Something		
				DOS (%)	Mean Delay (s)	MMQ (PCU)	DOS (%)	Mean Delay (s)	MMQ (PCU)
AM	A	Fortunestown Lane (E)	L	43	23.47	6.36	45	25.46	6.62
			S,R	74	78.61	9.41	74	79.25	9.53
	B	Fortunestown Lane (W)	S,L	45	51.21	7.53	48	52.76	7.87
			R	54	57.24	8.81	59	61.76	9.11
	C	Cúil Dúin View	S,L	77	61.44	16.54	78	62.22	16.82
			R	28	44.13	4.99	28	44.13	4.99
	D	Citywest Ave	S, L	63	87.45	4.19	68	85.27	5.56
			R	43	71.07	3.22	47	71.38	3.77
PM	A	Fortunestown Lane (E)	L	55	21.51	9.24	57	23.15	9.75
			S,R	26	57.24	3.21	28	57.58	3.44
	B	Fortunestown Lane (W)	S,L	30	50.01	4.44	31	46.33	5.04
			R	51	51.76	9.55	54	54.16	9.81
	C	Cúil Dúin View	S,L	52	65.17	6.11	55	66.35	6.51
			R	25	57.89	2.87	25	57.89	2.87
	D	Citywest Ave	S, L	55	68.77	5.7	59	67.3	6.98
			R	28	50.45	3.91	32	54.56	4.13

TABLE 6.3: 2037 Future Design Year Peak Hour TRANSYT Analysis

6.3 JUNCTION 6: CITYWEST AVENUE/SITE ACCESS SIGNAL CONTROLLED JUNCTION

6.3.1 The results of the operational assessment of Citywest Avenue / Site access Signal Controlled Junction during the weekday morning and evening peaks are summarised in Tables 6.4 to 6.6 below. The arms were labelled as follows within the TRANSYT model:

Arm A: Citywest Avenue (East)
Arm B: Site Access (South)
Arm C: Citywest Avenue (West)
Arm D: Cúil Dúin Avenue (North)

2022 Opening Year

6.3.2 The 2022 Opening Year TRANSYT results indicate that the Citywest Avenue / Site Access Signal Controlled Junction will operate well within capacity for both the "Do-Nothing" AM and PM peak hour scenarios with maximum Degree of Saturation (DoS) values of 41% and 35% accordingly predicted.

6.3.3 The introduction of the subject development traffic in the 2022 Opening Year results in 4% increase in the maximum DOS value during the AM peak hour and a 2% increase predicted in the PM peak hour.

Peak Hour	Arm		Movement	Do-Nothing			Do-Something		
				DOS (%)	Mean Delay (s)	MMQ (PCU)	DOS (%)	Mean Delay (s)	MMQ (PCU)
AM	A	Citywest Ave (E)	S,L	26	20.31	2.83	30	22.99	3.21
			R	4	38.20	0.16	4	38.20	0.16
	B	Site Access	S,L,R	28	42.65	1.06	35	40.82	1.83
	C	Citywest Ave (W)	S, L	41	22.55	5.02	45	25.40	5.30
			R	2	37.98	0.00	4	38.20	0.16
	D	Cúil Dúin Ave	S,L,R	17	40.41	0.64	17	40.41	0.64
PM	A	Citywest Ave (E)	S,L	35	21.6	3.97	37	21.97	4.32
			R	6	38.44	0.25	6	38.44	0.25
	B	Site Access	S,L,R	13	39.5	0.46	28	42.65	1.06
	C	Citywest Ave (W)	S, L	19	19.37	2.02	19	19.39	2.04
			R	7	38.5	0.28	11	39.02	0.46
	D	Cúil Dúin Ave	S,L,R	8	38.77	0.28	8	38.77	0.28

TABLE 6.4: 2022 Opening Year Peak Hour TRANSYT Analysis

2027 Future Design Year

6.3.4 The 2027 Future Design Year TRANSYT results indicate that the Citywest Avenue / Site Access Signal Controlled Junction will operate well within capacity for both the "Do-Nothing" AM and PM peak hour scenarios with maximum Degree of Saturation (DoS) values of 53% and 43% accordingly predicted.

6.3.5 The introduction of the subject development traffic in the 2027 Future Design Year results in an increase in the maximum DOS value of 16% during the AM peak hour and a 9% increase predicted in the PM peak hour.

Peak Hour	Arm		Movement	Do-Nothing			Do-Something		
				DOS (%)	Mean Delay (s)	MMQ (PCU)	DOS (%)	Mean Delay (s)	MMQ (PCU)
AM	A	Citywest Ave (E)	S,L	31	21.00	3.45	39	24.29	4.30
			R	4	38.26	0.18	4	38.26	0.18
	B	Site Access	S,L,R	28	42.65	1.06	69	55.66	4.27
	C	Citywest Ave (W)	S, L	53	24.90	6.99	59	28.52	7.45
			R	2	37.98	0.00	7	38.57	0.30
	D	Cúil Dúin Ave	S,L,R	19	40.68	0.69	19	40.68	0.69
PM	A	Citywest Ave (E)	S,L	43	23.03	5.15	51	24.47	6.33
			R	6	38.44	0.25	6	38.44	0.25
	B	Site Access	S,L,R	13	39.5	0.46	52	51.31	2.19
	C	Citywest Ave (W)	S, L	25	20.17	2.79	25	20.2	2.82
			R	7	38.5	0.28	21	40.81	0.93
	D	Cúil Dúin Ave	S,L,R	8	38.86	0.3	8	38.86	0.3

TABLE 6.5: 2027 Future Design Year Peak Hour TRANSYT Analysis

2037 Future Design Year

6.3.6 The 2037 Future Design Year TRANSYT results indicate that the Citywest Avenue / Site Access Signal Controlled Junction will operate well within capacity for both the "Do-Nothing" AM and PM peak hour scenarios with maximum Degree of Saturation (DoS) values of 55% and 45% accordingly predicted.

6.3.7 The introduction of the subject development traffic in the 2037 Future Design Year results in an increase in the maximum DOS value of 14% during the AM peak hour and a 7% increase predicted in the PM peak hour.

Peak Hour	Arm		Movement	Do-Nothing			Do-Something		
				DOS (%)	Mean Delay (s)	MMQ (PCU)	DOS (%)	Mean Delay (s)	MMQ (PCU)
AM	A	Citywest Ave (E)	S,L	32	21.21	3.61	40	24.58	4.48
			R	4	38.26	0.18	4	38.26	0.18
	B	Site Access	S,L,R	28	42.65	1.06	69	55.66	4.27
	C	Citywest Ave (W)	S, L	55	25.34	7.25	61	29.11	7.84
			R	2	37.98	0.00	7	38.57	0.30
	D	Cúil Dúin Ave	S,L,R	20	40.94	0.74	20	40.94	0.74
PM	A	Citywest Ave (E)	S,L	45	23.28	5.39	52	24.78	6.53
			R	7	38.5	0.28	7	38.5	0.28
	B	Site Access	S,L,R	13	39.5	0.46	52	51.31	2.19
	C	Citywest Ave (W)	S, L	26	20.24	2.88	26	20.28	2.94
			R	7	38.5	0.28	21	40.81	0.93
	D	Cúil Dúin Ave	S,L,R	8	38.86	0.3	8	38.86	0.3

TABLE 6.6: 2037 Future Design Year Peak Hour TRANSYT Analysis

6.4 WESTERN PRIORITY CONTROLLED SITE ACCESS JUNCTION

6.4.1 The results of the operational assessment of Citywest Avenue / Site access Western Priority Controlled Junction during the weekday morning and evening peaks are summarised in Tables 6.7 to 6.9 below. The arms were labelled as follows within the PICADY model:

Arm A: Citywest Avenue (East)

Arm B: Western Site Access

Arm C: Citywest Avenue (West)

2022 Opening Year

6.4.2 The 2022 Opening Year PICADY results indicate that the Citywest Avenue / Site Access Western Priority Controlled Junction will operate well within capacity for both the "Do-Nothing" AM and PM peak hour scenarios with maximum Ratio of Flow to Capacity (RFC) values of 0.2 and 0.1 accordingly predicted.

6.4.3 The introduction of the subject development traffic in the 2022 Opening Year results in a zero increase in the maximum RFC value during the AM and PM peak hours.

Peak Hour	Arm		Do-Nothing			Do-Something		
			Queue (PCU)	Delay (s)	RFC	Queue (PCU)	Delay (s)	RFC
AM	Stream B-AC	Eastern Site Access	0.2	9.69	0.14	0.2	9.69	0.16
	Stream C-AB	Citywest Ave (W)	0.0	5.4	0.01	0.0	5.45	0.01
PM	Stream B-AC	Eastern Site Access	0.1	8.81	0.06	0.1	8.73	0.07
	Stream C-AB	Citywest Ave (W)	0.0	5.61	0.02	0.0	5.67	0.03

TABLE 6.7: 2022 Opening Year Peak Hour PICADY Analysis

2027 Future Design Year

6.4.4 The 2027 Future Design Year PICADY results indicate that the Citywest Avenue / Site Access Western Priority Controlled Junction will operate well within capacity for both the "Do-Nothing" AM and PM peak hour scenarios with maximum RFC values of 0.2 and 0.1 accordingly predicted.

6.4.5 The introduction of the subject development traffic in the 2027 Future Design Year again results in a zero increase in the maximum RFC value during the AM and PM peak hours.

Peak Hour	Arm		Do-Nothing			Do-Something		
			Queue (PCU)	Delay (s)	RFC	Queue (PCU)	Delay (s)	RFC
AM	Stream B-AC	Eastern Site Access	0.2	10.13	0.15	0.2	10.26	0.19
	Stream C-AB	Citywest Ave (W)	0.0	5.47	0.01	0.0	5.59	0.02
PM	Stream B-AC	Eastern Site Access	0.1	9.18	0.07	0.1	9.05	0.09
	Stream C-AB	Citywest Ave (W)	0.0	5.74	0.02	0.0	5.91	0.04

TABLE 6.8: 2027 Future Design Year Peak Hour PICADY Analysis

2037 Future Design Year

6.4.6 The 2037 Future Design Year PICADY results indicate that the Citywest Avenue / Site Access Western Priority Controlled Junction will operate well within capacity for both the "Do-Nothing" AM and PM peak hour scenarios with maximum RFC values of 0.2 and 0.1 accordingly predicted.

6.4.7 The introduction of the subject development traffic in the 2037 Future Design Year again results in a zero increase in the maximum RFC value during the AM and PM peak hours.

Peak Hour	Arm		Do-Nothing			Do-Something		
			Queue (PCU)	Delay (s)	RFC	Queue (PCU)	Delay (s)	RFC
AM	Stream B-AC	Eastern Site Access	0.2	10.23	0.15	0.2	10.36	0.19
	Stream C-AB	Citywest Ave (W)	0.0	5.49	0.01	0.0	5.61	0.02
PM	Stream B-AC	Eastern Site Access	0.1	9.24	0.07	0.1	9.1	0.09
	Stream C-AB	Citywest Ave (W)	0.0	5.76	0.02	0.0	5.93	0.04

TABLE 6.9: 2037 Future Design Year Peak Hour PICADY Analysis

7.0 SUMMARY AND CONCLUSION

7.1 OVERVIEW

7.1.1 DBFL Consulting Engineers (DBFL) has been commissioned by Cairn Homes Properties Ltd. to compile a Traffic and Transport Assessment (TTA) for a proposed development will consist of the construction of 421 no. residential units within 9 no. blocks ranging in height from 1 – 13 storeys, retail/commercial/office units, residential amenity space, and open spaces along with all associated site development works and services provisions to facilitate the development including parking, bin storage, substations, landscaping and all services.

7.1.2 The purpose of this TTA is to quantify the existing transport environment and to detail the results of assessment work undertaken to identify the potential level of transport impact generated as a result of the proposed residential development. Our methodology incorporated a number of key inter-related stages, including;

- Site Audit,
- Planning File Review,
- Policy Review,
- Commissioning and Analysis of Traffic Surveys,
- Trip Generation, Distribution and Assignment, and Network Impact
- Network Analysis.

7.1.3 As per best practice guidance this TTA has carried out a range of network assessments investigating different traffic conditions for an Opening Year of 2022, and Future Design Year assessments of 2027 and 2037.

7.2 SUMMARY

7.2.1 Based upon the information and analysis detailed within this Traffic and Transport Assessment it has been demonstrated that: -

- The subject site is highly accessible to pedestrians and cyclists from Fortunestown Lane and the surrounding area.
- The subject site benefits from excellent public transport accessibility levels including both light rail and bus-based services. Dublin Bus operates three routes that serve the subject site locale whilst Go-Ahead Bus operates one route. The nearest interchange is located just 240m from the development site access.

- The subject site benefits from being well positioned to benefit from LUAS Red Line services. The 'Fortunestown' interchange is located within a short convenient walking (bounding the south to the south) from the subject site along Fortunestown Lane.
- Car parking is proposed to be provided at both surface and basement level. The emerging proposals incorporate a total of 289 no. car parking spaces comprising 108 no. surface level car parking spaces and 181 no. basement level car parking spaces.
- A total of 219 no. car parking spaces are proposed for the apartment units whilst 59 no. (inclusive of 4 no. visitor spaces and 1 no. accessible set down space) are proposed for the duplex units. This quantum equates to a provision of 0.57 parking spaces per apartment unit and 1.64 spaces per duplex unit. Accordingly, an overall car parking / residential unit ratio of 0.66 spaces per residential unit is proposed. It is expected that visitor trips to the non-residential units will predominantly originate within the local area and therefore it is not expected that these land uses will generate a demand for car parking as that suggested in the local development management standards for new stand-alone non-residential developments. Nevertheless, a total 9 no. car parking spaces are proposed for the non-residential units including 5 for the retail unit at Block D3 and 4 no. for the non-residential units proposed at Block E1 which is considered more than enough to accommodate any staff or visitors that must travel by car. An additional 2 no. car parking spaces have been provided adjacent to the proposed Luas pedestrian access facility to accommodate set down practices.
- The proposed apartment car parking provision, as presented is lower than the development plans maximum standards. Nevertheless, this reduction is considered appropriate due to;
    - The subject developments close proximity to the Fortunestown Luas Stop;
    - The proposed high cycle parking provision;
    - Recommended DHPLG guidelines for apartment developments which states; "planning authorities must consider a reduced overall car parking standard and apply an appropriate maximum car parking standard"; and
    - The implementation of a car parking management regime.
- The subject scheme proposals include for the provision of 18 no. electric vehicle car parking spaces at basement level which accounts for 10% of the car parking provision within the basement. In addition, 10% of surface level car parking spaces

(11 no. spaces) will be dedicated to EV vehicles. Ducting will be provided so that electric charger facilities can be easily retrofitted at all car parking spaces at a later date.

- The subject scheme proposals include for the provision of 17 no. dedicated disabled car parking spaces which accounts for 5% of the overall car parking provision.
- A total of 650 no. bicycle parking spaces are proposed as part of the development scheme (residential and non-residential) comprising 330 no. long stay spaces at basement level, 200 no. long stay at surface level and 120 no. short stay spaces at surface level.
- The proposed 627 no. apartment / duplex cycle parking (long and short stay residential cycle parking) provision is 500 no. spaces higher than the development plan (394% higher) and leans towards the DHPLG guidelines (34% lower). Accordingly, the proposed provision of residential cycle parking represents a good compromise between the development plan and DHPLG cycle parking standards.
- The future residents of the subject residential development are expected to have a reduced reliance on private car for their daily commute and therefore reduced requirement for private car ownership, particularly those potential apartment residents who will likely be in the young professional demographic and are predicted to utilise more sustainable modes of travel as part of their daily commute and partake in the proposed car share / cycle share schemes proposed as part of the subject scheme.
- Access to / from the subject site is proposed to be via two locations on Citywest Avenue. The first being the newly constructed Citywest Avenue signal-controlled junction constructed as part of the emerging permitted development to the west (Pl. Ref. ABP302398). The second site access will be available in the form of a priority-controlled junction also being delivered as part of the adjoining permitted residential Development (Pl. Ref. ABP302398) to the west. A potential third access that could be used by residents in the future will be a new priority junction that will be constructed as part of the permitted development to the northeast of the subject site (Pl. Ref. 16A/0210).
- In addition to the aforementioned vehicle access locations which both pedestrians and cyclists will also avail of, a dedicated non-vehicular access point is proposed in the south west of the site providing direct access to Fortunestown Lane and the Fortunestown LUAS interchange. An additional non-vehicular connection is

proposed between the subject site and the park to the east via a proposed new bridge across the existing stream.

- A junction impact analysis was undertaken and has demonstrated that the proposals will generate a subthreshold impact upon all local key junctions during all design years. Figure 7.1 below details the total amount of two-way vehicle trips that will pass through the key off-site junction in the assessment year of 2037 and the resulting percentage increase in traffic flows as a result of the traffic generated by the proposed development.
- Based on the predicted network impact discussed above, the following 2 no. junctions have been subject to more detailed assessment;

  Junction 1: Cúil Dúin View / Citywest Avenue / Fortunestown Lane signal-controlled junction; and

  Junction 6: Citywest Avenue / Edenbrook Green / Cooldown Commons Phase 3.

- In addition, as introduced previously, in addition to Junction 6 above, the subject development site will be also accessible at 1 no. future priority junctions on Citywest Avenue. Accordingly, these this junction has also been subject to detailed assessment.

FIGURE 7.1: Increase in Vehicle Trips Generated Through Key Of-Site Junctions (2037)

- The junction analysis undertaken at the aforementioned junctions reveals that the potential traffic generated as a result of the subject proposals will have a negligible impact on the operational performance local road network.

7.3 CONCLUSION

7.3.1 In conclusion, it is considered that the impact on the surrounding road network, as a result of the proposed development on the surrounding road network will be negligible. This is based on the anticipated levels of traffic generated by the proposed development, the level of mitigation achieved following the implementation of the proposed upgraded road infrastructure and the information and analysis summarised in the above report.

7.3.2 It is concluded that the proposals represent a sustainable and practical approach to development on the subject lands and there are no traffic or transportation related reasons that should prevent the granting of planning permission for the proposed Cooldown Commons Phase 3 residential development.

APPENDICES

APPENDIX A

TRICS Database Output

Calculation Reference: AUDIT-638801-201002-1008

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 02 - EMPLOYMENT
Category : A - OFFICE
TOTAL VEHICLES

Selected regions and areas:

02	SOUTH EAST		
	ES	EAST SUSSEX	1 days
03	SOUTH WEST		
	WL	WILTSHIRE	1 days
07	YORKSHIRE & NORTH LINCOLNSHIRE		
	WY	WEST YORKSHIRE	1 days
08	NORTH WEST		
	LC	LANCASHIRE	1 days
09	NORTH		
	DH	DURHAM	1 days
13	MUNSTER		
	CR	CORK	1 days
16	ULSTER (REPUBLIC OF IRELAND)		
	MG	MONAGHAN	1 days

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

Primary Filtering selection:

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

Parameter: Gross floor area
Actual Range: 186 to 8600 (units: sqm)
Range Selected by User: 178 to 175000 (units: sqm)

Parking Spaces Range: All Surveys Included

Public Transport Provision:
Selection by: Include all surveys

Date Range: 01/01/12 to 13/11/19

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

Selected survey days:

Monday	1 days
Tuesday	4 days
Wednesday	1 days
Thursday	1 days

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

Selected survey types:

Manual count	7 days
Directional ATC Count	0 days

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

Selected Locations:

Suburban Area (PPS6 Out of Centre)	2
Edge of Town	5

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

Selected Location Sub Categories:

Development Zone	1
Residential Zone	1
Built-Up Zone	1
Out of Town	1
No Sub Category	3

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

Secondary Filtering selection:

Use Class:

B1	7 days

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

Filter by Use Class Breakdown:
All Surveys Included

Population within 500m Range:
All Surveys Included

Population within 1 mile:

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

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

Population within 5 miles:

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

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

Car ownership within 5 miles:

0.6 to 1.0	2 days
1.1 to 1.5	4 days
1.6 to 2.0	1 days

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

Travel Plan:

Yes	1 days
No	6 days

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

PTAL Rating:

No PTAL Present	7 days

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

LIST OF SITES relevant to selection parameters

1 CR-02-A-01 STATISTICS OFFICES CORK
MAHON CRESCENT
CORK

Edge of Town
No Sub Category
Total Gross floor area: 8600 sqm
Survey date: MONDAY 23/06/14 Survey Type: MANUAL

2 DH-02-A-03 ENGINEERING COMPANY DURHAM
ALDERMAN BEST WAY
DARLINGTON

Edge of Town
No Sub Category
Total Gross floor area: 3530 sqm
Survey date: THURSDAY 18/10/18 Survey Type: MANUAL

3 ES-02-A-11 HOUSING COMPANY EAST SUSSEX
THE SIDINGS
HASTINGS
ORE VALLEY
Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Gross floor area: 186 sqm
Survey date: TUESDAY 17/11/15 Survey Type: MANUAL

4 LC-02-A-09 OFFICES LANCASHIRE
FURTHERGATE
BLACKBURN

Suburban Area (PPS6 Out of Centre)
Built-Up Zone
Total Gross floor area: 2600 sqm
Survey date: TUESDAY 04/06/13 Survey Type: MANUAL

5 MG-02-A-02 OFFICES MONAGHAN
ARMAGH ROAD
MONAGHAN

Edge of Town
Out of Town
Total Gross floor area: 3205 sqm
Survey date: WEDNESDAY 16/11/16 Survey Type: MANUAL

6 WL-02-A-01 PET INSURANCE COMPANY WILTSHIRE
THE CRESCENT
AMESBURY
SUNRISE WAY
Edge of Town
Development Zone
Total Gross floor area: 2500 sqm
Survey date: TUESDAY 18/09/18 Survey Type: MANUAL

7 WY-02-A-05 OFFICES WEST YORKSHIRE
PIONEER WAY
CASTLEFORD
WHITWOOD
Edge of Town
No Sub Category
Total Gross floor area: 1230 sqm
Survey date: TUESDAY 23/05/17 Survey Type: MANUAL

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

TRIP RATE for Land Use 02 - EMPLOYMENT/A - OFFICE
TOTAL VEHICLES
Calculation factor: 100 sqm
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate
00:00 - 00:30									
00:30 - 01:00									
01:00 - 01:30									
01:30 - 02:00									
02:00 - 02:30									
02:30 - 03:00									
03:00 - 03:30									
03:30 - 04:00									
04:00 - 04:30									
04:30 - 05:00									
05:00 - 05:30									
05:30 - 06:00									
06:00 - 06:30									
06:30 - 07:00									
07:00 - 07:30	7	3122	0.082	7	3122	0.023	7	3122	0.105
07:30 - 08:00	7	3122	0.288	7	3122	0.055	7	3122	0.343
08:00 - 08:30	7	3122	0.778	7	3122	0.087	7	3122	0.865
08:30 - 09:00	7	3122	0.888	7	3122	0.073	7	3122	0.961
09:00 - 09:30	7	3122	1.025	7	3122	0.119	7	3122	1.144
09:30 - 10:00	7	3122	0.522	7	3122	0.142	7	3122	0.664
10:00 - 10:30	7	3122	0.211	7	3122	0.128	7	3122	0.339
10:30 - 11:00	7	3122	0.105	7	3122	0.073	7	3122	0.178
11:00 - 11:30	7	3122	0.078	7	3122	0.069	7	3122	0.147
11:30 - 12:00	7	3122	0.050	7	3122	0.092	7	3122	0.142
12:00 - 12:30	7	3122	0.096	7	3122	0.137	7	3122	0.233
12:30 - 13:00	7	3122	0.211	7	3122	0.435	7	3122	0.646
13:00 - 13:30	7	3122	0.229	7	3122	0.316	7	3122	0.545
13:30 - 14:00	7	3122	0.284	7	3122	0.211	7	3122	0.495
14:00 - 14:30	7	3122	0.288	7	3122	0.124	7	3122	0.412
14:30 - 15:00	7	3122	0.165	7	3122	0.146	7	3122	0.311
15:00 - 15:30	7	3122	0.128	7	3122	0.188	7	3122	0.316
15:30 - 16:00	7	3122	0.050	7	3122	0.211	7	3122	0.261
16:00 - 16:30	7	3122	0.078	7	3122	0.526	7	3122	0.604
16:30 - 17:00	7	3122	0.124	7	3122	0.686	7	3122	0.810
17:00 - 17:30	7	3122	0.041	7	3122	1.085	7	3122	1.126
17:30 - 18:00	7	3122	0.064	7	3122	0.362	7	3122	0.426
18:00 - 18:30	6	3437	0.034	6	3437	0.339	6	3437	0.373
18:30 - 19:00	6	3437	0.024	6	3437	0.218	6	3437	0.242
19:00 - 19:30									
19:30 - 20:00									
20:00 - 20:30									
20:30 - 21:00									
21:00 - 21:30									
21:30 - 22:00									
22:00 - 22:30									
22:30 - 23:00									
23:00 - 23:30									
23:30 - 24:00									
Total Rates:			5.843			5.845			11.688

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

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

Parameter summary

Trip rate parameter range selected:	186 - 8600 (units: sqm)
Survey date date range:	01/01/12 - 13/11/19
Number of weekdays (Monday-Friday):	7
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	1
Surveys manually removed from selection:	0

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

Calculation Reference: AUDIT-638801-200228-0205

TRIP RATE CALCULATION SELECTION PARAMETERS:

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

Selected regions and areas:

02	SOUTH EAST		
	EX	ESSEX	1 days
	HF	HERTFORDSHIRE	1 days
04	EAST ANGLIA		
	CA	CAMBRIDGESHIRE	1 days
06	WEST MIDLANDS		
	SH	SHROPSHIRE	1 days
	WO	WORCESTERSHIRE	1 days
08	NORTH WEST		
	CH	CHESHIRE	2 days
	LC	LANCASHIRE	1 days
09	NORTH		
	TV	TEES VALLEY	1 days
11	SCOTLAND		
	SR	STIRLING	1 days
13	MUNSTER		
	CR	CORK	1 days
17	ULSTER (NORTHERN IRELAND)		
	DE	DERRY	2 days
	DO	DOWN	1 days

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

Secondary Filtering selection:

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

Parameter: Gross floor area
Actual Range: 260 to 4052 (units: sqm)
Range Selected by User: 210 to 84009 (units: sqm)

Parking Spaces Range: All Surveys Included

Public Transport Provision:
Selection by: Include all surveys

Date Range: 01/01/11 to 28/06/19

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

Selected survey days:

Monday	3 days
Tuesday	1 days
Wednesday	1 days
Thursday	5 days
Friday	4 days

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

Selected survey types:

Manual count	14 days
Directional ATC Count	0 days

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

Selected Locations:

Suburban Area (PPS6 Out of Centre)	5
Edge of Town	2
Neighbourhood Centre (PPS6 Local Centre)	7

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

Selected Location Sub Categories:

Residential Zone	12
Retail Zone	1
No Sub Category	1

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

Secondary Filtering selection:

Use Class:

n/a	1 days
A1	2 days

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

Population within 1 mile:

1,001 to 5,000	1 days
5,001 to 10,000	4 days
10,001 to 15,000	2 days
20,001 to 25,000	3 days
25,001 to 50,000	4 days

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

Population within 5 miles:

25,001 to 50,000	1 days
75,001 to 100,000	4 days
100,001 to 125,000	3 days
125,001 to 250,000	6 days

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

Car ownership within 5 miles:

0.6 to 1.0	2 days
1.1 to 1.5	12 days

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

Petrol filling station:

Included in the survey count	0 days
Excluded from count or no filling station	14 days

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

Travel Plan:

Yes	1 days
No	13 days

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

PTAL Rating:

No PTAL Present	14 days

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

LIST OF SITES relevant to selection parameters

1 CA-01-I-01 LOCAL SHOPS CAMBRIDGESHIRE
WARWICK ROAD
PETERBOROUGH

Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Gross floor area: 478 sqm
Survey date: MONDAY *17/10/11* *Survey Type: MANUAL*

2 CH-01-I-02 LOCAL SHOPS CHESHIRE
CHRISTLETON ROAD
CHESTER
BOUGHTON HEATH
Neighbourhood Centre (PPS6 Local Centre)
Residential Zone
Total Gross floor area: 260 sqm
Survey date: TUESDAY *15/05/12* *Survey Type: MANUAL*

3 CH-01-I-03 LOCAL SHOPS CHESHIRE
MILL LANE
CHESTER
BACHE
Neighbourhood Centre (PPS6 Local Centre)
Residential Zone
Total Gross floor area: 365 sqm
Survey date: THURSDAY *17/05/12* *Survey Type: MANUAL*

4 CR-01-I-01 LOCAL SHOPS CORK
BISHOPSTOWN ROAD
CORK
WILTON
Neighbourhood Centre (PPS6 Local Centre)
Retail Zone
Total Gross floor area: 1575 sqm
Survey date: FRIDAY *23/03/18* *Survey Type: MANUAL*

5 DE-01-I-01 LOCAL SHOPS DERRY
ROSSDOWNEY PARK
LONDONDERRY
CLOONEY
Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Gross floor area: 820 sqm
Survey date: WEDNESDAY *20/06/12* *Survey Type: MANUAL*

6 DE-01-I-02 LOCAL SHOPS DERRY
BEECHWOOD AVENUE
LONDONDERRY

Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Gross floor area: 1425 sqm
Survey date: THURSDAY *21/06/12* *Survey Type: MANUAL*

7 DO-01-I-01 LOCAL SHOPS DOWN
COMBER ROAD
BELFAST
DUNDONALD
Neighbourhood Centre (PPS6 Local Centre)
No Sub Category
Total Gross floor area: 1305 sqm
Survey date: FRIDAY *25/11/11* *Survey Type: MANUAL*

8 EX-01-I-02 LOCAL SHOPS ESSEX
QUEENS ROAD
BRAINTREE

Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Gross floor area: 375 sqm
Survey date: FRIDAY *08/07/16* *Survey Type: MANUAL*

9 HF-01-I-02 LOCAL SHOPS HERTFORDSHIRE
BROADWATER CRESCENT
STEVENAGE

Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Gross floor area: 1115 sqm
Survey date: FRIDAY *28/06/19* *Survey Type: MANUAL*

LIST OF SITES relevant to selection parameters (Cont.)

10	LC-01-I-01 TALBOT ROW NEAR CHORLEY EUXTON	LOCAL SHOPS		LANCASHIRE
	Neighbourhood Centre (PPS6 Local Centre) Residential Zone			
	Total Gross floor area:		720 sqm	
	Survey date: MONDAY		*17/10/11*	*Survey Type: MANUAL*
11	SH-01-I-02 WREKIN DRIVE TELFORD DONNINGTON	LOCAL SHOPS		SHROPSHIRE
	Edge of Town Residential Zone			
	Total Gross floor area:		900 sqm	
	Survey date: THURSDAY		*24/10/13*	*Survey Type: MANUAL*
12	SR-01-I-02 ALLOA ROAD STIRLING	LOCAL SHOPS		STIRLING
	Edge of Town Residential Zone			
	Total Gross floor area:		550 sqm	
	Survey date: THURSDAY		*26/06/14*	*Survey Type: MANUAL*
13	TV-01-I-04 CARGO FLEET LANE MIDDLESBROUGH ORMESBY	LOCAL SHOPS		TEES VALLEY
	Neighbourhood Centre (PPS6 Local Centre) Residential Zone			
	Total Gross floor area:		585 sqm	
	Survey date: MONDAY		*07/10/13*	*Survey Type: MANUAL*
14	WO-01-I-02 CRANHAM DRIVE WORCESTER	LOCAL SHOPS		WORCESTERSHIRE
	Neighbourhood Centre (PPS6 Local Centre) Residential Zone			
	Total Gross floor area:		4052 sqm	
	Survey date: THURSDAY		*22/05/14*	*Survey Type: MANUAL*

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

TRIP RATE for Land Use 01 - RETAIL/I - SHOPPING CENTRE - LOCAL SHOPS
VEHICLES
Calculation factor: 100 sqm
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	14	1038	2.713	14	1038	2.513	14	1038	5.226
08:00 - 09:00	14	1038	3.580	14	1038	3.133	14	1038	6.713
09:00 - 10:00	14	1038	4.048	14	1038	3.642	14	1038	7.690
10:00 - 11:00	14	1038	4.145	14	1038	3.821	14	1038	7.966
11:00 - 12:00	14	1038	4.482	14	1038	4.716	14	1038	9.198
12:00 - 13:00	14	1038	5.742	14	1038	5.494	14	1038	11.236
13:00 - 14:00	14	1038	5.225	14	1038	5.184	14	1038	10.409
14:00 - 15:00	14	1038	4.847	14	1038	4.854	14	1038	9.701
15:00 - 16:00	14	1038	4.799	14	1038	4.881	14	1038	9.680
16:00 - 17:00	14	1038	5.281	14	1038	5.246	14	1038	10.527
17:00 - 18:00	14	1038	5.053	14	1038	5.336	14	1038	10.389
18:00 - 19:00	14	1038	4.985	14	1038	5.108	14	1038	10.093
19:00 - 20:00	12	1158	4.288	12	1158	4.331	12	1158	8.619
20:00 - 21:00	12	1158	3.633	12	1158	3.899	12	1158	7.532
21:00 - 22:00	9	961	4.035	9	961	4.624	9	961	8.659
22:00 - 23:00	1	1115	2.242	1	1115	2.242	1	1115	4.484
23:00 - 24:00									
Total Rates:			69.098			69.024			138.122

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

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

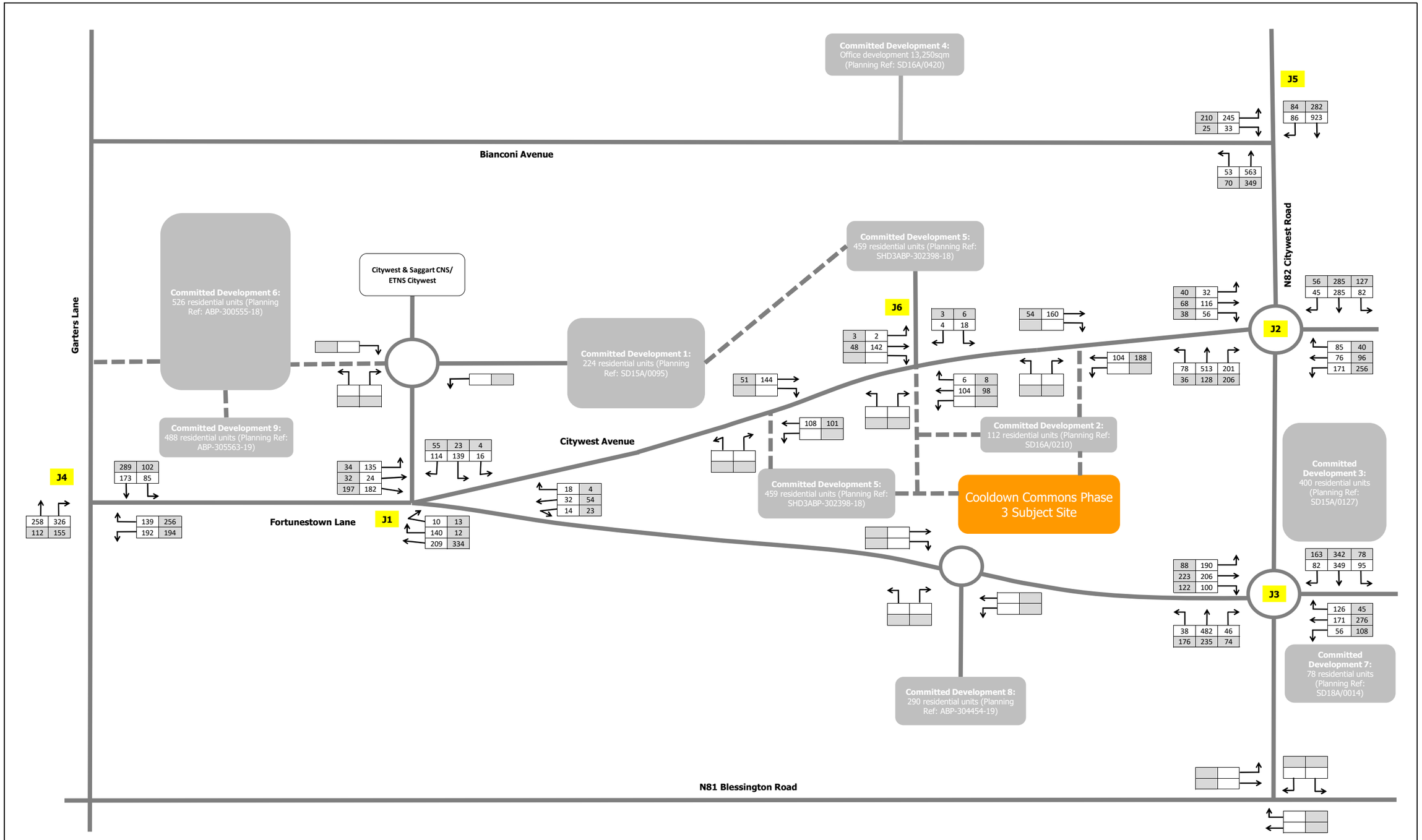
Parameter summary

Trip rate parameter range selected:	260 - 4052 (units: sqm)
Survey date date range:	01/01/11 - 28/06/19
Number of weekdays (Monday-Friday):	14
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	0
Surveys manually removed from selection:	0

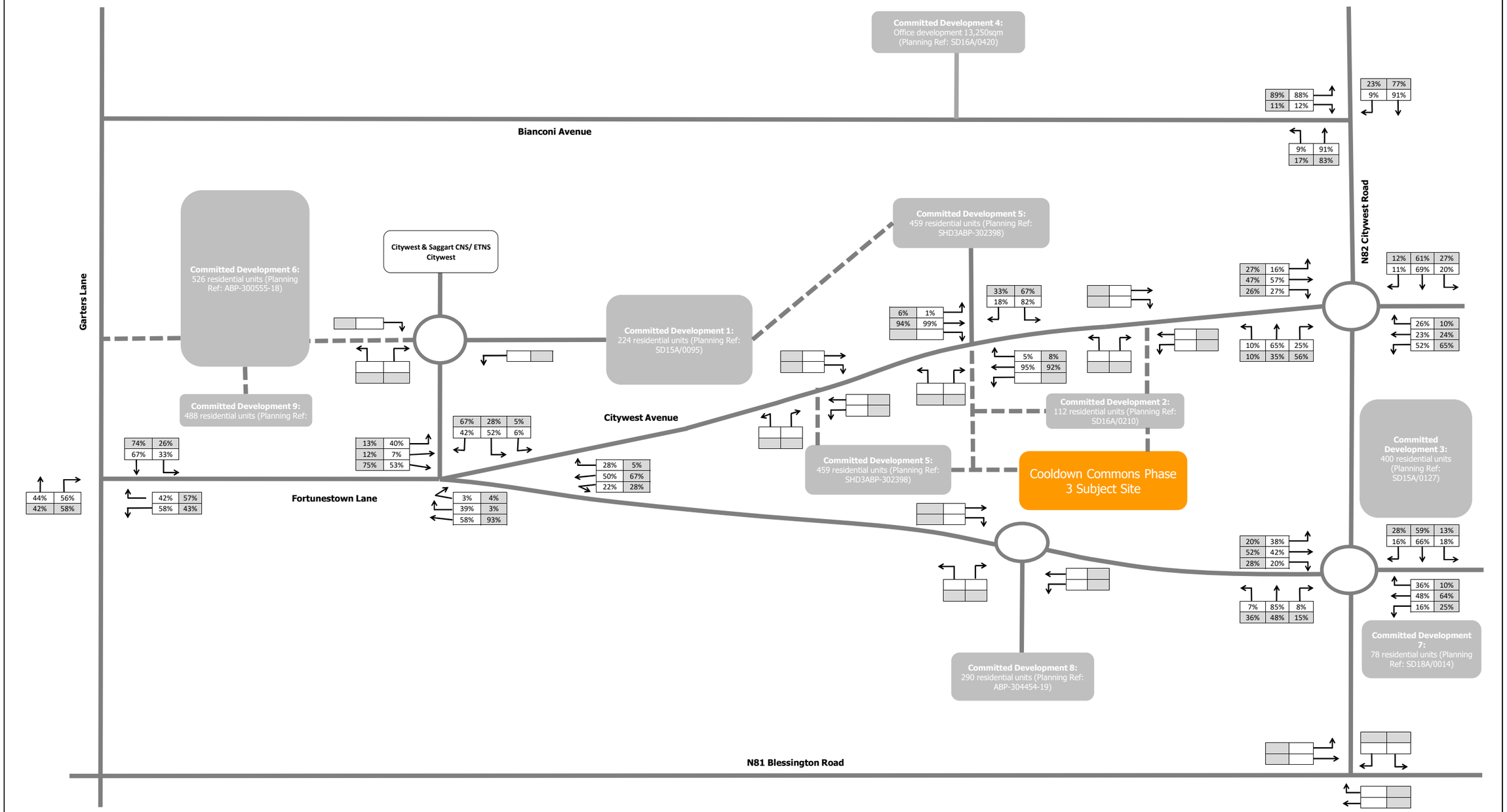
This section displays a quick summary of some of the data filtering selections made by the TRICS® user. The trip rate calculation parameter range of all selected surveys is displayed first, followed by the range of minimum and maximum survey dates selected by the user. Then, the total number of selected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

APPENDIX B

Traffic Flow Diagrams



DBFL Consulting Engineers	**Dublin Office:** Dublin Office: Ormond House, Upper Ormond Quay, Dublin 7 **phone:** +353 1 400 4000 **Waterford Office:** Unit 2, The Chandlery, 1-2 O'Connell Street, Waterford **phone:** +353 51 309 500 **email:** info@dbfl.ie **website:** www.dbfl.ie	**Project :** Cooldown Commons Phase 3 Residential Development Fortunestown Lane, Citywest, Dublin 24 **DRG. Title :** Network Traffic Flows - Vehicles 2020 Base Flows	**Key:** AM Peak Hour (08:15-09:15) PM Peak Hour (16:30-17:30) Flows measured in PCU's	**Drawn by:** DG **Checked by:** **Date:** 16/04/2021 **Ref:** p190003\calcs\excel\traffic\19003 Traffic Model 002 **Figure:** 1 **Rev:** 2	



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				Ref: p190003\calcs\excel\traffic\19003 Traffic Model 002	
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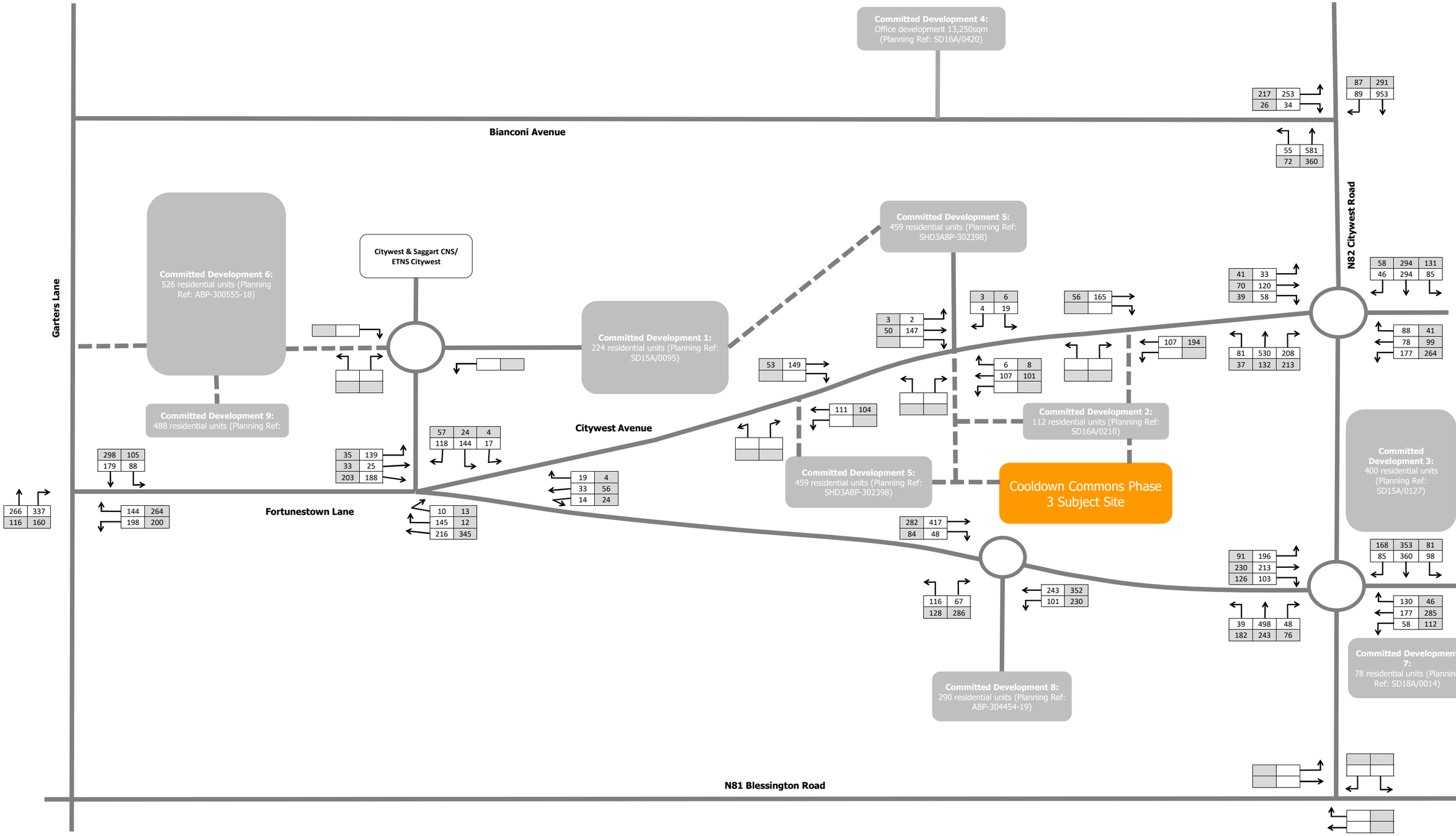

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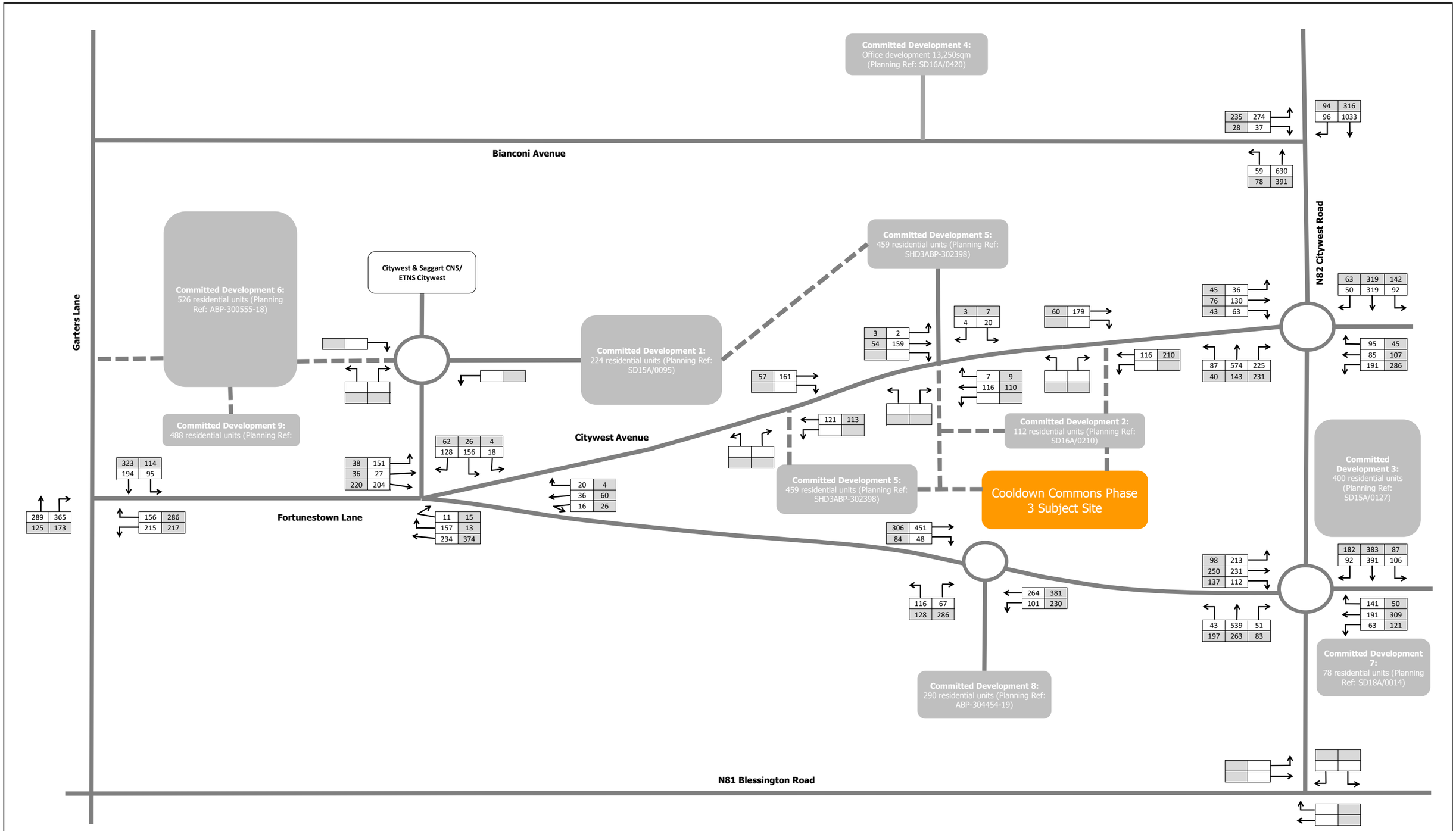

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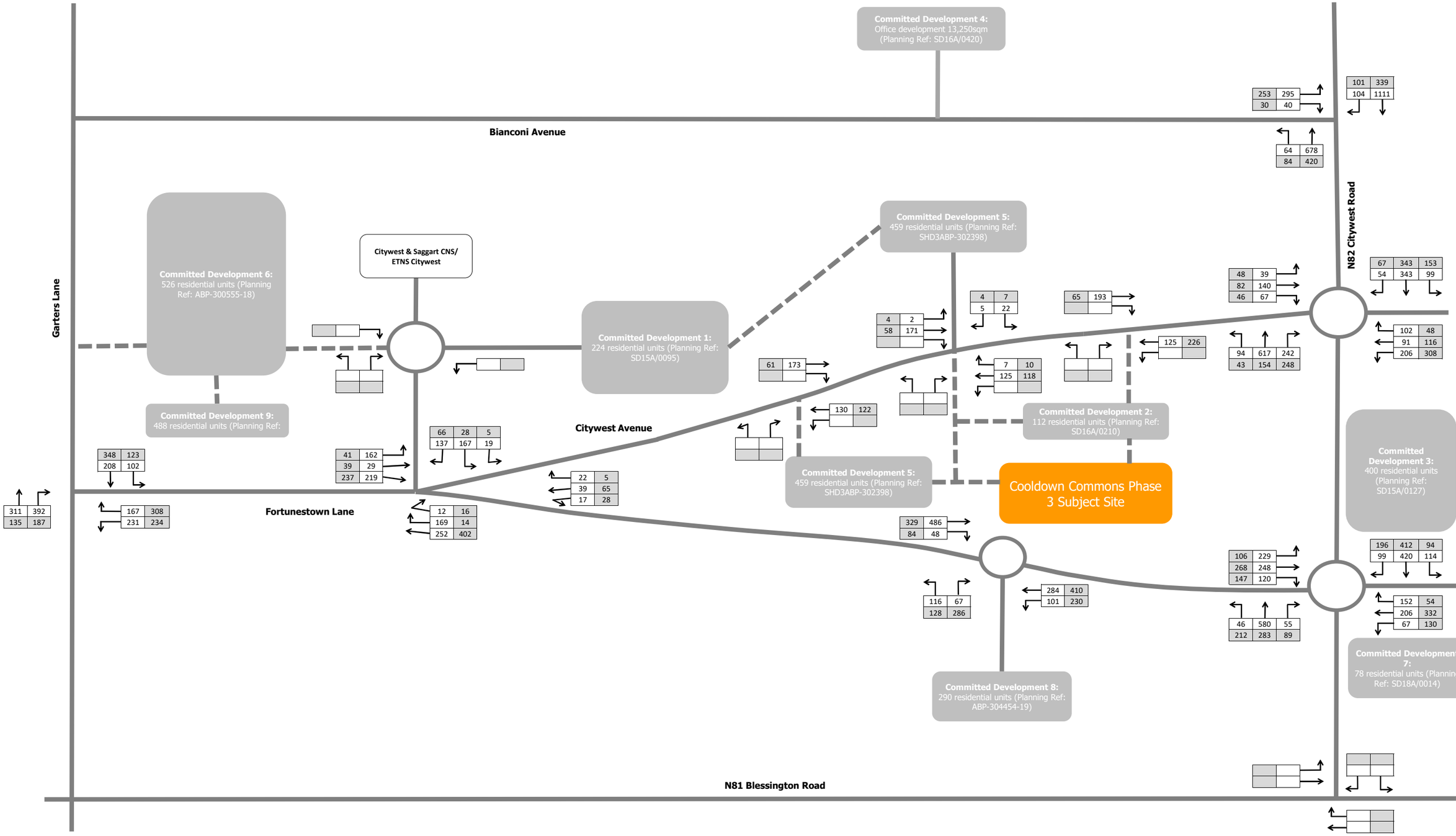
				Ref: p190003\calcs\excel\traffic\19003 Traffic Model 002		
				Figure: 4		**Rev:** 2



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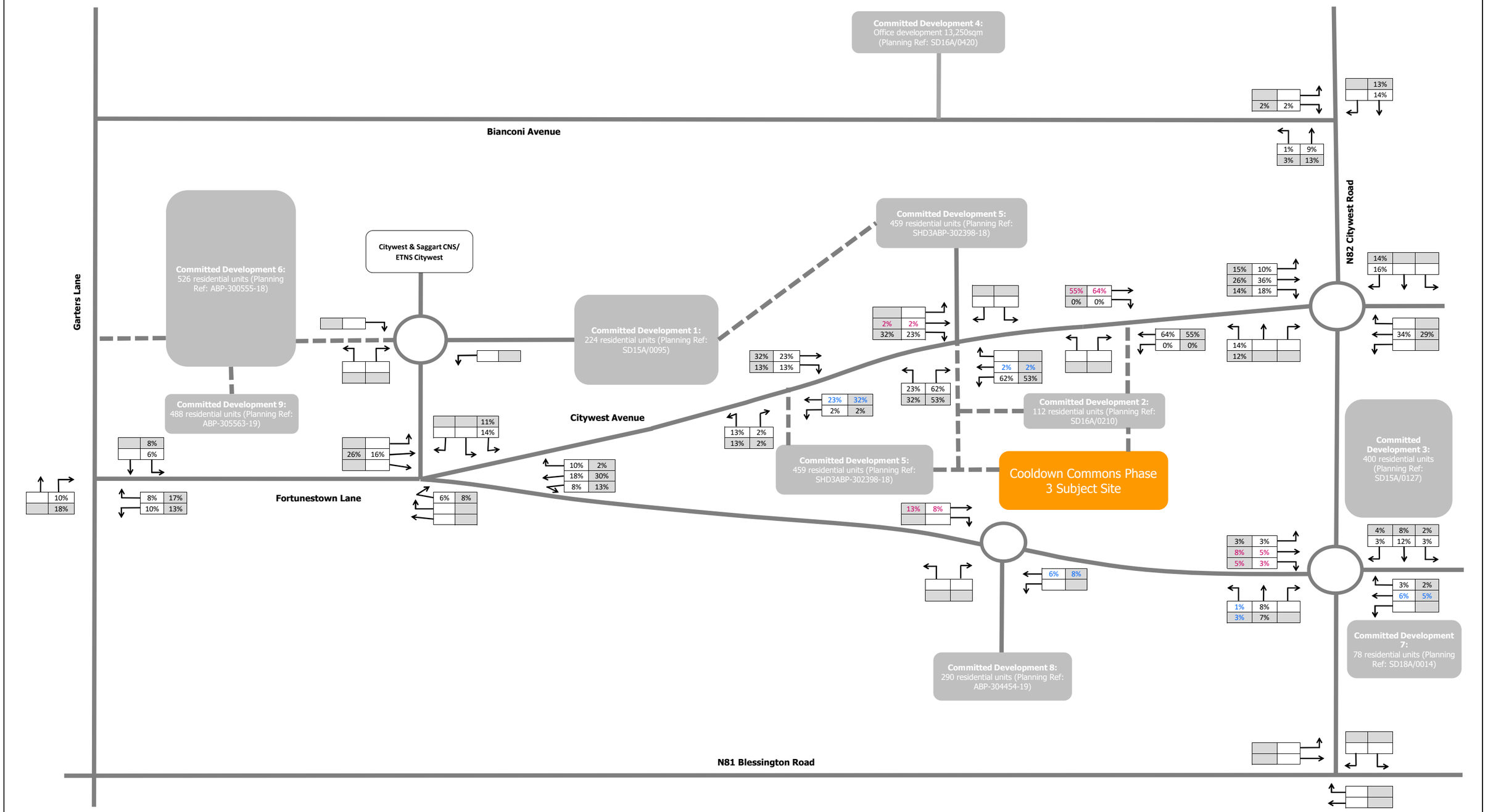

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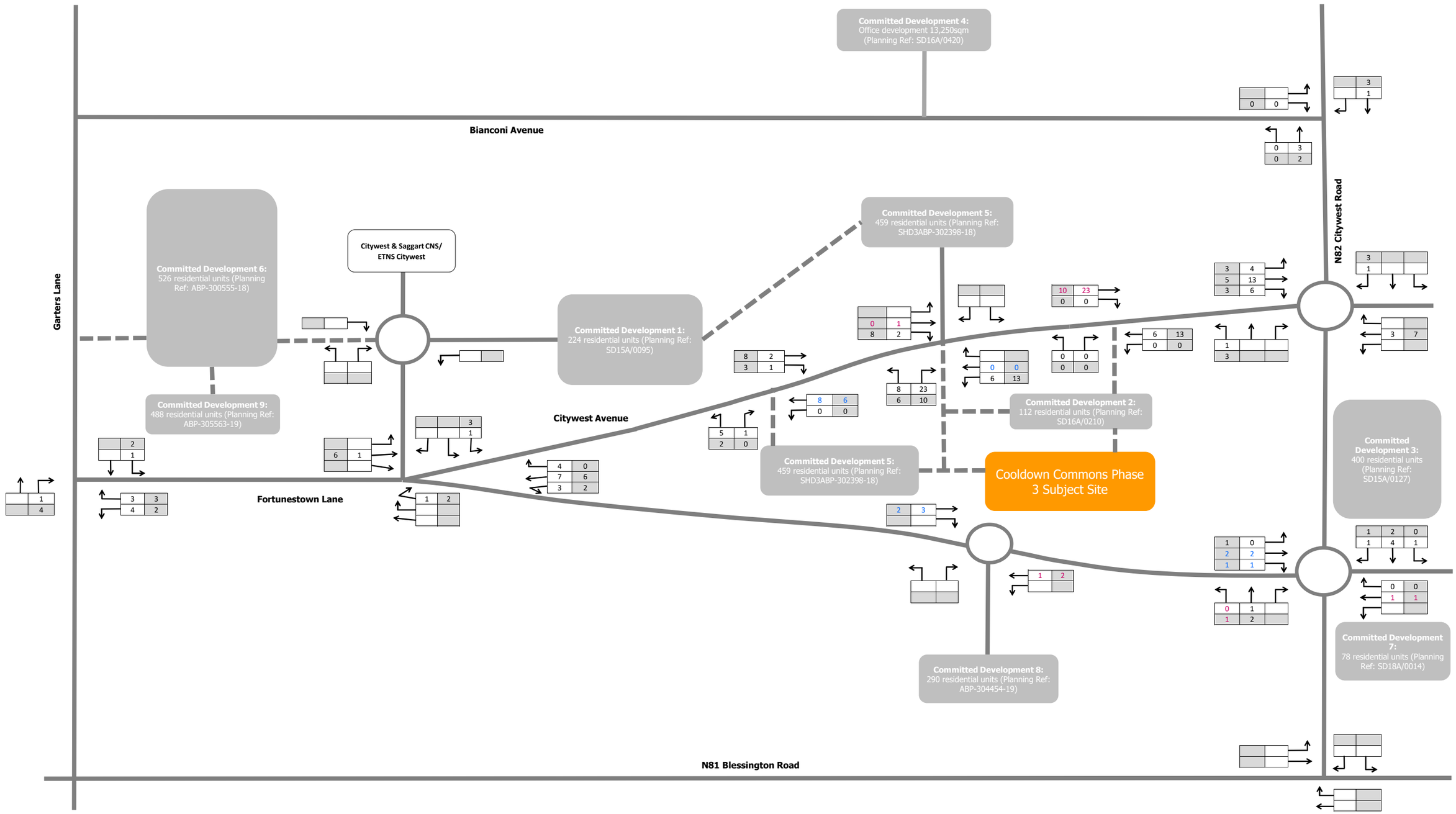

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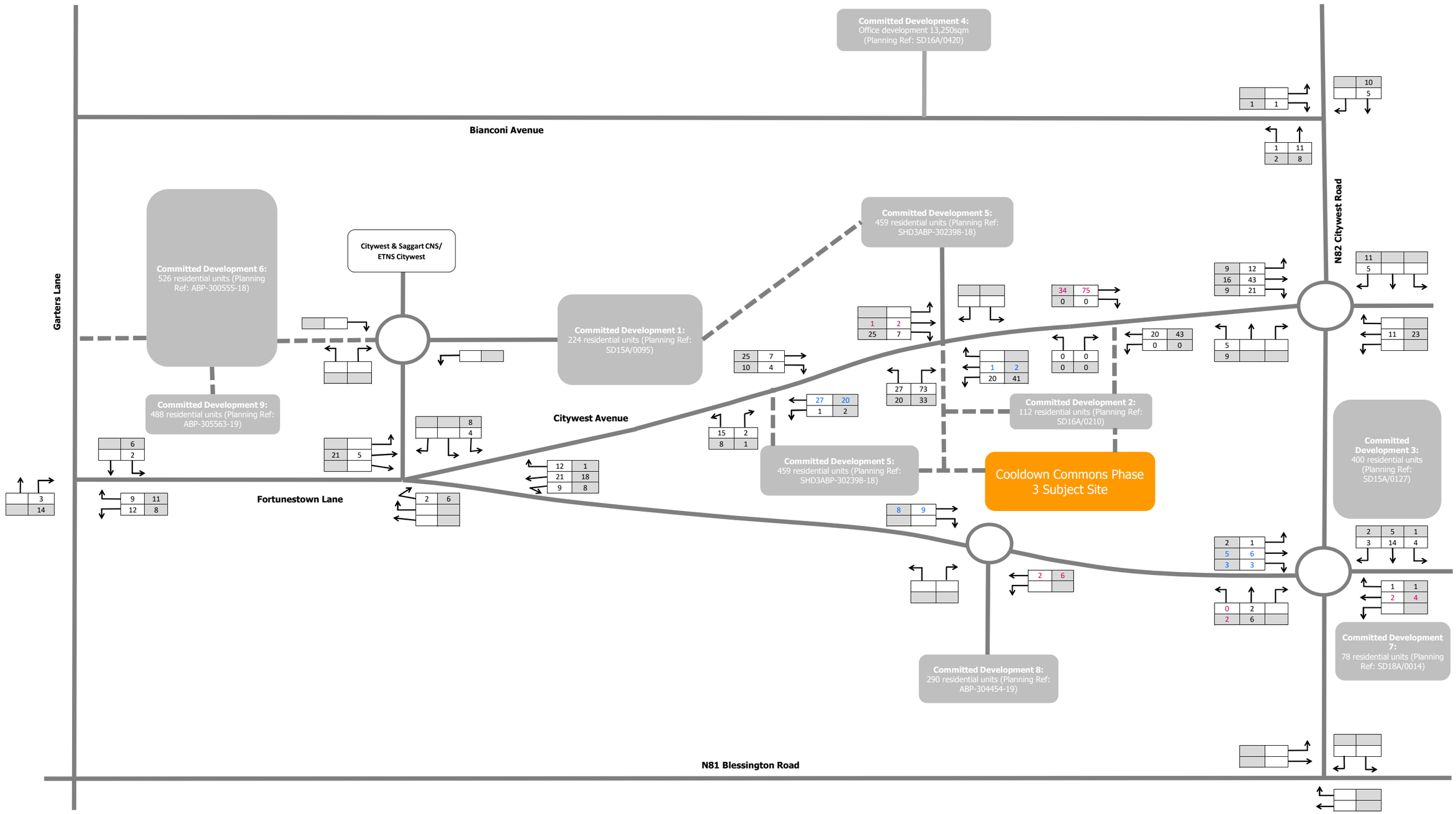
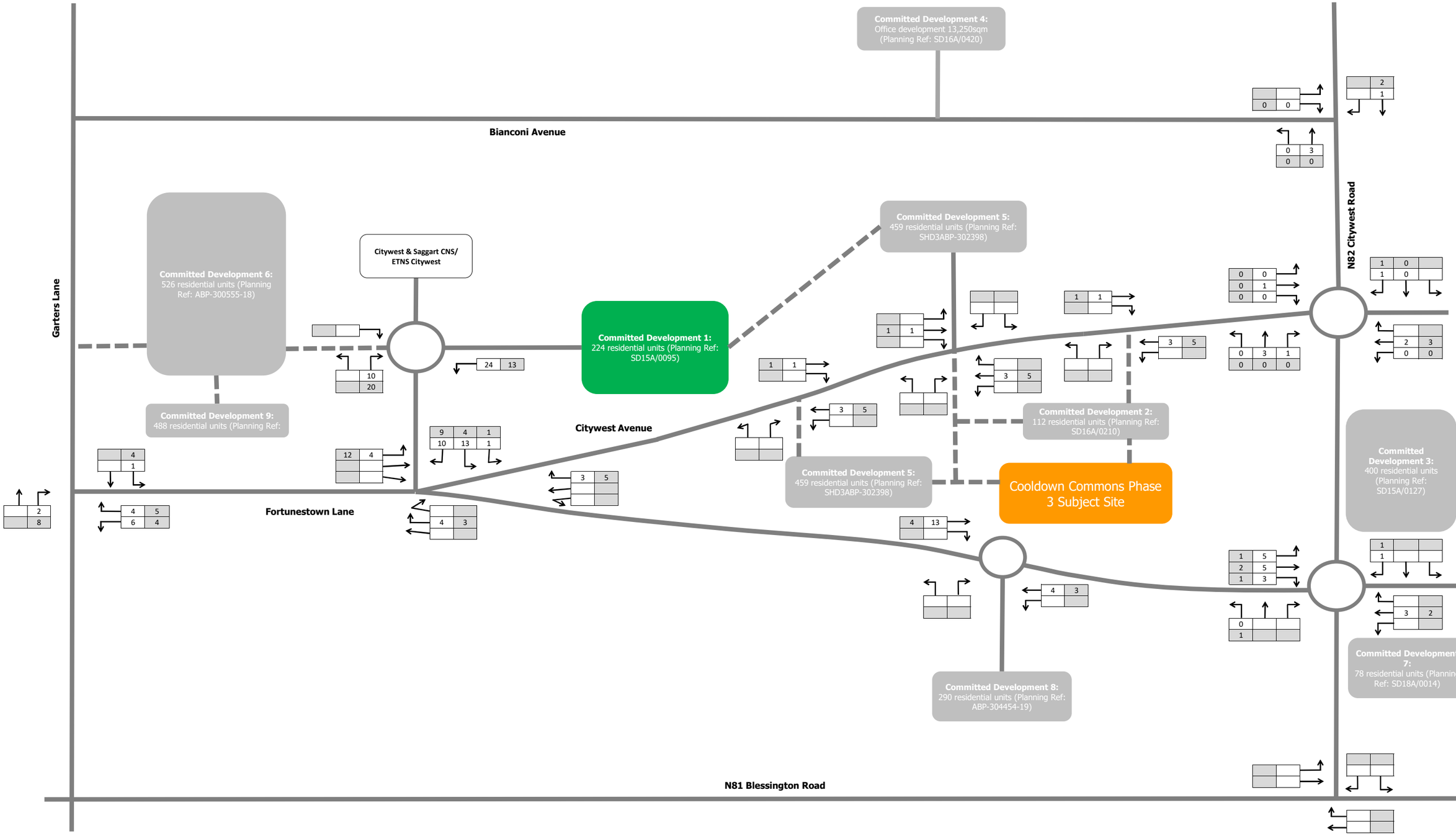
					Arr	Dep	2-way	Arr	Dep	2-way	**Ref:** p190003\calcs\excel\traffic\19003 Traffic Model 002		
			Apartments and Duplexes		7	36	43	21	15	36	**Figure:** 7	**Rev:** 2	
			Café		0	0	0	3	2	5			
			Retail		0	0	0	0	0	0			
			Community Centre		2	1	2	0	2	2			



Dublin Office: Dublin Office: Ormond House, Upper Ormond Quay, Dublin 7 **phone:** +353 1 400 4000 **Waterford Office:** Unit 2, The Chandlery, 1-2 O'Connell Street, Waterford **phone:** +353 51 309 500 **email:** info@dbfl.ie **website:** www.dbfl.ie	**Project :** Cooldown Commons Phase 3 Residential Development, Fortunestown Lane, Citywest, Dublin 24	**Key:** AM Peak Hour (08:15-09:15); PM Peak Hour (16:30-17:30)		AM			PM			**Drawn by:** DG	**Checked by:**	**Date:** 16/04/2021
DBFL Consulting Engineers	**DRG. Title :** Network Traffic Flows - Vehicles, Cooldown Commons Phase 3 Dev Trips 2027-2037			Arr	Dep	2-way	Arr	Dep	2-way	**Ref:** p190003\calcs\excel\traffic\19003 Traffic Model 002		
			Apartments and Duplexes	23	110	133	64	47	111	**Figure:** 8	**Rev:** 2	
			Café	0	0	0	3	2	5			
			Retail	7	7	14	11	11	22			
			Community Centre	2	1	2	0	2	2			



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phone: +353 51 309 500
email: info@dbfl.ie
website: www.dbfl.ie

Project :
Cooldown Commons Phase 3 Residential Development
Fortunestown Lane, Citywest, Dublin 24

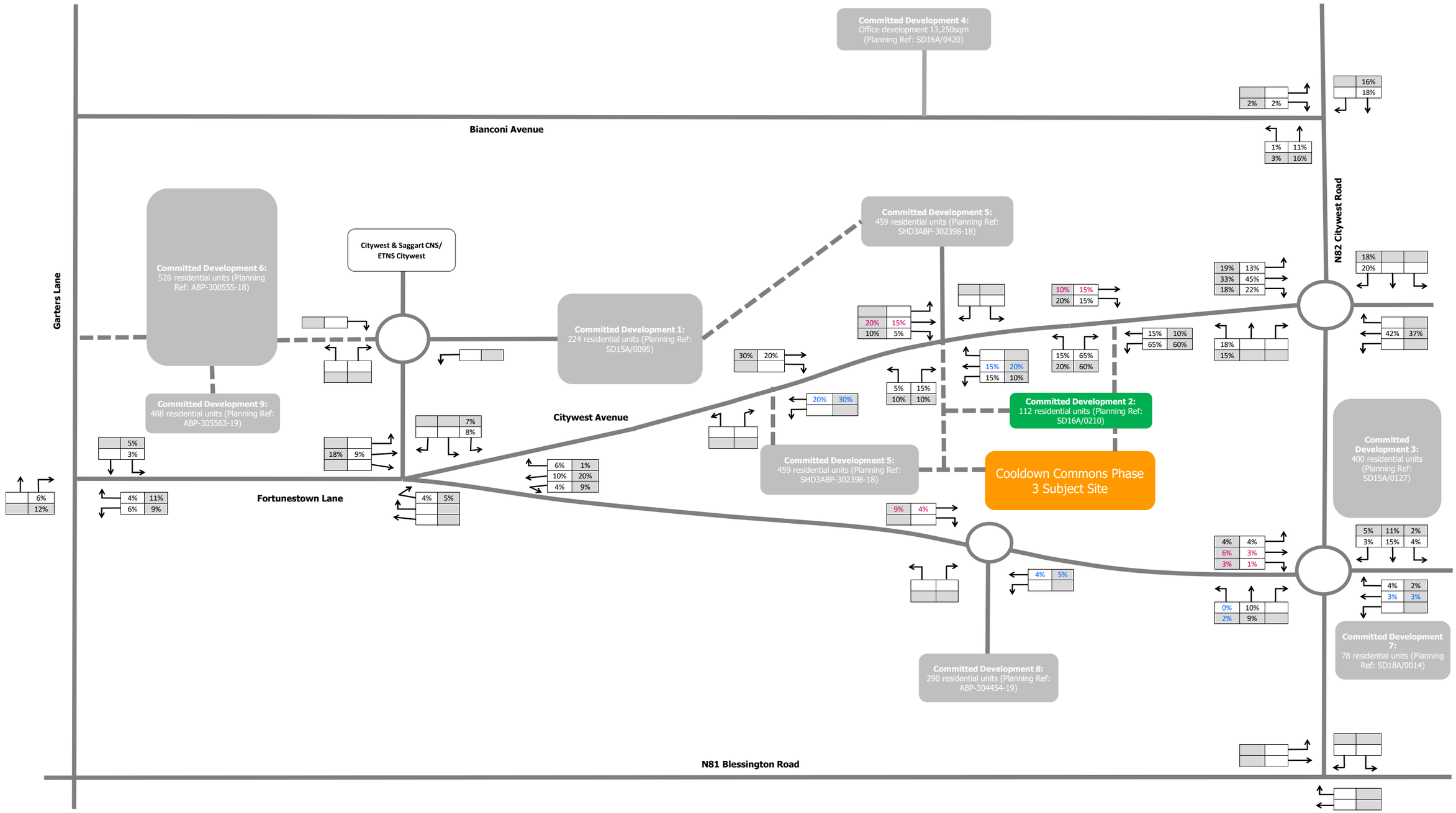
DRG. Title :
Network Traffic Flows - Vehicles
Committed Development 1 Trips - 2022, 2027 and 2037

Key:
AM Peak Hour (08:15-09:15)
PM Peak Hour (16:30-17:30)

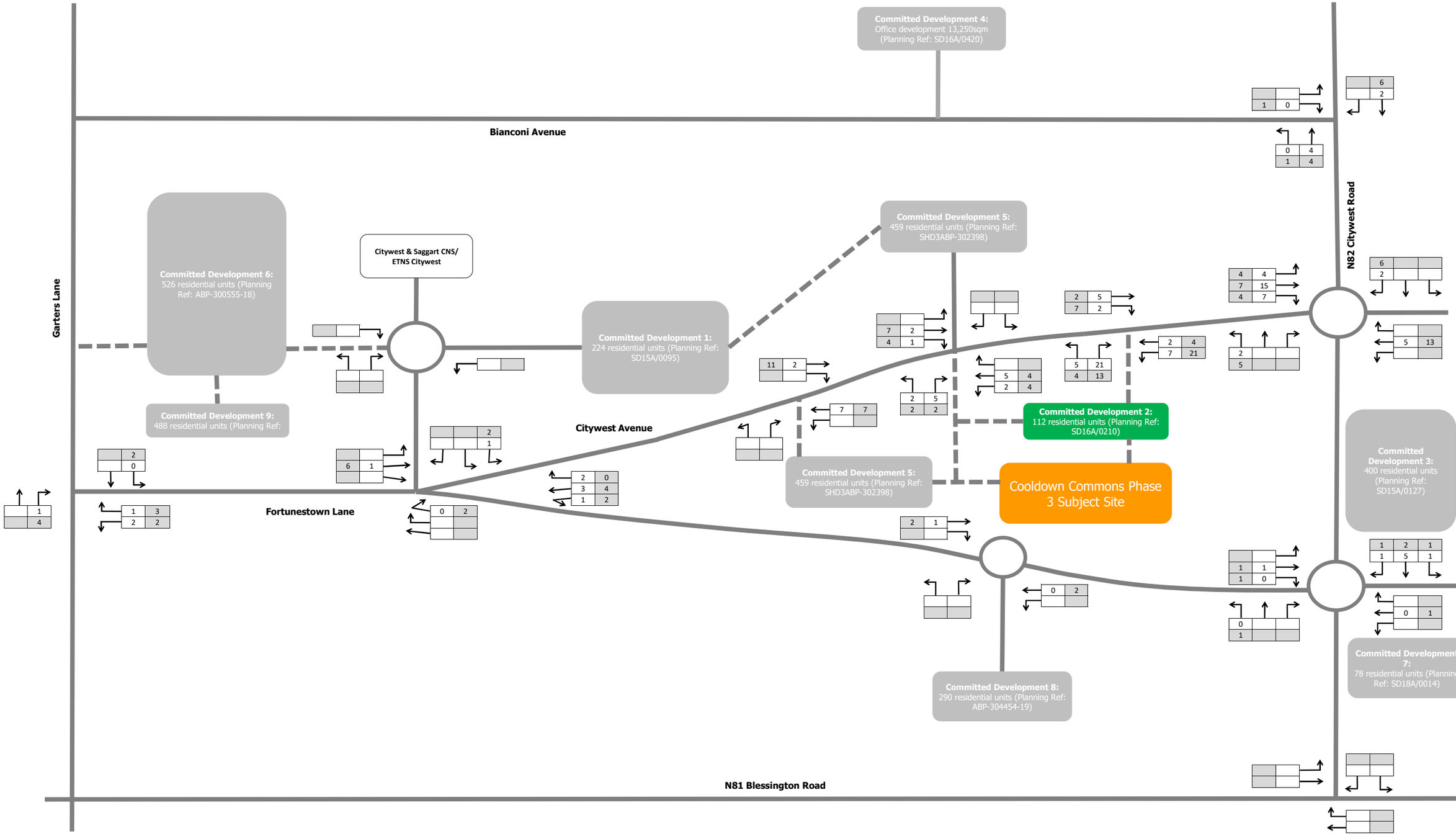
Drawn by:	Checked by:	Date:
DG		16/04/2021

Ref: p190003\calcs\excel\traffic\19003 Traffic Model 002

Figure:	Rev:
9	2



DBFL Consulting Engineers	**Dublin Office:** Dublin Office: Ormond House, Upper Ormond Quay, Dublin 7 **phone:** +353 1 400 4000 **Waterford Office:** Unit 2, The Chandlery, 1-2 O'Connell Street, Waterford **phone:** +353 51 309 500 **email:** info@dbfl.ie **website:** www.dbfl.ie	**Project :** Cooldown Commons Phase 3 Residential Development Fortunestown Lane, Citywest, Dublin 24 **DRG. Title :** Network Traffic Flows - Vehicles Committed Development 2 Trip Distribution - 2022, 2027 and 2037	**Key:** AM Peak Hour (08:15-09:15) PM Peak Hour (16:30-17:30)	**Drawn by:** DG **Checked by:** **Date:** 16/04/2021 **Ref:** p190003\calcs\excel\traffic\19003 Traffic Model 002 **Figure:** 10 **Rev:** 2	



DBFL Consulting Engineers

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phone: +353 51 309 500
email: info@dbfl.ie
website: www.dbfl.ie

Project :
Cooldown Commons Phase 3 Residential Development
Fortunestown Lane, Citywest, Dublin 24

DRG. Title :
Network Traffic Flows - Vehicles
Committed Development 2 Trips - 2022, 2027 and 2037

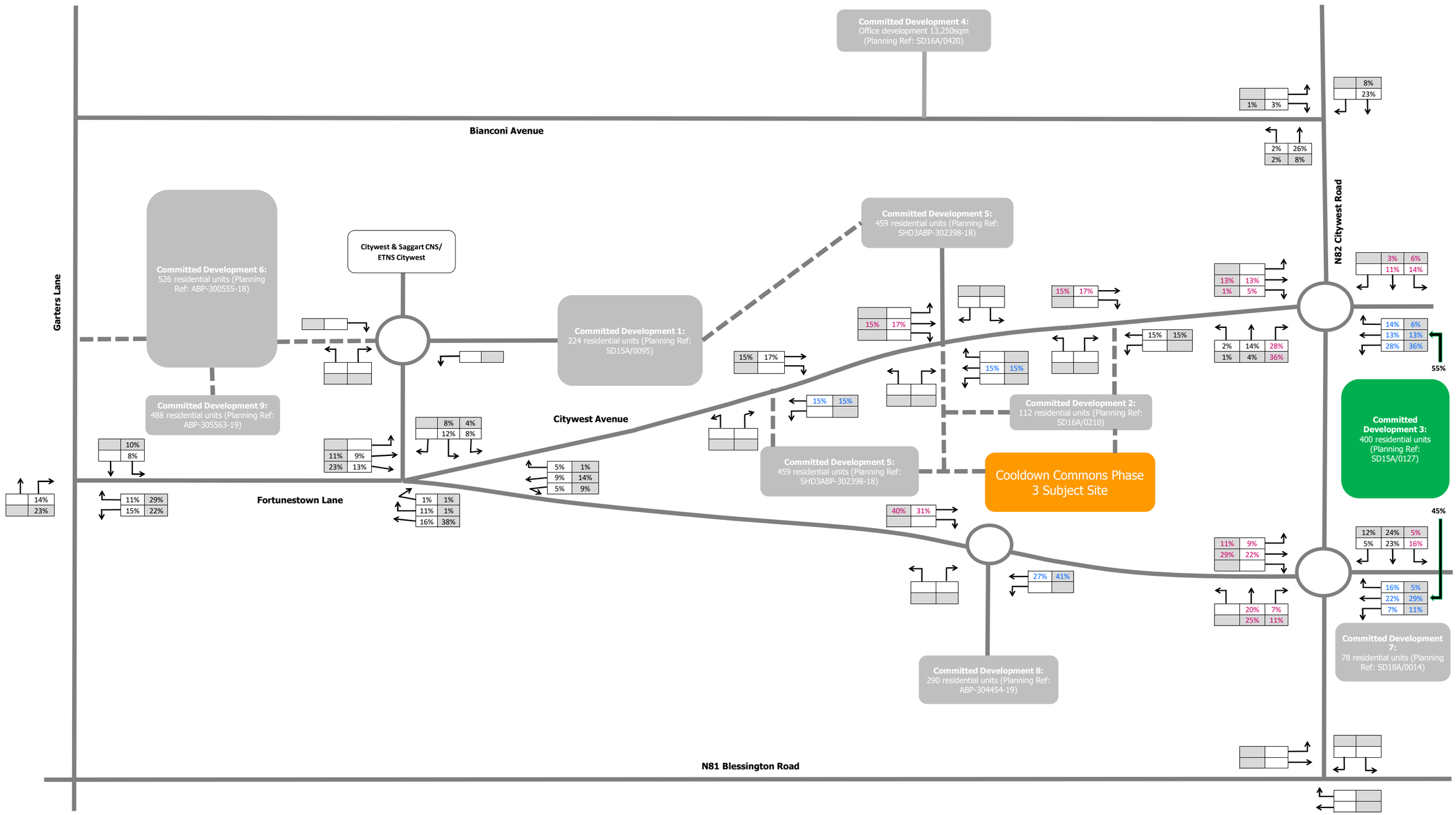
Key:
AM Peak Hour (08:15-09:15)
PM Peak Hour (16:30-17:30)

AM			PM		
Arr	Dep	2-way	Arr	Dep	2-way
11	33	44	35	22	57

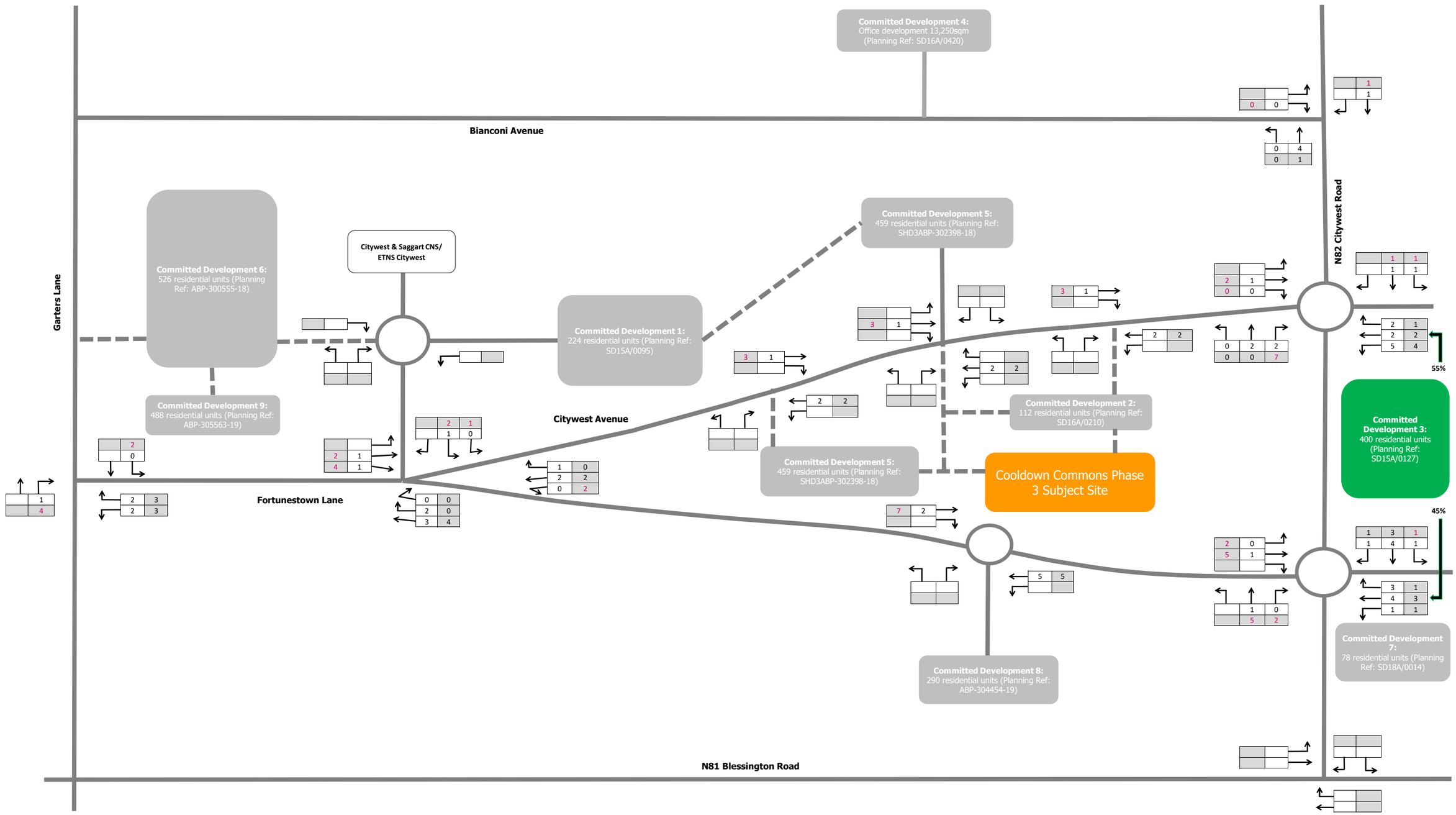
Drawn by:	Checked by:	Date:
DG		16/04/2021

Ref: p190003\calcs\excel\traffic\19003 Traffic Model 002

Figure:	Rev:
11	2



DBFL Consulting Engineers	**Dublin Office:** Dublin Office: Ormond House, Upper Ormond Quay, Dublin 7 **phone:** +353 1 400 4000 **Waterford Office:** Unit 2, The Chandlery, 1-2 O'Connell Street, Waterford **phone:** +353 51 309 500 **email:** info@dbfl.ie **website:** www.dbfl.ie	**Project :** Cooldown Commons Phase 3 Residential Development Fortunestown Lane, Citywest, Dublin 24 **DRG. Title :** Network Traffic Flows - Vehicles Committed Development 3 Trip Distribution - 2022, 2027 and 2037	**Key:** AM Peak Hour (08:15-09:15) PM Peak Hour (16:30-17:30)	**Drawn by:** DG **Checked by:** **Date:** 16/04/2021 **Ref:** p190003\calcs\excel\traffic\19003 Traffic Model 002 **Figure:** 12 **Rev:** 2	



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phone: +353 51 309 500
email: info@dbfl.ie
website: www.dbfl.ie

Project :
Cooldown Commons Phase 3 Residential Development
Fortunestown Lane, Citywest, Dublin 24

DRG. Title :
Network Traffic Flows - Vehicles
Committed Development 3 Trips - 2022, 2027 and 2037

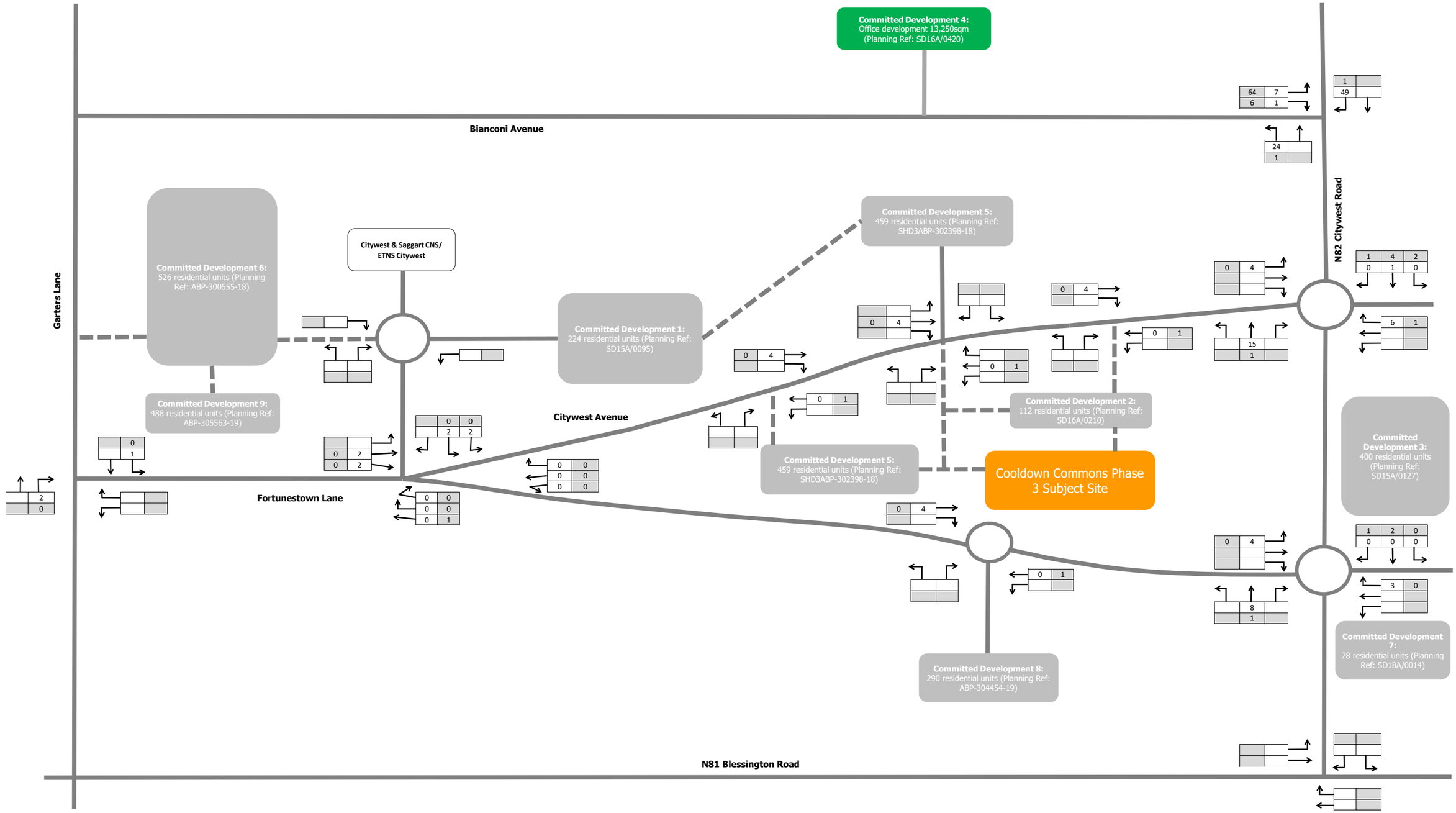
Key:
AM Peak Hour (08:15-09:15)
PM Peak Hour (16:30-17:30)

	AM			PM		
	Arr	Dep	2-way	Arr	Dep	2-way
	36	112	148	121	76	197
Discounted by 85%	5	17	22	18	11	30

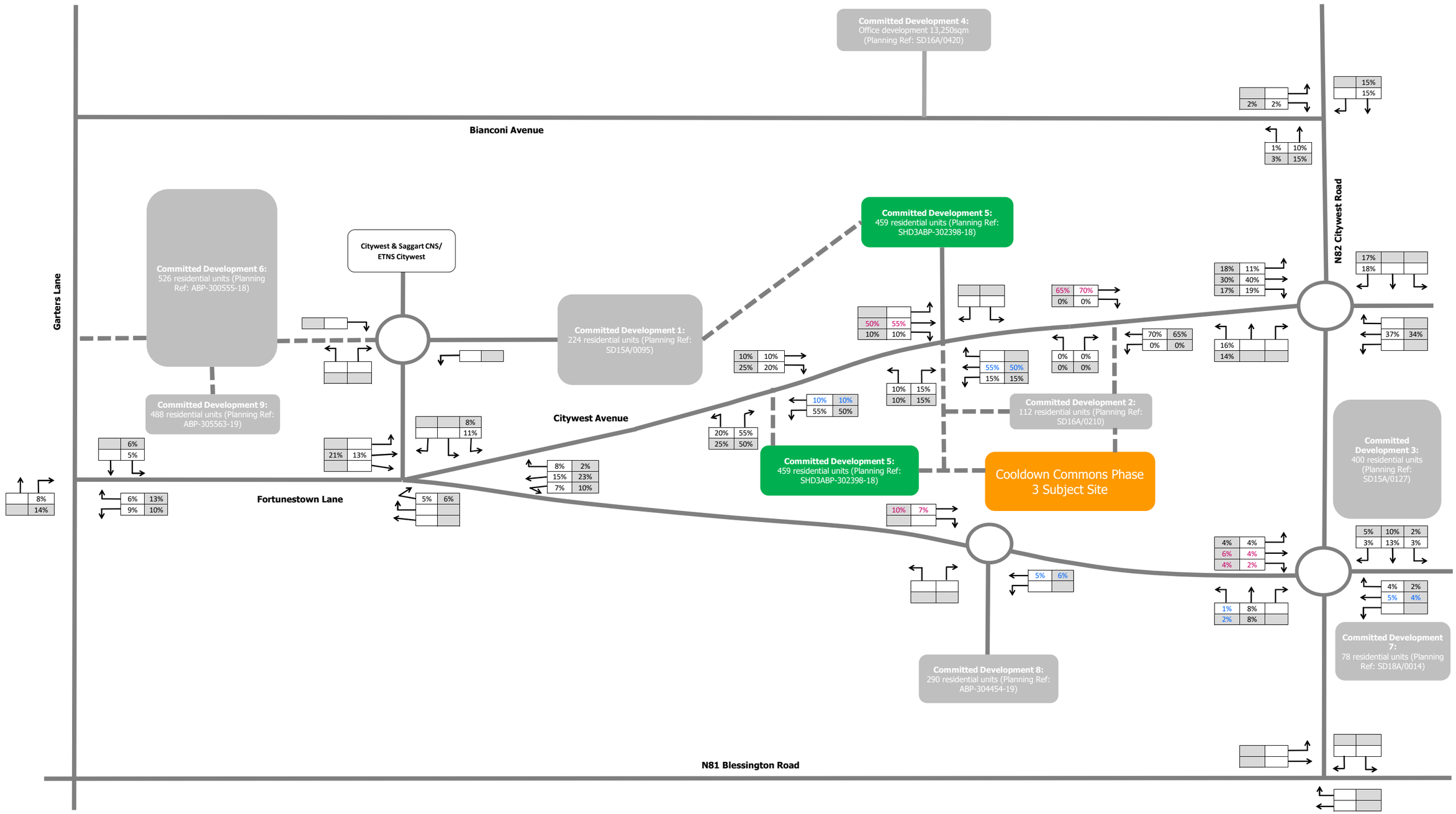
Drawn by:	Checked by:	Date:
DG		16/04/2021

Ref: p190003\calcs\excel\traffic\19003 Traffic Model 002

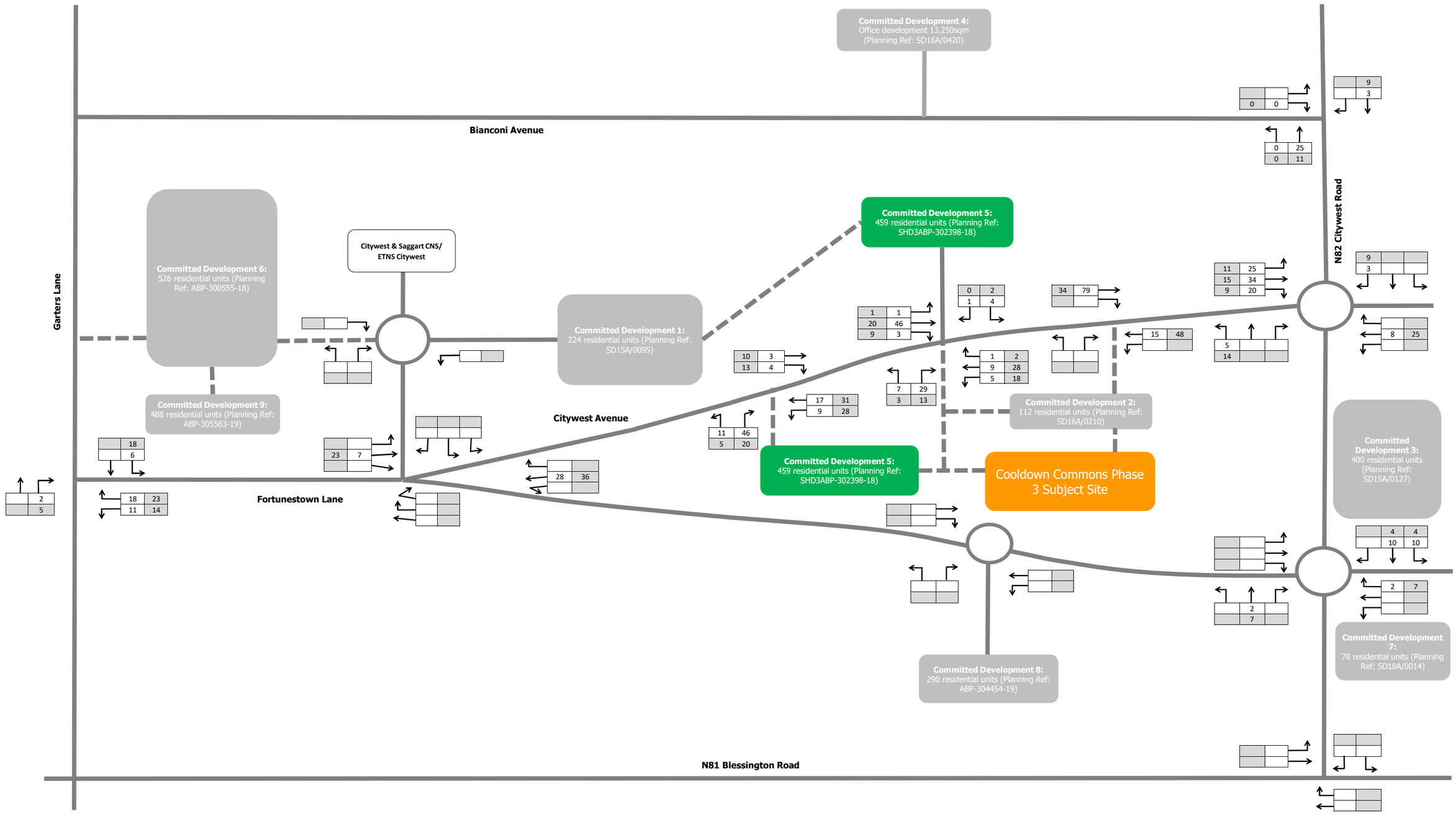
Figure: 13 **Rev:** 2



DBFL Consulting Engineers	**Dublin Office:** Dublin Office: Ormond House, Upper Ormond Quay, Dublin 7 **phone:** +353 1 400 4000 **Waterford Office:** Unit 2, The Chandlery, 1-2 O'Connell Street, Waterford **phone:** +353 51 309 500 **email:** info@dbfl.ie **website:** www.dbfl.ie	**Project :** Cooldown Commons Phase 3 Residential Development Fortunestown Lane, Citywest, Dublin 24 **DRG. Title :** Network Traffic Flows - Vehicles Committed Development 4 Trips - 2022, 2027 and 2037	**Key:** AM Peak Hour (08:15-09:15) PM Peak Hour (16:30-17:30)	**Drawn by:** DG **Checked by:** **Date:** 16/04/2021 **Ref:** p190003\calcs\excel\traffic\19003 Traffic Model 002 **Figure:** 14 **Rev:** 2	



DBFL Consulting Engineers	**Dublin Office:** Dublin Office: Ormond House, Upper Ormond Quay, Dublin 7 **phone:** +353 1 400 4000 **Waterford Office:** Unit 2, The Chandlery, 1-2 O'Connell Street, Waterford **phone:** +353 51 309 500 **email:** info@dbfl.ie **website:** www.dbfl.ie	**Project :** Cooldown Commons Phase 3 Residential Development Fortunestown Lane, Citywest, Dublin 24 **DRG. Title :** Network Traffic Flows - Vehicles Committed Development 5 Trip Distribution - 2022, 2027 and 2037	**Key:** AM Peak Hour (08:15-09:15) PM Peak Hour (16:30-17:30)	**Drawn by:** DG **Checked by:** **Date:** 16/04/2021 **Ref:** p190003\calcs\excel\traffic\19003 Traffic Model 002 **Figure:** 15 **Rev:** 2	



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Unit 2, The Chandlery, 1-2 O'Connell Street, Waterford
phone: +353 51 309 500
email: info@dbfl.ie
website: www.dbfl.ie

Project :
Cooldown Commons Phase 3 Residential Development
Fortunestown Lane, Citywest, Dublin 24

DRG. Title :
Network Traffic Flows - Vehicles
Committed Development 5 Trips - 2022, 2027 and 2037

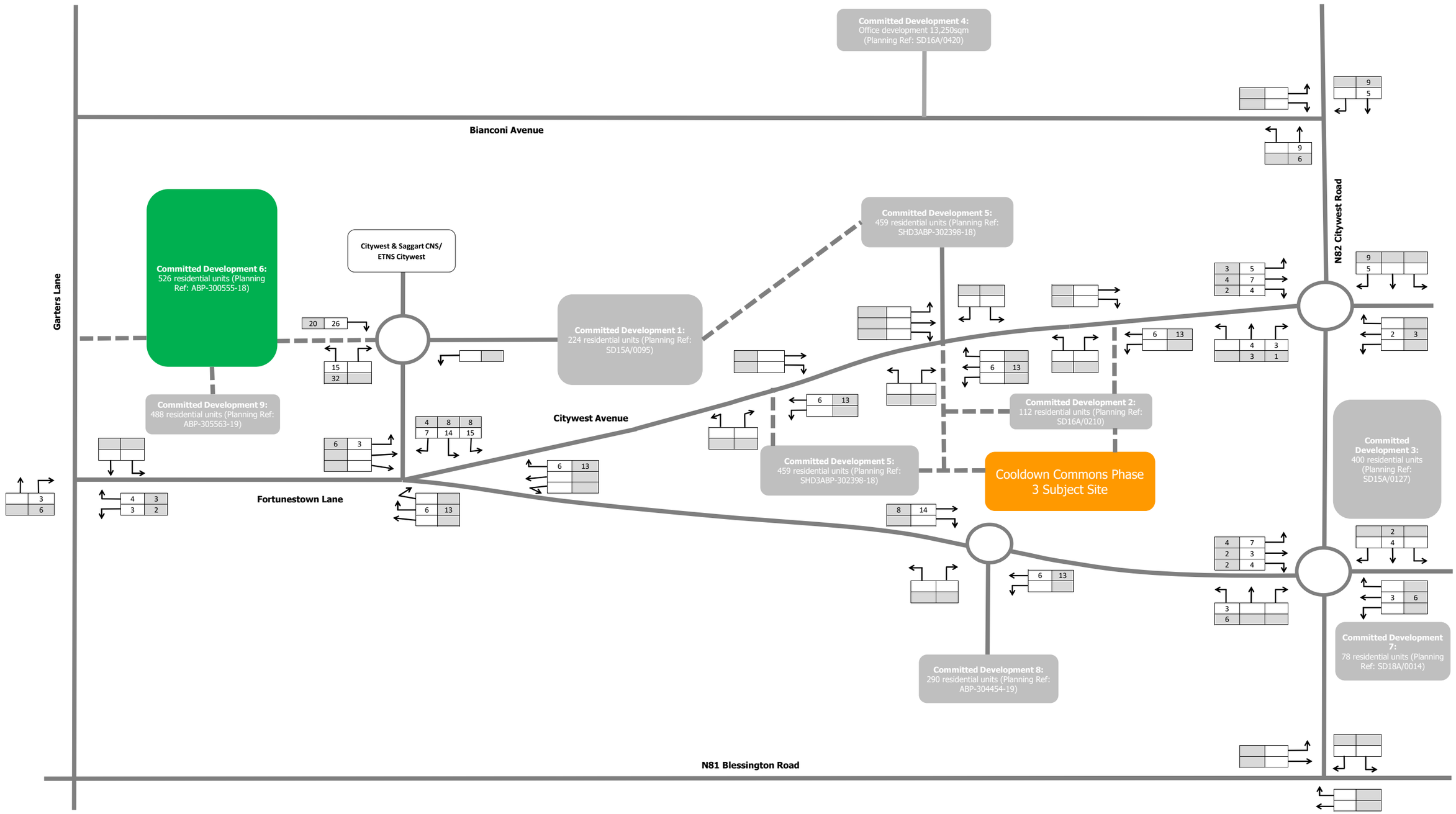
Key:
AM Peak Hour (08:15-09:15)
PM Peak Hour (16:30-17:30)

	AM			PM		
	Arr	Dep	2-way	Arr	Dep	2-way
	32	113	145	84	52	136
Discounted by 90%	3	11	15	8	5	14

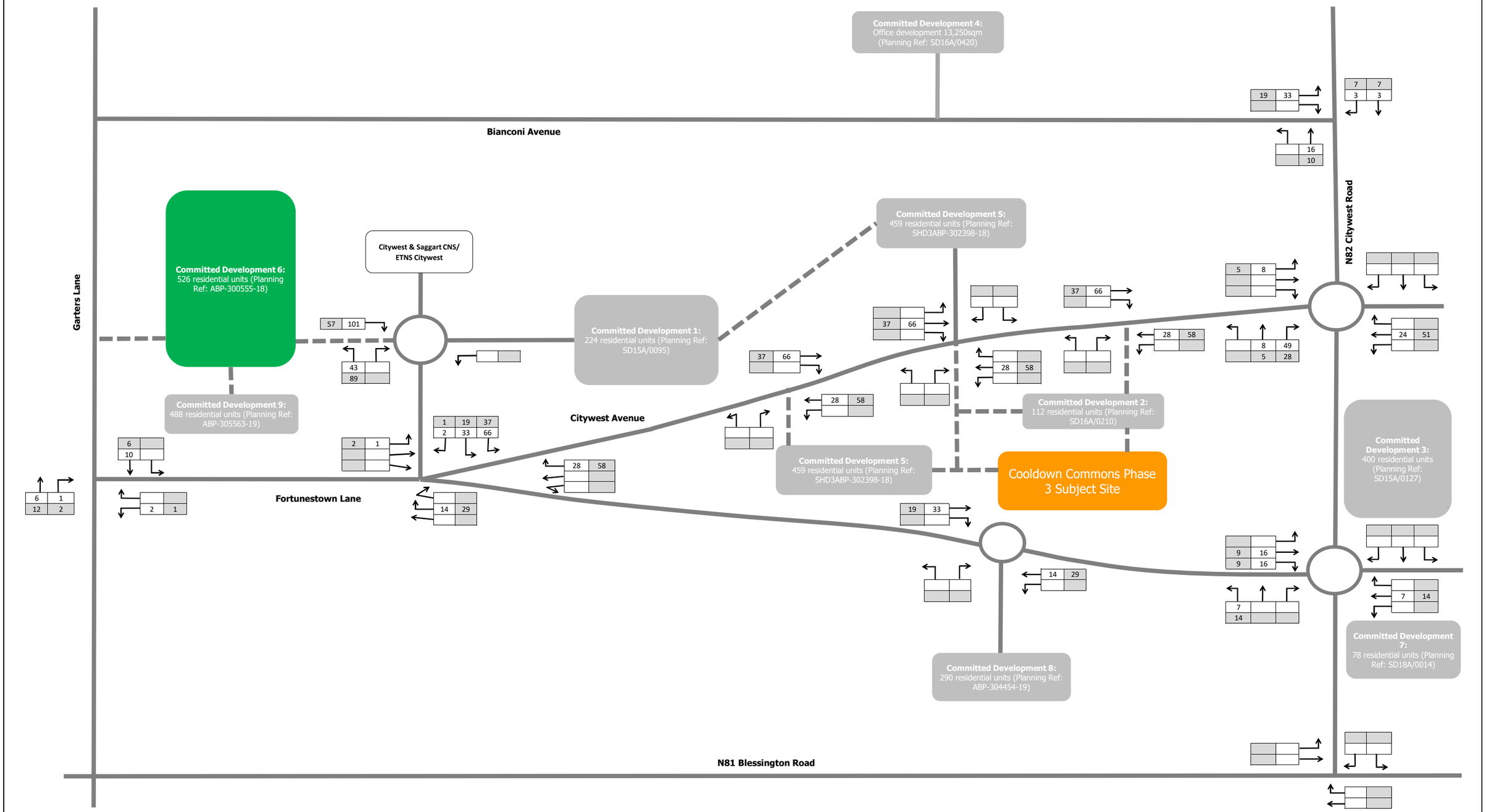
Drawn by:	Checked by:	Date:
DG		16/04/2021

Ref: p190003\calcs\excel\traffic\19003 Traffic Model 002

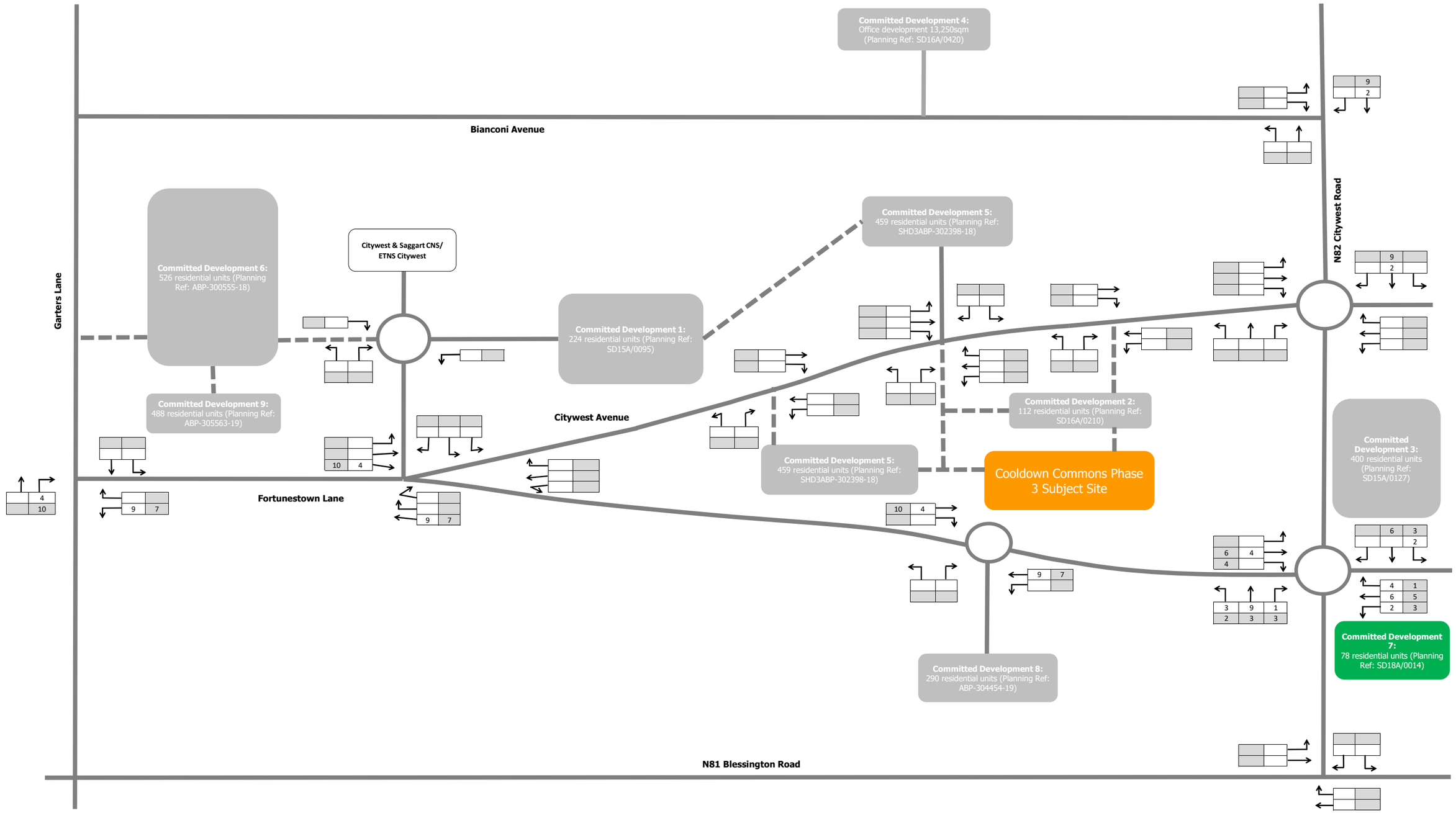
Figure: 16 **Rev:** 2



DBFL Consulting Engineers	**Dublin Office:** Dublin Office: Ormond House, Upper Ormond Quay, Dublin 7 **phone:** +353 1 400 4000 **Waterford Office:** Unit 2, The Chandlery, 1-2 O'Connell Street, Waterford **phone:** +353 51 309 500 **email:** info@dbfl.ie **website:** www.dbfl.ie	**Project :** Cooldown Commons Phase 3 Residential Development Fortunestown Lane, Citywest, Dublin 24 **DRG. Title :** Network Traffic Flows - Vehicles Committed Development 6 Trips - 2022	**Key:** AM Peak Hour (08:15-09:15) PM Peak Hour (16:30-17:30)	**Drawn by:** DG **Checked by:** **Date:** 16/04/2021 **Ref:** p190003\calcs\excel\traffic\19003 Traffic Model 002 **Figure:** 17 **Rev:** 2	



DBFL Consulting Engineers	**Dublin Office:** Dublin Office: Ormond House, Upper Ormond Quay, Dublin 7 **phone:** +353 1 400 4000 **Waterford Office:** Unit 2, The Chandlery, 1-2 O'Connell Street, Waterford **phone:** +353 51 309 500 **email:** info@dbfl.ie **website:** www.dbfl.ie	**Project :** Cooldown Commons Phase 3 Residential Development Fortunestown Lane, Citywest, Dublin 24 **DRG. Title :** Network Traffic Flows - Vehicles Committed Development 6 Trips - 2027 and 2037	**Key:** AM Peak Hour (08:15-09:15) PM Peak Hour (16:30-17:30)	**Drawn by:** DG **Checked by:** **Date:** 16/04/2021 **Ref:** p190003\calcs\excel\traffic\19003 Traffic Model 002 **Figure:** 18 **Rev:** 2	



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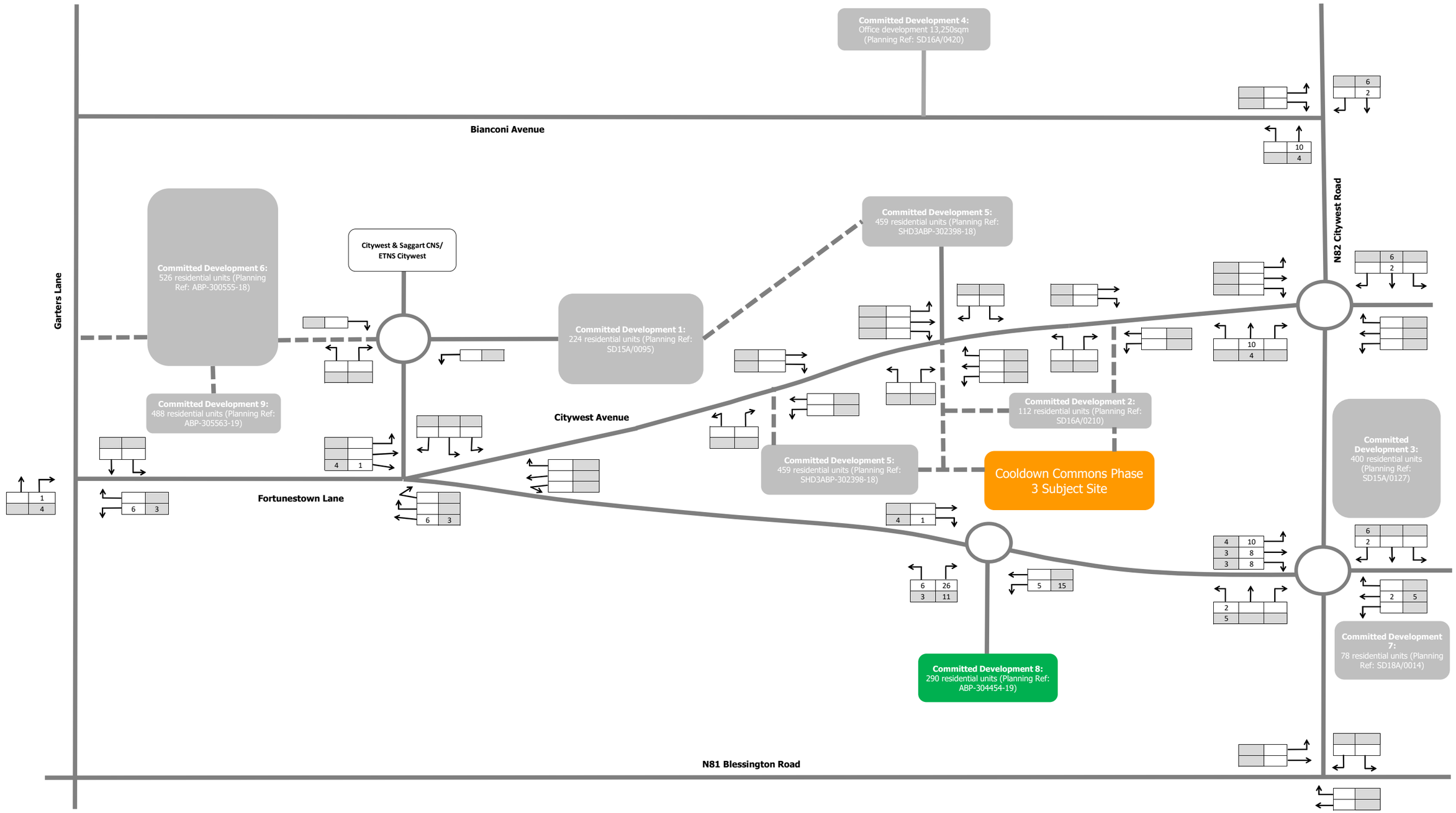

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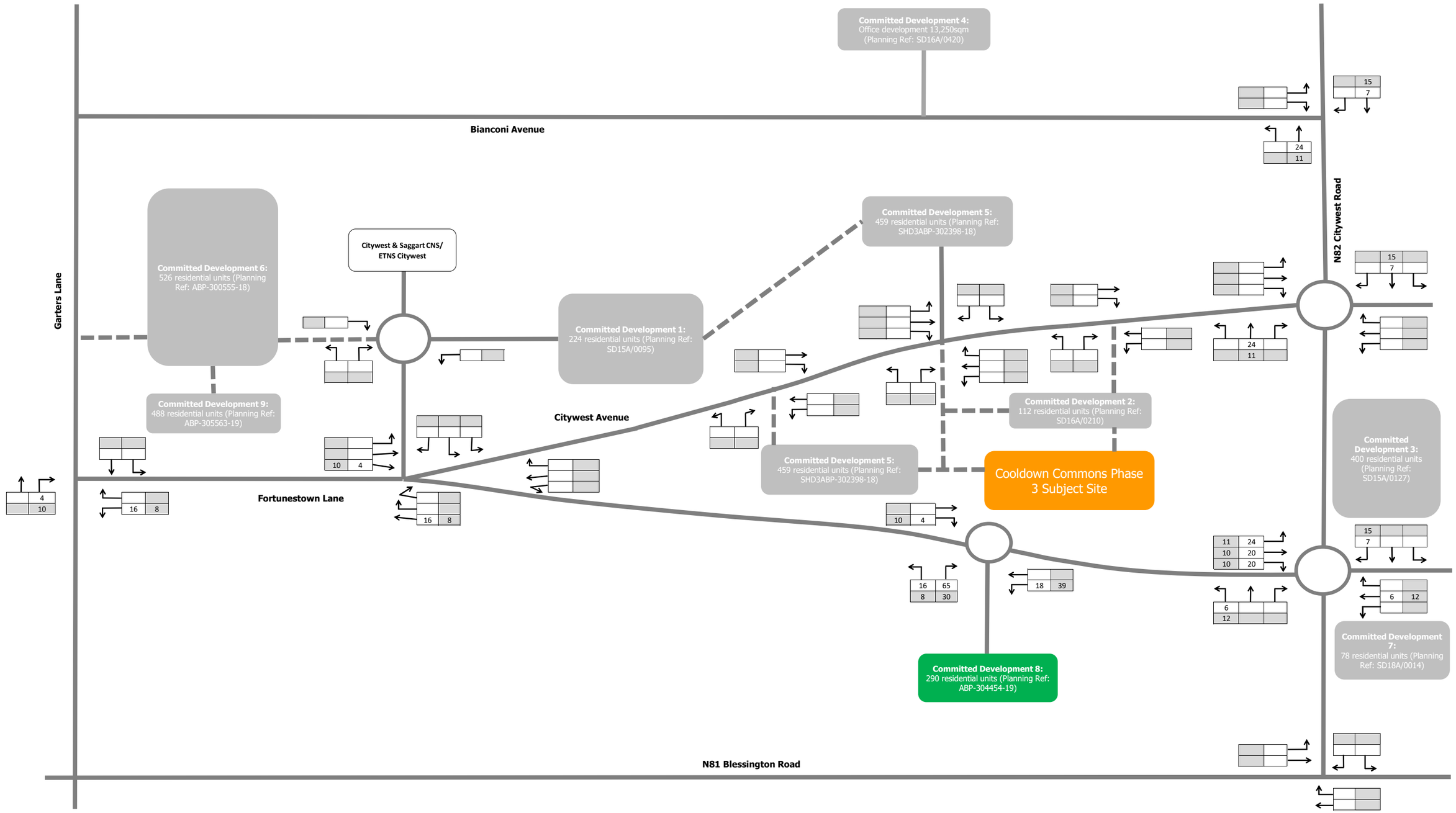

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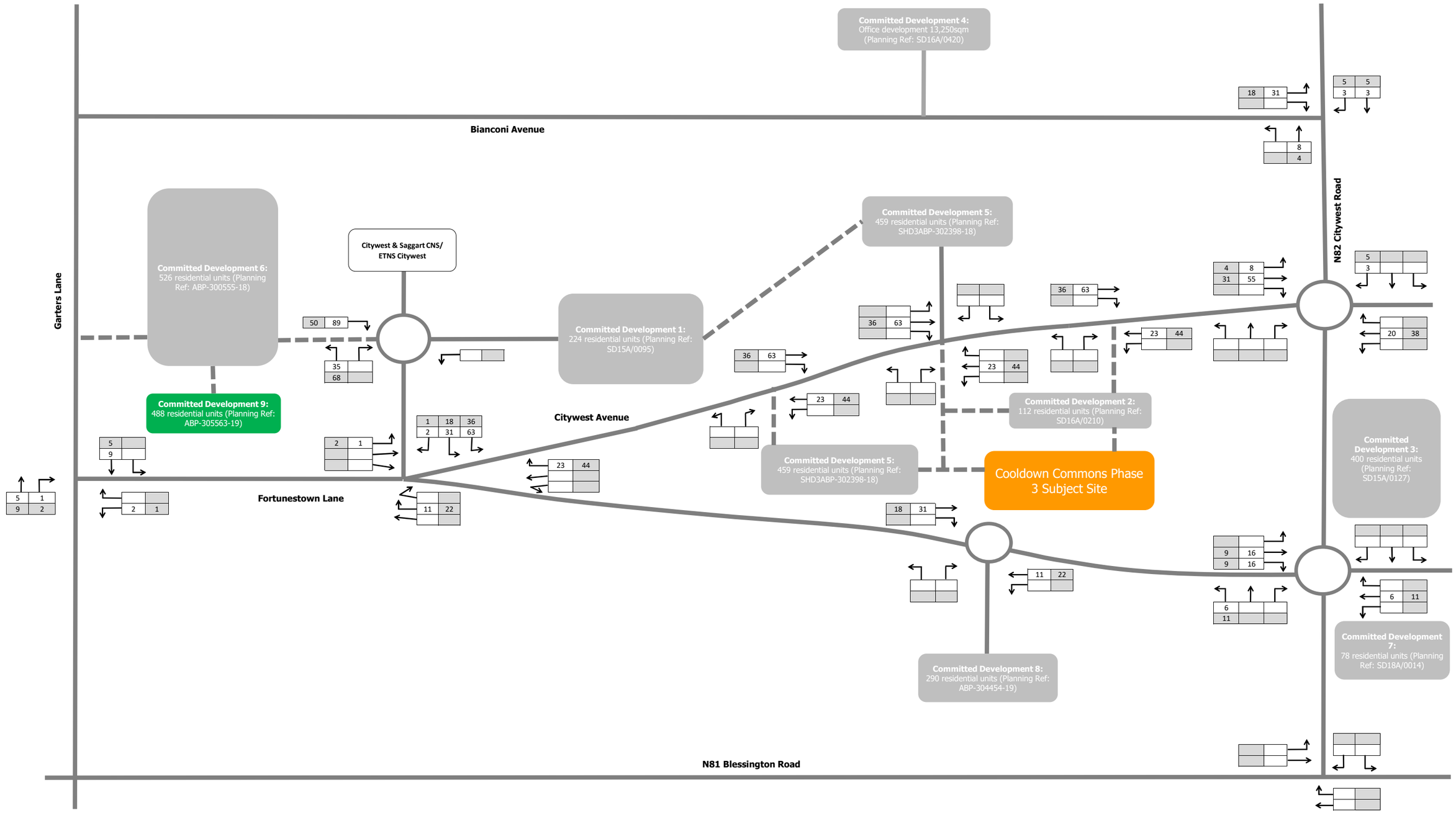
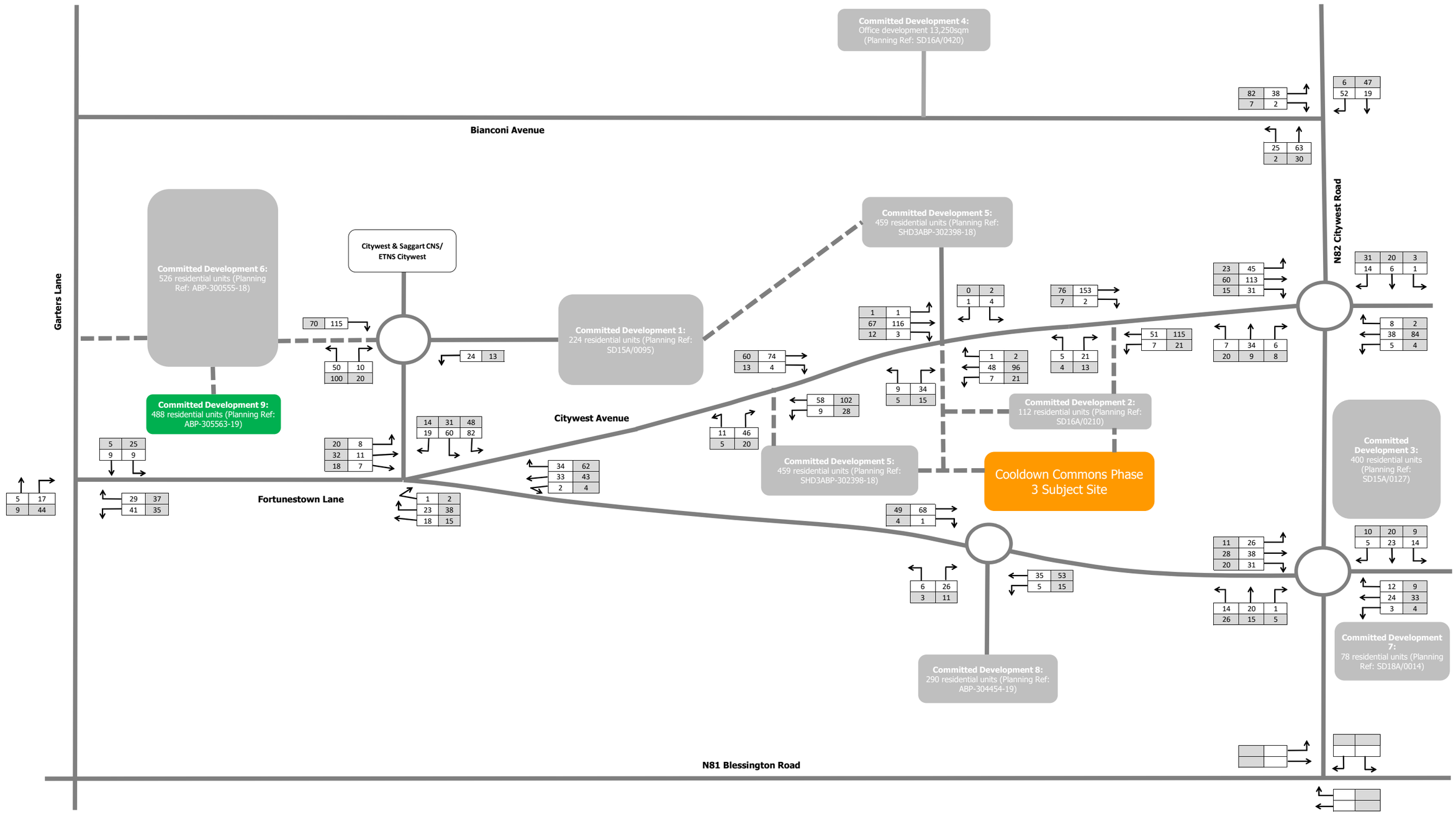


DBFL Consulting Engineers	**Dublin Office:** Dublin Office: Ormond House, Upper Ormond Quay, Dublin 7 **phone:** +353 1 400 4000 **Waterford Office:** Unit 2, The Chandlery, 1-2 O'Connell Street, Waterford **phone:** +353 51 309 500 **email:** info@dbfl.ie **website:** www.dbfl.ie	**Project :** Cooldown Commons Phase 3 Residential Development Fortunestown Lane, Citywest, Dublin 24 **DRG. Title :** Network Traffic Flows - Vehicles Committed Development 9 Trips - 2022,2027 and 2037	**Key:** AM Peak Hour (08:15-09:15) PM Peak Hour (16:30-17:30)	**Drawn by:** DG **Checked by:** **Date:** 16/04/2021 **Ref:** p190003\calcs\excel\traffic\19003 Traffic Model 002 **Figure:** 22 **Rev:** 2	



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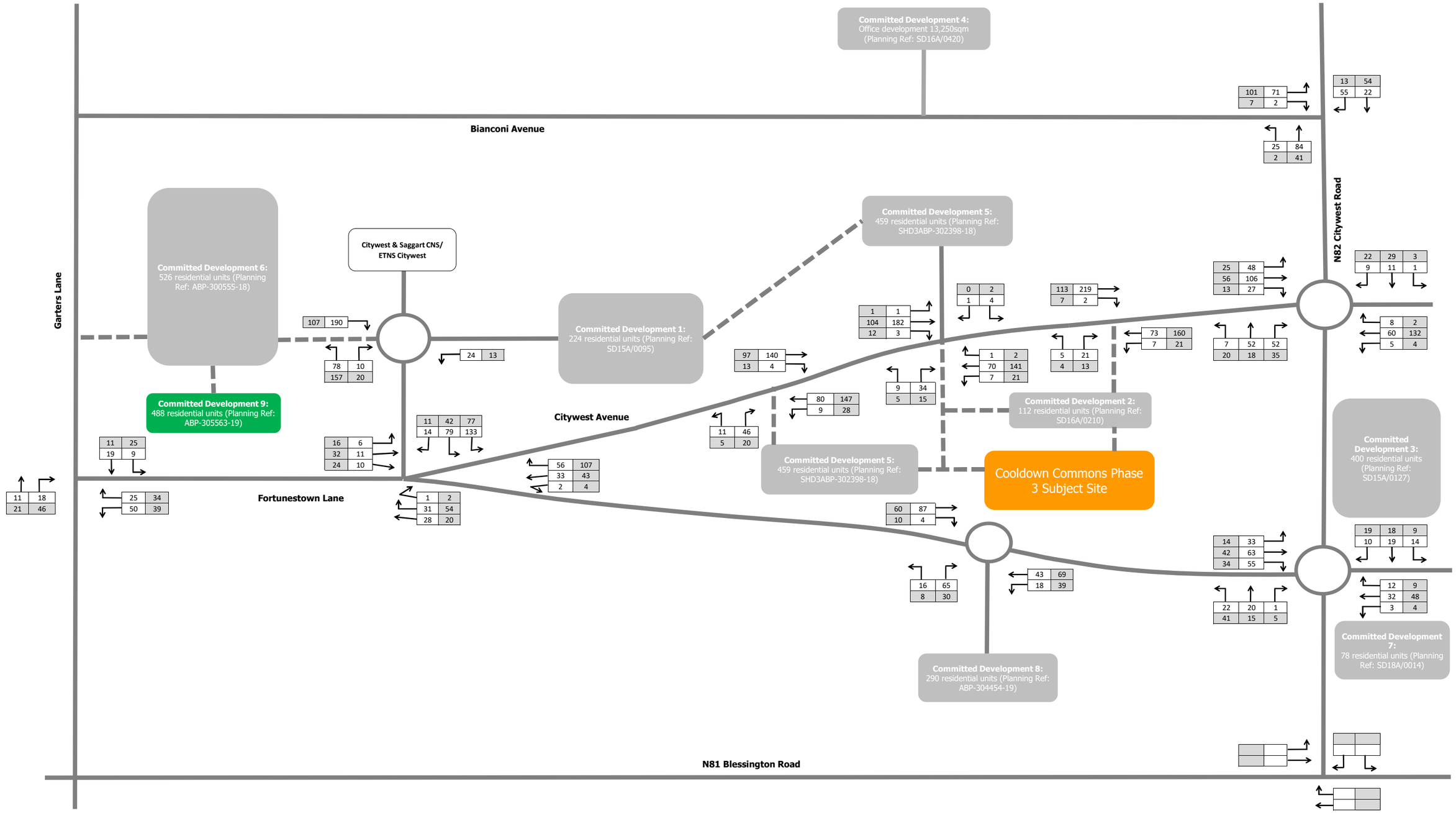
		DRG. Title : Network Traffic Flows - Vehicles Committed Development 2022 Trips		**Ref:** p190003\calcs\excel\traffic\19003 Traffic Model 002		
				Figure: 23		**Rev:** 2



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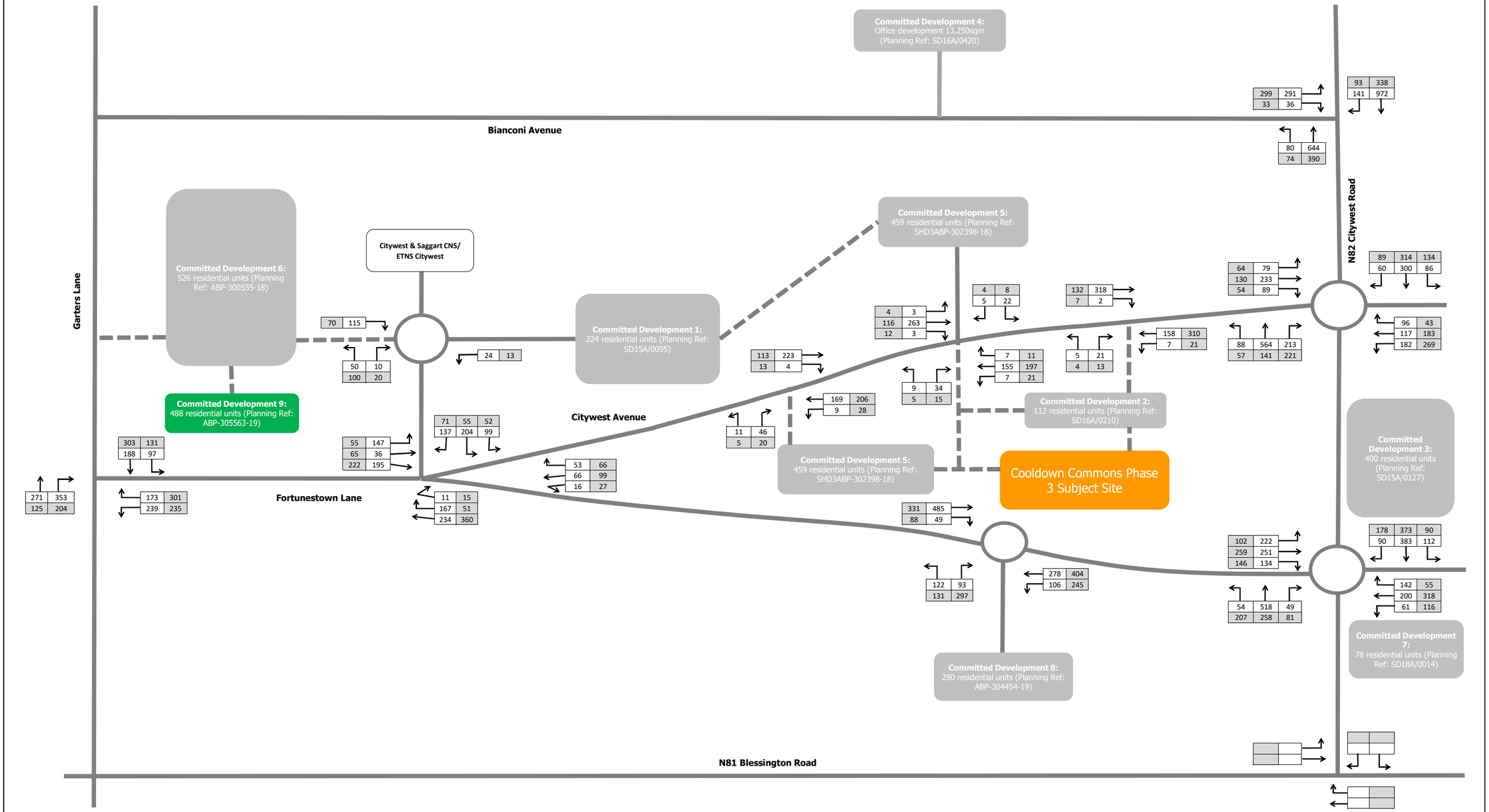
		DRG. Title : Network Traffic Flows - Vehicles Committed Development 2027 and 2037 Trips		**Ref:** p190003\calcs\excel\traffic\19003 Traffic Model 002		
				Figure: 24		**Rev:** 2



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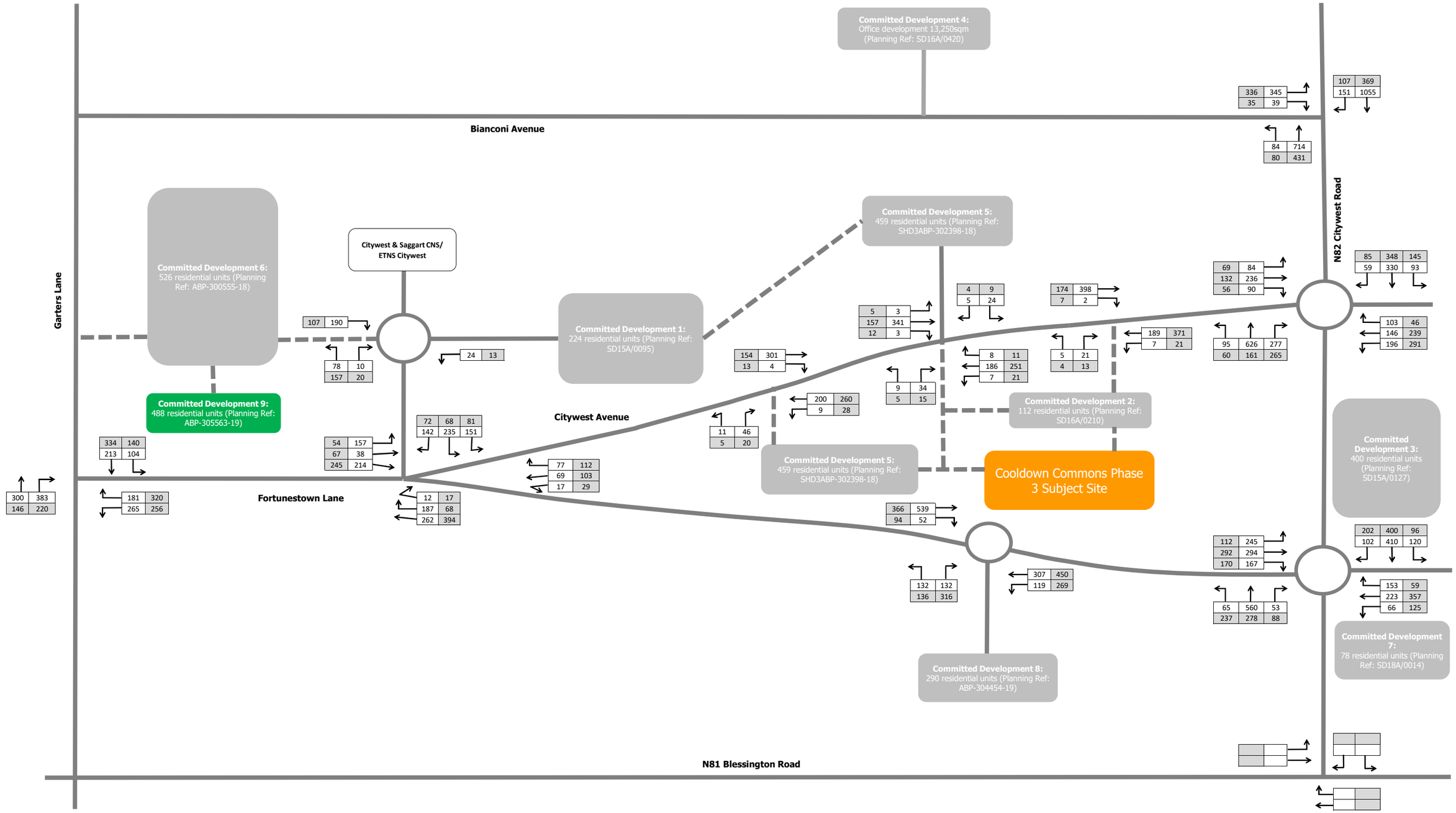
		DRG. Title : Network Traffic Flows - Vehicles Do Nothing 2022		**Ref:** p190003\calcs\excel\traffic\19003 Traffic Model 002		
				Figure: 25		**Rev:** 2



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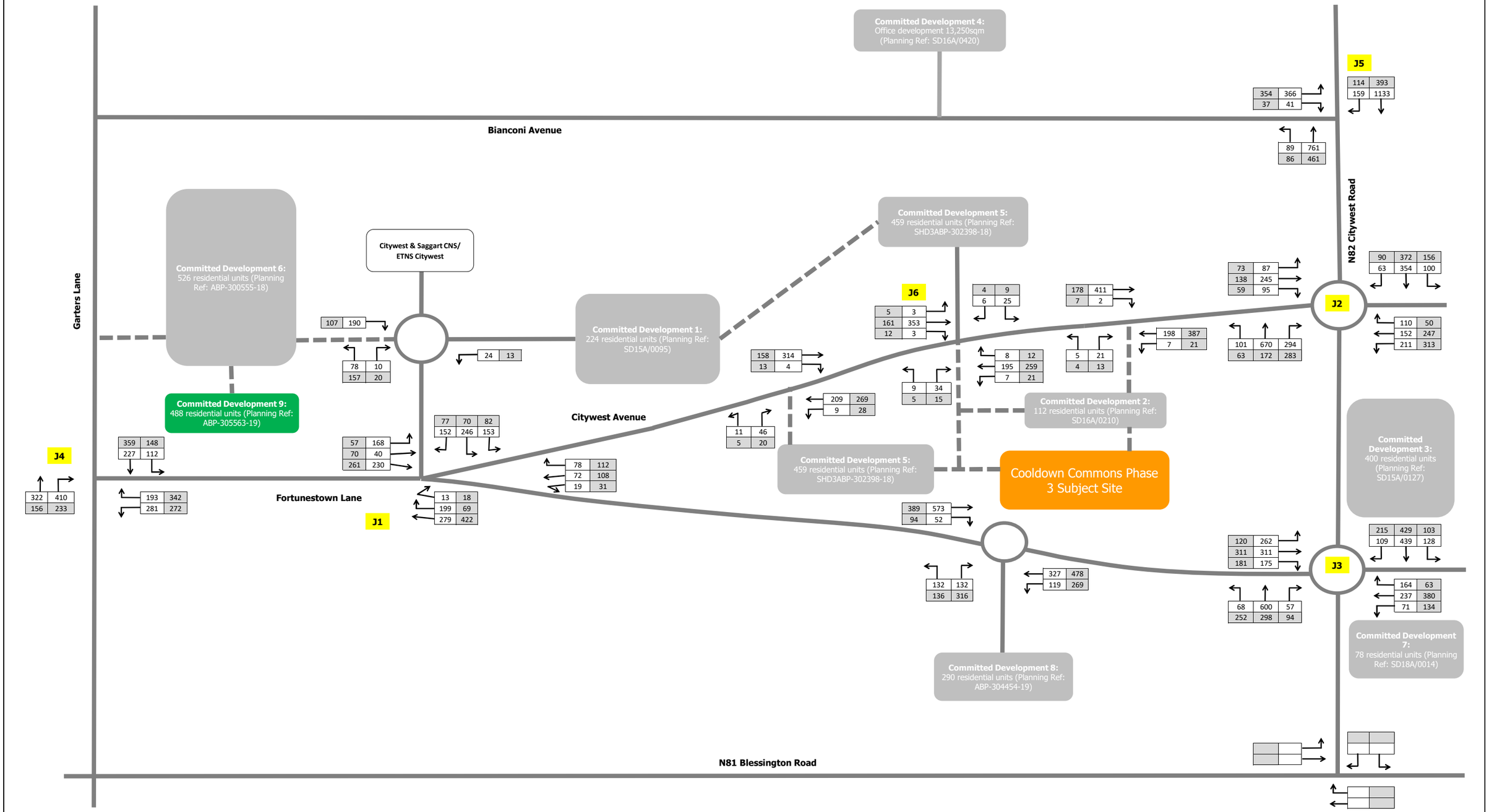

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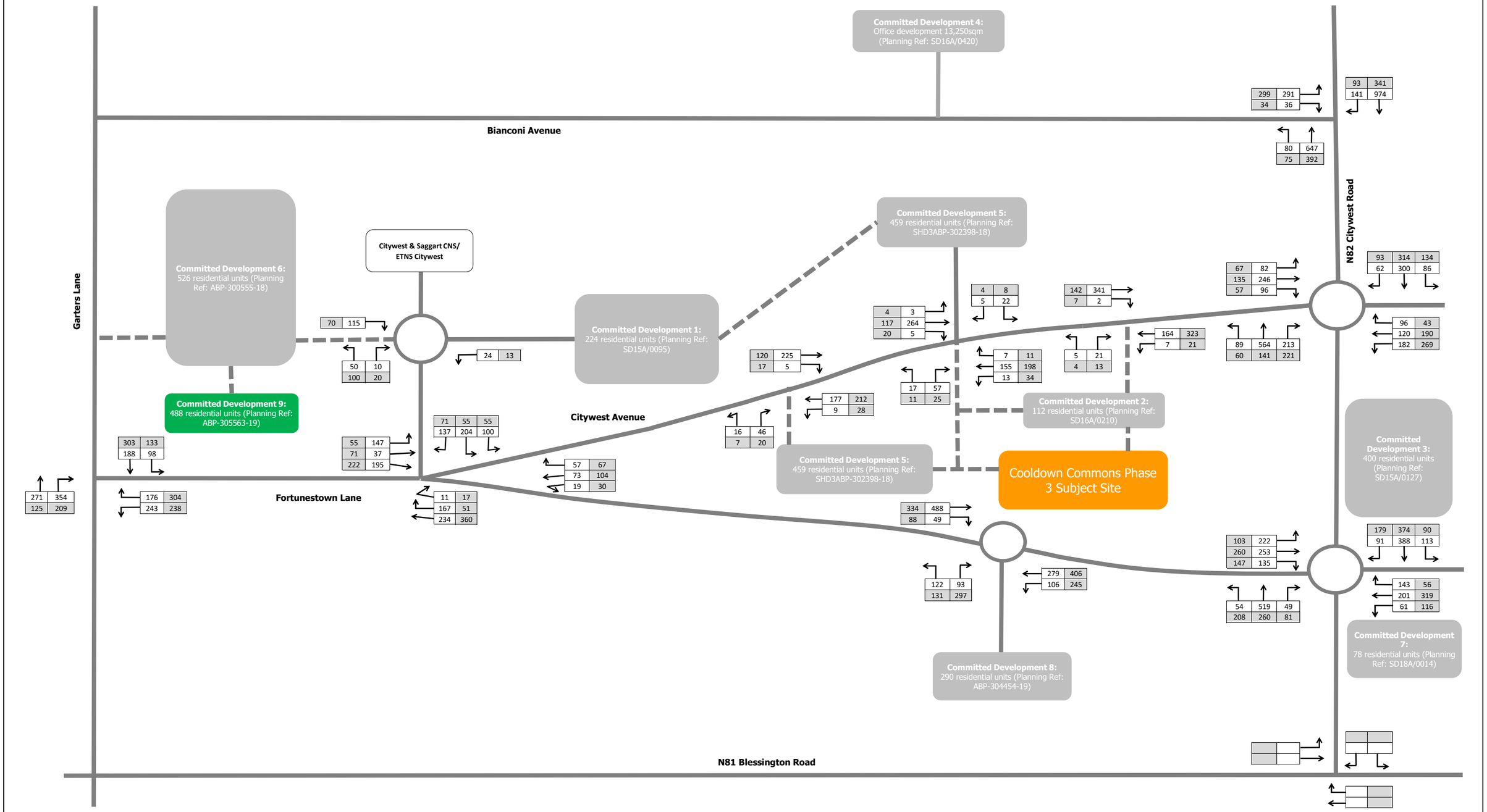
		DRG. Title : Network Traffic Flows - Vehicles Do Nothing 2037		**Ref:** p190003\calcs\excel\traffic\19003 Traffic Model 002		
				Figure: 27	**Rev:** 2	



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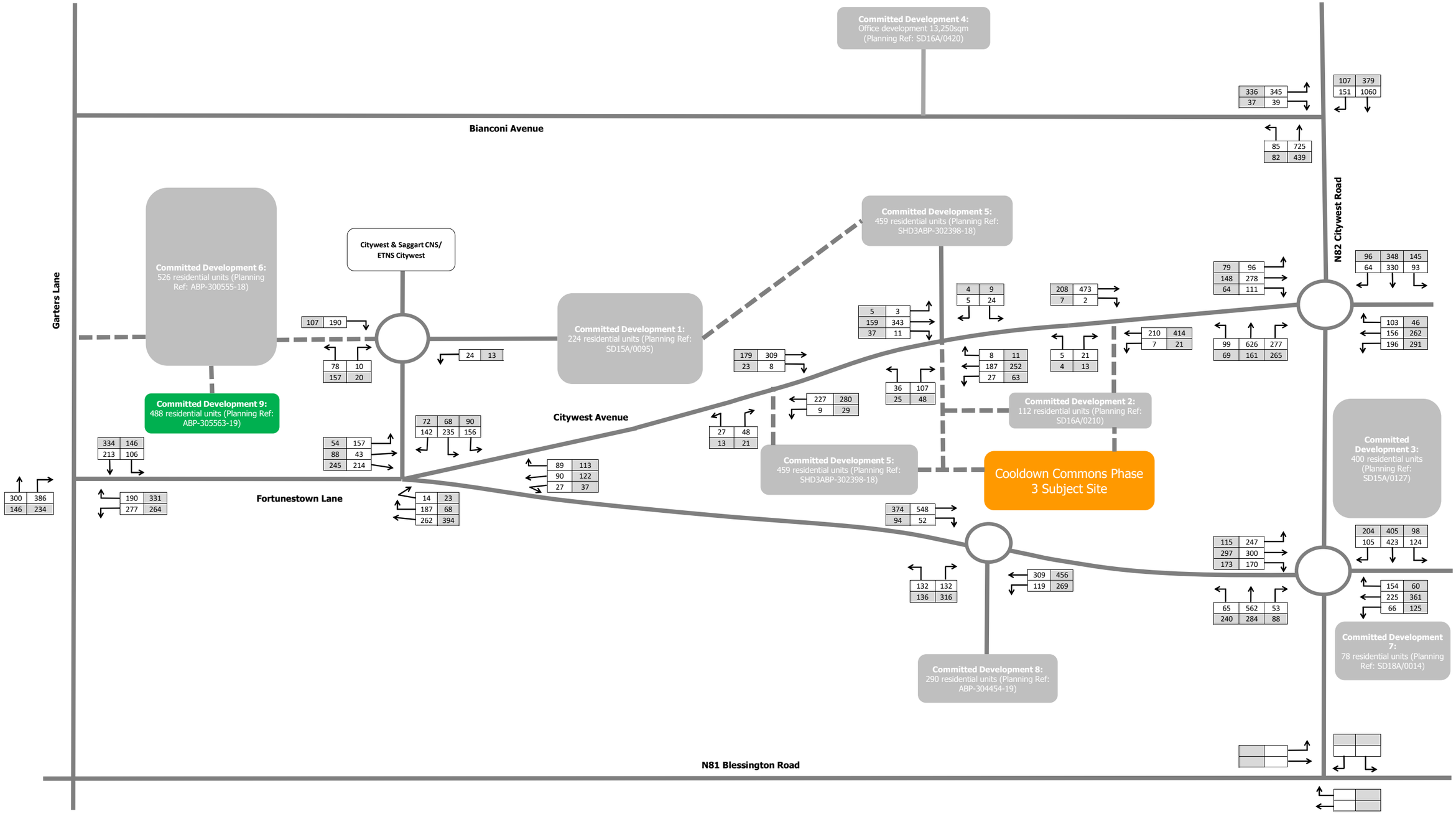
		DRG. Title : Network Traffic Flows - Vehicles Do Something 2022		**Ref:** p190003\calcs\excel\traffic\19003 Traffic Model 002		
				Figure: 28		**Rev:** 2



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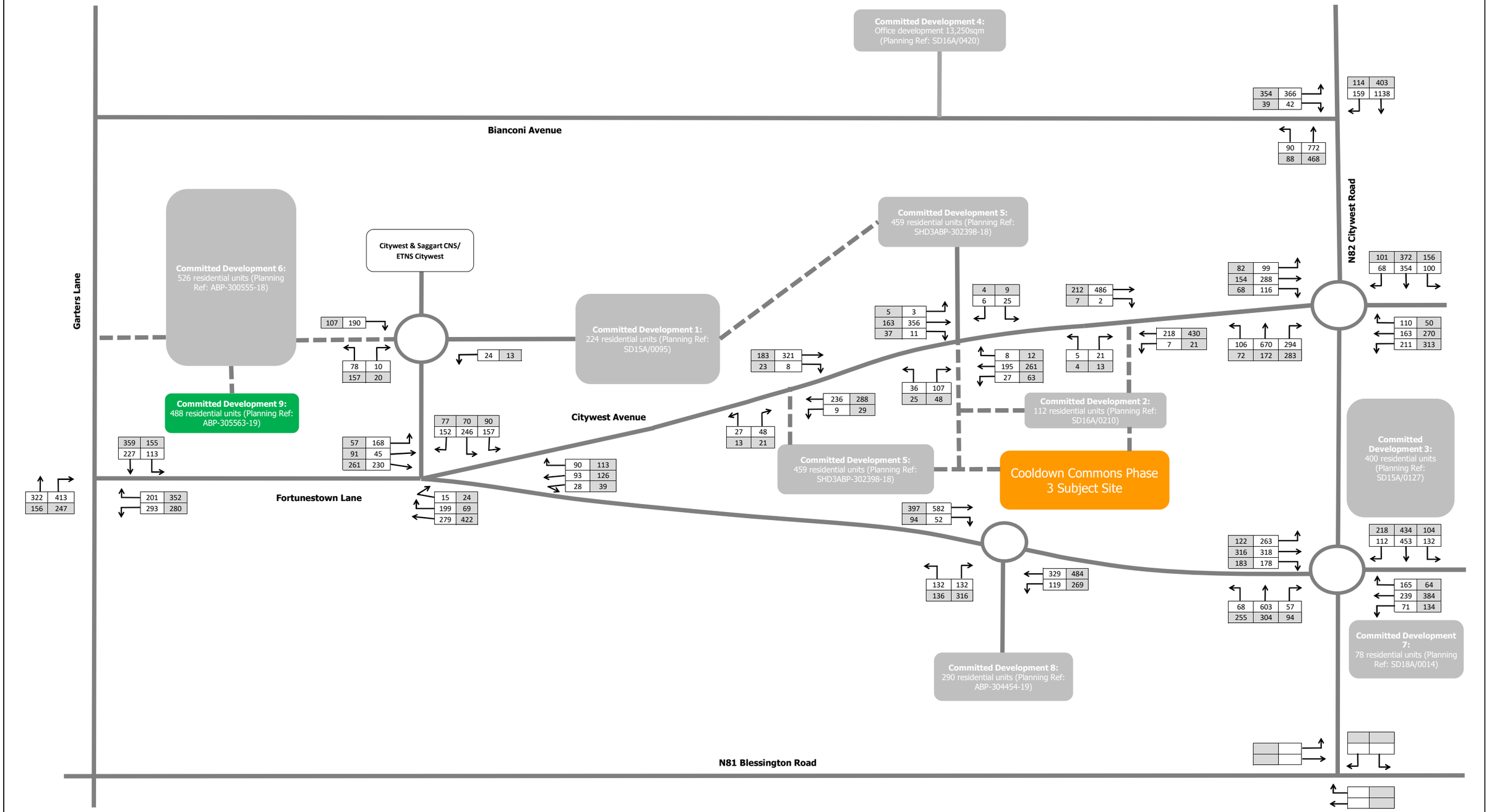

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				Ref: p190003\calcs\excel\traffic\19003 Traffic Model 002		
				Figure: 30		**Rev:** 2

APPENDIX C

TRANSYT Output Files

TRANSYT 15

Filename: Junction 1 Fortunestown Rd-Citywest Avenue Do-Nothing.t15
Path: G:\2019\p190003\calcs\transyt
Report generation date: 16/10/2020 09:09:43

»A1 - DN 2022 AM : D1 - DN 2022 AM* :
»A2 - DN 2022 PM : D2 - DN 2022 PM* :
»A3 - DN 2027 AM : D3 - DN 2027 AM* :
»A4 - DN 2027 PM : D4 - DN 2027 PM* :
»A5 - DN 2037 AM : D5 - DN 2037 AM* :
»A6 - DN 2037 PM : D6 - DN 2037 PM* :

File summary

File description

File title	Cooldown Commons Phase 3
Location	Citywest
Site number	1
UTCRegion	
Driving side	Left
Date	02/10/2020
Version	1
Status	TTA
Identifier	
Client	Cairn
Jobnumber	190003
Enumerator	mckennam
Description	Do Nothing

Model and Results

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

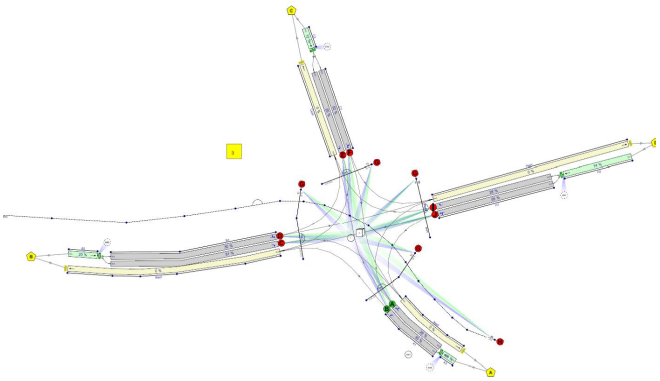
Units

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

Sorting

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

Network Diagrams



A1 - DN 2022 AM
D1 - DN 2022 AM*

Summary

Data Errors and Warnings

No errors or warnings

Run Summary

Analysis set used	Run start time	Run finish time	Modelling start time (HH:mm)	Network Cycle Time (s)	Performance Index (€ per hr)	Total network delay (PCU-hr/hr)	Highest DOS (%)	Item with highest DOS	Number of oversaturated items	Percentage of oversaturated items (%)	Item with worst signalised PRC	Item with worst unsignalised PRC	Ite wit wor over PR
1	16/10/2020 09:09:06	16/10/2020 09:09:07	08:15	150	312.06	20.89	64.82	C1/1	0	0	C1/1	C3/1	C1/

Analysis Set Details

Name	Description	Demand set	Include in report	Locked
DN 2022 AM		D1	✓	

Demand Set Details

Name	Description	Composite	Demand sets	Start time (HH:mm)	Locked
DN 2022 AM				08:15	

Links

Links

Link	Name	Description	Traffic node	Length (m)	Has Saturation Flow	Use RR67	Saturation flow (PCU/hr)	Is signal controlled	Is give way	Traffic type	Is minor shared	Allow Nearside Turn On Red
Luas	Luas		J1	100.00	✓		1800	✓		Tram		
Ped1	Ped1		J1	24.00	✓		2500	✓		Normal		
Ped2	Ped2		J1	27.00	✓		2500	✓		Normal		
Ped3	Ped3		J1	17.00	✓		2500	✓		Normal		
Ped8	Ped8		J1	13.77	✓		2500	✓		Normal		

Modelling

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

Modelling - Normal traffic - Advanced

Link	Dispersion type for Normal Traffic	Initial queue (PCU)	Type of Vehicle-in-Service	Vehicle-in-Service	Type of random parameter	Random parameter	Auto cycle time	Cycle time
(ALL)	NetworkDefault	0.00	NetworkDefault	Not-Included	NetworkDefault	0.50	✓	150

Modelling - Trams - Advanced

Link	Dispersion type for trams	Use tram network default acceleration	Initial queue (PCU)	Type of Vehicle-in-Service	Vehicle-in-Service	Type of random parameter	Random parameter	Auto cycle time	Cycle time
Luas	NetworkDefault	✓	0.00	NetworkDefault	Not-Included	NetworkDefault	0.50	✓	150

Flows

Link	Total flow (Veh/hr)	PCU Factor
Luas	30	1.00
Ped1	10	1.00
Ped2	10	1.00
Ped3	10	1.00
Ped8	10	1.00

Flows - Advanced

Link	Detectors
(ALL)	

Signals

Link	Controller stream	Phase	Second phase enabled
Luas	1	H	
Ped1	1	G	
Ped2	1	G	
Ped3	1	G	
Ped8	1	G	

Arms and Traffic Streams

Arms

Arm	Name	Description	Traffic node
Aexit	(untitled)		
Bexit	(untitled)		
Cexit	(untitled)		
Hexit	(untitled)		
A1	Fortunestown Lane (East)		J1
B1	Fortunestown Lane (West)		J1
C1	Link Road		J1
H1	Citywest Ave Link Rd		J1
H2	Citywest Ave Link Rd		HH1
A3	Fortunestown Lane (East)		AA2
B3	Fortunestown Lane (West)		BB2
C3	Link Road		CC2

Traffic Streams

Arm	Traffic Stream	Name	Description	Auto length	Length (m)	Has Saturation Flow	Saturation flow source	Saturation flow (PCU/hr)	Is signal controlled	Is give way	Traffic type	Allow Nearside Turn On Red
Aexit	1	(untitled)		✓	661.88						Normal	
Bexit	1	(untitled)		✓	1084.96						Normal	
Cexit	1	(untitled)			18.00						Normal	
Hexit	1	(untitled)		✓	1029.80						Normal	
A1	1				15.00	✓	Sum of lanes	1856	✓		Normal	
	2	(untitled)			15.00	✓	Sum of lanes	2055	✓		Normal	
B1	1	(untitled)			39.00	✓	Sum of lanes	1854	✓		Normal	
	2	(untitled)			39.00	✓	Sum of lanes	2009	✓		Normal	
C1	1	(untitled)			25.00	✓	Sum of lanes	1895	✓		Normal	
	2	(untitled)			25.00	✓	Sum of lanes	1998	✓		Normal	
H1	1	(untitled)			27.00	✓	Sum of lanes	1800	✓		Normal	
	2	(untitled)			27.00	✓	Sum of lanes	1800	✓		Normal	
H2	1	(untitled)		✓	211.61	✓	Sum of lanes	1800			Normal	
A3	1	(untitled)			8.00	✓	Sum of lanes	1980			Normal	
B3	1	(untitled)			10.00	✓	Sum of lanes	1925			Normal	
C3	1	(untitled)			6.50	✓	Sum of lanes	1915			Normal	

Lanes

Arm	Traffic Stream	Lane	Name	Description	Use RR67	Surface condition	Site quality factor	Gradient (%)	Width (m)	Use connector turning radius	Proportion that turn (%)	Turning radius (m)	Nearside lane	Saturation flow (PCU/hr)
Aexit	1	1	(untitled)											
Bexit	1	1	(untitled)											
Cexit	1	1	(untitled)											
Hexit	1	1	(untitled)											
A1	1	1	Left Turn		✓	N/A	N/A	0	3.00		100	47.00	✓	1856
	2	1	Ahead & Right Turn		✓	N/A	N/A	0	3.00	✓	0	99999.00		2055
B1	1	1	Ahead & Left Turn		✓	N/A	N/A	0	3.10		100	39.00	✓	1854
	2	1	Right Turn		✓	N/A	N/A	0	3.10		100	53.50		2009
C1	1	1	Ahead & Left Turn		✓	N/A	N/A	0	3.30		100	56.50	✓	1895
	2	1	Right Turn		✓	N/A	N/A	0	3.00		100	53.00		1998
H1	1	1	Ahead & Left Turn											1800
	2	1	Right Turn											1800
H2	1	1	(untitled)											1800
A3	1	1	(untitled)		✓	N/A	N/A	0	3.65	✓	0	99999.00	✓	1980
B3	1	1	(untitled)		✓	N/A	N/A	0	3.10	✓	0	99999.00	✓	1925
C3	1	1	(untitled)		✓	N/A	N/A	0	3.00	✓	0	99999.00	✓	1915

Modelling

Arm	Traffic Stream	Traffic model	Stop weighting multiplier (%)	Delay weighting multiplier (%)	Assignment Cost Weighting (%)	Exclude from results calculation	Max queue storage (PCU)	Has queue limit	Has degree of saturation limit
Aexit	1	NetworkDefault	100	100	100		0.00		
Bexit	1	NetworkDefault	100	100	100		0.00		
Cexit	1	NetworkDefault	100	100	100		3.00		
Hexit	1	NetworkDefault	100	100	100		0.00		
A1	1	NetworkDefault	100	100	100		3.00		
	2	NetworkDefault	100	100	100		3.00		
B1	1	NetworkDefault	100	100	100		7.00		
	2	NetworkDefault	100	100	100		7.00		
C1	1	NetworkDefault	100	100	100		6.00		
	2	NetworkDefault	100	100	100		6.00		
H1	1	NetworkDefault	100	100	100		0.00		
	2	NetworkDefault	100	100	100		0.00		
H2	1	NetworkDefault	100	100	100		0.00		
A3	1	NetworkDefault	100	100	100		1.00		
B3	1	NetworkDefault	100	100	100		0.00		
C3	1	NetworkDefault	100	100	100		1.00		

Modelling - Advanced

Arm	Traffic Stream	Initial queue (PCU)	Type of Vehicle-in-Service	Vehicle-in-Service	Type of random parameter	Random parameter	Auto cycle time	Cycle time
(ALL)	(ALL)	0.00	NetworkDefault	Not-Included	NetworkDefault	0.50	✓	150

Normal traffic - Modelling

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

Normal traffic - Advanced

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

Flows

Arm	Traffic Stream	Total Flow (PCU/hr)	Normal Flow (PCU/hr)
Aexit	1	415	415
Bexit	1	437	437
Cexit	1	367	367
Hexit	1	146	146
A1	1	234	234
	2	178	178
B1	1	183	183
	2	195	195
C1	1	303	303
	2	137	137
H1	1	82	82
	2	53	53
H2	1	135	135
A3	1	412	412
B3	1	378	378
C3	1	440	440

Signals

Arm	Traffic Stream	Controller stream	Phase	Second phase enabled
A1	1	1	B	
	2	1	A	
B1	1	1	D	
	2	1	C	
C1	1	1	F	
	2	1	E	
H1	1	1	J	
	2	1	I	

Signal Timings

Network Default: 150s cycle time; 150 steps

Phases

Controller Stream	Phase	Name	Minimum green (s)	Maximum green (s)	Relative start displacement (s)	Relative end displacement (s)	Type
1	A	(untitled)	1	300	0	0	Indicative arrow
	B	(untitled)	1	300	0	0	Traffic
	C	(untitled)	1	300	0	0	Indicative arrow
	D	(untitled)	1	300	0	0	Traffic
	E	(untitled)	7	300	0	0	Indicative arrow
	F	(untitled)	7	300	0	0	Traffic
	G	(untitled)	1	300	0	0	Unknown
	H	(untitled)	1	300	0	0	Unknown
	I	(untitled)	1	300	0	0	Indicative arrow
	J	(untitled)	1	300	0	0	Traffic

Library Stages

Controller Stream	Library Stage	Phases in stage	User stage minimum (s)
1	1	B, C, H, I	2
	2	C, D, B	1
	3	A, B	1
	4	E, F	1
	5	G	1
	6	D, J	1

Stage Sequences

Controller Stream	Sequence	Name	Multiple cycling	Stage IDs	Stage ends
1	1	(untitled)	Single	5, 1, 2, 6, 4, 3	29, 47, 78, 95, 137, 13

Intergreen Matrix for Controller Stream 1

		To									
		A	B	C	D	E	F	G	H	I	J
From	A				6	6	6	6	14	6	6	6
	B						6	6	14			6
	C	6					6	6	14			6
	D	6					6	6	14	6	6	
	E	6	6	6	6				14	6	6	6
	F	6	6	6	6				14	6	6	6
	G	14	14	14	14	14	14			6	6	6
	H	6				6	6	6	6			6
	I	6				6	6	6	6			6
	J	6	6	6		6	6	6	6	6		

Interstage Matrix for Controller Stream 1

		To					
		1	2	3	4	5	6
From	1	0	6	6	6	14	6
	2	6	0	6	6	14	6
	3	6	6	0	6	14	6
	4	6	6	6	0	14	6
	5	14	14	14	14	0	14
	6	6	6	6	6	14	0

Resultant Stages

Controller Stream	Resultant Stage	Is base stage	Library Stage ID	Phases in this stage	Stage start (s)	Stage end (s)	Stage duration (s)	User stage minimum (s)	Stage minimum (s)
1	1	✓	5	G	27	29	2	1	1
	2	✓	1	B,C,H,I	43	47	4	2	2
	3	✓	2	C,D,B	53	78	25	1	1
	4	✓	6	D,J	84	95	11	1	1
	5	✓	4	E,F	101	137	36	1	7
	6	✓	3	A,B	143	13	20	1	1

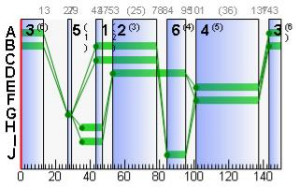
Resultant Phase Green Periods

Controller Stream	Phase	Green period	Is base green period	Start time (s)	End time (s)	Duration (s)
1	A	1	✓	143	13	20
	B	1	✓	43	78	35
		2	✓	143	13	20
	C	1	✓	43	78	35
	D	1	✓	53	95	42
	E	1	✓	101	137	36
	F	1	✓	101	137	36
	G	1	✓	27	29	2
	H	1	✓	35	47	12
	I	1	✓	35	47	12
	J	1	✓	84	95	11

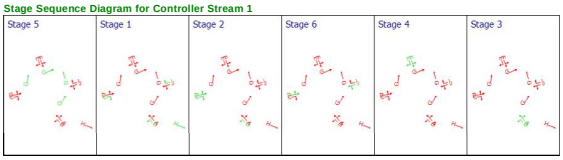
Traffic Stream Green Times

Arm	Traffic Stream	Traffic Node	Controller Stream	Phase	Green Period 1			Green Period 2		
					Start	End	Duration	Start	End	Duration
A1	1	J1	1	B	43	78	35	143	13	20
A1	2	J1	1	A	143	13	20			
B1	1	J1	1	D	53	95	42			
B1	2	J1	1	C	43	78	35			
C1	1	J1	1	F	101	137	36			
C1	2	J1	1	E	101	137	36			
H1	1	J1	1	J	84	95	11			
H1	2	J1	1	I	35	47	12			

Phase Timings Diagram for Controller Stream 1



Stage Sequence Diagram for Controller Stream 1



Link Results

Link Results: Vehicle summary

Time Segment	Link	Degree of saturation (%)	Practical reserve capacity (%)	Calculated flow entering (PCU/hr)	Calculated sat flow (PCU/hr)	Actual green (s (per cycle))	Mean Delay per Veh (s)	Mean max queue (PCU)	Utilised storage (%)	Weighted cost of delay (€ per hr)	Weighted cost of stops (€ per hr)	Performance Index (€ per hr)
08:15-09:15	Luas	19	368	30	1800	12	66.40	1.18	6.98	7.86	0.09	7.95
	Ped1	20	350	10	2500	2	81.42	0.43	7.68	3.21	0.13	3.34
	Ped2	20	350	10	2500	2	81.42	0.43	6.82	3.21	0.13	3.34
	Ped3	20	350	10	2500	2	81.42	0.43	10.84	3.21	0.13	3.34
	Ped8	20	350	10	2500	2	81.42	0.43	13.38	3.21	0.13	3.34

Link Results: Flows and signals

Time Segment	Link	Calculated flow entering (PCU/hr)	Calculated flow out (PCU/hr)	Flow discrepancy (PCU/hr)	Adjusted flow warning	Calculated sat flow (PCU/hr)	Calculated capacity (PCU/hr)	Degree of saturation (%)	DOS Threshold exceeded	Practical reserve capacity (%)	Mean modulus of error	Actual green (s (per cycle))
08:15-09:15	Luas	30	30	0		1800	156	19		368	0.00	12
	Ped1	10	10	0		2500	50	20		350	0.00	2
	Ped2	10	10	0		2500	50	20		350	0.00	2
	Ped3	10	10	0		2500	50	20		350	0.00	2
	Ped8	10	10	0		2500	50	20		350	0.00	2

Link Results: Stops and delays

Time Segment	Link	Mean Cruise Time per Veh (s)	Mean Delay per Veh (s)	Total delay (PCU-hr/hr)	Weighted cost of delay (€ per hr)	Mean stops per Veh (%)	Total stops (Stops per hr)	Weighted cost of stops (€ per hr)
08:15-09:15	Luas	24.00	66.40	0.55	7.86	94.13	28.24	0.09
	Ped1	2.88	81.42	0.23	3.21	103.06	10.31	0.13
	Ped2	3.24	81.42	0.23	3.21	103.06	10.31	0.13
	Ped3	2.04	81.42	0.23	3.21	103.06	10.31	0.13
	Ped8	1.65	81.42	0.23	3.21	103.06	10.31	0.13

Link Results: Queues and blocking

Time Segment	Link	Initial queue (PCU)	Mean max queue (PCU)	Max queue storage (PCU)	Utilised storage (%)	Excess queue penalty (€ per hr)	Wasted time total (s (per cycle))	Estimated blocking
08:15-09:15	Luas	0.00	1.18	16.92	6.98	0.00	10.00	
	Ped1	0.00	0.43	5.64	7.68	0.00	2.00	
	Ped2	0.00	0.43	6.35	6.82	0.00	2.00	
	Ped3	0.00	0.43	4.00	10.84	0.00	2.00	
	Ped8	0.00	0.43	3.24	13.38	0.00	2.00	

Traffic Stream Results

Traffic Stream Results: Vehicle summary

Time Segment	Arm	Traffic Stream	Degree of saturation (%)	Practical reserve capacity	Calculated flow entering (PCU/hr)	Calculated sat flow	Actual green (s (per cycle))	Mean Delay per Veh (s)	Mean max queue (PCU)	Utilised storage (%)	Weighted cost of delay (€ per hr)	Weighted cost of stops (€ per hr)	Performance Index (€ per hr)
08:15-09:15	Aexit	1	0	Unrestricted	415	Unrestricted	150	0.00	0.00	0.00	0.00	0.00	0.00
	Bexit	1	0	Unrestricted	437	Unrestricted	150	0.00	0.00	0.00	0.00	0.00	0.00
	Cexit	1	0	Unrestricted	367	Unrestricted	150	0.00	0.00	0.00	0.00	0.00	0.00
	Hexit	1	0	Unrestricted	146	Unrestricted	150	0.00	0.00	0.00	0.00	0.00	0.00
	A1	1	33	171	234	1856	55	20.10	4.83	160.91	18.56	2.06	20.62
		2	62	45	178	2055	20	70.69	7.46	248.79	49.63	2.22	51.85
	B1	1	34	161	183	1854	42	44.12	6.09	86.98	31.85	1.81	33.66
		2	40	123	195	2009	35	50.51	6.96	99.45	38.85	2.07	40.92
	C1	1	65	39	303	1895	36	57.66	11.87	197.78	68.91	3.53	72.45
		2	28	224	137	1998	36	47.11	4.66	77.64	25.46	1.39	26.84
	H1	1	57	58	82	1800	11	82.58	3.65	77.64	26.71	1.09	27.79
		2	34	165	53	1800	12	70.36	2.16	46.05	14.71	0.64	15.36
	H2	1	8	1100	135	1800	150	0.08	0.00	0.01	0.04	0.00	0.04
	A3	1	21	333	412	1980	150	0.24	0.03	2.73	0.39	0.00	0.39
	B3	1	20	358	378	1925	150	0.23	0.02	1.38	0.34	0.00	0.34
	C3	1	23	292	440	1915	150	0.28	0.03	3.43	0.49	0.00	0.49

Traffic Stream Results: Flows and signals

Time Segment	Arm	Traffic Stream	Calculated flow entering (PCU/hr)	Calculated flow out (PCU/hr)	Flow discrepancy (PCU/hr)	Adjusted flow warning	Calculated sat flow	Calculated capacity	Degree of saturation (%)	DOS Threshold exceeded	Practical reserve capacity	Mean modulus of error	Actual green (s (per cycle))
08:15-09:15	Aexit	1	415	415	0		Unrestricted	Unrestricted	0		Unrestricted	0.49	150
	Bexit	1	437	437	0		Unrestricted	Unrestricted	0		Unrestricted	0.21	150
	Cexit	1	367	367	0		Unrestricted	Unrestricted	0		Unrestricted	1.31	150
	Hexit	1	146	146	0		Unrestricted	Unrestricted	0		Unrestricted	0.43	150
	A1	1	234	234	0		1856	705	33		171	0.00	55
		2	178	178	0		2055	288	62		45	0.00	20
	B1	1	183	183	0		1854	531	34		161	0.00	42
		2	195	195	0		2009	482	40		123	0.00	35
	C1	1	303	303	0		1895	467	65		39	0.00	36
		2	137	137	0		1998	493	28		224	0.00	36
	H1	1	82	82	0		1800	144	57		58	0.00	11
		2	53	53	0		1800	156	34		165	0.00	12
	H2	1	135	135	0		1800	1800	8		1100	0.00	150
	A3	1	412	412	0		1980	1980	21		333	0.00	150
	B3	1	378	378	0		1925	1925	20		358	0.00	150
	C3	1	440	440	0		1915	1915	23		292	0.00	150

Traffic Stream Results: Stops and delays

Time Segment	Arm	Traffic Stream	Mean Cruise Time per Veh (s)	Mean Delay per Veh (s)	Total delay (PCU-hr/hr)	Weighted cost of delay (€ per hr)	Mean stops per Veh (%)	Total stops (Stops per hr)	Weighted cost of stops (€ per hr)
08:15-09:15	Aexit	1	79.43	0.00	0.00	0.00	0.00	0.00	0.00
	Bexit	1	130.20	0.00	0.00	0.00	0.00	0.00	0.00
	Cexit	1	2.16	0.00	0.00	0.00	0.00	0.00	0.00
	Hexit	1	123.58	0.00	0.00	0.00	0.00	0.00	0.00
	A1	1	1.80	20.10	1.31	18.56	70.26	164.40	2.06
		2	1.80	70.69	3.50	49.63	99.58	177.24	2.22
	B1	1	4.68	44.12	2.24	31.85	79.04	144.64	1.81
		2	4.68	50.51	2.74	38.85	84.72	165.21	2.07
	C1	1	3.00	57.66	4.85	68.91	93.00	281.79	3.53
		2	3.00	47.11	1.79	25.46	80.74	110.62	1.39
	H1	1	3.24	82.58	1.88	26.71	105.63	86.62	1.09
		2	3.24	70.36	1.04	14.71	97.05	51.44	0.64
	H2	1	25.39	0.08	0.00	0.04	0.00	0.00	0.00
	A3	1	1.00	0.24	0.03	0.39	0.00	0.00	0.00
	B3	1	1.20	0.23	0.02	0.34	0.00	0.00	0.00
	C3	1	1.00	0.28	0.03	0.49	0.00	0.00	0.00

Traffic Stream Results: Queues and blocking

Time Segment	Arm	Traffic Stream	Initial queue (PCU)	Mean max queue (PCU)	Max queue storage (PCU)	Utilised storage (%)	Excess queue penalty (€ per hr)	Wasted time total (s (per cycle))	Estimated blocking
08:15-09:15	Aexit	1	0.00	0.00	115.11	0.00	0.00	6.00	
	Bexit	1	0.00	0.00	188.69	0.00	0.00	0.00	
	Cexit	1	0.00	0.00	3.00	0.00	0.00	76.00	
	Hexit	1	0.00	0.00	179.09	0.00	0.00	9.00	
	A1	1	0.00	4.83	3.00	160.91	0.00	0.00	
		2	0.00	7.46	3.00	248.79	0.00	0.00	
	B1	1	0.00	6.09	7.00	86.98	0.00	0.00	
		2	0.00	6.96	7.00	99.45	0.00	0.00	
	C1	1	0.00	11.87	6.00	197.78	0.00	0.00	
		2	0.00	4.66	6.00	77.64	0.00	0.00	
	H1	1	0.00	3.65	4.70	77.64	0.00	0.00	
		2	0.00	2.16	4.70	46.05	0.00	8.00	
	H2	1	0.00	0.00	36.80	0.01	0.00	0.00	
	A3	1	0.00	0.03	1.00	2.73	0.00	91.00	
	B3	1	0.00	0.02	1.74	1.38	0.00	0.00	
	C3	1	0.00	0.03	1.00	3.43	0.00	70.00	

Final Prediction Table

Link Results

			SIGNALS		FLOWS		PERFORMANCE				PER PCU			QUEUES	WEIGH
Link	Name	Traffic node	Controller stream	Phase	Calculated flow entering (PCU/hr)	Calculated sat flow (PCU/hr)	Actual green (s (per cycle))	Wasted time total (s (per cycle))	Degree of saturation (%)	Practical reserve capacity (%)	JourneyTime (s)	Mean Delay per Veh (s)	Mean stops per Veh (%)	Mean max queue (PCU)	Delay weighting (%)	w
Luas T	Luas	J1	1	H	30	1800	12	10.00	19	368	90.40	66.40	94.13	1.18	100	
Ped1	Ped1	J1	1	G	10	2500	2	2.00	20	350	84.30	81.42	103.06	0.43	100	
Ped2	Ped2	J1	1	G	10	2500	2	2.00	20	350	84.66	81.42	103.06	0.43	100	
Ped3	Ped3	J1	1	G	10	2500	2	2.00	20	350	83.46	81.42	103.06	0.43	100	
Ped8	Ped8	J1	1	G	10	2500	2	2.00	20	350	83.07	81.42	103.06	0.43	100	

Traffic Stream Results

				SIGNALS		FLOWS		PERFORMANCE				PER PCU			QUEUES
Arm	Traffic Stream	Name	Traffic node	Controller stream	Phase	Calculated flow entering (PCU/hr)	Calculated sat flow	Actual green (s (per cycle))	Wasted time total (s (per cycle))	Degree of saturation (%)	Practical reserve capacity	JourneyTime (s)	Mean Delay per Veh (s)	Mean stops per Veh (%)	Mean max queue (PCU)
Aexit	1	(untitled)				415	Unrestricted	150	6.00	0	Unrestricted	79.43	0.00	0.00	0.00
Bexit	1	(untitled)				437	Unrestricted	150	0.00	0	Unrestricted	130.20	0.00	0.00	0.00
Cexit	1	(untitled)				367	Unrestricted	150	76.00	0	Unrestricted	2.16	0.00	0.00	0.00
Hexit	1	(untitled)				146	Unrestricted	150	9.00	0	Unrestricted	123.58	0.00	0.00	0.00
A1	1		J1	1	B	234 <	1856	55	0.00	33	171	21.90	20.10	70.26	4.83 +
	2	(untitled)	J1	1	A	178 <	2055	20	0.00	62	45	72.49	70.69	99.58	7.46 +
B1	1	(untitled)	J1	1	D	183	1854	42	0.00	34	161	48.80	44.12	79.04	6.09
	2	(untitled)	J1	1	C	195	2009	35	0.00	40	123	55.19	50.51	84.72	6.96
C1	1	(untitled)	J1	1	F	303 <	1895	36	0.00	65	39	60.66	57.66	93.00	11.87 +
	2	(untitled)	J1	1	E	137	1998	36	0.00	28	224	50.11	47.11	80.74	4.66
H1	1	(untitled)	J1	1	J	82	1800	11	0.00	57	58	85.82	82.58	105.63	3.65
	2	(untitled)	J1	1	I	53	1800	12	8.00	34	165	73.60	70.36	97.05	2.16
H2	1	(untitled)	HH1			135	1800	150	0.00	8	1100	25.47	0.08	0.00	0.00
A3	1	(untitled)	AA2			412	1980	150	91.00	21	333	1.24	0.24	0.00	0.03
B3	1	(untitled)	BB2			378	1925	150	0.00	20	358	1.43	0.23	0.00	0.02
C3	1	(untitled)	CC2			440	1915	150	70.00	23	292	1.28	0.28	0.00	0.03

Network Results

	Distance travelled (PCU-km/hr)	Time spent (PCU-hr/hr)	Mean journey speed (kph)	Total delay (PCU-hr/hr)	Weighted cost of delay (€ per hr)	Weighted cost of stops (€ per hr)	Excess queue penalty (€ per hr)	Performance Index (€ per hr)
Normal traffic	980.65	53.06	18.48	20.34	288.78	15.34	0.00	304.12
Bus	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tram	3.00	0.75	3.98	0.55	7.86	0.09	0.00	7.95
Pedestrians								
TOTAL	983.65	53.81	18.28	20.89	296.64	15.43	0.00	312.06

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

A2 - DN 2022 PM
D2 - DN 2022 PM*

Summary

Data Errors and Warnings

No errors or warnings

Run Summary

Analysis set used	Run start time	Run finish time	Modelling start time (HH:mm)	Network Cycle Time (s)	Performance Index (€ per hr)	Total network delay (PCU-hr/hr)	Highest DOS (%)	Item with highest DOS	Number of oversaturated items	Percentage of oversaturated items (%)	Item with worst signalised PRC	Item with worst unsignalised PRC	Ite wit wor over PR
2	16/10/2020 09:09:08	16/10/2020 09:09:09	16:30	150	224.82	14.98	50.00	H1/1	0	0	H1/1	A3/1	H1/

Analysis Set Details

Name	Description	Demand set	Include in report	Locked
DN 2022 PM		D2	✓	

Demand Set Details

Name	Description	Composite	Demand sets	Start time (HH:mm)	Locked
DN 2022 PM				16:30	

Links

Links

Link	Name	Description	Traffic node	Length (m)	Has Saturation Flow	Use RR67	Saturation flow (PCU/hr)	Is signal controlled	Is give way	Traffic type	Is minor shared	Allow Nearside Turn On Red
Luas	Luas		J1	100.00	✓		1800	✓		Tram		
Ped1	Ped1		J1	24.00	✓		2500	✓		Normal		
Ped2	Ped2		J1	27.00	✓		2500	✓		Normal		
Ped3	Ped3		J1	17.00	✓		2500	✓		Normal		
Ped8	Ped8		J1	13.77	✓		2500	✓		Normal		

Modelling

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

Modelling - Normal traffic - Advanced

Link	Dispersion type for Normal Traffic	Initial queue (PCU)	Type of Vehicle-in-Service	Vehicle-in-Service	Type of random parameter	Random parameter	Auto cycle time	Cycle time
(ALL)	NetworkDefault	0.00	NetworkDefault	Not-Included	NetworkDefault	0.50	✓	150

Modelling - Trams - Advanced

Link	Dispersion type for trams	Use tram network default acceleration	Initial queue (PCU)	Type of Vehicle-in-Service	Vehicle-in-Service	Type of random parameter	Random parameter	Auto cycle time	Cycle time
Luas	NetworkDefault	✓	0.00	NetworkDefault	Not-Included	NetworkDefault	0.50	✓	150

Flows

Link	Total flow (Veh/hr)	PCU Factor
Luas	30	1.00
Ped1	10	1.00
Ped2	10	1.00
Ped3	10	1.00
Ped8	10	1.00

Flows - Advanced

Link	Detectors
(ALL)	

Signals

Link	Controller stream	Phase	Second phase enabled
Luas	1	H	
Ped1	1	G	
Ped2	1	G	
Ped3	1	G	
Ped8	1	G	

Arms and Traffic Streams

Arms

Arm	Name	Description	Traffic node
Aexit	(untitled)		
Bexit	(untitled)		
Cexit	(untitled)		
Hexit	(untitled)		
A1	Fortunestown Lane (East)		J1
B1	Fortunestown Lane (West)		J1
C1	Link Road		J1
H1	Citywest Ave Link Rd		J1
H2	Citywest Ave Link Rd		HH1
A3	Fortunestown Lane (East)		AA2
B3	Fortunestown Lane (West)		BB2
C3	Link Road		CC2

Traffic Streams

Arm	Traffic Stream	Name	Description	Auto length	Length (m)	Has Saturation Flow	Saturation flow source	Saturation flow (PCU/hr)	Is signal controlled	Is give way	Traffic type	Allow Nearside Turn On Red
Aexit	1	(untitled)		✓	661.88						Normal	
Bexit	1	(untitled)		✓	1084.96						Normal	
Cexit	1	(untitled)			18.00						Normal	
Hexit	1	(untitled)		✓	1029.80						Normal	
A1	1				15.00	✓	Sum of lanes	1856	✓		Normal	
	2	(untitled)			15.00	✓	Sum of lanes	2055	✓		Normal	
B1	1	(untitled)			39.00	✓	Sum of lanes	1854	✓		Normal	
	2	(untitled)			39.00	✓	Sum of lanes	2009	✓		Normal	
C1	1	(untitled)			25.00	✓	Sum of lanes	1895	✓		Normal	
	2	(untitled)			25.00	✓	Sum of lanes	1998	✓		Normal	
H1	1	(untitled)			27.00	✓	Sum of lanes	1800	✓		Normal	
	2	(untitled)			27.00	✓	Sum of lanes	1800	✓		Normal	
H2	1	(untitled)		✓	211.61	✓	Sum of lanes	1800			Normal	
A3	1	(untitled)			8.00	✓	Sum of lanes	1980			Normal	
B3	1	(untitled)			10.00	✓	Sum of lanes	1925			Normal	
C3	1	(untitled)			6.50	✓	Sum of lanes	1915			Normal	

Lanes

Arm	Traffic Stream	Lane	Name	Description	Use RR67	Surface condition	Site quality factor	Gradient (%)	Width (m)	Use connector turning radius	Proportion that turn (%)	Turning radius (m)	Nearside lane	Saturation flow (PCU/hr)
Aexit	1	1	(untitled)											
Bexit	1	1	(untitled)											
Cexit	1	1	(untitled)											
Hexit	1	1	(untitled)											
A1	1	1	Left Turn		✓	N/A	N/A	0	3.00		100	47.00	✓	1856
	2	1	Ahead & Right Turn		✓	N/A	N/A	0	3.00	✓	0	99999.00		2055
B1	1	1	Ahead & Left Turn		✓	N/A	N/A	0	3.10		100	39.00	✓	1854
	2	1	Right Turn		✓	N/A	N/A	0	3.10		100	53.50		2009
C1	1	1	Ahead & Left Turn		✓	N/A	N/A	0	3.30		100	56.50	✓	1895
	2	1	Right Turn		✓	N/A	N/A	0	3.00		100	53.00		1998
H1	1	1	Ahead & Left Turn											1800
	2	1	Right Turn											1800
H2	1	1	(untitled)											1800
A3	1	1	(untitled)		✓	N/A	N/A	0	3.65	✓	0	99999.00	✓	1980
B3	1	1	(untitled)		✓	N/A	N/A	0	3.10	✓	0	99999.00	✓	1925
C3	1	1	(untitled)		✓	N/A	N/A	0	3.00	✓	0	99999.00	✓	1915

Modelling

Arm	Traffic Stream	Traffic model	Stop weighting multiplier (%)	Delay weighting multiplier (%)	Assignment Cost Weighting (%)	Exclude from results calculation	Max queue storage (PCU)	Has queue limit	Has degree of saturation limit
Aexit	1	NetworkDefault	100	100	100		0.00		
Bexit	1	NetworkDefault	100	100	100		0.00		
Cexit	1	NetworkDefault	100	100	100		3.00		
Hexit	1	NetworkDefault	100	100	100		0.00		
A1	1	NetworkDefault	100	100	100		3.00		
	2	NetworkDefault	100	100	100		3.00		
B1	1	NetworkDefault	100	100	100		7.00		
	2	NetworkDefault	100	100	100		7.00		
C1	1	NetworkDefault	100	100	100		6.00		
	2	NetworkDefault	100	100	100		6.00		
H1	1	NetworkDefault	100	100	100		0.00		
	2	NetworkDefault	100	100	100		0.00		
H2	1	NetworkDefault	100	100	100		0.00		
A3	1	NetworkDefault	100	100	100		1.00		
B3	1	NetworkDefault	100	100	100		0.00		
C3	1	NetworkDefault	100	100	100		1.00		

Modelling - Advanced

Arm	Traffic Stream	Initial queue (PCU)	Type of Vehicle-in-Service	Vehicle-in-Service	Type of random parameter	Random parameter	Auto cycle time	Cycle time
(ALL)	(ALL)	0.00	NetworkDefault	Not-Included	NetworkDefault	0.50	✓	150

Normal traffic - Modelling

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

Normal traffic - Advanced

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

Flows

Arm	Traffic Stream	Total Flow (PCU/hr)	Normal Flow (PCU/hr)
Aexit	1	304	304
Bexit	1	530	530
Cexit	1	172	172
Hexit	1	132	132
A1	1	360	360
	2	66	66
B1	1	120	120
	2	222	222
C1	1	107	107
	2	71	71
H1	1	126	126
	2	66	66
H2	1	192	192
A3	1	426	426
B3	1	342	342
C3	1	178	178

Signals

Arm	Traffic Stream	Controller stream	Phase	Second phase enabled
A1	1	1	B	
	2	1	A	
B1	1	1	D	
	2	1	C	
C1	1	1	F	
	2	1	E	
H1	1	1	J	
	2	1	I	

Signal Timings

Network Default: 150s cycle time; 150 steps

Phases

Controller Stream	Phase	Name	Minimum green (s)	Maximum green (s)	Relative start displacement (s)	Relative end displacement (s)	Type
1	A	(untitled)	1	300	0	0	Indicative arrow
	B	(untitled)	1	300	0	0	Traffic
	C	(untitled)	1	300	0	0	Indicative arrow
	D	(untitled)	1	300	0	0	Traffic
	E	(untitled)	1	300	0	0	Indicative arrow
	F	(untitled)	1	300	0	0	Traffic
	G	(untitled)	1	300	0	0	Unknown
	H	(untitled)	1	300	0	0	Unknown
	I	(untitled)	1	300	0	0	Indicative arrow
	J	(untitled)	1	300	0	0	Traffic

Library Stages

Controller Stream	Library Stage	Phases in stage	User stage minimum (s)
1	1	B, C, H, I	1
	2	B, C, D	1
	3	B, A	1
	4	E, F	1
	5	G	1
	6	D, J	1

Stage Sequences

Controller Stream	Sequence	Name	Multiple cycling	Stage IDs	Stage ends
1	1	(untitled)	Single	5, 1, 2, 6, 4, 3	28, 56, 82, 108, 133, 12

Intergreen Matrix for Controller Stream 1

From \ To	A	B	C	D	E	F	G	H	I	J
A			6	6	6	6	14	6	6	6
B					6	6	14			6
C	6				6	6	14			6
D	6				6	6	14	6	6	
E	6	6	6	6			14	6	6	6
F	6	6	6	6			14	6	6	6
G	14	14	14	14	14	14		6	6	6
H	6			6	6	6	6			6
I	6			6	6	6	6			6
J	6	6	6		6	6	6	6	6	

Interstage Matrix for Controller Stream 1

From \ To	1	2	3	4	5	6
1	0	6	6	6	14	6
2	6	0	6	6	14	6
3	6	6	0	6	14	6
4	6	6	6	0	14	6
5	14	14	14	14	0	14
6	6	6	6	6	14	0

Resultant Stages

Controller Stream	Resultant Stage	Is base stage	Library Stage ID	Phases in this stage	Stage start (s)	Stage end (s)	Stage duration (s)	User stage minimum (s)	Stage minimum (s)
1	1	✓	5	G	26	28	2	1	1
	2	✓	1	B,C,H,I	42	56	14	1	1
	3	✓	2	B,C,D	62	82	20	1	1
	4	✓	6	D,J	88	108	20	1	1
	5	✓	4	E,F	114	133	19	1	1
	6	✓	3	B,A	139	12	23	1	1

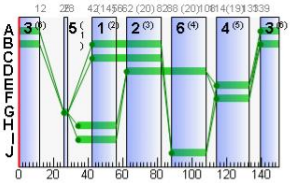
Resultant Phase Green Periods

Controller Stream	Phase	Green period	Is base green period	Start time (s)	End time (s)	Duration (s)
1	A	1	✓	139	12	23
	B	1	✓	42	82	40
		2	✓	139	12	23
	C	1	✓	42	82	40
	D	1	✓	62	108	46
	E	1	✓	114	133	19
	F	1	✓	114	133	19
	G	1	✓	26	28	2
	H	1	✓	34	56	22
	I	1	✓	34	56	22
	J	1	✓	88	108	20

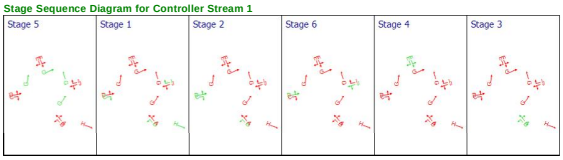
Traffic Stream Green Times

Arm	Traffic Stream	Traffic Node	Controller Stream	Phase	Green Period 1			Green Period 2		
					Start	End	Duration	Start	End	Duration
A1	1	J1	1	B	42	82	40	139	12	23
A1	2	J1	1	A	139	12	23			
B1	1	J1	1	D	62	108	46			
B1	2	J1	1	C	42	82	40			
C1	1	J1	1	F	114	133	19			
C1	2	J1	1	E	114	133	19			
H1	1	J1	1	J	88	108	20			
H1	2	J1	1	I	34	56	22			

Phase Timings Diagram for Controller Stream 1



Stage Sequence Diagram for Controller Stream 1



Link Results

Link Results: Vehicle summary

Time Segment	Link	Degree of saturation (%)	Practical reserve capacity (%)	Calculated flow entering (PCU/hr)	Calculated sat flow (PCU/hr)	Actual green (s (per cycle))	Mean Delay per Veh (s)	Mean max queue (PCU)	Utilised storage (%)	Weighted cost of delay (€ per hr)	Weighted cost of stops (€ per hr)	Performance Index (€ per hr)
16:30-17:30	Luas	11	728	30	1800	22	55.49	1.08	6.39	6.57	0.08	6.65
	Ped1	20	350	10	2500	2	81.42	0.43	7.68	3.21	0.13	3.34
	Ped2	20	350	10	2500	2	81.42	0.43	6.82	3.21	0.13	3.34
	Ped3	20	350	10	2500	2	81.42	0.43	10.84	3.21	0.13	3.34
	Ped8	20	350	10	2500	2	81.42	0.43	13.38	3.21	0.13	3.34

Link Results: Flows and signals

Time Segment	Link	Calculated flow entering (PCU/hr)	Calculated flow out (PCU/hr)	Flow discrepancy (PCU/hr)	Adjusted flow warning	Calculated sat flow (PCU/hr)	Calculated capacity (PCU/hr)	Degree of saturation (%)	DOS Threshold exceeded	Practical reserve capacity (%)	Mean modulus of error	Actual green (s (per cycle))
16:30-17:30	Luas	30	30	0		1800	276	11		728	0.00	22
	Ped1	10	10	0		2500	50	20		350	0.00	2
	Ped2	10	10	0		2500	50	20		350	0.00	2
	Ped3	10	10	0		2500	50	20		350	0.00	2
	Ped8	10	10	0		2500	50	20		350	0.00	2

Link Results: Stops and delays

Time Segment	Link	Mean Cruise Time per Veh (s)	Mean Delay per Veh (s)	Total delay (PCU-hr/hr)	Weighted cost of delay (£ per hr)	Mean stops per Veh (%)	Total stops (Stops per hr)	Weighted cost of stops (£ per hr)
16:30-17:30	Luas	24.00	55.49	0.46	6.57	86.18	25.85	0.08
	Ped1	2.88	81.42	0.23	3.21	103.06	10.31	0.13
	Ped2	3.24	81.42	0.23	3.21	103.06	10.31	0.13
	Ped3	2.04	81.42	0.23	3.21	103.06	10.31	0.13
	Ped8	1.65	81.42	0.23	3.21	103.06	10.31	0.13

Link Results: Queues and blocking

Time Segment	Link	Initial queue (PCU)	Mean max queue (PCU)	Max queue storage (PCU)	Utilised storage (%)	Excess queue penalty (£ per hr)	Wasted time total (s (per cycle))	Estimated blocking
16:30-17:30	Luas	0.00	1.08	16.92	6.39	0.00	20.00	
	Ped1	0.00	0.43	5.64	7.68	0.00	2.00	
	Ped2	0.00	0.43	6.35	6.82	0.00	2.00	
	Ped3	0.00	0.43	4.00	10.84	0.00	2.00	
	Ped8	0.00	0.43	3.24	13.38	0.00	2.00	

Traffic Stream Results

Traffic Stream Results: Vehicle summary

Time Segment	Arm	Traffic Stream	Degree of saturation (%)	Practical reserve capacity	Calculated flow entering (PCU/hr)	Calculated sat flow	Actual green (s (per cycle))	Mean Delay per Veh (s)	Mean max queue (PCU)	Utilised storage (%)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Performance Index (£ per hr)
16:30-17:30	Aexit	1	0	Unrestricted	304	Unrestricted	150	0.00	0.00	0.00	0.00	0.00	0.00
	Bexit	1	0	Unrestricted	530	Unrestricted	150	0.00	0.00	0.00	0.00	0.00	0.00
	Cexit	1	0	Unrestricted	172	Unrestricted	150	0.00	0.00	0.00	0.00	0.00	0.00
	Hexit	1	0	Unrestricted	132	Unrestricted	150	0.00	0.00	0.00	0.00	0.00	0.00
	A1	1	45	101	360	1856	63	18.26	7.08	236.03	25.93	3.15	29.08
		2	20	348	66	2055	23	56.06	2.41	80.28	14.60	0.72	15.31
	B1	1	21	336	120	1854	46	38.62	3.69	52.76	18.28	1.10	19.38
		2	40	123	222	2009	40	46.75	7.66	109.43	40.93	2.28	43.22
	C1	1	42	113	107	1895	19	64.91	4.23	70.44	27.39	1.26	28.65
		2	27	238	71	1998	19	60.87	2.69	44.85	17.05	0.80	17.85
	H1	1	50	80	126	1800	20	66.71	5.08	108.12	33.16	1.51	34.67
		2	24	276	66	1800	22	57.87	2.44	51.94	15.06	0.73	15.79
	H2	1	11	744	192	1800	150	0.12	0.01	0.02	0.09	0.00	0.09
	A3	1	22	318	426	1980	150	0.25	0.03	2.95	0.42	0.00	0.42
	B3	1	18	407	342	1925	150	0.20	0.02	1.10	0.27	0.00	0.27
	C3	1	9	868	178	1915	150	0.10	0.00	0.48	0.07	0.00	0.07

Traffic Stream Results: Flows and signals

Time Segment	Arm	Traffic Stream	Calculated flow entering (PCU/hr)	Calculated flow out (PCU/hr)	Flow discrepancy (PCU/hr)	Adjusted flow warning	Calculated sat flow	Calculated capacity	Degree of saturation (%)	DOS Threshold exceeded	Practical reserve capacity	Mean modulus of error	Actual green (s (per cycle))
16:30-17:30	Aexit	1	304	304	0		Unrestricted	Unrestricted	0		Unrestricted	0.60	150
	Bexit	1	530	530	0		Unrestricted	Unrestricted	0		Unrestricted	0.16	150
	Cexit	1	172	172	0		Unrestricted	Unrestricted	0		Unrestricted	1.35	150
	Hexit	1	132	132	0		Unrestricted	Unrestricted	0		Unrestricted	0.38	150
	A1	1	360	360	0		1856	804	45		101	0.00	63
		2	66	66	0		2055	329	20		348	0.00	23
	B1	1	120	120	0		1854	581	21		336	0.00	46
		2	222	222	0		2009	549	40		123	0.00	40
	C1	1	107	107	0		1895	253	42		113	0.00	19
		2	71	71	0		1998	266	27		238	0.00	19
	H1	1	126	126	0		1800	252	50		80	0.00	20
		2	66	66	0		1800	276	24		276	0.00	22
	H2	1	192	192	0		1800	1800	11		744	0.00	150
	A3	1	426	426	0		1980	1980	22		318	0.00	150
	B3	1	342	342	0		1925	1925	18		407	0.00	150
	C3	1	178	178	0		1915	1915	9		868	0.00	150

Traffic Stream Results: Stops and delays

Time Segment	Arm	Traffic Stream	Mean Cruise Time per Veh (s)	Mean Delay per Veh (s)	Total delay (PCU-hr/hr)	Weighted cost of delay (£ per hr)	Mean stops per Veh (%)	Total stops (Stops per hr)	Weighted cost of stops (£ per hr)
16:30-17:30	Aexit	1	79.43	0.00	0.00	0.00	0.00	0.00	0.00
	Bexit	1	130.20	0.00	0.00	0.00	0.00	0.00	0.00
	Cexit	1	2.16	0.00	0.00	0.00	0.00	0.00	0.00
	Hexit	1	123.58	0.00	0.00	0.00	0.00	0.00	0.00
	A1	1	1.80	18.26	1.83	25.93	69.85	251.47	3.15
		2	1.80	56.06	1.03	14.60	86.75	57.26	0.72
	B1	1	4.68	38.62	1.29	18.28	72.87	87.45	1.10
		2	4.68	46.75	2.88	40.93	81.95	181.93	2.28
	C1	1	3.00	64.91	1.93	27.39	93.98	100.55	1.26
		2	3.00	60.87	1.20	17.05	90.17	64.02	0.80
	H1	1	3.24	66.71	2.33	33.16	95.86	120.79	1.51
		2	3.24	57.87	1.06	15.06	87.90	58.02	0.73
	H2	1	25.39	0.12	0.01	0.09	0.00	0.00	0.00
	A3	1	1.00	0.25	0.03	0.42	0.00	0.00	0.00
	B3	1	1.20	0.20	0.02	0.27	0.00	0.00	0.00
	C3	1	1.00	0.10	0.00	0.07	0.00	0.00	0.00

Traffic Stream Results: Queues and blocking

Time Segment	Arm	Traffic Stream	Initial queue (PCU)	Mean max queue (PCU)	Max queue storage (PCU)	Utilised storage (%)	Excess queue penalty (£ per hr)	Wasted time total (s (per cycle))	Estimated blocking
16:30-17:30	Aexit	1	0.00	0.00	115.11	0.00	0.00	25.00	
	Bexit	1	0.00	0.00	188.69	0.00	0.00	0.00	
	Cexit	1	0.00	0.00	3.00	0.00	0.00	106.00	
	Hexit	1	0.00	0.00	179.09	0.00	0.00	25.00	
	A1	1	0.00	7.08	3.00	236.03	0.00	0.00	
		2	0.00	2.41	3.00	80.28	0.00	0.00	
	B1	1	0.00	3.69	7.00	52.76	0.00	0.00	
		2	0.00	7.66	7.00	109.43	0.00	0.00	
	C1	1	0.00	4.23	6.00	70.44	0.00	0.00	
		2	0.00	2.69	6.00	44.85	0.00	0.00	
	H1	1	0.00	5.08	4.70	108.12	0.00	0.00	
		2	0.00	2.44	4.70	51.94	0.00	0.00	
	H2	1	0.00	0.01	36.80	0.02	0.00	11.00	
	A3	1	0.00	0.03	1.00	2.95	0.00	48.00	
	B3	1	0.00	0.02	1.74	1.10	0.00	11.00	
	C3	1	0.00	0.00	1.00	0.48	0.00	0.00	

Final Prediction Table

Link Results

			SIGNALS		FLOWS		PERFORMANCE				PER PCU			QUEUES	WEIGH	
Link	Name	Traffic node	Controller stream	Phase	Calculated flow entering (PCU/hr)	Calculated sat flow (PCU/hr)	Actual green (s (per cycle))	Wasted time total (s (per cycle))	Degree of saturation (%)	Practical reserve capacity (%)	JourneyTime (s)	Mean Delay per Veh (s)	Mean stops per Veh (%)	Mean max queue (PCU)	Delay weighting (%)	w
Luas T	Luas	J1	1	H	30	1800	22	20.00	11	728	79.49	55.49	86.18	1.08	100	
Ped1	Ped1	J1	1	G	10	2500	2	2.00	20	350	84.30	81.42	103.06	0.43	100	
Ped2	Ped2	J1	1	G	10	2500	2	2.00	20	350	84.66	81.42	103.06	0.43	100	
Ped3	Ped3	J1	1	G	10	2500	2	2.00	20	350	83.46	81.42	103.06	0.43	100	
Ped8	Ped8	J1	1	G	10	2500	2	2.00	20	350	83.07	81.42	103.06	0.43	100	

Traffic Stream Results

				SIGNALS		FLOWS		PERFORMANCE				PER PCU			QUEUES
Arm	Traffic Stream	Name	Traffic node	Controller stream	Phase	Calculated flow entering (PCU/hr)	Calculated sat flow	Actual green (s (per cycle))	Wasted time total (s (per cycle))	Degree of saturation (%)	Practical reserve capacity	JourneyTime (s)	Mean Delay per Veh (s)	Mean stops per Veh (%)	Mean max queue (PCU)
Aexit	1	(untitled)				304	Unrestricted	150	25.00	0	Unrestricted	79.43	0.00	0.00	0.00
Bexit	1	(untitled)				530	Unrestricted	150	0.00	0	Unrestricted	130.20	0.00	0.00	0.00
Cexit	1	(untitled)				172	Unrestricted	150	106.00	0	Unrestricted	2.16	0.00	0.00	0.00
Hexit	1	(untitled)				132	Unrestricted	150	25.00	0	Unrestricted	123.58	0.00	0.00	0.00
A1	1		J1	1	B	360 <	1856	63	0.00	45	101	20.06	18.26	69.85	7.08 +
	2	(untitled)	J1	1	A	66	2055	23	0.00	20	348	57.86	56.06	86.75	2.41
B1	1	(untitled)	J1	1	D	120	1854	46	0.00	21	336	43.30	38.62	72.87	3.69
	2	(untitled)	J1	1	C	222 <	2009	40	0.00	40	123	51.43	46.75	81.95	7.66 +
C1	1	(untitled)	J1	1	F	107	1895	19	0.00	42	113	67.91	64.91	93.98	4.23
	2	(untitled)	J1	1	E	71	1998	19	0.00	27	238	63.87	60.87	90.17	2.69
H1	1	(untitled)	J1	1	J	126 <	1800	20	0.00	50	80	69.95	66.71	95.86	5.08 +
	2	(untitled)	J1	1	I	66	1800	22	0.00	24	276	61.11	57.87	87.90	2.44
H2	1	(untitled)	HH1			192	1800	150	11.00	11	744	25.51	0.12	0.00	0.01
A3	1	(untitled)	AA2			426	1980	150	48.00	22	318	1.25	0.25	0.00	0.03
B3	1	(untitled)	BB2			342	1925	150	11.00	18	407	1.40	0.20	0.00	0.02
C3	1	(untitled)	CC2			178	1915	150	0.00	9	868	1.10	0.10	0.00	0.00

Network Results

	Distance travelled (PCU-km/hr)	Time spent (PCU-hr/hr)	Mean journey speed (kph)	Total delay (PCU-hr/hr)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Excess queue penalty (£ per hr)	Performance Index (£ per hr)
Normal traffic	994.06	47.66	20.86	14.51	206.10	12.07	0.00	218.17
Bus	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tram	3.00	0.66	4.53	0.46	6.57	0.08	0.00	6.65
Pedestrians								
TOTAL	997.06	48.33	20.63	14.98	212.66	12.15	0.00	224.82

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

A3 - DN 2027 AM
D3 - DN 2027 AM*

Summary

Data Errors and Warnings

No errors or warnings

Run Summary

Analysis set used	Run start time	Run finish time	Modelling start time (HH:mm)	Network Cycle Time (s)	Performance Index (€ per hr)	Total network delay (PCU-hr/hr)	Highest DOS (%)	Item with highest DOS	Number of oversaturated items	Percentage of oversaturated items (%)	Item with worst signalised PRC	Item with worst unsignalised PRC	Ite wit wor over PR
3	16/10/2020 09:09:09	16/10/2020 09:09:10	08:15	150	375.56	25.16	74.52	C1/1	0	0	C1/1	C3/1	C1/

Analysis Set Details

Name	Description	Demand set	Include in report	Locked
DN 2027 AM		D3	✓	

Demand Set Details

Name	Description	Composite	Demand sets	Start time (HH:mm)	Locked
DN 2027 AM				08:15	

Links

Links

Link	Name	Description	Traffic node	Length (m)	Has Saturation Flow	Use RR67	Saturation flow (PCU/hr)	Is signal controlled	Is give way	Traffic type	Is minor shared	Allow Nearside Turn On Red
Luas	Luas		J1	100.00	✓		1800	✓		Tram		
Ped1	Ped1		J1	24.00	✓		2500	✓		Normal		
Ped2	Ped2		J1	27.00	✓		2500	✓		Normal		
Ped3	Ped3		J1	17.00	✓		2500	✓		Normal		
Ped8	Ped8		J1	13.77	✓		2500	✓		Normal		

Modelling

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

Modelling - Normal traffic - Advanced

Link	Dispersion type for Normal Traffic	Initial queue (PCU)	Type of Vehicle-in-Service	Vehicle-in-Service	Type of random parameter	Random parameter	Auto cycle time	Cycle time
(ALL)	NetworkDefault	0.00	NetworkDefault	Not-Included	NetworkDefault	0.50	✓	150

Modelling - Trams - Advanced

Link	Dispersion type for trams	Use tram network default acceleration	Initial queue (PCU)	Type of Vehicle-in-Service	Vehicle-in-Service	Type of random parameter	Random parameter	Auto cycle time	Cycle time
Luas	NetworkDefault	✓	0.00	NetworkDefault	Not-Included	NetworkDefault	0.50	✓	150

Flows

Link	Total flow (Veh/hr)	PCU Factor
Luas	30	1.00
Ped1	10	1.00
Ped2	10	1.00
Ped3	10	1.00
Ped8	10	1.00

Flows - Advanced

Link	Detectors
(ALL)	

Signals

Link	Controller stream	Phase	Second phase enabled
Luas	1	H	
Ped1	1	G	
Ped2	1	G	
Ped3	1	G	
Ped8	1	G	

Arms and Traffic Streams

Arms

Arm	Name	Description	Traffic node
Aexit	(untitled)		
Bexit	(untitled)		
Cexit	(untitled)		
Hexit	(untitled)		
A1	Fortunestown Lane (East)		J1
B1	Fortunestown Lane (West)		J1
C1	Link Road		J1
H1	Citywest Ave Link Rd		J1
H2	Citywest Ave Link Rd		HH1
A3	Fortunestown Lane (East)		AA2
B3	Fortunestown Lane (West)		BB2
C3	Link Road		CC2

Traffic Streams

Arm	Traffic Stream	Name	Description	Auto length	Length (m)	Has Saturation Flow	Saturation flow source	Saturation flow (PCU/hr)	Is signal controlled	Is give way	Traffic type	Allow Nearside Turn On Red
Aexit	1	(untitled)		✓	661.88						Normal	
Bexit	1	(untitled)		✓	1084.96						Normal	
Cexit	1	(untitled)			18.00						Normal	
Hexit	1	(untitled)		✓	1029.80						Normal	
A1	1				15.00	✓	Sum of lanes	1856	✓		Normal	
	2	(untitled)			15.00	✓	Sum of lanes	2055	✓		Normal	
B1	1	(untitled)			39.00	✓	Sum of lanes	1854	✓		Normal	
	2	(untitled)			39.00	✓	Sum of lanes	2009	✓		Normal	
C1	1	(untitled)			25.00	✓	Sum of lanes	1895	✓		Normal	
	2	(untitled)			25.00	✓	Sum of lanes	1998	✓		Normal	
H1	1	(untitled)			27.00	✓	Sum of lanes	1800	✓		Normal	
	2	(untitled)			27.00	✓	Sum of lanes	1800	✓		Normal	
H2	1	(untitled)		✓	211.61	✓	Sum of lanes	1800			Normal	
A3	1	(untitled)			8.00	✓	Sum of lanes	1980			Normal	
B3	1	(untitled)			10.00	✓	Sum of lanes	1925			Normal	
C3	1	(untitled)			6.50	✓	Sum of lanes	1915			Normal	

Lanes

Arm	Traffic Stream	Lane	Name	Description	Use RR67	Surface condition	Site quality factor	Gradient (%)	Width (m)	Use connector turning radius	Proportion that turn (%)	Turning radius (m)	Nearside lane	Saturation flow (PCU/hr)
Aexit	1	1	(untitled)											
Bexit	1	1	(untitled)											
Cexit	1	1	(untitled)											
Hexit	1	1	(untitled)											
A1	1	1	Left Turn		✓	N/A	N/A	0	3.00		100	47.00	✓	1856
	2	1	Ahead & Right Turn		✓	N/A	N/A	0	3.00	✓	0	99999.00		2055
B1	1	1	Ahead & Left Turn		✓	N/A	N/A	0	3.10		100	39.00	✓	1854
	2	1	Right Turn		✓	N/A	N/A	0	3.10		100	53.50		2009
C1	1	1	Ahead & Left Turn		✓	N/A	N/A	0	3.30		100	56.50	✓	1895
	2	1	Right Turn		✓	N/A	N/A	0	3.00		100	53.00		1998
H1	1	1	Ahead & Left Turn											1800
	2	1	Right Turn											1800
H2	1	1	(untitled)											1800
A3	1	1	(untitled)		✓	N/A	N/A	0	3.65	✓	0	99999.00	✓	1980
B3	1	1	(untitled)		✓	N/A	N/A	0	3.10	✓	0	99999.00	✓	1925
C3	1	1	(untitled)		✓	N/A	N/A	0	3.00	✓	0	99999.00	✓	1915

Modelling

Arm	Traffic Stream	Traffic model	Stop weighting multiplier (%)	Delay weighting multiplier (%)	Assignment Cost Weighting (%)	Exclude from results calculation	Max queue storage (PCU)	Has queue limit	Has degree of saturation limit
Aexit	1	NetworkDefault	100	100	100		0.00		
Bexit	1	NetworkDefault	100	100	100		0.00		
Cexit	1	NetworkDefault	100	100	100		3.00		
Hexit	1	NetworkDefault	100	100	100		0.00		
A1	1	NetworkDefault	100	100	100		3.00		
	2	NetworkDefault	100	100	100		3.00		
B1	1	NetworkDefault	100	100	100		7.00		
	2	NetworkDefault	100	100	100		7.00		
C1	1	NetworkDefault	100	100	100		6.00		
	2	NetworkDefault	100	100	100		6.00		
H1	1	NetworkDefault	100	100	100		0.00		
	2	NetworkDefault	100	100	100		0.00		
H2	1	NetworkDefault	100	100	100		0.00		
A3	1	NetworkDefault	100	100	100		1.00		
B3	1	NetworkDefault	100	100	100		0.00		
C3	1	NetworkDefault	100	100	100		1.00		

Modelling - Advanced

Arm	Traffic Stream	Initial queue (PCU)	Type of Vehicle-in-Service	Vehicle-in-Service	Type of random parameter	Random parameter	Auto cycle time	Cycle time
(ALL)	(ALL)	0.00	NetworkDefault	Not-Included	NetworkDefault	0.50	✓	150

Normal traffic - Modelling

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

Normal traffic - Advanced

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

Flows

Arm	Traffic Stream	Total Flow (PCU/hr)	Normal Flow (PCU/hr)
Aexit	1	466	466
Bexit	1	473	473
Cexit	1	421	421
Hexit	1	201	201
A1	1	262	262
	2	199	199
B1	1	195	195
	2	214	214
C1	1	386	386
	2	142	142
H1	1	86	86
	2	77	77
H2	1	163	163
A3	1	461	461
B3	1	409	409
C3	1	528	528

Signals

Arm	Traffic Stream	Controller stream	Phase	Second phase enabled
A1	1	1	B	
	2	1	A	
B1	1	1	D	
	2	1	C	
C1	1	1	F	
	2	1	E	
H1	1	1	J	
	2	1	I	

Signal Timings

Network Default: 150s cycle time; 150 steps

Phases

Controller Stream	Phase	Name	Minimum green (s)	Maximum green (s)	Relative start displacement (s)	Relative end displacement (s)	Type
1	A	(untitled)	1	300	0	0	Indicative arrow
	B	(untitled)	1	300	0	0	Traffic
	C	(untitled)	1	300	0	0	Indicative arrow
	D	(untitled)	1	300	0	0	Traffic
	E	(untitled)	7	300	0	0	Indicative arrow
	F	(untitled)	7	300	0	0	Traffic
	G	(untitled)	1	300	0	0	Unknown
	H	(untitled)	1	300	0	0	Unknown
	I	(untitled)	1	300	0	0	Indicative arrow
	J	(untitled)	1	300	0	0	Traffic

Library Stages

Controller Stream	Library Stage	Phases in stage	User stage minimum (s)
1	1	B, C, H, I	2
	2	C, D, B	1
	3	A, B	1
	4	E, F	1
	5	G	1
	6	D, J	1

Stage Sequences

Controller Stream	Sequence	Name	Multiple cycling	Stage IDs	Stage ends
1	1	(untitled)	Single	5, 1, 2, 6, 4, 3	30, 50, 76, 92, 138, 14

Intergreen Matrix for Controller Stream 1

From \ To	A	B	C	D	E	F	G	H	I	J
A			6	6	6	6	14	6	6	6
B					6	6	14			6
C	6				6	6	14			6
D	6				6	6	14	6	6	
E	6	6	6	6			14	6	6	6
F	6	6	6	6			14	6	6	6
G	14	14	14	14	14	14		6	6	6
H	6			6	6	6	6			6
I	6			6	6	6	6			6
J	6	6	6		6	6	6	6	6	

Interstage Matrix for Controller Stream 1

From \ To	1	2	3	4	5	6
1	0	6	6	6	14	6
2	6	0	6	6	14	6
3	6	6	0	6	14	6
4	6	6	6	0	14	6
5	14	14	14	14	0	14
6	6	6	6	6	14	0

Resultant Stages

Controller Stream	Resultant Stage	Is base stage	Library Stage ID	Phases in this stage	Stage start (s)	Stage end (s)	Stage duration (s)	User stage minimum (s)	Stage minimum (s)
1	1	✓	5	G	28	30	2	1	1
	2	✓	1	B,C,H,I	44	50	6	2	2
	3	✓	2	C,D,B	56	76	20	1	1
	4	✓	6	D,J	82	92	10	1	1
	5	✓	4	E,F	98	138	40	1	7
	6	✓	3	A,B	144	14	20	1	1

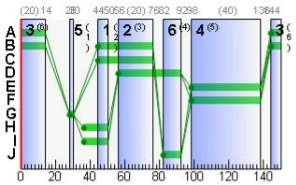
Resultant Phase Green Periods

Controller Stream	Phase	Green period	Is base green period	Start time (s)	End time (s)	Duration (s)
1	A	1	✓	144	14	20
	B	1	✓	44	76	32
		2	✓	144	14	20
	C	1	✓	44	76	32
	D	1	✓	56	92	36
	E	1	✓	98	138	40
	F	1	✓	98	138	40
	G	1	✓	28	30	2
	H	1	✓	36	50	14
	I	1	✓	36	50	14
	J	1	✓	82	92	10

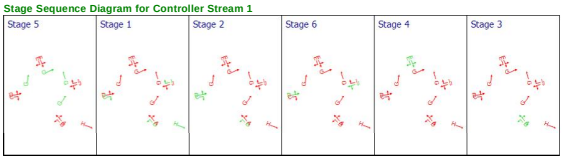
Traffic Stream Green Times

Arm	Traffic Stream	Traffic Node	Controller Stream	Phase	Green Period 1			Green Period 2		
					Start	End	Duration	Start	End	Duration
A1	1	J1	1	B	44	76	32	144	14	20
A1	2	J1	1	A	144	14	20			
B1	1	J1	1	D	56	92	36			
B1	2	J1	1	C	44	76	32			
C1	1	J1	1	F	98	138	40			
C1	2	J1	1	E	98	138	40			
H1	1	J1	1	J	82	92	10			
H1	2	J1	1	I	36	50	14			

Phase Timings Diagram for Controller Stream 1



Stage Sequence Diagram for Controller Stream 1



Link Results

Link Results: Vehicle summary

Time Segment	Link	Degree of saturation (%)	Practical reserve capacity (%)	Calculated flow entering (PCU/hr)	Calculated sat flow (PCU/hr)	Actual green (s (per cycle))	Mean Delay per Veh (s)	Mean max queue (PCU)	Utilised storage (%)	Weighted cost of delay (€ per hr)	Weighted cost of stops (€ per hr)	Performance index (€ per hr)
08:15-09:15	Luas	17	440	30	1800	14	63.82	1.16	6.85	7.55	0.09	7.64
	Ped1	20	350	10	2500	2	81.42	0.43	7.68	3.21	0.13	3.34
	Ped2	20	350	10	2500	2	81.42	0.43	6.82	3.21	0.13	3.34
	Ped3	20	350	10	2500	2	81.42	0.43	10.84	3.21	0.13	3.34
	Ped8	20	350	10	2500	2	81.42	0.43	13.38	3.21	0.13	3.34

Link Results: Flows and signals

Time Segment	Link	Calculated flow entering (PCU/hr)	Calculated flow out (PCU/hr)	Flow discrepancy (PCU/hr)	Adjusted flow warning	Calculated sat flow (PCU/hr)	Calculated capacity (PCU/hr)	Degree of saturation (%)	DOS Threshold exceeded	Practical reserve capacity (%)	Mean modulus of error	Actual green (s (per cycle))
08:15-09:15	Luas	30	30	0		1800	180	17		440	0.00	14
	Ped1	10	10	0		2500	50	20		350	0.00	2
	Ped2	10	10	0		2500	50	20		350	0.00	2
	Ped3	10	10	0		2500	50	20		350	0.00	2
	Ped8	10	10	0		2500	50	20		350	0.00	2

Link Results: Stops and delays

Time Segment	Link	Mean Cruise Time per Veh (s)	Mean Delay per Veh (s)	Total delay (PCU-hr/hr)	Weighted cost of delay (€ per hr)	Mean stops per Veh (%)	Total stops (Stops per hr)	Weighted cost of stops (€ per hr)
08:15-09:15	Luas	24.00	63.82	0.53	7.55	92.31	27.69	0.09
	Ped1	2.88	81.42	0.23	3.21	103.06	10.31	0.13
	Ped2	3.24	81.42	0.23	3.21	103.06	10.31	0.13
	Ped3	2.04	81.42	0.23	3.21	103.06	10.31	0.13
	Ped8	1.65	81.42	0.23	3.21	103.06	10.31	0.13

Link Results: Queues and blocking

Time Segment	Link	Initial queue (PCU)	Mean max queue (PCU)	Max queue storage (PCU)	Utilised storage (%)	Excess queue penalty (€ per hr)	Wasted time total (s (per cycle))	Estimated blocking
08:15-09:15	Luas	0.00	1.16	16.92	6.85	0.00	12.00	
	Ped1	0.00	0.43	5.64	7.68	0.00	2.00	
	Ped2	0.00	0.43	6.35	6.82	0.00	2.00	
	Ped3	0.00	0.43	4.00	10.84	0.00	2.00	
	Ped8	0.00	0.43	3.24	13.38	0.00	2.00	

Traffic Stream Results

Traffic Stream Results: Vehicle summary

Time Segment	Arm	Traffic Stream	Degree of saturation (%)	Practical reserve capacity	Calculated flow entering (PCU/hr)	Calculated sat flow	Actual green (s (per cycle))	Mean Delay per Veh (s)	Mean max queue (PCU)	Utilised storage (%)	Weighted cost of delay (€ per hr)	Weighted cost of stops (€ per hr)	Performance index (€ per hr)
08:15-09:15	Aexit	1	0	Unrestricted	466	Unrestricted	150	0.00	0.00	0.00	0.00	0.00	0.00
	Bexit	1	0	Unrestricted	473	Unrestricted	150	0.00	0.00	0.00	0.00	0.00	0.00
	Cexit	1	0	Unrestricted	421	Unrestricted	150	0.00	0.00	0.00	0.00	0.00	0.00
	Hexit	1	0	Unrestricted	201	Unrestricted	150	0.00	0.00	0.00	0.00	0.00	0.00
	A1	1	39	130	262	1856	52	22.42	5.73	191.00	23.17	2.43	25.61
		2	69	30	199	2055	20	75.02	8.60	286.70	58.88	2.56	61.45
	B1	1	43	111	195	1854	36	50.48	6.98	99.75	38.83	2.08	40.91
		2	48	86	214	2009	32	54.87	7.95	113.62	46.32	2.37	48.69
	C1	1	75	21	386	1895	40	59.63	15.64	260.72	90.79	4.66	95.45
		2	26	246	142	1998	40	43.80	4.66	77.68	24.53	1.39	25.92
	H1	1	65	38	86	1800	10	91.84	4.04	86.08	31.15	1.20	32.36
		2	43	110	77	1800	14	70.86	3.17	67.59	21.52	0.94	22.46
	H2	1	9	894	163	1800	150	0.10	0.00	0.01	0.06	0.00	0.06
	A3	1	23	287	461	1980	150	0.28	0.04	3.53	0.50	0.00	0.50
	B3	1	21	324	409	1925	150	0.25	0.03	1.65	0.41	0.00	0.41
	C3	1	28	226	528	1915	150	0.36	0.05	5.25	0.74	0.00	0.74

Traffic Stream Results: Flows and signals

Time Segment	Arm	Traffic Stream	Calculated flow entering (PCU/hr)	Calculated flow out (PCU/hr)	Flow discrepancy (PCU/hr)	Adjusted flow warning	Calculated sat flow	Calculated capacity	Degree of saturation (%)	DOS Threshold exceeded	Practical reserve capacity	Mean modulus of error	Actual green (s (per cycle))
08:15-09:15	Aexit	1	466	466	0		Unrestricted	Unrestricted	0		Unrestricted	0.47	150
	Bexit	1	473	473	0		Unrestricted	Unrestricted	0		Unrestricted	0.20	150
	Cexit	1	421	421	0		Unrestricted	Unrestricted	0		Unrestricted	1.30	150
	Hexit	1	201	201	0		Unrestricted	Unrestricted	0		Unrestricted	0.48	150
	A1	1	262	262	0		1856	668	39		130	0.00	52
		2	199	199	0		2055	288	69		30	0.00	20
	B1	1	195	195	0		1854	457	43		111	0.00	36
		2	214	214	0		2009	442	48		86	0.00	32
	C1	1	386	386	0		1895	518	75		21	0.00	40
		2	142	142	0		1998	546	26		246	0.00	40
	H1	1	86	86	0		1800	132	65		38	0.00	10
		2	77	77	0		1800	180	43		110	0.00	14
	H2	1	163	163	0		1800	1800	9		894	0.00	150
	A3	1	461	461	0		1980	1980	23		287	0.00	150
	B3	1	409	409	0		1925	1925	21		324	0.00	150
	C3	1	528	528	0		1915	1915	28		226	0.00	150

Traffic Stream Results: Stops and delays

Time Segment	Arm	Traffic Stream	Mean Cruise Time per Veh (s)	Mean Delay per Veh (s)	Total delay (PCU-hr/hr)	Weighted cost of delay (£ per hr)	Mean stops per Veh (%)	Total stops (Stops per hr)	Weighted cost of stops (£ per hr)
08:15-09:15	Aexit	1	79.43	0.00	0.00	0.00	0.00	0.00	0.00
	Bexit	1	130.20	0.00	0.00	0.00	0.00	0.00	0.00
	Cexit	1	2.16	0.00	0.00	0.00	0.00	0.00	0.00
	Hexit	1	123.58	0.00	0.00	0.00	0.00	0.00	0.00
	A1	1	1.80	22.42	1.63	23.17	74.00	193.88	2.43
		2	1.80	75.02	4.15	58.88	102.73	204.44	2.56
	B1	1	4.68	50.48	2.73	38.83	84.98	165.71	2.08
		2	4.68	54.87	3.26	46.32	88.39	189.16	2.37
	C1	1	3.00	59.63	6.39	90.79	96.25	371.54	4.66
		2	3.00	43.80	1.73	24.53	77.92	110.64	1.39
	H1	1	3.24	91.84	2.19	31.15	111.38	95.79	1.20
		2	3.24	70.86	1.52	21.52	97.68	75.22	0.94
	H2	1	25.39	0.10	0.00	0.06	0.00	0.00	0.00
	A3	1	1.00	0.28	0.04	0.50	0.00	0.00	0.00
	B3	1	1.20	0.25	0.03	0.41	0.00	0.00	0.00
	C3	1	1.00	0.36	0.05	0.74	0.00	0.00	0.00

Traffic Stream Results: Queues and blocking

Time Segment	Arm	Traffic Stream	Initial queue (PCU)	Mean max queue (PCU)	Max queue storage (PCU)	Utilised storage (%)	Excess queue penalty (£ per hr)	Wasted time total (s (per cycle))	Estimated blocking
08:15-09:15	Aexit	1	0.00	0.00	115.11	0.00	0.00	3.00	
	Bexit	1	0.00	0.00	188.69	0.00	0.00	0.00	
	Cexit	1	0.00	0.00	3.00	0.00	0.00	76.00	
	Hexit	1	0.00	0.00	179.09	0.00	0.00	0.00	
	A1	1	0.00	5.73	3.00	191.00	0.00	0.00	
		2	0.00	8.60	3.00	286.70	0.00	0.00	
	B1	1	0.00	6.98	7.00	99.75	0.00	0.00	
		2	0.00	7.95	7.00	113.62	0.00	0.00	
	C1	1	0.00	15.64	6.00	260.72	0.00	0.00	
		2	0.00	4.66	6.00	77.68	0.00	0.00	
	H1	1	0.00	4.04	4.70	86.08	0.00	0.00	
		2	0.00	3.17	4.70	67.59	0.00	0.00	
	H2	1	0.00	0.00	36.80	0.01	0.00	0.00	
	A3	1	0.00	0.04	1.00	3.53	0.00	102.00	
	B3	1	0.00	0.03	1.74	1.65	0.00	17.00	
	C3	1	0.00	0.05	1.00	5.25	0.00	90.00	

Final Prediction Table

Link Results

			SIGNALS		FLOWS		PERFORMANCE				PER PCU			QUEUES	WEIGH	
Link	Name	Traffic node	Controller stream	Phase	Calculated flow entering (PCU/hr)	Calculated sat flow (PCU/hr)	Actual green (s (per cycle))	Wasted time total (s (per cycle))	Degree of saturation (%)	Practical reserve capacity (%)	JourneyTime (s)	Mean Delay per Veh (s)	Mean stops per Veh (%)	Mean max queue (PCU)	Delay weighting (%)	w
Luas T	Luas	J1	1	H	30	1800	14	12.00	17	440	87.82	63.82	92.31	1.16	100	
Ped1	Ped1	J1	1	G	10	2500	2	2.00	20	350	84.30	81.42	103.06	0.43	100	
Ped2	Ped2	J1	1	G	10	2500	2	2.00	20	350	84.66	81.42	103.06	0.43	100	
Ped3	Ped3	J1	1	G	10	2500	2	2.00	20	350	83.46	81.42	103.06	0.43	100	
Ped8	Ped8	J1	1	G	10	2500	2	2.00	20	350	83.07	81.42	103.06	0.43	100	

Traffic Stream Results

				SIGNALS		FLOWS		PERFORMANCE				PER PCU			QUEUES
Arm	Traffic Stream	Name	Traffic node	Controller stream	Phase	Calculated flow entering (PCU/hr)	Calculated sat flow	Actual green (s (per cycle))	Wasted time total (s (per cycle))	Degree of saturation (%)	Practical reserve capacity	JourneyTime (s)	Mean Delay per Veh (s)	Mean stops per Veh (%)	Mean max queue (PCU)
Aexit	1	(untitled)				466	Unrestricted	150	3.00	0	Unrestricted	79.43	0.00	0.00	0.00
Bexit	1	(untitled)				473	Unrestricted	150	0.00	0	Unrestricted	130.20	0.00	0.00	0.00
Cexit	1	(untitled)				421	Unrestricted	150	76.00	0	Unrestricted	2.16	0.00	0.00	0.00
Hexit	1	(untitled)				201	Unrestricted	150	0.00	0	Unrestricted	123.58	0.00	0.00	0.00
A1	1		J1	1	B	262 <	1856	52	0.00	39	130	24.22	22.42	74.00	5.73 +
	2	(untitled)	J1	1	A	199 <	2055	20	0.00	69	30	76.82	75.02	102.73	8.60 +
B1	1	(untitled)	J1	1	D	195	1854	36	0.00	43	111	55.16	50.48	84.98	6.98
	2	(untitled)	J1	1	C	214 <	2009	32	0.00	48	86	59.55	54.87	88.39	7.95 +
C1	1	(untitled)	J1	1	F	386 <	1895	40	0.00	75	21	62.63	59.63	96.25	15.64 +
	2	(untitled)	J1	1	E	142	1998	40	0.00	26	246	46.80	43.80	77.92	4.66
H1	1	(untitled)	J1	1	J	86	1800	10	0.00	65	38	95.08	91.84	111.38	4.04
	2	(untitled)	J1	1	I	77	1800	14	0.00	43	110	74.10	70.86	97.68	3.17
H2	1	(untitled)	HH1			163	1800	150	0.00	9	894	25.49	0.10	0.00	0.00
A3	1	(untitled)	AA2			461	1980	150	102.00	23	287	1.28	0.28	0.00	0.04
B3	1	(untitled)	BB2			409	1925	150	17.00	21	324	1.45	0.25	0.00	0.03
C3	1	(untitled)	CC2			528	1915	150	90.00	28	226	1.36	0.36	0.00	0.05

Network Results

	Distance travelled (PCU-km/hr)	Time spent (PCU-hr/hr)	Mean journey speed (kph)	Total delay (PCU-hr/hr)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Excess queue penalty (£ per hr)	Performance Index (£ per hr)
Normal traffic	1123.18	62.11	18.08	24.63	349.77	18.15	0.00	367.92
Bus	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tram	3.00	0.73	4.10	0.53	7.55	0.09	0.00	7.64
Pedestrians								
TOTAL	1126.18	62.84	17.92	25.16	357.32	18.24	0.00	375.56

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

A4 - DN 2027 PM
D4 - DN 2027 PM*

Summary

Data Errors and Warnings

No errors or warnings

Run Summary

Analysis set used	Run start time	Run finish time	Modelling start time (HH:mm)	Network Cycle Time (s)	Performance Index (£ per hr)	Total network delay (PCU-hr/hr)	Highest DOS (%)	Item with highest DOS	Number of oversaturated items	Percentage of oversaturated items (%)	Item with worst signalised PRC	Item with worst unsignalised PRC	Ite wit wor over PR
4	16/10/2020 09:09:10	16/10/2020 09:09:12	16:30	150	270.47	18.03	55.00	H1/1	0	0	H1/1	A3/1	H1/

Analysis Set Details

Name	Description	Demand set	Include in report	Locked
DN 2027 PM		D4	✓	

Demand Set Details

Name	Description	Composite	Demand sets	Start time (HH:mm)	Locked
DN 2027 PM				16:30	

Links

Links

Link	Name	Description	Traffic node	Length (m)	Has Saturation Flow	Use RR67	Saturation flow (PCU/hr)	Is signal controlled	Is give way	Traffic type	Is minor shared	Allow Nearside Turn On Red
Luas	Luas		J1	100.00	✓		1800	✓		Tram		
Ped1	Ped1		J1	24.00	✓		2500	✓		Normal		
Ped2	Ped2		J1	27.00	✓		2500	✓		Normal		
Ped3	Ped3		J1	17.00	✓		2500	✓		Normal		
Ped8	Ped8		J1	13.77	✓		2500	✓		Normal		

Modelling

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

Modelling - Normal traffic - Advanced

Link	Dispersion type for Normal Traffic	Initial queue (PCU)	Type of Vehicle-in-Service	Vehicle-in-Service	Type of random parameter	Random parameter	Auto cycle time	Cycle time
(ALL)	NetworkDefault	0.00	NetworkDefault	Not-Included	NetworkDefault	0.50	✓	150

Modelling - Trams - Advanced

Link	Dispersion type for trams	Use tram network default acceleration	Initial queue (PCU)	Type of Vehicle-in-Service	Vehicle-in-Service	Type of random parameter	Random parameter	Auto cycle time	Cycle time
Luas	NetworkDefault	✓	0.00	NetworkDefault	Not-Included	NetworkDefault	0.50	✓	150

Flows

Link	Total flow (Veh/hr)	PCU Factor
Luas	30	1.00
Ped1	10	1.00
Ped2	10	1.00
Ped3	10	1.00
Ped8	10	1.00

Flows - Advanced

Link	Detectors
(ALL)	

Signals

Link	Controller stream	Phase	Second phase enabled
Luas	1	H	
Ped1	1	G	
Ped2	1	G	
Ped3	1	G	
Ped8	1	G	

Arms and Traffic Streams

Arms

Arm	Name	Description	Traffic node
Aexit	(untitled)		
Bexit	(untitled)		
Cexit	(untitled)		
Hexit	(untitled)		
A1	Fortunestown Lane (East)		J1
B1	Fortunestown Lane (West)		J1
C1	Link Road		J1
H1	Citywest Ave Link Rd		J1
H2	Citywest Ave Link Rd		HH1
A3	Fortunestown Lane (East)		AA2
B3	Fortunestown Lane (West)		BB2
C3	Link Road		CC2

Traffic Streams

Arm	Traffic Stream	Name	Description	Auto length	Length (m)	Has Saturation Flow	Saturation flow source	Saturation flow (PCU/hr)	Is signal controlled	Is give way	Traffic type	Allow Nearside Turn On Red
Aexit	1	(untitled)		✓	661.88						Normal	
Bexit	1	(untitled)		✓	1084.96						Normal	
Cexit	1	(untitled)			18.00						Normal	
Hexit	1	(untitled)		✓	1029.80						Normal	
A1	1				15.00	✓	Sum of lanes	1856	✓		Normal	
	2	(untitled)			15.00	✓	Sum of lanes	2055	✓		Normal	
B1	1	(untitled)			39.00	✓	Sum of lanes	1854	✓		Normal	
	2	(untitled)			39.00	✓	Sum of lanes	2009	✓		Normal	
C1	1	(untitled)			25.00	✓	Sum of lanes	1895	✓		Normal	
	2	(untitled)			25.00	✓	Sum of lanes	1998	✓		Normal	
H1	1	(untitled)			27.00	✓	Sum of lanes	1800	✓		Normal	
	2	(untitled)			27.00	✓	Sum of lanes	1800	✓		Normal	
H2	1	(untitled)		✓	211.61	✓	Sum of lanes	1800			Normal	
A3	1	(untitled)			8.00	✓	Sum of lanes	1980			Normal	
B3	1	(untitled)			10.00	✓	Sum of lanes	1925			Normal	
C3	1	(untitled)			6.50	✓	Sum of lanes	1915			Normal	

Lanes

Arm	Traffic Stream	Lane	Name	Description	Use RR67	Surface condition	Site quality factor	Gradient (%)	Width (m)	Use connector turning radius	Proportion that turn (%)	Turning radius (m)	Nearside lane	Saturation flow (PCU/hr)
Aexit	1	1	(untitled)											
Bexit	1	1	(untitled)											
Cexit	1	1	(untitled)											
Hexit	1	1	(untitled)											
A1	1	1	Left Turn		✓	N/A	N/A	0	3.00		100	47.00	✓	1856
	2	1	Ahead & Right Turn		✓	N/A	N/A	0	3.00	✓	0	99999.00		2055
B1	1	1	Ahead & Left Turn		✓	N/A	N/A	0	3.10		100	39.00	✓	1854
	2	1	Right Turn		✓	N/A	N/A	0	3.10		100	53.50		2009
C1	1	1	Ahead & Left Turn		✓	N/A	N/A	0	3.30		100	56.50	✓	1895
	2	1	Right Turn		✓	N/A	N/A	0	3.00		100	53.00		1998
H1	1	1	Ahead & Left Turn											1800
	2	1	Right Turn											1800
H2	1	1	(untitled)											1800
A3	1	1	(untitled)		✓	N/A	N/A	0	3.65	✓	0	99999.00	✓	1980
B3	1	1	(untitled)		✓	N/A	N/A	0	3.10	✓	0	99999.00	✓	1925
C3	1	1	(untitled)		✓	N/A	N/A	0	3.00	✓	0	99999.00	✓	1915

Modelling

Arm	Traffic Stream	Traffic model	Stop weighting multiplier (%)	Delay weighting multiplier (%)	Assignment Cost Weighting (%)	Exclude from results calculation	Max queue storage (PCU)	Has queue limit	Has degree of saturation limit
Aexit	1	NetworkDefault	100	100	100		0.00		
Bexit	1	NetworkDefault	100	100	100		0.00		
Cexit	1	NetworkDefault	100	100	100		3.00		
Hexit	1	NetworkDefault	100	100	100		0.00		
A1	1	NetworkDefault	100	100	100		3.00		
	2	NetworkDefault	100	100	100		3.00		
B1	1	NetworkDefault	100	100	100		7.00		
	2	NetworkDefault	100	100	100		7.00		
C1	1	NetworkDefault	100	100	100		6.00		
	2	NetworkDefault	100	100	100		6.00		
H1	1	NetworkDefault	100	100	100		0.00		
	2	NetworkDefault	100	100	100		0.00		
H2	1	NetworkDefault	100	100	100		0.00		
A3	1	NetworkDefault	100	100	100		1.00		
B3	1	NetworkDefault	100	100	100		0.00		
C3	1	NetworkDefault	100	100	100		1.00		

Modelling - Advanced

Arm	Traffic Stream	Initial queue (PCU)	Type of Vehicle-in-Service	Vehicle-in-Service	Type of random parameter	Random parameter	Auto cycle time	Cycle time
(ALL)	(ALL)	0.00	NetworkDefault	Not-Included	NetworkDefault	0.50	✓	150

Normal traffic - Modelling

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

Normal traffic - Advanced

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

Flows

Arm	Traffic Stream	Total Flow (PCU/hr)	Normal Flow (PCU/hr)
Aexit	1	342	342
Bexit	1	569	569
Cexit	1	234	234
Hexit	1	165	165
A1	1	394	394
	2	85	85
B1	1	121	121
	2	245	245
C1	1	149	149
	2	72	72
H1	1	132	132
	2	112	112
H2	1	244	244
A3	1	479	479
B3	1	366	366
C3	1	221	221

Signals

Arm	Traffic Stream	Controller stream	Phase	Second phase enabled
A1	1	1	B	
	2	1	A	
B1	1	1	D	
	2	1	C	
C1	1	1	F	
	2	1	E	
H1	1	1	J	
	2	1	I	

Signal Timings

Network Default: 150s cycle time; 150 steps

Phases

Controller Stream	Phase	Name	Minimum green (s)	Maximum green (s)	Relative start displacement (s)	Relative end displacement (s)	Type
1	A	(untitled)	1	300	0	0	Indicative arrow
	B	(untitled)	1	300	0	0	Traffic
	C	(untitled)	1	300	0	0	Indicative arrow
	D	(untitled)	1	300	0	0	Traffic
	E	(untitled)	1	300	0	0	Indicative arrow
	F	(untitled)	1	300	0	0	Traffic
	G	(untitled)	1	300	0	0	Unknown
	H	(untitled)	1	300	0	0	Unknown
	I	(untitled)	1	300	0	0	Indicative arrow
	J	(untitled)	1	300	0	0	Traffic

Library Stages

Controller Stream	Library Stage	Phases in stage	User stage minimum (s)
1	1	B, C, H, I	1
	2	B, C, D	1
	3	B, A	1
	4	E, F	1
	5	G	1
	6	D, J	1

Stage Sequences

Controller Stream	Sequence	Name	Multiple cycling	Stage IDs	Stage ends
1	1	(untitled)	Single	5, 1, 2, 6, 4, 3	30, 69, 81, 106, 134, 14

Intergreen Matrix for Controller Stream 1

		To								
		A	B	C	D	E	F	G	H	I	J
From	A			6	6	6	6	14	6	6	6
	B					6	6	14			6
	C	6				6	6	14			6
	D	6				6	6	14	6	6	
	E	6	6	6	6			14	6	6	6
	F	6	6	6	6			14	6	6	6
	G	14	14	14	14	14	14		6	6	6
	H	6			6	6	6	6			6
	I	6			6	6	6	6			6
	J	6	6	6		6	6	6	6	6	

Interstage Matrix for Controller Stream 1

		To					
		1	2	3	4	5	6
From	1	0	6	6	6	14	6
	2	6	0	6	6	14	6
	3	6	6	0	6	14	6
	4	6	6	6	0	14	6
	5	14	14	14	14	0	14
	6	6	6	6	6	14	0

Resultant Stages

Controller Stream	Resultant Stage	Is base stage	Library Stage ID	Phases in this stage	Stage start (s)	Stage end (s)	Stage duration (s)	User stage minimum (s)	Stage minimum (s)
1	1	✓	5	G	28	30	2	1	1
	2	✓	1	B,C,H,I	44	69	25	1	1
	3	✓	2	B,C,D	75	81	6	1	1
	4	✓	6	D,J	87	106	19	1	1
	5	✓	4	E,F	112	134	22	1	1
	6	✓	3	B,A	140	14	24	1	1

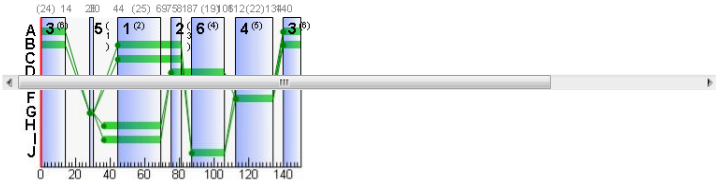
Resultant Phase Green Periods

Controller Stream	Phase	Green period	Is base green period	Start time (s)	End time (s)	Duration (s)
1	A	1	✓	140	14	24
	B	1	✓	44	81	37
		2	✓	140	14	24
	C	1	✓	44	81	37
	D	1	✓	75	106	31
	E	1	✓	112	134	22
	F	1	✓	112	134	22
	G	1	✓	28	30	2
	H	1	✓	36	69	33
	I	1	✓	36	69	33
	J	1	✓	87	106	19

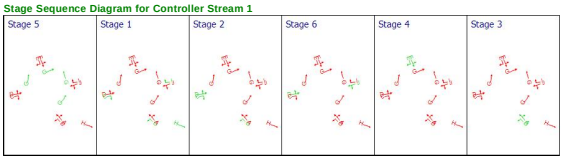
Traffic Stream Green Times

Arm	Traffic Stream	Traffic Node	Controller Stream	Phase	Green Period 1			Green Period 2		
					Start	End	Duration	Start	End	Duration
A1	1	J1	1	B	44	81	37	140	14	24
A1	2	J1	1	A	140	14	24			
B1	1	J1	1	D	75	106	31			
B1	2	J1	1	C	44	81	37			
C1	1	J1	1	F	112	134	22			
C1	2	J1	1	E	112	134	22			
H1	1	J1	1	J	87	106	19			
H1	2	J1	1	I	36	69	33			

Phase Timings Diagram for Controller Stream 1



Stage Sequence Diagram for Controller Stream 1



Link Results

Link Results: Vehicle summary

Time Segment	Link	Degree of saturation (%)	Practical reserve capacity (%)	Calculated flow entering (PCU/hr)	Calculated sat flow (PCU/hr)	Actual green (s (per cycle))	Mean Delay per Veh (s)	Mean max queue (PCU)	Utilised storage (%)	Weighted cost of delay (€ per hr)	Weighted cost of stops (€ per hr)	Performance Index (€ per hr)
16:30-17:30	Luas	7	1124	30	1800	33	45.97	0.98	5.78	5.44	0.07	5.51
	Ped1	20	350	10	2500	2	81.42	0.43	7.68	3.21	0.13	3.34
	Ped2	20	350	10	2500	2	81.42	0.43	6.82	3.21	0.13	3.34
	Ped3	20	350	10	2500	2	81.42	0.43	10.84	3.21	0.13	3.34
	Ped8	20	350	10	2500	2	81.42	0.43	13.38	3.21	0.13	3.34

Link Results: Flows and signals

Time Segment	Link	Calculated flow entering (PCU/hr)	Calculated flow out (PCU/hr)	Flow discrepancy (PCU/hr)	Adjusted flow warning	Calculated sat flow (PCU/hr)	Calculated capacity (PCU/hr)	Degree of saturation (%)	DOS Threshold exceeded	Practical reserve capacity (%)	Mean modulus of error	Actual green (s (per cycle))
16:30-17:30	Luas	30	30	0		1800	408	7		1124	0.00	33
	Ped1	10	10	0		2500	50	20		350	0.00	2
	Ped2	10	10	0		2500	50	20		350	0.00	2
	Ped3	10	10	0		2500	50	20		350	0.00	2
	Ped8	10	10	0		2500	50	20		350	0.00	2

Link Results: Stops and delays

Time Segment	Link	Mean Cruise Time per Veh (s)	Mean Delay per Veh (s)	Total delay (PCU-hr/hr)	Weighted cost of delay (€ per hr)	Mean stops per Veh (%)	Total stops (Stops per hr)	Weighted cost of stops (€ per hr)
16:30-17:30	Luas	24.00	45.97	0.38	5.44	77.88	23.36	0.07
	Ped1	2.88	81.42	0.23	3.21	103.06	10.31	0.13
	Ped2	3.24	81.42	0.23	3.21	103.06	10.31	0.13
	Ped3	2.04	81.42	0.23	3.21	103.06	10.31	0.13
	Ped8	1.65	81.42	0.23	3.21	103.06	10.31	0.13

Link Results: Queues and blocking

Time Segment	Link	Initial queue (PCU)	Mean max queue (PCU)	Max queue storage (PCU)	Utilised storage (%)	Excess queue penalty (€ per hr)	Wasted time total (s (per cycle))	Estimated blocking
16:30-17:30	Luas	0.00	0.98	16.92	5.78	0.00	32.00	
	Ped1	0.00	0.43	5.64	7.68	0.00	2.00	
	Ped2	0.00	0.43	6.35	6.82	0.00	2.00	
	Ped3	0.00	0.43	4.00	10.84	0.00	2.00	
	Ped8	0.00	0.43	3.24	13.38	0.00	2.00	

Traffic Stream Results

Traffic Stream Results: Vehicle summary

Time Segment	Arm	Traffic Stream	Degree of saturation (%)	Practical reserve capacity	Calculated flow entering (PCU/hr)	Calculated sat flow	Actual green (s (per cycle))	Mean Delay per Veh (s)	Mean max queue (PCU)	Utilised storage (%)	Weighted cost of delay (€ per hr)	Weighted cost of stops (€ per hr)	Performance Index (€ per hr)
16:30-17:30	Aexit	1	0	Unrestricted	342	Unrestricted	150	0.00	0.00	0.00	0.00	0.00	0.00
	Bexit	1	0	Unrestricted	569	Unrestricted	150	0.00	0.00	0.00	0.00	0.00	0.00
	Cexit	1	0	Unrestricted	234	Unrestricted	150	0.00	0.00	0.00	0.00	0.00	0.00
	Hexit	1	0	Unrestricted	165	Unrestricted	150	0.00	0.00	0.00	0.00	0.00	0.00
	A1	1	51	78	394	1856	61	20.15	8.25	274.89	31.31	3.65	34.96
		2	25	263	85	2055	24	56.08	3.11	103.68	18.80	0.93	19.73
	B1	1	31	194	121	1854	31	51.66	4.30	61.46	24.66	1.28	25.94
		2	48	87	245	2009	37	50.89	8.87	126.65	49.18	2.64	51.82
	C1	1	51	76	149	1895	22	64.81	5.94	98.95	38.09	1.77	39.86
		2	24	283	72	1998	22	57.59	2.66	44.27	16.36	0.79	17.15
	H1	1	55	64	132	1800	19	69.82	5.46	116.36	36.35	1.63	37.98
		2	27	228	112	1800	33	49.51	3.88	82.60	21.87	1.16	23.03
	H2	1	14	564	244	1800	150	0.16	0.01	0.03	0.15	0.00	0.15
	A3	1	24	272	479	1980	150	0.29	0.04	3.86	0.55	0.00	0.55
	B3	1	19	373	366	1925	150	0.22	0.02	1.28	0.32	0.00	0.32
	C3	1	12	680	221	1915	150	0.12	0.01	0.75	0.11	0.00	0.11

Traffic Stream Results: Flows and signals

Time Segment	Arm	Traffic Stream	Calculated flow entering (PCU/hr)	Calculated flow out (PCU/hr)	Flow discrepancy (PCU/hr)	Adjusted flow warning	Calculated sat flow	Calculated capacity	Degree of saturation (%)	DOS Threshold exceeded	Practical reserve capacity	Mean modulus of error	Actual green (s (per cycle))
16:30-17:30	Aexit	1	342	342	0		Unrestricted	Unrestricted	0		Unrestricted	0.60	150
	Bexit	1	569	569	0		Unrestricted	Unrestricted	0		Unrestricted	0.16	150
	Cexit	1	234	234	0		Unrestricted	Unrestricted	0		Unrestricted	1.32	150
	Hexit	1	165	165	0		Unrestricted	Unrestricted	0		Unrestricted	0.46	150
	A1	1	394	394	0		1856	780	51		78	0.00	61
		2	85	85	0		2055	343	25		263	0.00	24
	B1	1	121	121	0		1854	396	31		194	0.00	31
		2	245	245	0		2009	509	48		87	0.00	37
	C1	1	149	149	0		1895	291	51		76	0.00	22
		2	72	72	0		1998	306	24		283	0.00	22
	H1	1	132	132	0		1800	240	55		64	0.00	19
		2	112	112	0		1800	408	27		228	0.00	33
	H2	1	244	244	0		1800	1800	14		564	0.00	150
	A3	1	479	479	0		1980	1980	24		272	0.00	150
	B3	1	366	366	0		1925	1925	19		373	0.00	150
	C3	1	221	221	0		1915	1915	12		680	0.00	150

Traffic Stream Results: Stops and delays

Time Segment	Arm	Traffic Stream	Mean Cruise Time per Veh (s)	Mean Delay per Veh (s)	Total delay (PCU-hr/hr)	Weighted cost of delay (€ per hr)	Mean stops per Veh (%)	Total stops (Stops per hr)	Weighted cost of stops (€ per hr)
16:30-17:30	Aexit	1	79.43	0.00	0.00	0.00	0.00	0.00	0.00
	Bexit	1	130.20	0.00	0.00	0.00	0.00	0.00	0.00
	Cexit	1	2.16	0.00	0.00	0.00	0.00	0.00	0.00
	Hexit	1	123.58	0.00	0.00	0.00	0.00	0.00	0.00
	A1	1	1.80	20.15	2.21	31.31	73.86	291.03	3.65
		2	1.80	56.08	1.32	18.80	87.03	73.97	0.93
	B1	1	4.68	51.66	1.74	24.66	84.43	102.17	1.28
		2	4.68	50.89	3.46	49.18	85.96	210.61	2.64
	C1	1	3.00	64.81	2.68	38.09	94.80	141.25	1.77
		2	3.00	57.59	1.15	16.36	87.74	63.17	0.79
	H1	1	3.24	69.82	2.56	36.35	98.37	129.85	1.63
		2	3.24	49.51	1.54	21.87	82.32	92.20	1.16
	H2	1	25.39	0.16	0.01	0.15	0.00	0.00	0.00
	A3	1	1.00	0.29	0.04	0.55	0.00	0.00	0.00
	B3	1	1.20	0.22	0.02	0.32	0.00	0.00	0.00
	C3	1	1.00	0.12	0.01	0.11	0.00	0.00	0.00

Traffic Stream Results: Queues and blocking

Time Segment	Arm	Traffic Stream	Initial queue (PCU)	Mean max queue (PCU)	Max queue storage (PCU)	Utilised storage (%)	Excess queue penalty (£ per hr)	Wasted time total (s (per cycle))	Estimated blocking
16:30-17:30	Aexit	1	0.00	0.00	115.11	0.00	0.00	23.00	
	Bexit	1	0.00	0.00	188.69	0.00	0.00	0.00	
	Cexit	1	0.00	0.00	3.00	0.00	0.00	78.00	
	Hexit	1	0.00	0.00	179.09	0.00	0.00	26.00	
	A1	1	0.00	8.25	3.00	274.89	0.00	0.00	
		2	0.00	3.11	3.00	103.68	0.00	0.00	
	B1	1	0.00	4.30	7.00	61.46	0.00	0.00	
		2	0.00	8.87	7.00	126.65	0.00	0.00	
	C1	1	0.00	5.94	6.00	98.95	0.00	0.00	
		2	0.00	2.66	6.00	44.27	0.00	0.00	
	H1	1	0.00	5.46	4.70	116.36	0.00	0.00	
		2	0.00	3.88	4.70	82.60	0.00	0.00	
	H2	1	0.00	0.01	36.80	0.03	0.00	21.00	
	A3	1	0.00	0.04	1.00	3.86	0.00	59.00	
	B3	1	0.00	0.02	1.74	1.28	0.00	28.00	
	C3	1	0.00	0.01	1.00	0.75	0.00	0.00	

Final Prediction Table

Link Results

			SIGNALS		FLOWS		PERFORMANCE				PER PCU			QUEUES	WEIGH	
Link	Name	Traffic node	Controller stream	Phase	Calculated flow entering (PCU/hr)	Calculated sat flow (PCU/hr)	Actual green (s (per cycle))	Wasted time total (s (per cycle))	Degree of saturation (%)	Practical reserve capacity (%)	JourneyTime (s)	Mean Delay per Veh (s)	Mean stops per Veh (%)	Mean max queue (PCU)	Delay weighting (%)	w
Luas T	Luas	J1	1	H	30	1800	33	32.00	7	1124	69.97	45.97	77.88	0.98	100	
Ped1	Ped1	J1	1	G	10	2500	2	2.00	20	350	84.30	81.42	103.06	0.43	100	
Ped2	Ped2	J1	1	G	10	2500	2	2.00	20	350	84.66	81.42	103.06	0.43	100	
Ped3	Ped3	J1	1	G	10	2500	2	2.00	20	350	83.46	81.42	103.06	0.43	100	
Ped8	Ped8	J1	1	G	10	2500	2	2.00	20	350	83.07	81.42	103.06	0.43	100	

Traffic Stream Results

				SIGNALS		FLOWS		PERFORMANCE				PER PCU			QUEUES
Arm	Traffic Stream	Name	Traffic node	Controller stream	Phase	Calculated flow entering (PCU/hr)	Calculated sat flow	Actual green (s (per cycle))	Wasted time total (s (per cycle))	Degree of saturation (%)	Practical reserve capacity	JourneyTime (s)	Mean Delay per Veh (s)	Mean stops per Veh (%)	Mean max queue (PCU)
Aexit	1	(untitled)				342	Unrestricted	150	23.00	0	Unrestricted	79.43	0.00	0.00	0.00
Bexit	1	(untitled)				569	Unrestricted	150	0.00	0	Unrestricted	130.20	0.00	0.00	0.00
Cexit	1	(untitled)				234	Unrestricted	150	78.00	0	Unrestricted	2.16	0.00	0.00	0.00
Hexit	1	(untitled)				165	Unrestricted	150	26.00	0	Unrestricted	123.58	0.00	0.00	0.00
A1	1		J1	1	B	394 <	1856	61	0.00	51	78	21.95	20.15	73.86	8.25 +
	2	(untitled)	J1	1	A	85 <	2055	24	0.00	25	263	57.88	56.08	87.03	3.11 +
B1	1	(untitled)	J1	1	D	121	1854	31	0.00	31	194	56.34	51.66	84.43	4.30
	2	(untitled)	J1	1	C	245 <	2009	37	0.00	48	87	55.57	50.89	85.96	8.87 +
C1	1	(untitled)	J1	1	F	149	1895	22	0.00	51	76	67.81	64.81	94.80	5.94
	2	(untitled)	J1	1	E	72	1998	22	0.00	24	283	60.59	57.59	87.74	2.66
H1	1	(untitled)	J1	1	J	132 <	1800	19	0.00	55	64	73.06	69.82	98.37	5.46 +
	2	(untitled)	J1	1	I	112	1800	33	0.00	27	228	52.75	49.51	82.32	3.88
H2	1	(untitled)	HH1			244	1800	150	21.00	14	564	25.55	0.16	0.00	0.01
A3	1	(untitled)	AA2			479	1980	150	59.00	24	272	1.29	0.29	0.00	0.04
B3	1	(untitled)	BB2			366	1925	150	28.00	19	373	1.42	0.22	0.00	0.02
C3	1	(untitled)	CC2			221	1915	150	0.00	12	680	1.12	0.12	0.00	0.01

Network Results

	Distance travelled (PCU-km/hr)	Time spent (PCU-hr/hr)	Mean journey speed (kph)	Total delay (PCU-hr/hr)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Excess queue penalty (£ per hr)	Performance Index (£ per hr)
Normal traffic	1112.78	54.76	20.32	17.65	250.59	14.36	0.00	264.95
Bus	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tram	3.00	0.58	5.15	0.38	5.44	0.07	0.00	5.51
Pedestrians								
TOTAL	1115.78	55.34	20.16	18.03	256.03	14.44	0.00	270.47

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

A5 - DN 2037 AM
D5 - DN 2037 AM*

Summary

Data Errors and Warnings

No errors or warnings

Run Summary

Analysis set used	Run start time	Run finish time	Modelling start time (HH:mm)	Network Cycle Time (s)	Performance Index (£ per hr)	Total network delay (PCU-hr/hr)	Highest DOS (%)	Item with highest DOS	Number of oversaturated items	Percentage of oversaturated items (%)	Item with worst signalised PRC	Item with worst unsignalised PRC	Ite wit wor over PR
5	16/10/2020 09:09:12	16/10/2020 09:09:14	08:15	150	403.79	27.06	77.03	C1/1	0	0	C1/1	C3/1	C1/

Analysis Set Details

Name	Description	Demand set	Include in report	Locked
DN 2037 AM		D5	✓	

Demand Set Details

Name	Description	Composite	Demand sets	Start time (HH:mm)	Locked
DN 2037 AM				08:15	

Links

Links

Link	Name	Description	Traffic node	Length (m)	Has Saturation Flow	Use RR67	Saturation flow (PCU/hr)	Is signal controlled	Is give way	Traffic type	Is minor shared	Allow Nearside Turn On Red
Luas	Luas		J1	100.00	✓		1800	✓		Tram		
Ped1	Ped1		J1	24.00	✓		2500	✓		Normal		
Ped2	Ped2		J1	27.00	✓		2500	✓		Normal		
Ped3	Ped3		J1	17.00	✓		2500	✓		Normal		
Ped8	Ped8		J1	13.77	✓		2500	✓		Normal		

Modelling

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

Modelling - Normal traffic - Advanced

Link	Dispersion type for Normal Traffic	Initial queue (PCU)	Type of Vehicle-in-Service	Vehicle-in-Service	Type of random parameter	Random parameter	Auto cycle time	Cycle time
(ALL)	NetworkDefault	0.00	NetworkDefault	Not-Included	NetworkDefault	0.50	✓	150

Modelling - Trams - Advanced

Link	Dispersion type for trams	Use tram network default acceleration	Initial queue (PCU)	Type of Vehicle-in-Service	Vehicle-in-Service	Type of random parameter	Random parameter	Auto cycle time	Cycle time
Luas	NetworkDefault	✓	0.00	NetworkDefault	Not-Included	NetworkDefault	0.50	✓	150

Flows

Link	Total flow (Veh/hr)	PCU Factor
Luas	30	1.00
Ped1	10	1.00
Ped2	10	1.00
Ped3	10	1.00
Ped8	10	1.00

Flows - Advanced

Link	Detectors
(ALL)	

Signals

Link	Controller stream	Phase	Second phase enabled
Luas	1	H	
Ped1	1	G	
Ped2	1	G	
Ped3	1	G	
Ped8	1	G	

Arms and Traffic Streams

Arms

Arm	Name	Description	Traffic node
Aexit	(untitled)		
Bexit	(untitled)		
Cexit	(untitled)		
Hexit	(untitled)		
A1	Fortunestown Lane (East)		J1
B1	Fortunestown Lane (West)		J1
C1	Link Road		J1
H1	Citywest Ave Link Rd		J1
H2	Citywest Ave Link Rd		HH1
A3	Fortunestown Lane (East)		AA2
B3	Fortunestown Lane (West)		BB2
C3	Link Road		CC2

Traffic Streams

Arm	Traffic Stream	Name	Description	Auto length	Length (m)	Has Saturation Flow	Saturation flow source	Saturation flow (PCU/hr)	Is signal controlled	Is give way	Traffic type	Allow Nearside Turn On Red
Aexit	1	(untitled)		✓	661.88						Normal	
Bexit	1	(untitled)		✓	1084.96						Normal	
Cexit	1	(untitled)			18.00						Normal	
Hexit	1	(untitled)		✓	1029.80						Normal	
A1	1				15.00	✓	Sum of lanes	1856	✓		Normal	
	2	(untitled)			15.00	✓	Sum of lanes	2055	✓		Normal	
B1	1	(untitled)			39.00	✓	Sum of lanes	1854	✓		Normal	
	2	(untitled)			39.00	✓	Sum of lanes	2009	✓		Normal	
C1	1	(untitled)			25.00	✓	Sum of lanes	1895	✓		Normal	
	2	(untitled)			25.00	✓	Sum of lanes	1998	✓		Normal	
H1	1	(untitled)			27.00	✓	Sum of lanes	1800	✓		Normal	
	2	(untitled)			27.00	✓	Sum of lanes	1800	✓		Normal	
H2	1	(untitled)		✓	211.61	✓	Sum of lanes	1800			Normal	
A3	1	(untitled)			8.00	✓	Sum of lanes	1980			Normal	
B3	1	(untitled)			10.00	✓	Sum of lanes	1925			Normal	
C3	1	(untitled)			6.50	✓	Sum of lanes	1915			Normal	

Lanes

Arm	Traffic Stream	Lane	Name	Description	Use RR67	Surface condition	Site quality factor	Gradient (%)	Width (m)	Use connector turning radius	Proportion that turn (%)	Turning radius (m)	Nearside lane	Saturation flow (PCU/hr)
Aexit	1	1	(untitled)											
Bexit	1	1	(untitled)											
Cexit	1	1	(untitled)											
Hexit	1	1	(untitled)											
A1	1	1	Left Turn		✓	N/A	N/A	0	3.00		100	47.00	✓	1856
	2	1	Ahead & Right Turn		✓	N/A	N/A	0	3.00	✓	0	99999.00		2055
B1	1	1	Ahead & Left Turn		✓	N/A	N/A	0	3.10		100	39.00	✓	1854
	2	1	Right Turn		✓	N/A	N/A	0	3.10		100	53.50		2009
C1	1	1	Ahead & Left Turn		✓	N/A	N/A	0	3.30		100	56.50	✓	1895
	2	1	Right Turn		✓	N/A	N/A	0	3.00		100	53.00		1998
H1	1	1	Ahead & Left Turn											1800
	2	1	Right Turn											1800
H2	1	1	(untitled)											1800
A3	1	1	(untitled)		✓	N/A	N/A	0	3.65	✓	0	99999.00	✓	1980
B3	1	1	(untitled)		✓	N/A	N/A	0	3.10	✓	0	99999.00	✓	1925
C3	1	1	(untitled)		✓	N/A	N/A	0	3.00	✓	0	99999.00	✓	1915

Modelling

Arm	Traffic Stream	Traffic model	Stop weighting multiplier (%)	Delay weighting multiplier (%)	Assignment Cost Weighting (%)	Exclude from results calculation	Max queue storage (PCU)	Has queue limit	Has degree of saturation limit
Aexit	1	NetworkDefault	100	100	100		0.00		
Bexit	1	NetworkDefault	100	100	100		0.00		
Cexit	1	NetworkDefault	100	100	100		3.00		
Hexit	1	NetworkDefault	100	100	100		0.00		
A1	1	NetworkDefault	100	100	100		3.00		
	2	NetworkDefault	100	100	100		3.00		
B1	1	NetworkDefault	100	100	100		7.00		
	2	NetworkDefault	100	100	100		7.00		
C1	1	NetworkDefault	100	100	100		6.00		
	2	NetworkDefault	100	100	100		6.00		
H1	1	NetworkDefault	100	100	100		0.00		
	2	NetworkDefault	100	100	100		0.00		
H2	1	NetworkDefault	100	100	100		0.00		
A3	1	NetworkDefault	100	100	100		1.00		
B3	1	NetworkDefault	100	100	100		0.00		
C3	1	NetworkDefault	100	100	100		1.00		

Modelling - Advanced

Arm	Traffic Stream	Initial queue (PCU)	Type of Vehicle-in-Service	Vehicle-in-Service	Type of random parameter	Random parameter	Auto cycle time	Cycle time
(ALL)	(ALL)	0.00	NetworkDefault	Not-Included	NetworkDefault	0.50	✓	150

Normal traffic - Modelling

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

Normal traffic - Advanced

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

Flows

Arm	Traffic Stream	Total Flow (PCU/hr)	Normal Flow (PCU/hr)
Aexit	1	495	495
Bexit	1	503	503
Cexit	1	445	445
Hexit	1	206	206
A1	1	279	279
	2	212	212
B1	1	208	208
	2	230	230
C1	1	399	399
	2	152	152
H1	1	91	91
	2	78	78
H2	1	169	169
A3	1	491	491
B3	1	438	438
C3	1	551	551

Signals

Arm	Traffic Stream	Controller stream	Phase	Second phase enabled
A1	1	1	B	
	2	1	A	
B1	1	1	D	
	2	1	C	
C1	1	1	F	
	2	1	E	
H1	1	1	J	
	2	1	I	

Signal Timings

Network Default: 150s cycle time; 150 steps

Phases

Controller Stream	Phase	Name	Minimum green (s)	Maximum green (s)	Relative start displacement (s)	Relative end displacement (s)	Type
1	A	(untitled)	1	300	0	0	Indicative arrow
	B	(untitled)	1	300	0	0	Traffic
	C	(untitled)	1	300	0	0	Indicative arrow
	D	(untitled)	1	300	0	0	Traffic
	E	(untitled)	7	300	0	0	Indicative arrow
	F	(untitled)	7	300	0	0	Traffic
	G	(untitled)	1	300	0	0	Unknown
	H	(untitled)	1	300	0	0	Unknown
	I	(untitled)	1	300	0	0	Indicative arrow
	J	(untitled)	1	300	0	0	Traffic

Library Stages

Controller Stream	Library Stage	Phases in stage	User stage minimum (s)
1	1	B, C, H, I	2
	2	C, D, B	1
	3	A, B	1
	4	E, F	1
	5	G	1
	6	D, J	1

Stage Sequences

Controller Stream	Sequence	Name	Multiple cycling	Stage IDs	Stage ends
1	1	(untitled)	Single	5, 1, 2, 6, 4, 3	30, 50, 75, 92, 138, 14

Intergreen Matrix for Controller Stream 1

		To								
		A	B	C	D	E	F	G	H	I	J
From	A			6	6	6	6	14	6	6	6
	B					6	6	14			6
	C	6				6	6	14			6
	D	6				6	6	14	6	6	
	E	6	6	6	6			14	6	6	6
	F	6	6	6	6			14	6	6	6
	G	14	14	14	14	14	14		6	6	6
	H	6			6	6	6	6			6
	I	6			6	6	6	6			6
	J	6	6	6		6	6	6	6	6	

Interstage Matrix for Controller Stream 1

		To					
		1	2	3	4	5	6
From	1	0	6	6	6	14	6
	2	6	0	6	6	14	6
	3	6	6	0	6	14	6
	4	6	6	6	0	14	6
	5	14	14	14	14	0	14
	6	6	6	6	6	14	0

Resultant Stages

Controller Stream	Resultant Stage	Is base stage	Library Stage ID	Phases in this stage	Stage start (s)	Stage end (s)	Stage duration (s)	User stage minimum (s)	Stage minimum (s)
1	1	✓	5	G	28	30	2	1	1
	2	✓	1	B,C,H,I	44	50	6	2	2
	3	✓	2	C,D,B	56	75	19	1	1
	4	✓	6	D,J	81	92	11	1	1
	5	✓	4	E,F	98	138	40	1	7
	6	✓	3	A,B	144	14	20	1	1

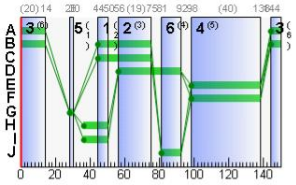
Resultant Phase Green Periods

Controller Stream	Phase	Green period	Is base green period	Start time (s)	End time (s)	Duration (s)
1	A	1	✓	144	14	20
	B	1	✓	44	75	31
		2	✓	144	14	20
	C	1	✓	44	75	31
	D	1	✓	56	92	36
	E	1	✓	98	138	40
	F	1	✓	98	138	40
	G	1	✓	28	30	2
	H	1	✓	36	50	14
	I	1	✓	36	50	14
	J	1	✓	81	92	11

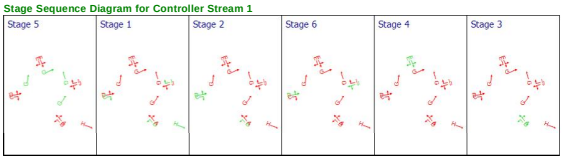
Traffic Stream Green Times

Arm	Traffic Stream	Traffic Node	Controller Stream	Phase	Green Period 1			Green Period 2		
					Start	End	Duration	Start	End	Duration
A1	1	J1	1	B	44	75	31	144	14	20
A1	2	J1	1	A	144	14	20			
B1	1	J1	1	D	56	92	36			
B1	2	J1	1	C	44	75	31			
C1	1	J1	1	F	98	138	40			
C1	2	J1	1	E	98	138	40			
H1	1	J1	1	J	81	92	11			
H1	2	J1	1	I	36	50	14			

Phase Timings Diagram for Controller Stream 1



Stage Sequence Diagram for Controller Stream 1



Link Results

Link Results: Vehicle summary

Time Segment	Link	Degree of saturation (%)	Practical reserve capacity (%)	Calculated flow entering (PCU/hr)	Calculated sat flow (PCU/hr)	Actual green (s (per cycle))	Mean Delay per Veh (s)	Mean max queue (PCU)	Utilised storage (%)	Weighted cost of delay (€ per hr)	Weighted cost of stops (€ per hr)	Performance Index (€ per hr)
08:15-09:15	Luas	17	440	30	1800	14	63.82	1.16	6.85	7.55	0.09	7.64
	Ped1	20	350	10	2500	2	81.42	0.43	7.68	3.21	0.13	3.34
	Ped2	20	350	10	2500	2	81.42	0.43	6.82	3.21	0.13	3.34
	Ped3	20	350	10	2500	2	81.42	0.43	10.84	3.21	0.13	3.34
	Ped8	20	350	10	2500	2	81.42	0.43	13.38	3.21	0.13	3.34

Link Results: Flows and signals

Time Segment	Link	Calculated flow entering (PCU/hr)	Calculated flow out (PCU/hr)	Flow discrepancy (PCU/hr)	Adjusted flow warning	Calculated sat flow (PCU/hr)	Calculated capacity (PCU/hr)	Degree of saturation (%)	DOS Threshold exceeded	Practical reserve capacity (%)	Mean modulus of error	Actual green (s (per cycle))
08:15-09:15	Luas	30	30	0		1800	180	17		440	0.00	14
	Ped1	10	10	0		2500	50	20		350	0.00	2
	Ped2	10	10	0		2500	50	20		350	0.00	2
	Ped3	10	10	0		2500	50	20		350	0.00	2
	Ped8	10	10	0		2500	50	20		350	0.00	2

Link Results: Stops and delays

Time Segment	Link	Mean Cruise Time per Veh (s)	Mean Delay per Veh (s)	Total delay (PCU-hr/hr)	Weighted cost of delay (€ per hr)	Mean stops per Veh (%)	Total stops (Stops per hr)	Weighted cost of stops (€ per hr)
08:15-09:15	Luas	24.00	63.82	0.53	7.55	92.31	27.69	0.09
	Ped1	2.88	81.42	0.23	3.21	103.06	10.31	0.13
	Ped2	3.24	81.42	0.23	3.21	103.06	10.31	0.13
	Ped3	2.04	81.42	0.23	3.21	103.06	10.31	0.13
	Ped8	1.65	81.42	0.23	3.21	103.06	10.31	0.13

Link Results: Queues and blocking

Time Segment	Link	Initial queue (PCU)	Mean max queue (PCU)	Max queue storage (PCU)	Utilised storage (%)	Excess queue penalty (€ per hr)	Wasted time total (s (per cycle))	Estimated blocking
08:15-09:15	Luas	0.00	1.16	16.92	6.85	0.00	12.00	
	Ped1	0.00	0.43	5.64	7.68	0.00	2.00	
	Ped2	0.00	0.43	6.35	6.82	0.00	2.00	
	Ped3	0.00	0.43	4.00	10.84	0.00	2.00	
	Ped8	0.00	0.43	3.24	13.38	0.00	2.00	

Traffic Stream Results

Traffic Stream Results: Vehicle summary

Time Segment	Arm	Traffic Stream	Degree of saturation (%)	Practical reserve capacity	Calculated flow entering (PCU/hr)	Calculated sat flow	Actual green (s (per cycle))	Mean Delay per Veh (s)	Mean max queue (PCU)	Utilised storage (%)	Weighted cost of delay (€ per hr)	Weighted cost of stops (€ per hr)	Performance Index (€ per hr)
08:15-09:15	Aexit	1	0	Unrestricted	495	Unrestricted	150	0.00	0.00	0.00	0.00	0.00	0.00
	Bexit	1	0	Unrestricted	503	Unrestricted	150	0.00	0.00	0.00	0.00	0.00	0.00
	Cexit	1	0	Unrestricted	445	Unrestricted	150	0.00	0.00	0.00	0.00	0.00	0.00
	Hexit	1	0	Unrestricted	206	Unrestricted	150	0.00	0.00	0.00	0.00	0.00	0.00
	A1	1	43	112	279	1856	51	23.47	6.36	211.90	25.83	2.66	28.49
		2	74	22	212	2055	20	78.61	9.41	313.60	65.74	2.80	68.54
	B1	1	45	98	208	1854	36	51.21	7.53	107.52	42.02	2.24	44.26
		2	54	68	230	2009	31	57.24	8.81	125.79	51.93	2.62	54.55
	C1	1	77	17	399	1895	40	61.44	16.54	275.74	96.70	4.90	101.60
		2	28	223	152	1998	40	44.13	4.99	83.23	26.46	1.49	27.95
	H1	1	63	42	91	1800	11	87.45	4.19	89.13	31.39	1.25	32.63
		2	43	108	78	1800	14	71.07	3.22	68.55	21.87	0.96	22.82
	H2	1	9	859	169	1800	150	0.10	0.00	0.01	0.07	0.00	0.07
	A3	1	25	263	491	1980	150	0.30	0.04	4.09	0.58	0.00	0.58
	B3	1	23	296	438	1925	150	0.28	0.03	1.93	0.48	0.00	0.48
	C3	1	29	213	551	1915	150	0.38	0.06	5.81	0.82	0.00	0.82

Traffic Stream Results: Flows and signals

Time Segment	Arm	Traffic Stream	Calculated flow entering (PCU/hr)	Calculated flow out (PCU/hr)	Flow discrepancy (PCU/hr)	Adjusted flow warning	Calculated sat flow	Calculated capacity	Degree of saturation (%)	DOS Threshold exceeded	Practical reserve capacity	Mean modulus of error	Actual green (s (per cycle))
08:15-09:15	Aexit	1	495	495	0		Unrestricted	Unrestricted	0		Unrestricted	0.47	150
	Bexit	1	503	503	0		Unrestricted	Unrestricted	0		Unrestricted	0.19	150
	Cexit	1	445	445	0		Unrestricted	Unrestricted	0		Unrestricted	1.29	150
	Hexit	1	206	206	0		Unrestricted	Unrestricted	0		Unrestricted	0.47	150
	A1	1	279	279	0		1856	656	43		112	0.00	51
		2	212	212	0		2055	288	74		22	0.00	20
	B1	1	208	208	0		1854	457	45		98	0.00	36
		2	230	230	0		2009	429	54		68	0.00	31
	C1	1	399	399	0		1895	518	77		17	0.00	40
		2	152	152	0		1998	546	28		223	0.00	40
	H1	1	91	91	0		1800	144	63		42	0.00	11
		2	78	78	0		1800	180	43		108	0.00	14
	H2	1	169	169	0		1800	1800	9		859	0.00	150
	A3	1	491	491	0		1980	1980	25		263	0.00	150
	B3	1	438	438	0		1925	1925	23		296	0.00	150
	C3	1	551	551	0		1915	1915	29		213	0.00	150

Traffic Stream Results: Stops and delays

Time Segment	Arm	Traffic Stream	Mean Cruise Time per Veh (s)	Mean Delay per Veh (s)	Total delay (PCU-hr/hr)	Weighted cost of delay (€ per hr)	Mean stops per Veh (%)	Total stops (Stops per hr)	Weighted cost of stops (€ per hr)
08:15-09:15	Aexit	1	79.43	0.00	0.00	0.00	0.00	0.00	0.00
	Bexit	1	130.20	0.00	0.00	0.00	0.00	0.00	0.00
	Cexit	1	2.16	0.00	0.00	0.00	0.00	0.00	0.00
	Hexit	1	123.58	0.00	0.00	0.00	0.00	0.00	0.00
	A1	1	1.80	23.47	1.82	25.83	76.05	212.19	2.66
		2	1.80	78.61	4.63	65.74	105.40	223.45	2.80
	B1	1	4.68	51.21	2.96	42.02	85.87	178.60	2.24
		2	4.68	57.24	3.66	51.93	90.87	209.01	2.62
	C1	1	3.00	61.44	6.81	96.70	97.93	390.76	4.90
		2	3.00	44.13	1.86	26.46	78.06	118.64	1.49
	H1	1	3.24	87.45	2.21	31.39	109.11	99.29	1.25
		2	3.24	71.07	1.54	21.87	98.03	76.46	0.96
	H2	1	25.39	0.10	0.00	0.07	0.00	0.00	0.00
	A3	1	1.00	0.30	0.04	0.58	0.00	0.00	0.00
	B3	1	1.20	0.28	0.03	0.48	0.00	0.00	0.00
	C3	1	1.00	0.38	0.06	0.82	0.00	0.00	0.00

Traffic Stream Results: Queues and blocking

Time Segment	Arm	Traffic Stream	Initial queue (PCU)	Mean max queue (PCU)	Max queue storage (PCU)	Utilised storage (%)	Excess queue penalty (€ per hr)	Wasted time total (s (per cycle))	Estimated blocking
08:15-09:15	Aexit	1	0.00	0.00	115.11	0.00	0.00	1.00	
	Bexit	1	0.00	0.00	188.69	0.00	0.00	0.00	
	Cexit	1	0.00	0.00	3.00	0.00	0.00	75.00	
	Hexit	1	0.00	0.00	179.09	0.00	0.00	0.00	
	A1	1	0.00	6.36	3.00	211.90	0.00	0.00	
		2	0.00	9.41	3.00	313.60	0.00	0.00	
	B1	1	0.00	7.53	7.00	107.52	0.00	0.00	
		2	0.00	8.81	7.00	125.79	0.00	0.00	
	C1	1	0.00	16.54	6.00	275.74	0.00	0.00	
		2	0.00	4.99	6.00	83.23	0.00	0.00	
	H1	1	0.00	4.19	4.70	89.13	0.00	0.00	
		2	0.00	3.22	4.70	68.55	0.00	0.00	
	H2	1	0.00	0.00	36.80	0.01	0.00	0.00	
	A3	1	0.00	0.04	1.00	4.09	0.00	109.00	
	B3	1	0.00	0.03	1.74	1.93	0.00	39.00	
	C3	1	0.00	0.06	1.00	5.81	0.00	96.00	

Final Prediction Table

Link Results

			SIGNALS		FLOWS		PERFORMANCE				PER PCU			QUEUES	WEIGH	
Link	Name	Traffic node	Controller stream	Phase	Calculated flow entering (PCU/hr)	Calculated sat flow (PCU/hr)	Actual green (s (per cycle))	Wasted time total (s (per cycle))	Degree of saturation (%)	Practical reserve capacity (%)	JourneyTime (s)	Mean Delay per Veh (s)	Mean stops per Veh (%)	Mean max queue (PCU)	Delay weighting (%)	w
Luas T	Luas	J1	1	H	30	1800	14	12.00	17	440	87.82	63.82	92.31	1.16	100	
Ped1	Ped1	J1	1	G	10	2500	2	2.00	20	350	84.30	81.42	103.06	0.43	100	
Ped2	Ped2	J1	1	G	10	2500	2	2.00	20	350	84.66	81.42	103.06	0.43	100	
Ped3	Ped3	J1	1	G	10	2500	2	2.00	20	350	83.46	81.42	103.06	0.43	100	
Ped8	Ped8	J1	1	G	10	2500	2	2.00	20	350	83.07	81.42	103.06	0.43	100	

Traffic Stream Results

				SIGNALS		FLOWS		PERFORMANCE				PER PCU			QUEUES
Arm	Traffic Stream	Name	Traffic node	Controller stream	Phase	Calculated flow entering (PCU/hr)	Calculated sat flow	Actual green (s (per cycle))	Wasted time total (s (per cycle))	Degree of saturation (%)	Practical reserve capacity	JourneyTime (s)	Mean Delay per Veh (s)	Mean stops per Veh (%)	Mean max queue (PCU)
Aexit	1	(untitled)				495	Unrestricted	150	1.00	0	Unrestricted	79.43	0.00	0.00	0.00
Bexit	1	(untitled)				503	Unrestricted	150	0.00	0	Unrestricted	130.20	0.00	0.00	0.00
Cexit	1	(untitled)				445	Unrestricted	150	75.00	0	Unrestricted	2.16	0.00	0.00	0.00
Hexit	1	(untitled)				206	Unrestricted	150	0.00	0	Unrestricted	123.58	0.00	0.00	0.00
A1	1		J1	1	B	279 <	1856	51	0.00	43	112	25.27	23.47	76.05	6.36 +
	2	(untitled)	J1	1	A	212 <	2055	20	0.00	74	22	80.41	78.61	105.40	9.41 +
B1	1	(untitled)	J1	1	D	208 <	1854	36	0.00	45	98	55.89	51.21	85.87	7.53 +
	2	(untitled)	J1	1	C	230 <	2009	31	0.00	54	68	61.92	57.24	90.87	8.81 +
C1	1	(untitled)	J1	1	F	399 <	1895	40	0.00	77	17	64.44	61.44	97.93	16.54 +
	2	(untitled)	J1	1	E	152	1998	40	0.00	28	223	47.13	44.13	78.06	4.99
H1	1	(untitled)	J1	1	J	91	1800	11	0.00	63	42	90.69	87.45	109.11	4.19
	2	(untitled)	J1	1	I	78	1800	14	0.00	43	108	74.31	71.07	98.03	3.22
H2	1	(untitled)	HH1			169	1800	150	0.00	9	859	25.50	0.10	0.00	0.00
A3	1	(untitled)	AA2			491	1980	150	109.00	25	263	1.30	0.30	0.00	0.04
B3	1	(untitled)	BB2			438	1925	150	39.00	23	296	1.48	0.28	0.00	0.03
C3	1	(untitled)	CC2			551	1915	150	96.00	29	213	1.38	0.38	0.00	0.06

Network Results

	Distance travelled (PCU-km/hr)	Time spent (PCU-hr/hr)	Mean journey speed (kph)	Total delay (PCU-hr/hr)	Weighted cost of delay (€ per hr)	Weighted cost of stops (€ per hr)	Excess queue penalty (€ per hr)	Performance Index (€ per hr)
Normal traffic	1184.77	66.06	17.93	26.53	376.72	19.43	0.00	396.15
Bus	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tram	3.00	0.73	4.10	0.53	7.55	0.09	0.00	7.64
Pedestrians								
TOTAL	1187.77	66.79	17.78	27.06	384.27	19.52	0.00	403.79

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

A6 - DN 2037 PM
D6 - DN 2037 PM*

Summary

Data Errors and Warnings

No errors or warnings

Run Summary

Analysis set used	Run start time	Run finish time	Modelling start time (HH:mm)	Network Cycle Time (s)	Performance Index (€ per hr)	Total network delay (PCU-hr/hr)	Highest DOS (%)	Item with highest DOS	Number of oversaturated items	Percentage of oversaturated items (%)	Item with worst signalised PRC	Item with worst unsignalised PRC	Ite wit wor over PR
6	16/10/2020 09:09:14	16/10/2020 09:09:15	16:30	150	285.41	19.02	55.16	H1/1	0	0	H1/1	A3/1	H1/

Analysis Set Details

Name	Description	Demand set	Include in report	Locked
DN 2037 PM		D6	✓	

Demand Set Details

Name	Description	Composite	Demand sets	Start time (HH:mm)	Locked
DN 2037 PM				16:30	

Links

Links

Link	Name	Description	Traffic node	Length (m)	Has Saturation Flow	Use RR67	Saturation flow (PCU/hr)	Is signal controlled	Is give way	Traffic type	Is minor shared	Allow Nearside Turn On Red
Luas	Luas		J1	100.00	✓		1800	✓		Tram		
Ped1	Ped1		J1	24.00	✓		2500	✓		Normal		
Ped2	Ped2		J1	27.00	✓		2500	✓		Normal		
Ped3	Ped3		J1	17.00	✓		2500	✓		Normal		
Ped8	Ped8		J1	13.77	✓		2500	✓		Normal		

Modelling

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

Modelling - Normal traffic - Advanced

Link	Dispersion type for Normal Traffic	Initial queue (PCU)	Type of Vehicle-in-Service	Vehicle-in-Service	Type of random parameter	Random parameter	Auto cycle time	Cycle time
(ALL)	NetworkDefault	0.00	NetworkDefault	Not-Included	NetworkDefault	0.50	✓	150

Modelling - Trams - Advanced

Link	Dispersion type for trams	Use tram network default acceleration	Initial queue (PCU)	Type of Vehicle-in-Service	Vehicle-in-Service	Type of random parameter	Random parameter	Auto cycle time	Cycle time
Luas	NetworkDefault	✓	0.00	NetworkDefault	Not-Included	NetworkDefault	0.50	✓	150

Flows

Link	Total flow (Veh/hr)	PCU Factor
Luas	30	1.00
Ped1	10	1.00
Ped2	10	1.00
Ped3	10	1.00
Ped8	10	1.00

Flows - Advanced

Link	Detectors
(ALL)	

Signals

Link	Controller stream	Phase	Second phase enabled
Luas	1	H	
Ped1	1	G	
Ped2	1	G	
Ped3	1	G	
Ped8	1	G	

Arms and Traffic Streams

Arms

Arm	Name	Description	Traffic node
Aexit	(untitled)		
Bexit	(untitled)		
Cexit	(untitled)		
Hexit	(untitled)		
A1	Fortunestown Lane (East)		J1
B1	Fortunestown Lane (West)		J1
C1	Link Road		J1
H1	Citywest Ave Link Rd		J1
H2	Citywest Ave Link Rd		HH1
A3	Fortunestown Lane (East)		AA2
B3	Fortunestown Lane (West)		BB2
C3	Link Road		CC2

Traffic Streams

Arm	Traffic Stream	Name	Description	Auto length	Length (m)	Has Saturation Flow	Saturation flow source	Saturation flow (PCU/hr)	Is signal controlled	Is give way	Traffic type	Allow Nearside Turn On Red
Aexit	1	(untitled)		✓	661.88						Normal	
Bexit	1	(untitled)		✓	1084.96						Normal	
Cexit	1	(untitled)			18.00						Normal	
Hexit	1	(untitled)		✓	1029.80						Normal	
A1	1				15.00	✓	Sum of lanes	1856	✓		Normal	
	2	(untitled)			15.00	✓	Sum of lanes	2055	✓		Normal	
B1	1	(untitled)			39.00	✓	Sum of lanes	1854	✓		Normal	
	2	(untitled)			39.00	✓	Sum of lanes	2009	✓		Normal	
C1	1	(untitled)			25.00	✓	Sum of lanes	1895	✓		Normal	
	2	(untitled)			25.00	✓	Sum of lanes	1998	✓		Normal	
H1	1	(untitled)			27.00	✓	Sum of lanes	1800	✓		Normal	
	2	(untitled)			27.00	✓	Sum of lanes	1800	✓		Normal	
H2	1	(untitled)		✓	211.61	✓	Sum of lanes	1800			Normal	
A3	1	(untitled)			8.00	✓	Sum of lanes	1980			Normal	
B3	1	(untitled)			10.00	✓	Sum of lanes	1925			Normal	
C3	1	(untitled)			6.50	✓	Sum of lanes	1915			Normal	

Lanes

Arm	Traffic Stream	Lane	Name	Description	Use RR67	Surface condition	Site quality factor	Gradient (%)	Width (m)	Use connector turning radius	Proportion that turn (%)	Turning radius (m)	Nearside lane	Saturation flow (PCU/hr)
Aexit	1	1	(untitled)											
Bexit	1	1	(untitled)											
Cexit	1	1	(untitled)											
Hexit	1	1	(untitled)											
A1	1	1	Left Turn		✓	N/A	N/A	0	3.00		100	47.00	✓	1856
	2	1	Ahead & Right Turn		✓	N/A	N/A	0	3.00	✓	0	99999.00		2055
B1	1	1	Ahead & Left Turn		✓	N/A	N/A	0	3.10		100	39.00	✓	1854
	2	1	Right Turn		✓	N/A	N/A	0	3.10		100	53.50		2009
C1	1	1	Ahead & Left Turn		✓	N/A	N/A	0	3.30		100	56.50	✓	1895
	2	1	Right Turn		✓	N/A	N/A	0	3.00		100	53.00		1998
H1	1	1	Ahead & Left Turn											1800
	2	1	Right Turn											1800
H2	1	1	(untitled)											1800
A3	1	1	(untitled)		✓	N/A	N/A	0	3.65	✓	0	99999.00	✓	1980
B3	1	1	(untitled)		✓	N/A	N/A	0	3.10	✓	0	99999.00	✓	1925
C3	1	1	(untitled)		✓	N/A	N/A	0	3.00	✓	0	99999.00	✓	1915

Modelling

Arm	Traffic Stream	Traffic model	Stop weighting multiplier (%)	Delay weighting multiplier (%)	Assignment Cost Weighting (%)	Exclude from results calculation	Max queue storage (PCU)	Has queue limit	Has degree of saturation limit
Aexit	1	NetworkDefault	100	100	100		0.00		
Bexit	1	NetworkDefault	100	100	100		0.00		
Cexit	1	NetworkDefault	100	100	100		3.00		
Hexit	1	NetworkDefault	100	100	100		0.00		
A1	1	NetworkDefault	100	100	100		3.00		
	2	NetworkDefault	100	100	100		3.00		
B1	1	NetworkDefault	100	100	100		7.00		
	2	NetworkDefault	100	100	100		7.00		
C1	1	NetworkDefault	100	100	100		6.00		
	2	NetworkDefault	100	100	100		6.00		
H1	1	NetworkDefault	100	100	100		0.00		
	2	NetworkDefault	100	100	100		0.00		
H2	1	NetworkDefault	100	100	100		0.00		
A3	1	NetworkDefault	100	100	100		1.00		
B3	1	NetworkDefault	100	100	100		0.00		
C3	1	NetworkDefault	100	100	100		1.00		

Modelling - Advanced

Arm	Traffic Stream	Initial queue (PCU)	Type of Vehicle-in-Service	Vehicle-in-Service	Type of random parameter	Random parameter	Auto cycle time	Cycle time
(ALL)	(ALL)	0.00	NetworkDefault	Not-Included	NetworkDefault	0.50	✓	150

Normal traffic - Modelling

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

Normal traffic - Advanced

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

Flows

Arm	Traffic Stream	Total Flow (PCU/hr)	Normal Flow (PCU/hr)
Aexit	1	362	362
Bexit	1	607	607
Cexit	1	238	238
Hexit	1	170	170
A1	1	422	422
	2	87	87
B1	1	127	127
	2	261	261
C1	1	152	152
	2	77	77
H1	1	139	139
	2	112	112
H2	1	251	251
A3	1	509	509
B3	1	388	388
C3	1	229	229

Signals

Arm	Traffic Stream	Controller stream	Phase	Second phase enabled
A1	1	1	B	
	2	1	A	
B1	1	1	D	
	2	1	C	
C1	1	1	F	
	2	1	E	
H1	1	1	J	
	2	1	I	

Signal Timings

Network Default: 150s cycle time; 150 steps

Phases

Controller Stream	Phase	Name	Minimum green (s)	Maximum green (s)	Relative start displacement (s)	Relative end displacement (s)	Type
1	A	(untitled)	1	300	0	0	Indicative arrow
	B	(untitled)	1	300	0	0	Traffic
	C	(untitled)	1	300	0	0	Indicative arrow
	D	(untitled)	1	300	0	0	Traffic
	E	(untitled)	1	300	0	0	Indicative arrow
	F	(untitled)	1	300	0	0	Traffic
	G	(untitled)	1	300	0	0	Unknown
	H	(untitled)	1	300	0	0	Unknown
	I	(untitled)	1	300	0	0	Indicative arrow
	J	(untitled)	1	300	0	0	Traffic

Library Stages

Controller Stream	Library Stage	Phases in stage	User stage minimum (s)
1	1	B, C, H, I	1
	2	B, C, D	1
	3	B, A	1
	4	E, F	1
	5	G	1
	6	D, J	1

Stage Sequences

Controller Stream	Sequence	Name	Multiple cycling	Stage IDs	Stage ends
1	1	(untitled)	Single	5, 1, 2, 6, 4, 3	29, 67, 80, 106, 134, 13

Intergreen Matrix for Controller Stream 1

From \ To	A	B	C	D	E	F	G	H	I	J
A			6	6	6	6	14	6	6	6
B					6	6	14			6
C	6				6	6	14			6
D	6				6	6	14	6	6	
E	6	6	6	6			14	6	6	6
F	6	6	6	6			14	6	6	6
G	14	14	14	14	14	14		6	6	6
H	6			6	6	6	6			6
I	6			6	6	6	6			6
J	6	6	6		6	6	6	6	6	

Interstage Matrix for Controller Stream 1

From \ To	1	2	3	4	5	6
1	0	6	6	6	14	6
2	6	0	6	6	14	6
3	6	6	0	6	14	6
4	6	6	6	0	14	6
5	14	14	14	14	0	14
6	6	6	6	6	14	0

Resultant Stages

Controller Stream	Resultant Stage	Is base stage	Library Stage ID	Phases in this stage	Stage start (s)	Stage end (s)	Stage duration (s)	User stage minimum (s)	Stage minimum (s)
1	1	✓	5	G	27	29	2	1	1
	2	✓	1	B,C,H,I	43	67	24	1	1
	3	✓	2	B,C,D	73	80	7	1	1
	4	✓	6	D,J	86	106	20	1	1
	5	✓	4	E,F	112	134	22	1	1
	6	✓	3	B,A	140	13	23	1	1

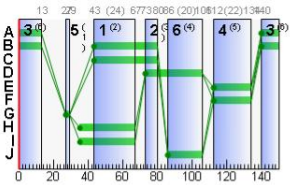
Resultant Phase Green Periods

Controller Stream	Phase	Green period	Is base green period	Start time (s)	End time (s)	Duration (s)
1	A	1	✓	140	13	23
	B	1	✓	43	80	37
		2	✓	140	13	23
	C	1	✓	43	80	37
	D	1	✓	73	106	33
	E	1	✓	112	134	22
	F	1	✓	112	134	22
	G	1	✓	27	29	2
	H	1	✓	35	67	32
	I	1	✓	35	67	32
	J	1	✓	86	106	20

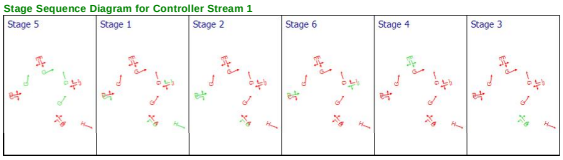
Traffic Stream Green Times

Arm	Traffic Stream	Traffic Node	Controller Stream	Phase	Green Period 1			Green Period 2		
					Start	End	Duration	Start	End	Duration
A1	1	J1	1	B	43	80	37	140	13	23
A1	2	J1	1	A	140	13	23			
B1	1	J1	1	D	73	106	33			
B1	2	J1	1	C	43	80	37			
C1	1	J1	1	F	112	134	22			
C1	2	J1	1	E	112	134	22			
H1	1	J1	1	J	86	106	20			
H1	2	J1	1	I	35	67	32			

Phase Timings Diagram for Controller Stream 1



Stage Sequence Diagram for Controller Stream 1



Link Results

Link Results: Vehicle summary

Time Segment	Link	Degree of saturation (%)	Practical reserve capacity (%)	Calculated flow entering (PCU/hr)	Calculated sat flow (PCU/hr)	Actual green (s (per cycle))	Mean Delay per Veh (s)	Mean max queue (PCU)	Utilised storage (%)	Weighted cost of delay (€ per hr)	Weighted cost of stops (€ per hr)	Performance Index (€ per hr)
16:30-17:30	Luas	8	1088	30	1800	32	46.78	0.99	5.83	5.54	0.07	5.61
	Ped1	20	350	10	2500	2	81.42	0.43	7.68	3.21	0.13	3.34
	Ped2	20	350	10	2500	2	81.42	0.43	6.82	3.21	0.13	3.34
	Ped3	20	350	10	2500	2	81.42	0.43	10.84	3.21	0.13	3.34
	Ped8	20	350	10	2500	2	81.42	0.43	13.38	3.21	0.13	3.34

Link Results: Flows and signals

Time Segment	Link	Calculated flow entering (PCU/hr)	Calculated flow out (PCU/hr)	Flow discrepancy (PCU/hr)	Adjusted flow warning	Calculated sat flow (PCU/hr)	Calculated capacity (PCU/hr)	Degree of saturation (%)	DOS Threshold exceeded	Practical reserve capacity (%)	Mean modulus of error	Actual green (s (per cycle))
16:30-17:30	Luas	30	30	0		1800	396	8		1088	0.00	32
	Ped1	10	10	0		2500	50	20		350	0.00	2
	Ped2	10	10	0		2500	50	20		350	0.00	2
	Ped3	10	10	0		2500	50	20		350	0.00	2
	Ped8	10	10	0		2500	50	20		350	0.00	2

Link Results: Stops and delays

Time Segment	Link	Mean Cruise Time per Veh (s)	Mean Delay per Veh (s)	Total delay (PCU-hr/hr)	Weighted cost of delay (£ per hr)	Mean stops per Veh (%)	Total stops (Stops per hr)	Weighted cost of stops (£ per hr)
16:30-17:30	Luas	24.00	46.78	0.39	5.54	78.56	23.57	0.07
	Ped1	2.88	81.42	0.23	3.21	103.06	10.31	0.13
	Ped2	3.24	81.42	0.23	3.21	103.06	10.31	0.13
	Ped3	2.04	81.42	0.23	3.21	103.06	10.31	0.13
	Ped8	1.65	81.42	0.23	3.21	103.06	10.31	0.13

Link Results: Queues and blocking

Time Segment	Link	Initial queue (PCU)	Mean max queue (PCU)	Max queue storage (PCU)	Utilised storage (%)	Excess queue penalty (£ per hr)	Wasted time total (s (per cycle))	Estimated blocking
16:30-17:30	Luas	0.00	0.99	16.92	5.83	0.00	31.00	
	Ped1	0.00	0.43	5.64	7.68	0.00	2.00	
	Ped2	0.00	0.43	6.35	6.82	0.00	2.00	
	Ped3	0.00	0.43	4.00	10.84	0.00	2.00	
	Ped8	0.00	0.43	3.24	13.38	0.00	2.00	

Traffic Stream Results

Traffic Stream Results: Vehicle summary

Time Segment	Arm	Traffic Stream	Degree of saturation (%)	Practical reserve capacity	Calculated flow entering (PCU/hr)	Calculated sat flow	Actual green (s (per cycle))	Mean Delay per Veh (s)	Mean max queue (PCU)	Utilised storage (%)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Performance Index (£ per hr)
16:30-17:30	Aexit	1	0	Unrestricted	362	Unrestricted	150	0.00	0.00	0.00	0.00	0.00	0.00
	Bexit	1	0	Unrestricted	607	Unrestricted	150	0.00	0.00	0.00	0.00	0.00	0.00
	Cexit	1	0	Unrestricted	238	Unrestricted	150	0.00	0.00	0.00	0.00	0.00	0.00
	Hexit	1	0	Unrestricted	170	Unrestricted	150	0.00	0.00	0.00	0.00	0.00	0.00
	A1	1	55	64	422	1856	60	21.51	9.24	308.12	35.80	4.07	39.87
		2	26	240	87	2055	23	57.24	3.21	107.11	19.64	0.96	20.60
	B1	1	30	198	127	1854	33	50.01	4.44	63.42	25.05	1.32	26.38
		2	51	75	261	2009	37	51.76	9.55	136.40	53.29	2.85	56.13
	C1	1	52	72	152	1895	22	65.17	6.11	101.84	39.07	1.82	40.89
		2	25	258	77	1998	22	57.89	2.87	47.76	17.58	0.85	18.44
	H1	1	55	63	139	1800	20	68.77	5.70	121.41	37.70	1.70	39.41
		2	28	218	112	1800	32	50.45	3.91	83.34	22.29	1.17	23.46
	H2	1	14	545	251	1800	150	0.16	0.01	0.03	0.16	0.00	0.16
	A3	1	26	250	509	1980	150	0.31	0.04	4.45	0.63	0.00	0.63
	B3	1	20	347	388	1925	150	0.24	0.03	1.46	0.36	0.00	0.36
	C3	1	12	653	229	1915	150	0.13	0.01	0.81	0.12	0.00	0.12

Traffic Stream Results: Flows and signals

Time Segment	Arm	Traffic Stream	Calculated flow entering (PCU/hr)	Calculated flow out (PCU/hr)	Flow discrepancy (PCU/hr)	Adjusted flow warning	Calculated sat flow	Calculated capacity	Degree of saturation (%)	DOS Threshold exceeded	Practical reserve capacity	Mean modulus of error	Actual green (s (per cycle))
16:30-17:30	Aexit	1	362	362	0		Unrestricted	Unrestricted	0		Unrestricted	0.60	150
	Bexit	1	607	607	0		Unrestricted	Unrestricted	0		Unrestricted	0.16	150
	Cexit	1	238	238	0		Unrestricted	Unrestricted	0		Unrestricted	1.32	150
	Hexit	1	170	170	0		Unrestricted	Unrestricted	0		Unrestricted	0.45	150
	A1	1	422	422	0		1856	767	55		64	0.00	60
		2	87	87	0		2055	329	26		240	0.00	23
	B1	1	127	127	0		1854	420	30		198	0.00	33
		2	261	261	0		2009	509	51		75	0.00	37
	C1	1	152	152	0		1895	291	52		72	0.00	22
		2	77	77	0		1998	306	25		258	0.00	22
	H1	1	139	139	0		1800	252	55		63	0.00	20
		2	112	112	0		1800	396	28		218	0.00	32
	H2	1	251	251	0		1800	1800	14		545	0.00	150
	A3	1	509	509	0		1980	1980	26		250	0.00	150
	B3	1	388	388	0		1925	1925	20		347	0.00	150
	C3	1	229	229	0		1915	1915	12		653	0.00	150

Traffic Stream Results: Stops and delays

Time Segment	Arm	Traffic Stream	Mean Cruise Time per Veh (s)	Mean Delay per Veh (s)	Total delay (PCU-hr/hr)	Weighted cost of delay (£ per hr)	Mean stops per Veh (%)	Total stops (Stops per hr)	Weighted cost of stops (£ per hr)
16:30-17:30	Aexit	1	79.43	0.00	0.00	0.00	0.00	0.00	0.00
	Bexit	1	130.20	0.00	0.00	0.00	0.00	0.00	0.00
	Cexit	1	2.16	0.00	0.00	0.00	0.00	0.00	0.00
	Hexit	1	123.58	0.00	0.00	0.00	0.00	0.00	0.00
	A1	1	1.80	21.51	2.52	35.80	76.93	324.64	4.07
		2	1.80	57.24	1.38	19.64	87.85	76.43	0.96
	B1	1	4.68	50.01	1.76	25.05	83.10	105.53	1.32
		2	4.68	51.76	3.75	53.29	86.94	226.92	2.85
	C1	1	3.00	65.17	2.75	39.07	95.29	144.84	1.82
		2	3.00	57.89	1.24	17.58	88.34	68.02	0.85
	H1	1	3.24	68.77	2.66	37.70	97.56	135.61	1.70
		2	3.24	50.45	1.57	22.29	83.07	93.03	1.17
	H2	1	25.39	0.16	0.01	0.16	0.00	0.00	0.00
	A3	1	1.00	0.31	0.04	0.63	0.00	0.00	0.00
	B3	1	1.20	0.24	0.03	0.36	0.00	0.00	0.00
	C3	1	1.00	0.13	0.01	0.12	0.00	0.00	0.00

Traffic Stream Results: Queues and blocking

Time Segment	Arm	Traffic Stream	Initial queue (PCU)	Mean max queue (PCU)	Max queue storage (PCU)	Utilised storage (%)	Excess queue penalty (£ per hr)	Wasted time total (s (per cycle))	Estimated blocking
16:30-17:30	Aexit	1	0.00	0.00	115.11	0.00	0.00	21.00	
	Bexit	1	0.00	0.00	188.69	0.00	0.00	0.00	
	Cexit	1	0.00	0.00	3.00	0.00	0.00	79.00	
	Hexit	1	0.00	0.00	179.09	0.00	0.00	24.00	
	A1	1	0.00	9.24	3.00	308.12	0.00	0.00	
		2	0.00	3.21	3.00	107.11	0.00	0.00	
	B1	1	0.00	4.44	7.00	63.42	0.00	0.00	
		2	0.00	9.55	7.00	136.40	0.00	0.00	
	C1	1	0.00	6.11	6.00	101.84	0.00	0.00	
		2	0.00	2.87	6.00	47.76	0.00	0.00	
	H1	1	0.00	5.70	4.70	121.41	0.00	0.00	
		2	0.00	3.91	4.70	83.34	0.00	0.00	
	H2	1	0.00	0.01	36.80	0.03	0.00	27.00	
	A3	1	0.00	0.04	1.00	4.45	0.00	69.00	
	B3	1	0.00	0.03	1.74	1.46	0.00	36.00	
	C3	1	0.00	0.01	1.00	0.81	0.00	3.00	

Final Prediction Table

Link Results

			SIGNALS		FLOWS		PERFORMANCE				PER PCU			QUEUES	WEIGH	
Link	Name	Traffic node	Controller stream	Phase	Calculated flow entering (PCU/hr)	Calculated sat flow (PCU/hr)	Actual green (s (per cycle))	Wasted time total (s (per cycle))	Degree of saturation (%)	Practical reserve capacity (%)	JourneyTime (s)	Mean Delay per Veh (s)	Mean stops per Veh (%)	Mean max queue (PCU)	Delay weighting (%)	w
Luas T	Luas	J1	1	H	30	1800	32	31.00	8	1088	70.78	46.78	78.56	0.99	100	
Ped1	Ped1	J1	1	G	10	2500	2	2.00	20	350	84.30	81.42	103.06	0.43	100	
Ped2	Ped2	J1	1	G	10	2500	2	2.00	20	350	84.66	81.42	103.06	0.43	100	
Ped3	Ped3	J1	1	G	10	2500	2	2.00	20	350	83.46	81.42	103.06	0.43	100	
Ped8	Ped8	J1	1	G	10	2500	2	2.00	20	350	83.07	81.42	103.06	0.43	100	

Traffic Stream Results

				SIGNALS		FLOWS		PERFORMANCE				PER PCU			QUEUES
Arm	Traffic Stream	Name	Traffic node	Controller stream	Phase	Calculated flow entering (PCU/hr)	Calculated sat flow	Actual green (s (per cycle))	Wasted time total (s (per cycle))	Degree of saturation (%)	Practical reserve capacity	JourneyTime (s)	Mean Delay per Veh (s)	Mean stops per Veh (%)	Mean max queue (PCU)
Aexit	1	(untitled)				362	Unrestricted	150	21.00	0	Unrestricted	79.43	0.00	0.00	0.00
Bexit	1	(untitled)				607	Unrestricted	150	0.00	0	Unrestricted	130.20	0.00	0.00	0.00
Cexit	1	(untitled)				238	Unrestricted	150	79.00	0	Unrestricted	2.16	0.00	0.00	0.00
Hexit	1	(untitled)				170	Unrestricted	150	24.00	0	Unrestricted	123.58	0.00	0.00	0.00
A1	1		J1	1	B	422 <	1856	60	0.00	55	64	23.31	21.51	76.93	9.24 +
	2	(untitled)	J1	1	A	87 <	2055	23	0.00	26	240	59.04	57.24	87.85	3.21 +
B1	1	(untitled)	J1	1	D	127	1854	33	0.00	30	198	54.69	50.01	83.10	4.44
	2	(untitled)	J1	1	C	261 <	2009	37	0.00	51	75	56.44	51.76	86.94	9.55 +
C1	1	(untitled)	J1	1	F	152 <	1895	22	0.00	52	72	68.17	65.17	95.29	6.11 +
	2	(untitled)	J1	1	E	77	1998	22	0.00	25	258	60.89	57.89	88.34	2.87
H1	1	(untitled)	J1	1	J	139 <	1800	20	0.00	55	63	72.01	68.77	97.56	5.70 +
	2	(untitled)	J1	1	I	112	1800	32	0.00	28	218	53.69	50.45	83.07	3.91
H2	1	(untitled)	HH1			251	1800	150	27.00	14	545	25.56	0.16	0.00	0.01
A3	1	(untitled)	AA2			509	1980	150	69.00	26	250	1.31	0.31	0.00	0.04
B3	1	(untitled)	BB2			388	1925	150	36.00	20	347	1.44	0.24	0.00	0.03
C3	1	(untitled)	CC2			229	1915	150	3.00	12	653	1.13	0.13	0.00	0.01

Network Results

	Distance travelled (PCU-km/hr)	Time spent (PCU-hr/hr)	Mean journey speed (kph)	Total delay (PCU-hr/hr)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Excess queue penalty (£ per hr)	Performance Index (£ per hr)
Normal traffic	1176.16	57.86	20.33	18.63	264.55	15.25	0.00	279.80
Bus	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tram	3.00	0.59	5.09	0.39	5.54	0.07	0.00	5.61
Pedestrians								
TOTAL	1179.16	58.45	20.18	19.02	270.09	15.32	0.00	285.41

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

TRANSYT 15

Filename: Junction 1 Fortunestown Rd-Citywest Avenue Do-Something.t15
Path: G:\2019\p190003\calcs\transyt
Report generation date: 28/04/2021 12:53:13

»A1 - DS 2022 AM : D1 - DS 2022 AM* :
»A2 - DS 2022 PM : D2 - DS 2022 PM* :
»A3 - DS 2027 AM : D3 - DS 2027 AM* :
»A4 - DS 2027 PM : D4 - DS 2027 PM* :
»A5 - DS 2037 AM : D5 - DS 2037 AM* :
»A6 - DS 2037 PM : D6 - DS 2037 PM* :

File summary

File description

File title	Cooldown Commons Phase 3
Location	Citywest
Site number	1
UTCRegion	
Driving side	Left
Date	02/10/2020
Version	1
Status	TTA
Identifier	
Client	Cairn
Jobnumber	190003
Enumerator	mckennam
Description	Do Something

Model and Results

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

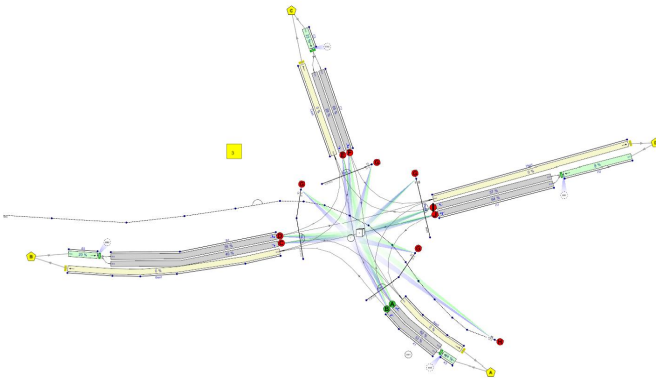
Units

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

Sorting

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

Network Diagrams



A1 - DS 2022 AM
D1 - DS 2022 AM*

Summary

Data Errors and Warnings

Severity	Area	Item	Description
Info	Optimisation Order	Advanced	Because the optimisation list is blank, no optimisation will occur.

Run Summary

Analysis set used	Run start time	Run finish time	Modelling start time (HH:mm)	Network Cycle Time (s)	Performance Index (€ per hr)	Total network delay (PCU-hr/hr)	Highest DOS (%)	Item with highest DOS	Number of oversaturated items	Percentage of oversaturated items (%)	Item with worst signalised PRC	Item with worst unsignalised PRC	Ite wit wor over PR
1	28/04/2021 12:52:48	28/04/2021 12:52:49	08:15	150	320.64	21.47	65.25	C1/1	0	0	C1/1	C3/1	C1/

Analysis Set Details

Name	Description	Demand set	Include in report	Locked
DS 2022 AM		D1	✓	

Demand Set Details

Name	Description	Composite	Demand sets	Start time (HH:mm)	Locked
DS 2022 AM				08:15	

Links

Links

Link	Name	Description	Traffic node	Length (m)	Has Saturation Flow	Use RR67	Saturation flow (PCU/hr)	Is signal controlled	Is give way	Traffic type	Is minor shared	Allow Nearside Turn On Red
Luas	Luas		J1	100.00	✓		1800	✓		Tram		
Ped1	Ped1		J1	24.00	✓		2500	✓		Normal		
Ped2	Ped2		J1	27.00	✓		2500	✓		Normal		
Ped3	Ped3		J1	17.00	✓		2500	✓		Normal		
Ped8	Ped8		J1	13.77	✓		2500	✓		Normal		

Modelling

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

Modelling - Normal traffic - Advanced

Link	Dispersion type for Normal Traffic	Initial queue (PCU)	Type of Vehicle-in-Service	Vehicle-in-Service	Type of random parameter	Random parameter	Auto cycle time	Cycle time
(ALL)	NetworkDefault	0.00	NetworkDefault	Not-Included	NetworkDefault	0.50	✓	150

Modelling - Trams - Advanced

Link	Dispersion type for trams	Use tram network default acceleration	Initial queue (PCU)	Type of Vehicle-in-Service	Vehicle-in-Service	Type of random parameter	Random parameter	Auto cycle time	Cycle time
Luas	NetworkDefault	✓	0.00	NetworkDefault	Not-Included	NetworkDefault	0.50	✓	150

Flows

Link	Total flow (Veh/hr)	PCU Factor
Luas	30	1.00
Ped1	10	1.00
Ped2	10	1.00
Ped3	10	1.00
Ped8	10	1.00

Flows - Advanced

Link	Detectors
(ALL)	

Signals

Link	Controller stream	Phase	Second phase enabled
Luas	1	H	
Ped1	1	G	
Ped2	1	G	
Ped3	1	G	
Ped8	1	G	

Arms and Traffic Streams

Arms

Arm	Name	Description	Traffic node
Aexit	(untitled)		
Bexit	(untitled)		
Cexit	(untitled)		
Hexit	(untitled)		
A1	Fortunestown Lane (East)		J1
B1	Fortunestown Lane (West)		J1
C1	Link Road		J1
H1	Citywest Ave Link Rd		J1
H2	Citywest Ave Link Rd		HH1
A3	Fortunestown Lane (East)		AA2
B3	Fortunestown Lane (West)		BB2
C3	Link Road		CC2

Traffic Streams

Arm	Traffic Stream	Name	Description	Auto length	Length (m)	Has Saturation Flow	Saturation flow source	Saturation flow (PCU/hr)	Is signal controlled	Is give way	Traffic type	Allow Nearside Turn On Red
Aexit	1	(untitled)		✓	661.88						Normal	
Bexit	1	(untitled)		✓	1084.96						Normal	
Cexit	1	(untitled)			18.00						Normal	
Hexit	1	(untitled)		✓	1029.80						Normal	
A1	1				15.00	✓	Sum of lanes	1856	✓		Normal	
	2	(untitled)			15.00	✓	Sum of lanes	2055	✓		Normal	
B1	1	(untitled)			39.00	✓	Sum of lanes	1854	✓		Normal	
	2	(untitled)			39.00	✓	Sum of lanes	2009	✓		Normal	
C1	1	(untitled)			25.00	✓	Sum of lanes	1895	✓		Normal	
	2	(untitled)			25.00	✓	Sum of lanes	1998	✓		Normal	
H1	1	(untitled)			27.00	✓	Sum of lanes	1800	✓		Normal	
	2	(untitled)			27.00	✓	Sum of lanes	1800	✓		Normal	
H2	1	(untitled)		✓	211.61	✓	Sum of lanes	1800			Normal	
A3	1	(untitled)			8.00	✓	Sum of lanes	1980			Normal	
B3	1	(untitled)			10.00	✓	Sum of lanes	1925			Normal	
C3	1	(untitled)			6.50	✓	Sum of lanes	1915			Normal	

Lanes

Arm	Traffic Stream	Lane	Name	Description	Use RR67	Surface condition	Site quality factor	Gradient (%)	Width (m)	Use connector turning radius	Proportion that turn (%)	Turning radius (m)	Nearside lane	Saturation flow (PCU/hr)
Aexit	1	1	(untitled)											
Bexit	1	1	(untitled)											
Cexit	1	1	(untitled)											
Hexit	1	1	(untitled)											
A1	1	1	Left Turn		✓	N/A	N/A	0	3.00		100	47.00	✓	1856
	2	1	Ahead & Right Turn		✓	N/A	N/A	0	3.00	✓	0	99999.00		2055
B1	1	1	Ahead & Left Turn		✓	N/A	N/A	0	3.10		100	39.00	✓	1854
	2	1	Right Turn		✓	N/A	N/A	0	3.10		100	53.50		2009
C1	1	1	Ahead & Left Turn		✓	N/A	N/A	0	3.30		100	56.50	✓	1895
	2	1	Right Turn		✓	N/A	N/A	0	3.00		100	53.00		1998
H1	1	1	Ahead & Left Turn											1800
	2	1	Right Turn											1800
H2	1	1	(untitled)											1800
A3	1	1	(untitled)		✓	N/A	N/A	0	3.65	✓	0	99999.00	✓	1980
B3	1	1	(untitled)		✓	N/A	N/A	0	3.10	✓	0	99999.00	✓	1925
C3	1	1	(untitled)		✓	N/A	N/A	0	3.00	✓	0	99999.00	✓	1915

Modelling

Arm	Traffic Stream	Traffic model	Stop weighting multiplier (%)	Delay weighting multiplier (%)	Assignment Cost Weighting (%)	Exclude from results calculation	Max queue storage (PCU)	Has queue limit	Has degree of saturation limit
Aexit	1	NetworkDefault	100	100	100		0.00		
Bexit	1	NetworkDefault	100	100	100		0.00		
Cexit	1	NetworkDefault	100	100	100		3.00		
Hexit	1	NetworkDefault	100	100	100		0.00		
A1	1	NetworkDefault	100	100	100		3.00		
	2	NetworkDefault	100	100	100		3.00		
B1	1	NetworkDefault	100	100	100		7.00		
	2	NetworkDefault	100	100	100		7.00		
C1	1	NetworkDefault	100	100	100		6.00		
	2	NetworkDefault	100	100	100		6.00		
H1	1	NetworkDefault	100	100	100		0.00		
	2	NetworkDefault	100	100	100		0.00		
H2	1	NetworkDefault	100	100	100		0.00		
A3	1	NetworkDefault	100	100	100		1.00		
B3	1	NetworkDefault	100	100	100		0.00		
C3	1	NetworkDefault	100	100	100		1.00		

Modelling - Advanced

Arm	Traffic Stream	Initial queue (PCU)	Type of Vehicle-in-Service	Vehicle-in-Service	Type of random parameter	Random parameter	Auto cycle time	Cycle time
(ALL)	(ALL)	0.00	NetworkDefault	Not-Included	NetworkDefault	0.50	✓	150

Normal traffic - Modelling

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

Normal traffic - Advanced

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

Flows

Arm	Traffic Stream	Total Flow (PCU/hr)	Normal Flow (PCU/hr)
Aexit	1	418	418
Bexit	1	444	444
Cexit	1	371	371
Hexit	1	152	152
A1	1	234	234
	2	179	179
B1	1	186	186
	2	195	195
C1	1	305	305
	2	137	137
H1	1	92	92
	2	57	57
H2	1	149	149
A3	1	413	413
B3	1	381	381
C3	1	442	442

Signals

Arm	Traffic Stream	Controller stream	Phase	Second phase enabled
A1	1	1	B	
	2	1	A	
B1	1	1	D	
	2	1	C	
C1	1	1	F	
	2	1	E	
H1	1	1	J	
	2	1	I	

Signal Timings

Network Default: 150s cycle time; 150 steps

Phases

Controller Stream	Phase	Name	Minimum green (s)	Maximum green (s)	Relative start displacement (s)	Relative end displacement (s)	Type
1	A	(untitled)	1	300	0	0	Indicative arrow
	B	(untitled)	1	300	0	0	Traffic
	C	(untitled)	1	300	0	0	Indicative arrow
	D	(untitled)	1	300	0	0	Traffic
	E	(untitled)	7	300	0	0	Indicative arrow
	F	(untitled)	7	300	0	0	Traffic
	G	(untitled)	1	300	0	0	Unknown
	H	(untitled)	1	300	0	0	Unknown
	I	(untitled)	1	300	0	0	Indicative arrow
	J	(untitled)	1	300	0	0	Traffic

Library Stages

Controller Stream	Library Stage	Phases in stage	User stage minimum (s)
1	1	B, C, H, I	2
	2	C, D, B	1
	3	A, B	1
	4	E, F	1
	5	G	1
	6	D, J	1

Stage Sequences

Controller Stream	Sequence	Name	Multiple cycling	Stage IDs	Stage ends
1	1	(untitled)	Single	5, 1, 2, 6, 4, 3	29, 47, 78, 95, 137, 13

Intergreen Matrix for Controller Stream 1

		To								
		A	B	C	D	E	F	G	H	I	J
From	A			6	6	6	6	14	6	6	6
	B					6	6	14			6
	C	6				6	6	14			6
	D	6				6	6	14	6	6	
	E	6	6	6	6			14	6	6	6
	F	6	6	6	6			14	6	6	6
	G	14	14	14	14	14	14		6	6	6
	H	6			6	6	6	6			6
	I	6			6	6	6	6			6
	J	6	6	6		6	6	6	6	6	

Interstage Matrix for Controller Stream 1

		To					
		1	2	3	4	5	6
From	1	0	6	6	6	14	6
	2	6	0	6	6	14	6
	3	6	6	0	6	14	6
	4	6	6	6	0	14	6
	5	14	14	14	14	0	14
	6	6	6	6	6	14	0

Resultant Stages

Controller Stream	Resultant Stage	Is base stage	Library Stage ID	Phases in this stage	Stage start (s)	Stage end (s)	Stage duration (s)	User stage minimum (s)	Stage minimum (s)
1	1	✓	5	G	27	29	2	1	1
	2	✓	1	B,C,H,I	43	47	4	2	2
	3	✓	2	C,D,B	53	78	25	1	1
	4	✓	6	D,J	84	95	11	1	1
	5	✓	4	E,F	101	137	36	1	7
	6	✓	3	A,B	143	13	20	1	1

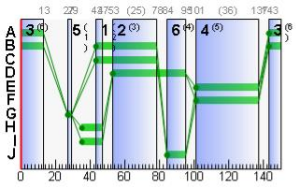
Resultant Phase Green Periods

Controller Stream	Phase	Green period	Is base green period	Start time (s)	End time (s)	Duration (s)
1	A	1	✓	143	13	20
	B	1	✓	43	78	35
		2	✓	143	13	20
	C	1	✓	43	78	35
	D	1	✓	53	95	42
	E	1	✓	101	137	36
	F	1	✓	101	137	36
	G	1	✓	27	29	2
	H	1	✓	35	47	12
	I	1	✓	35	47	12
	J	1	✓	84	95	11

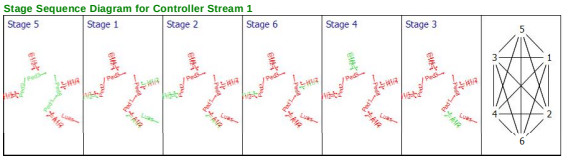
Traffic Stream Green Times

Arm	Traffic Stream	Traffic Node	Controller Stream	Phase	Green Period 1			Green Period 2		
					Start	End	Duration	Start	End	Duration
A1	1	J1	1	B	43	78	35	143	13	20
A1	2	J1	1	A	143	13	20			
B1	1	J1	1	D	53	95	42			
B1	2	J1	1	C	43	78	35			
C1	1	J1	1	F	101	137	36			
C1	2	J1	1	E	101	137	36			
H1	1	J1	1	J	84	95	11			
H1	2	J1	1	I	35	47	12			

Phase Timings Diagram for Controller Stream 1



Stage Sequence Diagram for Controller Stream 1



Link Results

Link Results: Vehicle summary

Time Segment	Link	Degree of saturation (%)	Practical reserve capacity (%)	Calculated flow entering (PCU/hr)	Calculated sat flow (PCU/hr)	Actual green (s (per cycle))	Mean Delay per Veh (s)	Mean max queue (PCU)	Utilised storage (%)	Weighted cost of delay (€ per hr)	Weighted cost of stops (€ per hr)	Performance Index (€ per hr)
08:15-09:15	Luas	19	368	30	1800	12	66.40	1.18	6.98	7.86	0.09	7.95
	Ped1	20	350	10	2500	2	81.42	0.43	7.68	3.21	0.13	3.34
	Ped2	20	350	10	2500	2	81.42	0.43	6.82	3.21	0.13	3.34
	Ped3	20	350	10	2500	2	81.42	0.43	10.84	3.21	0.13	3.34
	Ped8	20	350	10	2500	2	81.42	0.43	13.38	3.21	0.13	3.34

Link Results: Flows and signals

Time Segment	Link	Calculated flow entering (PCU/hr)	Calculated flow out (PCU/hr)	Flow discrepancy (PCU/hr)	Adjusted flow warning	Calculated sat flow (PCU/hr)	Calculated capacity (PCU/hr)	Degree of saturation (%)	DOS Threshold exceeded	Practical reserve capacity (%)	Mean modulus of error	Actual green (s (per cycle))
08:15-09:15	Luas	30	30	0		1800	156	19		368	0.00	12
	Ped1	10	10	0		2500	50	20		350	0.00	2
	Ped2	10	10	0		2500	50	20		350	0.00	2
	Ped3	10	10	0		2500	50	20		350	0.00	2
	Ped8	10	10	0		2500	50	20		350	0.00	2

Link Results: Stops and delays

Time Segment	Link	Mean Cruise Time per Veh (s)	Mean Delay per Veh (s)	Total delay (PCU-hr/hr)	Weighted cost of delay (€ per hr)	Mean stops per Veh (%)	Total stops (Stops per hr)	Weighted cost of stops (€ per hr)
08:15-09:15	Luas	24.00	66.40	0.55	7.86	94.13	28.24	0.09
	Ped1	2.88	81.42	0.23	3.21	103.06	10.31	0.13
	Ped2	3.24	81.42	0.23	3.21	103.06	10.31	0.13
	Ped3	2.04	81.42	0.23	3.21	103.06	10.31	0.13
	Ped8	1.65	81.42	0.23	3.21	103.06	10.31	0.13

Link Results: Queues and blocking

Time Segment	Link	Initial queue (PCU)	Mean max queue (PCU)	Max queue storage (PCU)	Utilised storage (%)	Excess queue penalty (€ per hr)	Wasted time total (s (per cycle))	Estimated blocking
08:15-09:15	Luas	0.00	1.18	16.92	6.98	0.00	10.00	
	Ped1	0.00	0.43	5.64	7.68	0.00	2.00	
	Ped2	0.00	0.43	6.35	6.82	0.00	2.00	
	Ped3	0.00	0.43	4.00	10.84	0.00	2.00	
	Ped8	0.00	0.43	3.24	13.38	0.00	2.00	

Traffic Stream Results

Traffic Stream Results: Vehicle summary

Time Segment	Arm	Traffic Stream	Degree of saturation (%)	Practical reserve capacity	Calculated flow entering (PCU/hr)	Calculated sat flow	Actual green (s (per cycle))	Mean Delay per Veh (s)	Mean max queue (PCU)	Utilised storage (%)	Weighted cost of delay (€ per hr)	Weighted cost of stops (€ per hr)	Performance Index (€ per hr)
08:15-09:15	Aexit	1	0	Unrestricted	418	Unrestricted	150	0.00	0.00	0.00	0.00	0.00	0.00
	Bexit	1	0	Unrestricted	444	Unrestricted	150	0.00	0.00	0.00	0.00	0.00	0.00
	Cexit	1	0	Unrestricted	371	Unrestricted	150	0.00	0.00	0.00	0.00	0.00	0.00
	Hexit	1	0	Unrestricted	152	Unrestricted	150	0.00	0.00	0.00	0.00	0.00	0.00
	A1	1	33	171	234	1856	55	20.10	4.83	160.91	18.56	2.06	20.62
		2	62	45	179	2055	20	70.86	7.51	250.42	50.03	2.24	52.27
	B1	1	35	157	186	1854	42	44.24	6.19	88.44	32.46	1.84	34.30
		2	40	123	195	2009	35	50.51	6.96	99.45	38.85	2.07	40.92
	C1	1	65	38	305	1895	36	57.85	11.96	199.27	69.60	3.56	73.16
		2	28	224	137	1998	36	47.11	4.66	77.64	25.46	1.39	26.84
	H1	1	64	41	92	1800	11	88.07	4.25	90.43	31.96	1.26	33.22
		2	37	146	57	1800	12	71.22	2.34	49.76	16.01	0.70	16.71
	H2	1	8	987	149	1800	150	0.09	0.00	0.01	0.05	0.00	0.05
	A3	1	21	331	413	1980	150	0.24	0.03	2.75	0.39	0.00	0.39
	B3	1	20	355	381	1925	150	0.23	0.02	1.40	0.35	0.00	0.35
	C3	1	23	290	442	1915	150	0.28	0.03	3.46	0.49	0.00	0.49

Traffic Stream Results: Flows and signals

Time Segment	Arm	Traffic Stream	Calculated flow entering (PCU/hr)	Calculated flow out (PCU/hr)	Flow discrepancy (PCU/hr)	Adjusted flow warning	Calculated sat flow	Calculated capacity	Degree of saturation (%)	DOS Threshold exceeded	Practical reserve capacity	Mean modulus of error	Actual green (s (per cycle))
08:15-09:15	Aexit	1	418	418	0		Unrestricted	Unrestricted	0		Unrestricted	0.49	150
	Bexit	1	444	444	0		Unrestricted	Unrestricted	0		Unrestricted	0.21	150
	Cexit	1	371	371	0		Unrestricted	Unrestricted	0		Unrestricted	1.31	150
	Hexit	1	152	152	0		Unrestricted	Unrestricted	0		Unrestricted	0.42	150
	A1	1	234	234	0		1856	705	33		171	0.00	55
		2	179	179	0		2055	288	62		45	0.00	20
	B1	1	186	186	0		1854	531	35		157	0.00	42
		2	195	195	0		2009	482	40		123	0.00	35
	C1	1	305	305	0		1895	467	65		38	0.00	36
		2	137	137	0		1998	493	28		224	0.00	36
	H1	1	92	92	0		1800	144	64		41	0.00	11
		2	57	57	0		1800	156	37		146	0.00	12
	H2	1	149	149	0		1800	1800	8		987	0.00	150
	A3	1	413	413	0		1980	1980	21		331	0.00	150
	B3	1	381	381	0		1925	1925	20		355	0.00	150
	C3	1	442	442	0		1915	1915	23		290	0.00	150

Traffic Stream Results: Stops and delays

Time Segment	Arm	Traffic Stream	Mean Cruise Time per Veh (s)	Mean Delay per Veh (s)	Total delay (PCU-hr/hr)	Weighted cost of delay (€ per hr)	Mean stops per Veh (%)	Total stops (Stops per hr)	Weighted cost of stops (€ per hr)
08:15-09:15	Aexit	1	79.43	0.00	0.00	0.00	0.00	0.00	0.00
	Bexit	1	130.20	0.00	0.00	0.00	0.00	0.00	0.00
	Cexit	1	2.16	0.00	0.00	0.00	0.00	0.00	0.00
	Hexit	1	123.58	0.00	0.00	0.00	0.00	0.00	0.00
	A1	1	1.80	20.10	1.31	18.56	70.26	164.40	2.06
		2	1.80	70.86	3.52	50.03	99.71	178.49	2.24
	B1	1	4.68	44.24	2.29	32.46	79.08	147.10	1.84
		2	4.68	50.51	2.74	38.85	84.72	165.21	2.07
	C1	1	3.00	57.85	4.90	69.60	93.13	284.06	3.56
		2	3.00	47.11	1.79	25.46	80.74	110.62	1.39
	H1	1	3.24	88.07	2.25	31.96	109.49	100.73	1.26
		2	3.24	71.22	1.13	16.01	97.55	55.60	0.70
	H2	1	25.39	0.09	0.00	0.05	0.00	0.00	0.00
	A3	1	1.00	0.24	0.03	0.39	0.00	0.00	0.00
	B3	1	1.20	0.23	0.02	0.35	0.00	0.00	0.00
	C3	1	1.00	0.28	0.03	0.49	0.00	0.00	0.00

Traffic Stream Results: Queues and blocking

Time Segment	Arm	Traffic Stream	Initial queue (PCU)	Mean max queue (PCU)	Max queue storage (PCU)	Utilised storage (%)	Excess queue penalty (€ per hr)	Wasted time total (s (per cycle))	Estimated blocking
08:15-09:15	Aexit	1	0.00	0.00	115.11	0.00	0.00	5.00	
	Bexit	1	0.00	0.00	188.69	0.00	0.00	0.00	
	Cexit	1	0.00	0.00	3.00	0.00	0.00	74.00	
	Hexit	1	0.00	0.00	179.09	0.00	0.00	8.00	
	A1	1	0.00	4.83	3.00	160.91	0.00	0.00	
		2	0.00	7.51	3.00	250.42	0.00	0.00	
	B1	1	0.00	6.19	7.00	88.44	0.00	0.00	
		2	0.00	6.96	7.00	99.45	0.00	0.00	
	C1	1	0.00	11.96	6.00	199.27	0.00	0.00	
		2	0.00	4.66	6.00	77.64	0.00	0.00	
	H1	1	0.00	4.25	4.70	90.43	0.00	0.00	
		2	0.00	2.34	4.70	49.76	0.00	8.00	
	H2	1	0.00	0.00	36.80	0.01	0.00	0.00	
	A3	1	0.00	0.03	1.00	2.75	0.00	91.00	
	B3	1	0.00	0.02	1.74	1.40	0.00	0.00	
	C3	1	0.00	0.03	1.00	3.46	0.00	71.00	

Final Prediction Table

Link Results

			SIGNALS		FLOWS		PERFORMANCE				PER PCU			QUEUES	WEIGH
Link	Name	Traffic node	Controller stream	Phase	Calculated flow entering (PCU/hr)	Calculated sat flow (PCU/hr)	Actual green (s (per cycle))	Wasted time total (s (per cycle))	Degree of saturation (%)	Practical reserve capacity (%)	JourneyTime (s)	Mean Delay per Veh (s)	Mean stops per Veh (%)	Mean max queue (PCU)	Delay weighting (%)	w
Luas T	Luas	J1	1	H	30	1800	12	10.00	19	368	90.40	66.40	94.13	1.18	100	
Ped1	Ped1	J1	1	G	10	2500	2	2.00	20	350	84.30	81.42	103.06	0.43	100	
Ped2	Ped2	J1	1	G	10	2500	2	2.00	20	350	84.66	81.42	103.06	0.43	100	
Ped3	Ped3	J1	1	G	10	2500	2	2.00	20	350	83.46	81.42	103.06	0.43	100	
Ped8	Ped8	J1	1	G	10	2500	2	2.00	20	350	83.07	81.42	103.06	0.43	100	

Traffic Stream Results

				SIGNALS		FLOWS		PERFORMANCE				PER PCU			QUEUES
Arm	Traffic Stream	Name	Traffic node	Controller stream	Phase	Calculated flow entering (PCU/hr)	Calculated sat flow	Actual green (s (per cycle))	Wasted time total (s (per cycle))	Degree of saturation (%)	Practical reserve capacity	JourneyTime (s)	Mean Delay per Veh (s)	Mean stops per Veh (%)	Mean max queue (PCU)
Aexit	1	(untitled)				418	Unrestricted	150	5.00	0	Unrestricted	79.43	0.00	0.00	0.00
Bexit	1	(untitled)				444	Unrestricted	150	0.00	0	Unrestricted	130.20	0.00	0.00	0.00
Cexit	1	(untitled)				371	Unrestricted	150	74.00	0	Unrestricted	2.16	0.00	0.00	0.00
Hexit	1	(untitled)				152	Unrestricted	150	8.00	0	Unrestricted	123.58	0.00	0.00	0.00
A1	1		J1	1	B	234 <	1856	55	0.00	33	171	21.90	20.10	70.26	4.83 +
	2	(untitled)	J1	1	A	179 <	2055	20	0.00	62	45	72.66	70.86	99.71	7.51 +
B1	1	(untitled)	J1	1	D	186	1854	42	0.00	35	157	48.92	44.24	79.08	6.19
	2	(untitled)	J1	1	C	195	2009	35	0.00	40	123	55.19	50.51	84.72	6.96
C1	1	(untitled)	J1	1	F	305 <	1895	36	0.00	65	38	60.85	57.85	93.13	11.96 +
	2	(untitled)	J1	1	E	137	1998	36	0.00	28	224	50.11	47.11	80.74	4.66
H1	1	(untitled)	J1	1	J	92	1800	11	0.00	64	41	91.31	88.07	109.49	4.25
	2	(untitled)	J1	1	I	57	1800	12	8.00	37	146	74.46	71.22	97.55	2.34
H2	1	(untitled)	HH1			149	1800	150	0.00	8	987	25.48	0.09	0.00	0.00
A3	1	(untitled)	AA2			413	1980	150	91.00	21	331	1.24	0.24	0.00	0.03
B3	1	(untitled)	BB2			381	1925	150	0.00	20	355	1.43	0.23	0.00	0.02
C3	1	(untitled)	CC2			442	1915	150	71.00	23	290	1.28	0.28	0.00	0.03

Network Results

	Distance travelled (PCU-km/hr)	Time spent (PCU-hr/hr)	Mean journey speed (kph)	Total delay (PCU-hr/hr)	Weighted cost of delay (€ per hr)	Weighted cost of stops (€ per hr)	Excess queue penalty (€ per hr)	Performance Index (€ per hr)
Normal traffic	1000.06	54.29	18.42	20.92	297.05	15.64	0.00	312.69
Bus	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tram	3.00	0.75	3.98	0.55	7.86	0.09	0.00	7.95
Pedestrians								
TOTAL	1003.06	55.04	18.22	21.47	304.91	15.73	0.00	320.64

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

A2 - DS 2022 PM
D2 - DS 2022 PM*

Summary

Data Errors and Warnings

No errors or warnings

Run Summary

Analysis set used	Run start time	Run finish time	Modelling start time (HH:mm)	Network Cycle Time (s)	Performance Index (€ per hr)	Total network delay (PCU-hr/hr)	Highest DOS (%)	Item with highest DOS	Number of oversaturated items	Percentage of oversaturated items (%)	Item with worst signalised PRC	Item with worst unsignalised PRC	Ite wit wor ove PR
2	28/04/2021 12:52:49	28/04/2021 12:52:50	16:30	150	232.16	15.47	51.89	H1/1	0	0	H1/1	A3/1	H1/

Analysis Set Details

Name	Description	Demand set	Include in report	Locked
DS 2022 PM		D2	✓	

Demand Set Details

Name	Description	Composite	Demand sets	Start time (HH:mm)	Locked
DS 2022 PM				16:30	

Links

Links

Link	Name	Description	Traffic node	Length (m)	Has Saturation Flow	Use RR67	Saturation flow (PCU/hr)	Is signal controlled	Is give way	Traffic type	Is minor shared	Allow Nearside Turn On Red
Luas	Luas		J1	100.00	✓		1800	✓		Tram		
Ped1	Ped1		J1	24.00	✓		2500	✓		Normal		
Ped2	Ped2		J1	27.00	✓		2500	✓		Normal		
Ped3	Ped3		J1	17.00	✓		2500	✓		Normal		
Ped8	Ped8		J1	13.77	✓		2500	✓		Normal		

Modelling

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

Modelling - Normal traffic - Advanced

Link	Dispersion type for Normal Traffic	Initial queue (PCU)	Type of Vehicle-in-Service	Vehicle-in-Service	Type of random parameter	Random parameter	Auto cycle time	Cycle time
(ALL)	NetworkDefault	0.00	NetworkDefault	Not-Included	NetworkDefault	0.50	✓	150

Modelling - Trams - Advanced

Link	Dispersion type for trams	Use tram network default acceleration	Initial queue (PCU)	Type of Vehicle-in-Service	Vehicle-in-Service	Type of random parameter	Random parameter	Auto cycle time	Cycle time
Luas	NetworkDefault	✓	0.00	NetworkDefault	Not-Included	NetworkDefault	0.50	✓	150

Flows

Link	Total flow (Veh/hr)	PCU Factor
Luas	30	1.00
Ped1	10	1.00
Ped2	10	1.00
Ped3	10	1.00
Ped8	10	1.00

Flows - Advanced

Link	Detectors
(ALL)	

Signals

Link	Controller stream	Phase	Second phase enabled
Luas	1	H	
Ped1	1	G	
Ped2	1	G	
Ped3	1	G	
Ped8	1	G	

Arms and Traffic Streams

Arms

Arm	Name	Description	Traffic node
Aexit	(untitled)		
Bexit	(untitled)		
Cexit	(untitled)		
Hexit	(untitled)		
A1	Fortunestown Lane (East)		J1
B1	Fortunestown Lane (West)		J1
C1	Link Road		J1
H1	Citywest Ave Link Rd		J1
H2	Citywest Ave Link Rd		HH1
A3	Fortunestown Lane (East)		AA2
B3	Fortunestown Lane (West)		BB2
C3	Link Road		CC2

Traffic Streams

Arm	Traffic Stream	Name	Description	Auto length	Length (m)	Has Saturation Flow	Saturation flow source	Saturation flow (PCU/hr)	Is signal controlled	Is give way	Traffic type	Allow Nearside Turn On Red
Aexit	1	(untitled)		✓	661.88						Normal	
Bexit	1	(untitled)		✓	1084.96						Normal	
Cexit	1	(untitled)			18.00						Normal	
Hexit	1	(untitled)		✓	1029.80						Normal	
A1	1				15.00	✓	Sum of lanes	1856	✓		Normal	
	2	(untitled)			15.00	✓	Sum of lanes	2055	✓		Normal	
B1	1	(untitled)			39.00	✓	Sum of lanes	1854	✓		Normal	
	2	(untitled)			39.00	✓	Sum of lanes	2009	✓		Normal	
C1	1	(untitled)			25.00	✓	Sum of lanes	1895	✓		Normal	
	2	(untitled)			25.00	✓	Sum of lanes	1998	✓		Normal	
H1	1	(untitled)			27.00	✓	Sum of lanes	1800	✓		Normal	
	2	(untitled)			27.00	✓	Sum of lanes	1800	✓		Normal	
H2	1	(untitled)		✓	211.61	✓	Sum of lanes	1800			Normal	
A3	1	(untitled)			8.00	✓	Sum of lanes	1980			Normal	
B3	1	(untitled)			10.00	✓	Sum of lanes	1925			Normal	
C3	1	(untitled)			6.50	✓	Sum of lanes	1915			Normal	

Lanes

Arm	Traffic Stream	Lane	Name	Description	Use RR67	Surface condition	Site quality factor	Gradient (%)	Width (m)	Use connector turning radius	Proportion that turn (%)	Turning radius (m)	Nearside lane	Saturation flow (PCU/hr)
Aexit	1	1	(untitled)											
Bexit	1	1	(untitled)											
Cexit	1	1	(untitled)											
Hexit	1	1	(untitled)											
A1	1	1	Left Turn		✓	N/A	N/A	0	3.00		100	47.00	✓	1856
	2	1	Ahead & Right Turn		✓	N/A	N/A	0	3.00	✓	0	99999.00		2055
B1	1	1	Ahead & Left Turn		✓	N/A	N/A	0	3.10		100	39.00	✓	1854
	2	1	Right Turn		✓	N/A	N/A	0	3.10		100	53.50		2009
C1	1	1	Ahead & Left Turn		✓	N/A	N/A	0	3.30		100	56.50	✓	1895
	2	1	Right Turn		✓	N/A	N/A	0	3.00		100	53.00		1998
H1	1	1	Ahead & Left Turn											1800
	2	1	Right Turn											1800
H2	1	1	(untitled)											1800
A3	1	1	(untitled)		✓	N/A	N/A	0	3.65	✓	0	99999.00	✓	1980
B3	1	1	(untitled)		✓	N/A	N/A	0	3.10	✓	0	99999.00	✓	1925
C3	1	1	(untitled)		✓	N/A	N/A	0	3.00	✓	0	99999.00	✓	1915

Modelling

Arm	Traffic Stream	Traffic model	Stop weighting multiplier (%)	Delay weighting multiplier (%)	Assignment Cost Weighting (%)	Exclude from results calculation	Max queue storage (PCU)	Has queue limit	Has degree of saturation limit
Aexit	1	NetworkDefault	100	100	100		0.00		
Bexit	1	NetworkDefault	100	100	100		0.00		
Cexit	1	NetworkDefault	100	100	100		3.00		
Hexit	1	NetworkDefault	100	100	100		0.00		
A1	1	NetworkDefault	100	100	100		3.00		
	2	NetworkDefault	100	100	100		3.00		
B1	1	NetworkDefault	100	100	100		7.00		
	2	NetworkDefault	100	100	100		7.00		
C1	1	NetworkDefault	100	100	100		6.00		
	2	NetworkDefault	100	100	100		6.00		
H1	1	NetworkDefault	100	100	100		0.00		
	2	NetworkDefault	100	100	100		0.00		
H2	1	NetworkDefault	100	100	100		0.00		
A3	1	NetworkDefault	100	100	100		1.00		
B3	1	NetworkDefault	100	100	100		0.00		
C3	1	NetworkDefault	100	100	100		1.00		

Modelling - Advanced

Arm	Traffic Stream	Initial queue (PCU)	Type of Vehicle-in-Service	Vehicle-in-Service	Type of random parameter	Random parameter	Auto cycle time	Cycle time
(ALL)	(ALL)	0.00	NetworkDefault	Not-Included	NetworkDefault	0.50	✓	150

Normal traffic - Modelling

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

Normal traffic - Advanced

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

Flows

Arm	Traffic Stream	Total Flow (PCU/hr)	Normal Flow (PCU/hr)
Aexit	1	308	308
Bexit	1	537	537
Cexit	1	173	173
Hexit	1	143	143
A1	1	360	360
	2	68	68
B1	1	126	126
	2	222	222
C1	1	110	110
	2	71	71
H1	1	137	137
	2	67	67
H2	1	204	204
A3	1	428	428
B3	1	348	348
C3	1	181	181

Signals

Arm	Traffic Stream	Controller stream	Phase	Second phase enabled
A1	1	1	B	
	2	1	A	
B1	1	1	D	
	2	1	C	
C1	1	1	F	
	2	1	E	
H1	1	1	J	
	2	1	I	

Signal Timings

Network Default: 150s cycle time; 150 steps

Phases

Controller Stream	Phase	Name	Minimum green (s)	Maximum green (s)	Relative start displacement (s)	Relative end displacement (s)	Type
1	A	(untitled)	1	300	0	0	Indicative arrow
	B	(untitled)	1	300	0	0	Traffic
	C	(untitled)	1	300	0	0	Indicative arrow
	D	(untitled)	1	300	0	0	Traffic
	E	(untitled)	1	300	0	0	Indicative arrow
	F	(untitled)	1	300	0	0	Traffic
	G	(untitled)	1	300	0	0	Unknown
	H	(untitled)	1	300	0	0	Unknown
	I	(untitled)	1	300	0	0	Indicative arrow
	J	(untitled)	1	300	0	0	Traffic

Library Stages

Controller Stream	Library Stage	Phases in stage	User stage minimum (s)
1	1	B, C, H, I	1
	2	B, C, D	1
	3	B, A	1
	4	E, F	1
	5	G	1
	6	D, J	1

Stage Sequences

Controller Stream	Sequence	Name	Multiple cycling	Stage IDs	Stage ends
1	1	(untitled)	Single	5, 1, 2, 6, 4, 3	28, 56, 81, 108, 133, 12

Intergreen Matrix for Controller Stream 1

From \ To	A	B	C	D	E	F	G	H	I	J
A			6	6	6	6	14	6	6	6
B					6	6	14			6
C	6				6	6	14			6
D	6				6	6	14	6	6	
E	6	6	6	6			14	6	6	6
F	6	6	6	6			14	6	6	6
G	14	14	14	14	14	14		6	6	6
H	6			6	6	6	6			6
I	6			6	6	6	6			6
J	6	6	6		6	6	6	6	6	

Interstage Matrix for Controller Stream 1

From \ To	1	2	3	4	5	6
1	0	6	6	6	14	6
2	6	0	6	6	14	6
3	6	6	0	6	14	6
4	6	6	6	0	14	6
5	14	14	14	14	0	14
6	6	6	6	6	14	0

Resultant Stages

Controller Stream	Resultant Stage	Is base stage	Library Stage ID	Phases in this stage	Stage start (s)	Stage end (s)	Stage duration (s)	User stage minimum (s)	Stage minimum (s)
1	1	✓	5	G	26	28	2	1	1
	2	✓	1	B,C,H,I	42	56	14	1	1
	3	✓	2	B,C,D	62	81	19	1	1
	4	✓	6	D,J	87	108	21	1	1
	5	✓	4	E,F	114	133	19	1	1
	6	✓	3	B,A	139	12	23	1	1

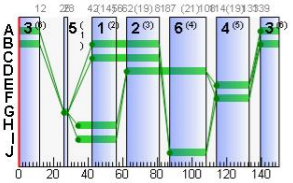
Resultant Phase Green Periods

Controller Stream	Phase	Green period	Is base green period	Start time (s)	End time (s)	Duration (s)
1	A	1	✓	139	12	23
	B	1	✓	42	81	39
		2	✓	139	12	23
	C	1	✓	42	81	39
	D	1	✓	62	108	46
	E	1	✓	114	133	19
	F	1	✓	114	133	19
	G	1	✓	26	28	2
	H	1	✓	34	56	22
	I	1	✓	34	56	22
	J	1	✓	87	108	21

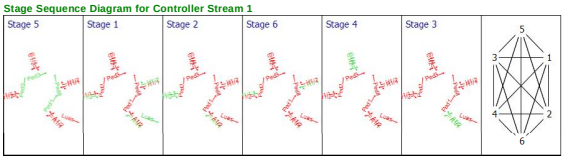
Traffic Stream Green Times

Arm	Traffic Stream	Traffic Node	Controller Stream	Phase	Green Period 1			Green Period 2		
					Start	End	Duration	Start	End	Duration
A1	1	J1	1	B	42	81	39	139	12	23
A1	2	J1	1	A	139	12	23			
B1	1	J1	1	D	62	108	46			
B1	2	J1	1	C	42	81	39			
C1	1	J1	1	F	114	133	19			
C1	2	J1	1	E	114	133	19			
H1	1	J1	1	J	87	108	21			
H1	2	J1	1	I	34	56	22			

Phase Timings Diagram for Controller Stream 1



Stage Sequence Diagram for Controller Stream 1



Link Results

Link Results: Vehicle summary

Time Segment	Link	Degree of saturation (%)	Practical reserve capacity (%)	Calculated flow entering (PCU/hr)	Calculated sat flow (PCU/hr)	Actual green (s (per cycle))	Mean Delay per Veh (s)	Mean max queue (PCU)	Utilised storage (%)	Weighted cost of delay (€ per hr)	Weighted cost of stops (€ per hr)	Performance Index (€ per hr)
16:30-17:30	Luas	11	728	30	1800	22	55.49	1.08	6.39	6.57	0.08	6.65
	Ped1	20	350	10	2500	2	81.42	0.43	7.68	3.21	0.13	3.34
	Ped2	20	350	10	2500	2	81.42	0.43	6.82	3.21	0.13	3.34
	Ped3	20	350	10	2500	2	81.42	0.43	10.84	3.21	0.13	3.34
	Ped8	20	350	10	2500	2	81.42	0.43	13.38	3.21	0.13	3.34

Link Results: Flows and signals

Time Segment	Link	Calculated flow entering (PCU/hr)	Calculated flow out (PCU/hr)	Flow discrepancy (PCU/hr)	Adjusted flow warning	Calculated sat flow (PCU/hr)	Calculated capacity (PCU/hr)	Degree of saturation (%)	DOS Threshold exceeded	Practical reserve capacity (%)	Mean modulus of error	Actual green (s (per cycle))
16:30-17:30	Luas	30	30	0		1800	276	11		728	0.00	22
	Ped1	10	10	0		2500	50	20		350	0.00	2
	Ped2	10	10	0		2500	50	20		350	0.00	2
	Ped3	10	10	0		2500	50	20		350	0.00	2
	Ped8	10	10	0		2500	50	20		350	0.00	2

Link Results: Stops and delays

Time Segment	Link	Mean Cruise Time per Veh (s)	Mean Delay per Veh (s)	Total delay (PCU-hr/hr)	Weighted cost of delay (€ per hr)	Mean stops per Veh (%)	Total stops (Stops per hr)	Weighted cost of stops (€ per hr)
16:30-17:30	Luas	24.00	55.49	0.46	6.57	86.18	25.85	0.08
	Ped1	2.88	81.42	0.23	3.21	103.06	10.31	0.13
	Ped2	3.24	81.42	0.23	3.21	103.06	10.31	0.13
	Ped3	2.04	81.42	0.23	3.21	103.06	10.31	0.13
	Ped8	1.65	81.42	0.23	3.21	103.06	10.31	0.13

Link Results: Queues and blocking

Time Segment	Link	Initial queue (PCU)	Mean max queue (PCU)	Max queue storage (PCU)	Utilised storage (%)	Excess queue penalty (€ per hr)	Wasted time total (s (per cycle))	Estimated blocking
16:30-17:30	Luas	0.00	1.08	16.92	6.39	0.00	20.00	
	Ped1	0.00	0.43	5.64	7.68	0.00	2.00	
	Ped2	0.00	0.43	6.35	6.82	0.00	2.00	
	Ped3	0.00	0.43	4.00	10.84	0.00	2.00	
	Ped8	0.00	0.43	3.24	13.38	0.00	2.00	

Traffic Stream Results

Traffic Stream Results: Vehicle summary

Time Segment	Arm	Traffic Stream	Degree of saturation (%)	Practical reserve capacity	Calculated flow entering (PCU/hr)	Calculated sat flow	Actual green (s (per cycle))	Mean Delay per Veh (s)	Mean max queue (PCU)	Utilised storage (%)	Weighted cost of delay (€ per hr)	Weighted cost of stops (€ per hr)	Performance Index (€ per hr)
16:30-17:30	Aexit	1	0	Unrestricted	308	Unrestricted	150	0.00	0.00	0.00	0.00	0.00	0.00
	Bexit	1	0	Unrestricted	537	Unrestricted	150	0.00	0.00	0.00	0.00	0.00	0.00
	Cexit	1	0	Unrestricted	173	Unrestricted	150	0.00	0.00	0.00	0.00	0.00	0.00
	Hexit	1	0	Unrestricted	143	Unrestricted	150	0.00	0.00	0.00	0.00	0.00	0.00
	A1	1	45	98	360	1856	62	18.81	7.19	239.63	26.70	3.19	29.90
		2	21	335	68	2055	23	56.18	2.48	82.75	15.07	0.74	15.81
	B1	1	22	315	126	1854	46	38.81	3.88	55.43	19.29	1.15	20.44
		2	41	117	222	2009	39	47.72	7.73	110.44	41.79	2.30	44.09
	C1	1	44	107	110	1895	19	65.25	4.38	73.05	28.31	1.30	29.61
		2	27	238	71	1998	19	60.87	2.69	44.85	17.05	0.80	17.85
	H1	1	52	73	137	1800	21	66.39	5.53	117.73	35.87	1.65	37.52
		2	24	271	67	1800	22	57.93	2.48	52.75	15.31	0.74	16.05
	H2	1	11	694	204	1800	150	0.13	0.01	0.02	0.10	0.00	0.10
	A3	1	22	316	428	1980	150	0.25	0.03	2.98	0.42	0.00	0.42
	B3	1	18	398	348	1925	150	0.21	0.02	1.15	0.28	0.00	0.28
	C3	1	9	852	181	1915	150	0.10	0.00	0.49	0.07	0.00	0.07

Traffic Stream Results: Flows and signals

Time Segment	Arm	Traffic Stream	Calculated flow entering (PCU/hr)	Calculated flow out (PCU/hr)	Flow discrepancy (PCU/hr)	Adjusted flow warning	Calculated sat flow	Calculated capacity	Degree of saturation (%)	DOS Threshold exceeded	Practical reserve capacity	Mean modulus of error	Actual green (s (per cycle))
16:30-17:30	Aexit	1	308	308	0		Unrestricted	Unrestricted	0		Unrestricted	0.60	150
	Bexit	1	537	537	0		Unrestricted	Unrestricted	0		Unrestricted	0.16	150
	Cexit	1	173	173	0		Unrestricted	Unrestricted	0		Unrestricted	1.35	150
	Hexit	1	143	143	0		Unrestricted	Unrestricted	0		Unrestricted	0.37	150
	A1	1	360	360	0		1856	792	45		98	0.00	62
		2	68	68	0		2055	329	21		335	0.00	23
	B1	1	126	126	0		1854	581	22		315	0.00	46
		2	222	222	0		2009	536	41		117	0.00	39
	C1	1	110	110	0		1895	253	44		107	0.00	19
		2	71	71	0		1998	266	27		238	0.00	19
	H1	1	137	137	0		1800	264	52		73	0.00	21
		2	67	67	0		1800	276	24		271	0.00	22
	H2	1	204	204	0		1800	1800	11		694	0.00	150
	A3	1	428	428	0		1980	1980	22		316	0.00	150
	B3	1	348	348	0		1925	1925	18		398	0.00	150
	C3	1	181	181	0		1915	1915	9		852	0.00	150

Traffic Stream Results: Stops and delays

Time Segment	Arm	Traffic Stream	Mean Cruise Time per Veh (s)	Mean Delay per Veh (s)	Total delay (PCU-hr/hr)	Weighted cost of delay (€ per hr)	Mean stops per Veh (%)	Total stops (Stops per hr)	Weighted cost of stops (€ per hr)
16:30-17:30	Aexit	1	79.43	0.00	0.00	0.00	0.00	0.00	0.00
	Bexit	1	130.20	0.00	0.00	0.00	0.00	0.00	0.00
	Cexit	1	2.16	0.00	0.00	0.00	0.00	0.00	0.00
	Hexit	1	123.58	0.00	0.00	0.00	0.00	0.00	0.00
	A1	1	1.80	18.81	1.88	26.70	70.71	254.55	3.19
		2	1.80	56.18	1.06	15.07	86.83	59.04	0.74
	B1	1	4.68	38.81	1.36	19.29	73.10	92.11	1.15
		2	4.68	47.72	2.94	41.79	82.74	183.69	2.30
	C1	1	3.00	65.25	1.99	28.31	94.21	103.63	1.30
		2	3.00	60.87	1.20	17.05	90.17	64.02	0.80
	H1	1	3.24	66.39	2.53	35.87	95.98	131.49	1.65
		2	3.24	57.93	1.08	15.31	87.93	58.91	0.74
	H2	1	25.39	0.13	0.01	0.10	0.00	0.00	0.00
	A3	1	1.00	0.25	0.03	0.42	0.00	0.00	0.00
	B3	1	1.20	0.21	0.02	0.28	0.00	0.00	0.00
	C3	1	1.00	0.10	0.00	0.07	0.00	0.00	0.00

Traffic Stream Results: Queues and blocking

Time Segment	Arm	Traffic Stream	Initial queue (PCU)	Mean max queue (PCU)	Max queue storage (PCU)	Utilised storage (%)	Excess queue penalty (€ per hr)	Wasted time total (s (per cycle))	Estimated blocking
16:30-17:30	Aexit	1	0.00	0.00	115.11	0.00	0.00	24.00	
	Bexit	1	0.00	0.00	188.69	0.00	0.00	0.00	
	Cexit	1	0.00	0.00	3.00	0.00	0.00	106.00	
	Hexit	1	0.00	0.00	179.09	0.00	0.00	21.00	
	A1	1	0.00	7.19	3.00	239.63	0.00	0.00	
		2	0.00	2.48	3.00	82.75	0.00	0.00	
	B1	1	0.00	3.88	7.00	55.43	0.00	0.00	
		2	0.00	7.73	7.00	110.44	0.00	0.00	
	C1	1	0.00	4.38	6.00	73.05	0.00	0.00	
		2	0.00	2.69	6.00	44.85	0.00	0.00	
	H1	1	0.00	5.53	4.70	117.73	0.00	0.00	
		2	0.00	2.48	4.70	52.75	0.00	0.00	
	H2	1	0.00	0.01	36.80	0.02	0.00	22.00	
	A3	1	0.00	0.03	1.00	2.98	0.00	49.00	
	B3	1	0.00	0.02	1.74	1.15	0.00	12.00	
	C3	1	0.00	0.00	1.00	0.49	0.00	0.00	

Final Prediction Table

Link Results

			SIGNALS		FLOWS		PERFORMANCE				PER PCU			QUEUES	WEIGH	
Link	Name	Traffic node	Controller stream	Phase	Calculated flow entering (PCU/hr)	Calculated sat flow (PCU/hr)	Actual green (s (per cycle))	Wasted time total (s (per cycle))	Degree of saturation (%)	Practical reserve capacity (%)	JourneyTime (s)	Mean Delay per Veh (s)	Mean stops per Veh (%)	Mean max queue (PCU)	Delay weighting (%)	w
Luas T	Luas	J1	1	H	30	1800	22	20.00	11	728	79.49	55.49	86.18	1.08	100	
Ped1	Ped1	J1	1	G	10	2500	2	2.00	20	350	84.30	81.42	103.06	0.43	100	
Ped2	Ped2	J1	1	G	10	2500	2	2.00	20	350	84.66	81.42	103.06	0.43	100	
Ped3	Ped3	J1	1	G	10	2500	2	2.00	20	350	83.46	81.42	103.06	0.43	100	
Ped8	Ped8	J1	1	G	10	2500	2	2.00	20	350	83.07	81.42	103.06	0.43	100	

Traffic Stream Results

				SIGNALS		FLOWS		PERFORMANCE				PER PCU			QUEUES
Arm	Traffic Stream	Name	Traffic node	Controller stream	Phase	Calculated flow entering (PCU/hr)	Calculated sat flow	Actual green (s (per cycle))	Wasted time total (s (per cycle))	Degree of saturation (%)	Practical reserve capacity	JourneyTime (s)	Mean Delay per Veh (s)	Mean stops per Veh (%)	Mean max queue (PCU)
Aexit	1	(untitled)				308	Unrestricted	150	24.00	0	Unrestricted	79.43	0.00	0.00	0.00
Bexit	1	(untitled)				537	Unrestricted	150	0.00	0	Unrestricted	130.20	0.00	0.00	0.00
Cexit	1	(untitled)				173	Unrestricted	150	106.00	0	Unrestricted	2.16	0.00	0.00	0.00
Hexit	1	(untitled)				143	Unrestricted	150	21.00	0	Unrestricted	123.58	0.00	0.00	0.00
A1	1		J1	1	B	360 <	1856	62	0.00	45	98	20.61	18.81	70.71	7.19 +
	2	(untitled)	J1	1	A	68	2055	23	0.00	21	335	57.98	56.18	86.83	2.48
B1	1	(untitled)	J1	1	D	126	1854	46	0.00	22	315	43.49	38.81	73.10	3.88
	2	(untitled)	J1	1	C	222 <	2009	39	0.00	41	117	52.40	47.72	82.74	7.73 +
C1	1	(untitled)	J1	1	F	110	1895	19	0.00	44	107	68.25	65.25	94.21	4.38
	2	(untitled)	J1	1	E	71	1998	19	0.00	27	238	63.87	60.87	90.17	2.69
H1	1	(untitled)	J1	1	J	137 <	1800	21	0.00	52	73	69.63	66.39	95.98	5.53 +
	2	(untitled)	J1	1	I	67	1800	22	0.00	24	271	61.17	57.93	87.93	2.48
H2	1	(untitled)	HH1			204	1800	150	22.00	11	694	25.52	0.13	0.00	0.01
A3	1	(untitled)	AA2			428	1980	150	49.00	22	316	1.25	0.25	0.00	0.03
B3	1	(untitled)	BB2			348	1925	150	12.00	18	398	1.41	0.21	0.00	0.02
C3	1	(untitled)	CC2			181	1915	150	0.00	9	852	1.10	0.10	0.00	0.00

Network Results

	Distance travelled (PCU-km/hr)	Time spent (PCU-hr/hr)	Mean journey speed (kph)	Total delay (PCU-hr/hr)	Weighted cost of delay (€ per hr)	Weighted cost of stops (€ per hr)	Excess queue penalty (€ per hr)	Performance Index (€ per hr)
Normal traffic	1018.95	48.99	20.80	15.01	213.12	12.40	0.00	225.51
Bus	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tram	3.00	0.66	4.53	0.46	6.57	0.08	0.00	6.65
Pedestrians								
TOTAL	1021.95	49.65	20.58	15.47	219.68	12.48	0.00	232.16

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

A3 - DS 2027 AM
D3 - DS 2027 AM*

Summary

Data Errors and Warnings

No errors or warnings

Run Summary

Analysis set used	Run start time	Run finish time	Modelling start time (HH:mm)	Network Cycle Time (s)	Performance Index (€ per hr)	Total network delay (PCU-hr/hr)	Highest DOS (%)	Item with highest DOS	Number of oversaturated items	Percentage of oversaturated items (%)	Item with worst signalised PRC	Item with worst unsignalised PRC	Ite wit wor over PR
3	28/04/2021 12:52:50	28/04/2021 12:52:51	08:15	150	400.95	26.88	75.68	C1/1	0	0	C1/1	C3/1	C1/

Analysis Set Details

Name	Description	Demand set	Include in report	Locked
DS 2027 AM		D3	✓	

Demand Set Details

Name	Description	Composite	Demand sets	Start time (HH:mm)	Locked
DS 2027 AM				08:15	

Links

Links

Link	Name	Description	Traffic node	Length (m)	Has Saturation Flow	Use RR67	Saturation flow (PCU/hr)	Is signal controlled	Is give way	Traffic type	Is minor shared	Allow Nearside Turn On Red
Luas	Luas		J1	100.00	✓		1800	✓		Tram		
Ped1	Ped1		J1	24.00	✓		2500	✓		Normal		
Ped2	Ped2		J1	27.00	✓		2500	✓		Normal		
Ped3	Ped3		J1	17.00	✓		2500	✓		Normal		
Ped8	Ped8		J1	13.77	✓		2500	✓		Normal		

Modelling

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

Modelling - Normal traffic - Advanced

Link	Dispersion type for Normal Traffic	Initial queue (PCU)	Type of Vehicle-in-Service	Vehicle-in-Service	Type of random parameter	Random parameter	Auto cycle time	Cycle time
(ALL)	NetworkDefault	0.00	NetworkDefault	Not-Included	NetworkDefault	0.50	✓	150

Modelling - Trams - Advanced

Link	Dispersion type for trams	Use tram network default acceleration	Initial queue (PCU)	Type of Vehicle-in-Service	Vehicle-in-Service	Type of random parameter	Random parameter	Auto cycle time	Cycle time
Luas	NetworkDefault	✓	0.00	NetworkDefault	Not-Included	NetworkDefault	0.50	✓	150

Flows

Link	Total flow (Veh/hr)	PCU Factor
Luas	30	1.00
Ped1	10	1.00
Ped2	10	1.00
Ped3	10	1.00
Ped8	10	1.00

Flows - Advanced

Link	Detectors
(ALL)	

Signals

Link	Controller stream	Phase	Second phase enabled
Luas	1	H	
Ped1	1	G	
Ped2	1	G	
Ped3	1	G	
Ped8	1	G	

Arms and Traffic Streams

Arms

Arm	Name	Description	Traffic node
Aexit	(untitled)		
Bexit	(untitled)		
Cexit	(untitled)		
Hexit	(untitled)		
A1	Fortunestown Lane (East)		J1
B1	Fortunestown Lane (West)		J1
C1	Link Road		J1
H1	Citywest Ave Link Rd		J1
H2	Citywest Ave Link Rd		HH1
A3	Fortunestown Lane (East)		AA2
B3	Fortunestown Lane (West)		BB2
C3	Link Road		CC2

Traffic Streams

Arm	Traffic Stream	Name	Description	Auto length	Length (m)	Has Saturation Flow	Saturation flow source	Saturation flow (PCU/hr)	Is signal controlled	Is give way	Traffic type	Allow Nearside Turn On Red
Aexit	1	(untitled)		✓	661.88						Normal	
Bexit	1	(untitled)		✓	1084.96						Normal	
Cexit	1	(untitled)			18.00						Normal	
Hexit	1	(untitled)		✓	1029.80						Normal	
A1	1				15.00	✓	Sum of lanes	1856	✓		Normal	
	2	(untitled)			15.00	✓	Sum of lanes	2055	✓		Normal	
B1	1	(untitled)			39.00	✓	Sum of lanes	1854	✓		Normal	
	2	(untitled)			39.00	✓	Sum of lanes	2009	✓		Normal	
C1	1	(untitled)			25.00	✓	Sum of lanes	1895	✓		Normal	
	2	(untitled)			25.00	✓	Sum of lanes	1998	✓		Normal	
H1	1	(untitled)			27.00	✓	Sum of lanes	1800	✓		Normal	
	2	(untitled)			27.00	✓	Sum of lanes	1800	✓		Normal	
H2	1	(untitled)		✓	211.61	✓	Sum of lanes	1800			Normal	
A3	1	(untitled)			8.00	✓	Sum of lanes	1980			Normal	
B3	1	(untitled)			10.00	✓	Sum of lanes	1925			Normal	
C3	1	(untitled)			6.50	✓	Sum of lanes	1915			Normal	

Lanes

Arm	Traffic Stream	Lane	Name	Description	Use RR67	Surface condition	Site quality factor	Gradient (%)	Width (m)	Use connector turning radius	Proportion that turn (%)	Turning radius (m)	Nearside lane	Saturation flow (PCU/hr)
Aexit	1	1	(untitled)											
Bexit	1	1	(untitled)											
Cexit	1	1	(untitled)											
Hexit	1	1	(untitled)											
A1	1	1	Left Turn		✓	N/A	N/A	0	3.00		100	47.00	✓	1856
	2	1	Ahead & Right Turn		✓	N/A	N/A	0	3.00	✓	0	99999.00		2055
B1	1	1	Ahead & Left Turn		✓	N/A	N/A	0	3.10		100	39.00	✓	1854
	2	1	Right Turn		✓	N/A	N/A	0	3.10		100	53.50		2009
C1	1	1	Ahead & Left Turn		✓	N/A	N/A	0	3.30		100	56.50	✓	1895
	2	1	Right Turn		✓	N/A	N/A	0	3.00		100	53.00		1998
H1	1	1	Ahead & Left Turn											1800
	2	1	Right Turn											1800
H2	1	1	(untitled)											1800
A3	1	1	(untitled)		✓	N/A	N/A	0	3.65	✓	0	99999.00	✓	1980
B3	1	1	(untitled)		✓	N/A	N/A	0	3.10	✓	0	99999.00	✓	1925
C3	1	1	(untitled)		✓	N/A	N/A	0	3.00	✓	0	99999.00	✓	1915

Modelling

Arm	Traffic Stream	Traffic model	Stop weighting multiplier (%)	Delay weighting multiplier (%)	Assignment Cost Weighting (%)	Exclude from results calculation	Max queue storage (PCU)	Has queue limit	Has degree of saturation limit
Aexit	1	NetworkDefault	100	100	100		0.00		
Bexit	1	NetworkDefault	100	100	100		0.00		
Cexit	1	NetworkDefault	100	100	100		3.00		
Hexit	1	NetworkDefault	100	100	100		0.00		
A1	1	NetworkDefault	100	100	100		3.00		
	2	NetworkDefault	100	100	100		3.00		
B1	1	NetworkDefault	100	100	100		7.00		
	2	NetworkDefault	100	100	100		7.00		
C1	1	NetworkDefault	100	100	100		6.00		
	2	NetworkDefault	100	100	100		6.00		
H1	1	NetworkDefault	100	100	100		0.00		
	2	NetworkDefault	100	100	100		0.00		
H2	1	NetworkDefault	100	100	100		0.00		
A3	1	NetworkDefault	100	100	100		1.00		
B3	1	NetworkDefault	100	100	100		0.00		
C3	1	NetworkDefault	100	100	100		1.00		

Modelling - Advanced

Arm	Traffic Stream	Initial queue (PCU)	Type of Vehicle-in-Service	Vehicle-in-Service	Type of random parameter	Random parameter	Auto cycle time	Cycle time
(ALL)	(ALL)	0.00	NetworkDefault	Not-Included	NetworkDefault	0.50	✓	150

Normal traffic - Modelling

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

Normal traffic - Advanced

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

Flows

Arm	Traffic Stream	Total Flow (PCU/hr)	Normal Flow (PCU/hr)
Aexit	1	476	476
Bexit	1	495	495
Cexit	1	433	433
Hexit	1	216	216
A1	1	262	262
	2	201	201
B1	1	202	202
	2	214	214
C1	1	392	392
	2	142	142
H1	1	118	118
	2	89	89
H2	1	207	207
A3	1	463	463
B3	1	416	416
C3	1	534	534

Signals

Arm	Traffic Stream	Controller stream	Phase	Second phase enabled
A1	1	1	B	
	2	1	A	
B1	1	1	D	
	2	1	C	
C1	1	1	F	
	2	1	E	
H1	1	1	J	
	2	1	I	

Signal Timings

Network Default: 150s cycle time; 150 steps

Phases

Controller Stream	Phase	Name	Minimum green (s)	Maximum green (s)	Relative start displacement (s)	Relative end displacement (s)	Type
1	A	(untitled)	1	300	0	0	Indicative arrow
	B	(untitled)	1	300	0	0	Traffic
	C	(untitled)	1	300	0	0	Indicative arrow
	D	(untitled)	1	300	0	0	Traffic
	E	(untitled)	7	300	0	0	Indicative arrow
	F	(untitled)	7	300	0	0	Traffic
	G	(untitled)	1	300	0	0	Unknown
	H	(untitled)	1	300	0	0	Unknown
	I	(untitled)	1	300	0	0	Indicative arrow
	J	(untitled)	1	300	0	0	Traffic

Library Stages

Controller Stream	Library Stage	Phases in stage	User stage minimum (s)
1	1	B, C, H, I	2
	2	C, D, B	1
	3	A, B	1
	4	E, F	1
	5	G	1
	6	D, J	1

Stage Sequences

Controller Stream	Sequence	Name	Multiple cycling	Stage IDs	Stage ends
1	1	(untitled)	Single	5, 1, 2, 6, 4, 3	30, 52, 72, 92, 138, 14

Intergreen Matrix for Controller Stream 1

From \ To	A	B	C	D	E	F	G	H	I	J
A			6	6	6	6	14	6	6	6
B					6	6	14			6
C	6				6	6	14			6
D	6				6	6	14	6	6	
E	6	6	6	6			14	6	6	6
F	6	6	6	6			14	6	6	6
G	14	14	14	14	14	14		6	6	6
H	6			6	6	6	6			6
I	6			6	6	6	6			6
J	6	6	6		6	6	6	6	6	

Interstage Matrix for Controller Stream 1

From \ To	1	2	3	4	5	6
1	0	6	6	6	14	6
2	6	0	6	6	14	6
3	6	6	0	6	14	6
4	6	6	6	0	14	6
5	14	14	14	14	0	14
6	6	6	6	6	14	0

Resultant Stages

Controller Stream	Resultant Stage	Is base stage	Library Stage ID	Phases in this stage	Stage start (s)	Stage end (s)	Stage duration (s)	User stage minimum (s)	Stage minimum (s)
1	1	✓	5	G	28	30	2	1	1
	2	✓	1	B,C,H,I	44	52	8	2	2
	3	✓	2	C,D,B	58	72	14	1	1
	4	✓	6	D,J	78	92	14	1	1
	5	✓	4	E,F	98	138	40	1	7
	6	✓	3	A,B	144	14	20	1	1

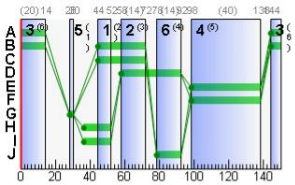
Resultant Phase Green Periods

Controller Stream	Phase	Green period	Is base green period	Start time (s)	End time (s)	Duration (s)
1	A	1	✓	144	14	20
	B	1	✓	44	72	28
		2	✓	144	14	20
	C	1	✓	44	72	28
	D	1	✓	58	92	34
	E	1	✓	98	138	40
	F	1	✓	98	138	40
	G	1	✓	28	30	2
	H	1	✓	36	52	16
	I	1	✓	36	52	16
	J	1	✓	78	92	14

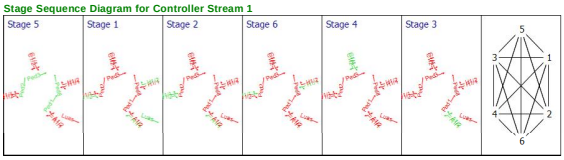
Traffic Stream Green Times

Arm	Traffic Stream	Traffic Node	Controller Stream	Phase	Green Period 1			Green Period 2		
					Start	End	Duration	Start	End	Duration
A1	1	J1	1	B	44	72	28	144	14	20
A1	2	J1	1	A	144	14	20			
B1	1	J1	1	D	58	92	34			
B1	2	J1	1	C	44	72	28			
C1	1	J1	1	F	98	138	40			
C1	2	J1	1	E	98	138	40			
H1	1	J1	1	J	78	92	14			
H1	2	J1	1	I	36	52	16			

Phase Timings Diagram for Controller Stream 1



Stage Sequence Diagram for Controller Stream 1



Link Results

Link Results: Vehicle summary

Time Segment	Link	Degree of saturation (%)	Practical reserve capacity (%)	Calculated flow entering (PCU/hr)	Calculated sat flow (PCU/hr)	Actual green (s (per cycle))	Mean Delay per Veh (s)	Mean max queue (PCU)	Utilised storage (%)	Weighted cost of delay (€ per hr)	Weighted cost of stops (€ per hr)	Performance index (€ per hr)
08:15-09:15	Luas	15	512	30	1800	16	61.52	1.14	6.72	7.28	0.09	7.36
	Ped1	20	350	10	2500	2	81.42	0.43	7.68	3.21	0.13	3.34
	Ped2	20	350	10	2500	2	81.42	0.43	6.82	3.21	0.13	3.34
	Ped3	20	350	10	2500	2	81.42	0.43	10.84	3.21	0.13	3.34
	Ped8	20	350	10	2500	2	81.42	0.43	13.38	3.21	0.13	3.34

Link Results: Flows and signals

Time Segment	Link	Calculated flow entering (PCU/hr)	Calculated flow out (PCU/hr)	Flow discrepancy (PCU/hr)	Adjusted flow warning	Calculated sat flow (PCU/hr)	Calculated capacity (PCU/hr)	Degree of saturation (%)	DOS Threshold exceeded	Practical reserve capacity (%)	Mean modulus of error	Actual green (s (per cycle))
08:15-09:15	Luas	30	30	0		1800	204	15		512	0.00	16
	Ped1	10	10	0		2500	50	20		350	0.00	2
	Ped2	10	10	0		2500	50	20		350	0.00	2
	Ped3	10	10	0		2500	50	20		350	0.00	2
	Ped8	10	10	0		2500	50	20		350	0.00	2

Link Results: Stops and delays

Time Segment	Link	Mean Cruise Time per Veh (s)	Mean Delay per Veh (s)	Total delay (PCU-hr/hr)	Weighted cost of delay (€ per hr)	Mean stops per Veh (%)	Total stops (Stops per hr)	Weighted cost of stops (€ per hr)
08:15-09:15	Luas	24.00	61.52	0.51	7.28	90.66	27.20	0.09
	Ped1	2.88	81.42	0.23	3.21	103.06	10.31	0.13
	Ped2	3.24	81.42	0.23	3.21	103.06	10.31	0.13
	Ped3	2.04	81.42	0.23	3.21	103.06	10.31	0.13
	Ped8	1.65	81.42	0.23	3.21	103.06	10.31	0.13

Link Results: Queues and blocking

Time Segment	Link	Initial queue (PCU)	Mean max queue (PCU)	Max queue storage (PCU)	Utilised storage (%)	Excess queue penalty (€ per hr)	Wasted time total (s (per cycle))	Estimated blocking
08:15-09:15	Luas	0.00	1.14	16.92	6.72	0.00	14.00	
	Ped1	0.00	0.43	5.64	7.68	0.00	2.00	
	Ped2	0.00	0.43	6.35	6.82	0.00	2.00	
	Ped3	0.00	0.43	4.00	10.84	0.00	2.00	
	Ped8	0.00	0.43	3.24	13.38	0.00	2.00	

Traffic Stream Results

Traffic Stream Results: Vehicle summary

Time Segment	Arm	Traffic Stream	Degree of saturation (%)	Practical reserve capacity	Calculated flow entering (PCU/hr)	Calculated sat flow	Actual green (s (per cycle))	Mean Delay per Veh (s)	Mean max queue (PCU)	Utilised storage (%)	Weighted cost of delay (€ per hr)	Weighted cost of stops (€ per hr)	Performance index (€ per hr)
08:15-09:15	Aexit	1	0	Unrestricted	476	Unrestricted	150	0.00	0.00	0.00	0.00	0.00	0.00
	Bexit	1	0	Unrestricted	495	Unrestricted	150	0.00	0.00	0.00	0.00	0.00	0.00
	Cexit	1	0	Unrestricted	433	Unrestricted	150	0.00	0.00	0.00	0.00	0.00	0.00
	Hexit	1	0	Unrestricted	216	Unrestricted	150	0.00	0.00	0.00	0.00	0.00	0.00
	A1	1	42	113	262	1856	48	24.97	6.12	204.09	25.80	2.55	28.36
		2	70	29	201	2055	20	75.51	8.71	290.38	59.87	2.60	62.46
	B1	1	47	93	202	1854	34	53.10	7.44	106.31	42.31	2.21	44.51
		2	55	63	214	2009	28	60.26	8.36	119.42	50.86	2.49	53.36
	C1	1	76	19	392	1895	40	60.43	16.06	267.68	93.44	4.78	98.22
		2	26	246	142	1998	40	43.80	4.66	77.68	24.53	1.39	25.92
	H1	1	66	37	118	1800	14	83.32	5.32	113.29	38.78	1.58	40.36
		2	44	106	89	1800	16	68.79	3.60	76.74	24.15	1.08	25.23
	H2	1	12	683	207	1800	150	0.13	0.01	0.02	0.11	0.00	0.11
	A3	1	23	285	463	1980	150	0.28	0.04	3.57	0.51	0.00	0.51
	B3	1	22	316	416	1925	150	0.26	0.03	1.71	0.42	0.00	0.42
	C3	1	28	223	534	1915	150	0.36	0.05	5.39	0.77	0.00	0.77

Traffic Stream Results: Flows and signals

Time Segment	Arm	Traffic Stream	Calculated flow entering (PCU/hr)	Calculated flow out (PCU/hr)	Flow discrepancy (PCU/hr)	Adjusted flow warning	Calculated sat flow	Calculated capacity	Degree of saturation (%)	DOS Threshold exceeded	Practical reserve capacity	Mean modulus of error	Actual green (s (per cycle))
08:15-09:15	Aexit	1	476	476	0		Unrestricted	Unrestricted	0		Unrestricted	0.46	150
	Bexit	1	495	495	0		Unrestricted	Unrestricted	0		Unrestricted	0.20	150
	Cexit	1	433	433	0		Unrestricted	Unrestricted	0		Unrestricted	1.30	150
	Hexit	1	216	216	0		Unrestricted	Unrestricted	0		Unrestricted	0.46	150
	A1	1	262	262	0		1856	619	42		113	0.00	48
		2	201	201	0		2055	288	70		29	0.00	20
	B1	1	202	202	0		1854	433	47		93	0.00	34
		2	214	214	0		2009	388	55		63	0.00	28
	C1	1	392	392	0		1895	518	76		19	0.00	40
		2	142	142	0		1998	546	26		246	0.00	40
	H1	1	118	118	0		1800	180	66		37	0.00	14
		2	89	89	0		1800	204	44		106	0.00	16
	H2	1	207	207	0		1800	1800	12		683	0.00	150
	A3	1	463	463	0		1980	1980	23		285	0.00	150
	B3	1	416	416	0		1925	1925	22		316	0.00	150
	C3	1	534	534	0		1915	1915	28		223	0.00	150

Traffic Stream Results: Stops and delays

Time Segment	Arm	Traffic Stream	Mean Cruise Time per Veh (s)	Mean Delay per Veh (s)	Total delay (PCU-hr/hr)	Weighted cost of delay (£ per hr)	Mean stops per Veh (%)	Total stops (Stops per hr)	Weighted cost of stops (£ per hr)
08:15-09:15	Aexit	1	79.43	0.00	0.00	0.00	0.00	0.00	0.00
	Bexit	1	130.20	0.00	0.00	0.00	0.00	0.00	0.00
	Cexit	1	2.16	0.00	0.00	0.00	0.00	0.00	0.00
	Hexit	1	123.58	0.00	0.00	0.00	0.00	0.00	0.00
	A1	1	1.80	24.97	1.82	25.80	77.77	203.77	2.55
		2	1.80	75.51	4.22	59.87	103.01	207.06	2.60
	B1	1	4.68	53.10	2.98	42.31	87.13	176.00	2.21
		2	4.68	60.26	3.58	50.86	92.83	198.66	2.49
	C1	1	3.00	60.43	6.58	93.44	97.15	380.84	4.78
		2	3.00	43.80	1.73	24.53	77.92	110.64	1.39
	H1	1	3.24	83.32	2.73	38.78	107.03	126.29	1.58
		2	3.24	68.79	1.70	24.15	96.33	85.74	1.08
	H2	1	25.39	0.13	0.01	0.11	0.00	0.00	0.00
	A3	1	1.00	0.28	0.04	0.51	0.00	0.00	0.00
	B3	1	1.20	0.26	0.03	0.42	0.00	0.00	0.00
	C3	1	1.00	0.36	0.05	0.77	0.00	0.00	0.00

Traffic Stream Results: Queues and blocking

Time Segment	Arm	Traffic Stream	Initial queue (PCU)	Mean max queue (PCU)	Max queue storage (PCU)	Utilised storage (%)	Excess queue penalty (£ per hr)	Wasted time total (s (per cycle))	Estimated blocking
08:15-09:15	Aexit	1	0.00	0.00	115.11	0.00	0.00	3.00	
	Bexit	1	0.00	0.00	188.69	0.00	0.00	0.00	
	Cexit	1	0.00	0.00	3.00	0.00	0.00	76.00	
	Hexit	1	0.00	0.00	179.09	0.00	0.00	0.00	
	A1	1	0.00	6.12	3.00	204.09	0.00	0.00	
		2	0.00	8.71	3.00	290.38	0.00	0.00	
	B1	1	0.00	7.44	7.00	106.31	0.00	0.00	
		2	0.00	8.36	7.00	119.42	0.00	0.00	
	C1	1	0.00	16.06	6.00	267.68	0.00	0.00	
		2	0.00	4.66	6.00	77.68	0.00	0.00	
	H1	1	0.00	5.32	4.70	113.29	0.00	0.00	
		2	0.00	3.60	4.70	76.74	0.00	0.00	
	H2	1	0.00	0.01	36.80	0.02	0.00	20.00	
	A3	1	0.00	0.04	1.00	3.57	0.00	103.00	
	B3	1	0.00	0.03	1.74	1.71	0.00	31.00	
	C3	1	0.00	0.05	1.00	5.39	0.00	93.00	

Final Prediction Table

Link Results

			SIGNALS		FLOWS		PERFORMANCE				PER PCU			QUEUES	WEIGH	
Link	Name	Traffic node	Controller stream	Phase	Calculated flow entering (PCU/hr)	Calculated sat flow (PCU/hr)	Actual green (s (per cycle))	Wasted time total (s (per cycle))	Degree of saturation (%)	Practical reserve capacity (%)	JourneyTime (s)	Mean Delay per Veh (s)	Mean stops per Veh (%)	Mean max queue (PCU)	Delay weighting (%)	w
Luas T	Luas	J1	1	H	30	1800	16	14.00	15	512	85.52	61.52	90.66	1.14	100	
Ped1	Ped1	J1	1	G	10	2500	2	2.00	20	350	84.30	81.42	103.06	0.43	100	
Ped2	Ped2	J1	1	G	10	2500	2	2.00	20	350	84.66	81.42	103.06	0.43	100	
Ped3	Ped3	J1	1	G	10	2500	2	2.00	20	350	83.46	81.42	103.06	0.43	100	
Ped8	Ped8	J1	1	G	10	2500	2	2.00	20	350	83.07	81.42	103.06	0.43	100	

Traffic Stream Results

				SIGNALS		FLOWS		PERFORMANCE				PER PCU			QUEUES
Arm	Traffic Stream	Name	Traffic node	Controller stream	Phase	Calculated flow entering (PCU/hr)	Calculated sat flow	Actual green (s (per cycle))	Wasted time total (s (per cycle))	Degree of saturation (%)	Practical reserve capacity	JourneyTime (s)	Mean Delay per Veh (s)	Mean stops per Veh (%)	Mean max queue (PCU)
Aexit	1	(untitled)				476	Unrestricted	150	3.00	0	Unrestricted	79.43	0.00	0.00	0.00
Bexit	1	(untitled)				495	Unrestricted	150	0.00	0	Unrestricted	130.20	0.00	0.00	0.00
Cexit	1	(untitled)				433	Unrestricted	150	76.00	0	Unrestricted	2.16	0.00	0.00	0.00
Hexit	1	(untitled)				216	Unrestricted	150	0.00	0	Unrestricted	123.58	0.00	0.00	0.00
A1	1		J1	1	B	262 <	1856	48	0.00	42	113	26.77	24.97	77.77	6.12 +
	2	(untitled)	J1	1	A	201 <	2055	20	0.00	70	29	77.31	75.51	103.01	8.71 +
B1	1	(untitled)	J1	1	D	202 <	1854	34	0.00	47	93	57.78	53.10	87.13	7.44 +
	2	(untitled)	J1	1	C	214 <	2009	28	0.00	55	63	64.94	60.26	92.83	8.36 +
C1	1	(untitled)	J1	1	F	392 <	1895	40	0.00	76	19	63.43	60.43	97.15	16.06 +
	2	(untitled)	J1	1	E	142	1998	40	0.00	26	246	46.80	43.80	77.92	4.66
H1	1	(untitled)	J1	1	J	118 <	1800	14	0.00	66	37	86.56	83.32	107.03	5.32 +
	2	(untitled)	J1	1	I	89	1800	16	0.00	44	106	72.03	68.79	96.33	3.60
H2	1	(untitled)	HH1			207	1800	150	20.00	12	683	25.52	0.13	0.00	0.01
A3	1	(untitled)	AA2			463	1980	150	103.00	23	285	1.28	0.28	0.00	0.04
B3	1	(untitled)	BB2			416	1925	150	31.00	22	316	1.46	0.26	0.00	0.03
C3	1	(untitled)	CC2			534	1915	150	93.00	28	223	1.36	0.36	0.00	0.05

Network Results

	Distance travelled (PCU-km/hr)	Time spent (PCU-hr/hr)	Mean journey speed (kph)	Total delay (PCU-hr/hr)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Excess queue penalty (£ per hr)	Performance Index (£ per hr)
Normal traffic	1180.40	65.75	17.95	26.37	374.40	19.19	0.00	393.58
Bus	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tram	3.00	0.71	4.21	0.51	7.28	0.09	0.00	7.36
Pedestrians								
TOTAL	1183.40	66.46	17.81	26.88	381.67	19.27	0.00	400.95

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

A4 - DS 2027 PM
D4 - DS 2027 PM*

Summary

Data Errors and Warnings

No errors or warnings

Run Summary

Analysis set used	Run start time	Run finish time	Modelling start time (HH:mm)	Network Cycle Time (s)	Performance Index (£ per hr)	Total network delay (PCU-hr/hr)	Highest DOS (%)	Item with highest DOS	Number of oversaturated items	Percentage of oversaturated items (%)	Item with worst signalised PRC	Item with worst unsignalised PRC	Ite wit wor ove PR
4	28/04/2021 12:52:52	28/04/2021 12:52:53	16:30	150	296.48	19.79	56.94	H1/1	0	0	H1/1	A3/1	H1/

Analysis Set Details

Name	Description	Demand set	Include in report	Locked
DS 2027 PM		D4	✓	

Demand Set Details

Name	Description	Composite	Demand sets	Start time (HH:mm)	Locked
DS 2027 PM				16:30	

Links

Links

Link	Name	Description	Traffic node	Length (m)	Has Saturation Flow	Use RR67	Saturation flow (PCU/hr)	Is signal controlled	Is give way	Traffic type	Is minor shared	Allow Nearside Turn On Red
Luas	Luas		J1	100.00	✓		1800	✓		Tram		
Ped1	Ped1		J1	24.00	✓		2500	✓		Normal		
Ped2	Ped2		J1	27.00	✓		2500	✓		Normal		
Ped3	Ped3		J1	17.00	✓		2500	✓		Normal		
Ped8	Ped8		J1	13.77	✓		2500	✓		Normal		

Modelling

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

Modelling - Normal traffic - Advanced

Link	Dispersion type for Normal Traffic	Initial queue (PCU)	Type of Vehicle-in-Service	Vehicle-in-Service	Type of random parameter	Random parameter	Auto cycle time	Cycle time
(ALL)	NetworkDefault	0.00	NetworkDefault	Not-Included	NetworkDefault	0.50	✓	150

Modelling - Trams - Advanced

Link	Dispersion type for trams	Use tram network default acceleration	Initial queue (PCU)	Type of Vehicle-in-Service	Vehicle-in-Service	Type of random parameter	Random parameter	Auto cycle time	Cycle time
Luas	NetworkDefault	✓	0.00	NetworkDefault	Not-Included	NetworkDefault	0.50	✓	150

Flows

Link	Total flow (Veh/hr)	PCU Factor
Luas	30	1.00
Ped1	10	1.00
Ped2	10	1.00
Ped3	10	1.00
Ped8	10	1.00

Flows - Advanced

Link	Detectors
(ALL)	

Signals

Link	Controller stream	Phase	Second phase enabled
Luas	1	H	
Ped1	1	G	
Ped2	1	G	
Ped3	1	G	
Ped8	1	G	

Arms and Traffic Streams

Arms

Arm	Name	Description	Traffic node
Aexit	(untitled)		
Bexit	(untitled)		
Cexit	(untitled)		
Hexit	(untitled)		
A1	Fortunestown Lane (East)		J1
B1	Fortunestown Lane (West)		J1
C1	Link Road		J1
H1	Citywest Ave Link Rd		J1
H2	Citywest Ave Link Rd		HH1
A3	Fortunestown Lane (East)		AA2
B3	Fortunestown Lane (West)		BB2
C3	Link Road		CC2

Traffic Streams

Arm	Traffic Stream	Name	Description	Auto length	Length (m)	Has Saturation Flow	Saturation flow source	Saturation flow (PCU/hr)	Is signal controlled	Is give way	Traffic type	Allow Nearside Turn On Red
Aexit	1	(untitled)		✓	661.88						Normal	
Bexit	1	(untitled)		✓	1084.96						Normal	
Cexit	1	(untitled)			18.00						Normal	
Hexit	1	(untitled)		✓	1029.80						Normal	
A1	1				15.00	✓	Sum of lanes	1856	✓		Normal	
	2	(untitled)			15.00	✓	Sum of lanes	2055	✓		Normal	
B1	1	(untitled)			39.00	✓	Sum of lanes	1854	✓		Normal	
	2	(untitled)			39.00	✓	Sum of lanes	2009	✓		Normal	
C1	1	(untitled)			25.00	✓	Sum of lanes	1895	✓		Normal	
	2	(untitled)			25.00	✓	Sum of lanes	1998	✓		Normal	
H1	1	(untitled)			27.00	✓	Sum of lanes	1800	✓		Normal	
	2	(untitled)			27.00	✓	Sum of lanes	1800	✓		Normal	
H2	1	(untitled)		✓	211.61	✓	Sum of lanes	1800			Normal	
A3	1	(untitled)			8.00	✓	Sum of lanes	1980			Normal	
B3	1	(untitled)			10.00	✓	Sum of lanes	1925			Normal	
C3	1	(untitled)			6.50	✓	Sum of lanes	1915			Normal	

Lanes

Arm	Traffic Stream	Lane	Name	Description	Use RR67	Surface condition	Site quality factor	Gradient (%)	Width (m)	Use connector turning radius	Proportion that turn (%)	Turning radius (m)	Nearside lane	Saturation flow (PCU/hr)
Aexit	1	1	(untitled)											
Bexit	1	1	(untitled)											
Cexit	1	1	(untitled)											
Hexit	1	1	(untitled)											
A1	1	1	Left Turn		✓	N/A	N/A	0	3.00		100	47.00	✓	1856
	2	1	Ahead & Right Turn		✓	N/A	N/A	0	3.00	✓	0	99999.00		2055
B1	1	1	Ahead & Left Turn		✓	N/A	N/A	0	3.10		100	39.00	✓	1854
	2	1	Right Turn		✓	N/A	N/A	0	3.10		100	53.50		2009
C1	1	1	Ahead & Left Turn		✓	N/A	N/A	0	3.30		100	56.50	✓	1895
	2	1	Right Turn		✓	N/A	N/A	0	3.00		100	53.00		1998
H1	1	1	Ahead & Left Turn											1800
	2	1	Right Turn											1800
H2	1	1	(untitled)											1800
A3	1	1	(untitled)		✓	N/A	N/A	0	3.65	✓	0	99999.00	✓	1980
B3	1	1	(untitled)		✓	N/A	N/A	0	3.10	✓	0	99999.00	✓	1925
C3	1	1	(untitled)		✓	N/A	N/A	0	3.00	✓	0	99999.00	✓	1915

Modelling

Arm	Traffic Stream	Traffic model	Stop weighting multiplier (%)	Delay weighting multiplier (%)	Assignment Cost Weighting (%)	Exclude from results calculation	Max queue storage (PCU)	Has queue limit	Has degree of saturation limit
Aexit	1	NetworkDefault	100	100	100		0.00		
Bexit	1	NetworkDefault	100	100	100		0.00		
Cexit	1	NetworkDefault	100	100	100		3.00		
Hexit	1	NetworkDefault	100	100	100		0.00		
A1	1	NetworkDefault	100	100	100		3.00		
	2	NetworkDefault	100	100	100		3.00		
B1	1	NetworkDefault	100	100	100		7.00		
	2	NetworkDefault	100	100	100		7.00		
C1	1	NetworkDefault	100	100	100		6.00		
	2	NetworkDefault	100	100	100		6.00		
H1	1	NetworkDefault	100	100	100		0.00		
	2	NetworkDefault	100	100	100		0.00		
H2	1	NetworkDefault	100	100	100		0.00		
A3	1	NetworkDefault	100	100	100		1.00		
B3	1	NetworkDefault	100	100	100		0.00		
C3	1	NetworkDefault	100	100	100		1.00		

Modelling - Advanced

Arm	Traffic Stream	Initial queue (PCU)	Type of Vehicle-in-Service	Vehicle-in-Service	Type of random parameter	Random parameter	Auto cycle time	Cycle time
(ALL)	(ALL)	0.00	NetworkDefault	Not-Included	NetworkDefault	0.50	✓	150

Normal traffic - Modelling

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

Normal traffic - Advanced

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

Flows

Arm	Traffic Stream	Total Flow (PCU/hr)	Normal Flow (PCU/hr)
Aexit	1	352	352
Bexit	1	591	591
Cexit	1	235	235
Hexit	1	202	202
A1	1	394	394
	2	91	91
B1	1	143	143
	2	245	245
C1	1	158	158
	2	72	72
H1	1	164	164
	2	113	113
H2	1	277	277
A3	1	485	485
B3	1	388	388
C3	1	230	230

Signals

Arm	Traffic Stream	Controller stream	Phase	Second phase enabled
A1	1	1	B	
	2	1	A	
B1	1	1	D	
	2	1	C	
C1	1	1	F	
	2	1	E	
H1	1	1	J	
	2	1	I	

Signal Timings

Network Default: 150s cycle time; 150 steps

Phases

Controller Stream	Phase	Name	Minimum green (s)	Maximum green (s)	Relative start displacement (s)	Relative end displacement (s)	Type
1	A	(untitled)	1	300	0	0	Indicative arrow
	B	(untitled)	1	300	0	0	Traffic
	C	(untitled)	1	300	0	0	Indicative arrow
	D	(untitled)	1	300	0	0	Traffic
	E	(untitled)	1	300	0	0	Indicative arrow
	F	(untitled)	1	300	0	0	Traffic
	G	(untitled)	1	300	0	0	Unknown
	H	(untitled)	1	300	0	0	Unknown
	I	(untitled)	1	300	0	0	Indicative arrow
	J	(untitled)	1	300	0	0	Traffic

Library Stages

Controller Stream	Library Stage	Phases in stage	User stage minimum (s)
1	1	B, C, H, I	1
	2	B, C, D	1
	3	B, A	1
	4	E, F	1
	5	G	1
	6	D, J	1

Stage Sequences

Controller Stream	Sequence	Name	Multiple cycling	Stage IDs	Stage ends
1	1	(untitled)	Single	5, 1, 2, 6, 4, 3	29, 64, 77, 106, 134, 14

Intergreen Matrix for Controller Stream 1

		To								
		A	B	C	D	E	F	G	H	I	J
From	A			6	6	6	6	14	6	6	6
	B					6	6	14			6
	C	6				6	6	14			6
	D	6				6	6	14	6	6	
	E	6	6	6	6			14	6	6	6
	F	6	6	6	6			14	6	6	6
	G	14	14	14	14	14	14		6	6	6
	H	6			6	6	6	6			6
	I	6			6	6	6	6			6
	J	6	6	6		6	6	6	6	6	

Interstage Matrix for Controller Stream 1

		To					
		1	2	3	4	5	6
From	1	0	6	6	6	14	6
	2	6	0	6	6	14	6
	3	6	6	0	6	14	6
	4	6	6	6	0	14	6
	5	14	14	14	14	0	14
	6	6	6	6	6	14	0

Resultant Stages

Controller Stream	Resultant Stage	Is base stage	Library Stage ID	Phases in this stage	Stage start (s)	Stage end (s)	Stage duration (s)	User stage minimum (s)	Stage minimum (s)
1	1	✓	5	G	28	29	1	1	1
	2	✓	1	B,C,H,I	43	64	21	1	1
	3	✓	2	B,C,D	70	77	7	1	1
	4	✓	6	D,J	83	106	23	1	1
	5	✓	4	E,F	112	134	22	1	1
	6	✓	3	B,A	140	14	24	1	1

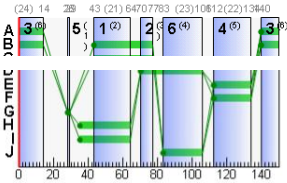
Resultant Phase Green Periods

Controller Stream	Phase	Green period	Is base green period	Start time (s)	End time (s)	Duration (s)
1	A	1	✓	140	14	24
	B	1	✓	43	77	34
		2	✓	140	14	24
	C	1	✓	43	77	34
	D	1	✓	70	106	36
	E	1	✓	112	134	22
	F	1	✓	112	134	22
	G	1	✓	28	29	1
	H	1	✓	35	64	29
	I	1	✓	35	64	29
	J	1	✓	83	106	23

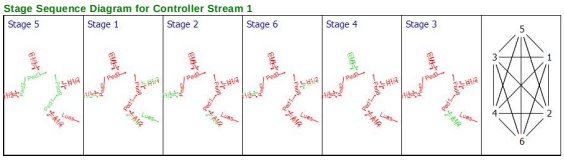
Traffic Stream Green Times

Arm	Traffic Stream	Traffic Node	Controller Stream	Phase	Green Period 1			Green Period 2		
					Start	End	Duration	Start	End	Duration
A1	1	J1	1	B	43	77	34	140	14	24
A1	2	J1	1	A	140	14	24			
B1	1	J1	1	D	70	106	36			
B1	2	J1	1	C	43	77	34			
C1	1	J1	1	F	112	134	22			
C1	2	J1	1	E	112	134	22			
H1	1	J1	1	J	83	106	23			
H1	2	J1	1	I	35	64	29			

Phase Timings Diagram for Controller Stream 1



Stage Sequence Diagram for Controller Stream 1



Link Results

Link Results: Vehicle summary

Time Segment	Link	Degree of saturation (%)	Practical reserve capacity (%)	Calculated flow entering (PCU/hr)	Calculated sat flow (PCU/hr)	Actual green (s (per cycle))	Mean Delay per Veh (s)	Mean max queue (PCU)	Utilised storage (%)	Weighted cost of delay (€ per hr)	Weighted cost of stops (€ per hr)	Performance Index (€ per hr)
16:30-17:30	Luas	8	980	30	1800	29	49.27	1.02	6.03	5.83	0.08	5.91
	Ped1	30	200	10	2500	1	95.96	0.47	8.39	3.78	0.14	3.93
	Ped2	30	200	10	2500	1	95.96	0.47	7.46	3.78	0.14	3.93
	Ped3	30	200	10	2500	1	95.96	0.47	11.85	3.78	0.14	3.93
	Ped8	30	200	10	2500	1	95.96	0.47	14.63	3.78	0.14	3.93

Link Results: Flows and signals

Time Segment	Link	Calculated flow entering (PCU/hr)	Calculated flow out (PCU/hr)	Flow discrepancy (PCU/hr)	Adjusted flow warning	Calculated sat flow (PCU/hr)	Calculated capacity (PCU/hr)	Degree of saturation (%)	DOS Threshold exceeded	Practical reserve capacity (%)	Mean modulus of error	Actual green (s (per cycle))
16:30-17:30	Luas	30	30	0		1800	360	8		980	0.00	29
	Ped1	10	10	0		2500	33	30		200	0.00	1
	Ped2	10	10	0		2500	33	30		200	0.00	1
	Ped3	10	10	0		2500	33	30		200	0.00	1
	Ped8	10	10	0		2500	33	30		200	0.00	1

Link Results: Stops and delays

Time Segment	Link	Mean Cruise Time per Veh (s)	Mean Delay per Veh (s)	Total delay (PCU-hr/hr)	Weighted cost of delay (€ per hr)	Mean stops per Veh (%)	Total stops (Stops per hr)	Weighted cost of stops (€ per hr)
16:30-17:30	Luas	24.00	49.27	0.41	5.83	81.19	24.36	0.08
	Ped1	2.88	95.96	0.27	3.78	112.30	11.23	0.14
	Ped2	3.24	95.96	0.27	3.78	112.30	11.23	0.14
	Ped3	2.04	95.96	0.27	3.78	112.30	11.23	0.14
	Ped8	1.65	95.96	0.27	3.78	112.30	11.23	0.14

Link Results: Queues and blocking

Time Segment	Link	Initial queue (PCU)	Mean max queue (PCU)	Max queue storage (PCU)	Utilised storage (%)	Excess queue penalty (€ per hr)	Wasted time total (s (per cycle))	Estimated blocking
16:30-17:30	Luas	0.00	1.02	16.92	6.03	0.00	27.00	
	Ped1	0.00	0.47	5.64	8.39	0.00	1.00	
	Ped2	0.00	0.47	6.35	7.46	0.00	1.00	
	Ped3	0.00	0.47	4.00	11.85	0.00	1.00	
	Ped8	0.00	0.47	3.24	14.63	0.00	1.00	

Traffic Stream Results

Traffic Stream Results: Vehicle summary

Time Segment	Arm	Traffic Stream	Degree of saturation (%)	Practical reserve capacity	Calculated flow entering (PCU/hr)	Calculated sat flow	Actual green (s (per cycle))	Mean Delay per Veh (s)	Mean max queue (PCU)	Utilised storage (%)	Weighted cost of delay (€ per hr)	Weighted cost of stops (€ per hr)	Performance Index (€ per hr)
16:30-17:30	Aexit	1	0	Unrestricted	352	Unrestricted	150	0.00	0.00	0.00	0.00	0.00	0.00
	Bexit	1	0	Unrestricted	591	Unrestricted	150	0.00	0.00	0.00	0.00	0.00	0.00
	Cexit	1	0	Unrestricted	235	Unrestricted	150	0.00	0.00	0.00	0.00	0.00	0.00
	Hexit	1	0	Unrestricted	202	Unrestricted	150	0.00	0.00	0.00	0.00	0.00	0.00
	A1	1	53	70	394	1856	58	22.32	8.84	294.51	34.69	3.80	38.49
		2	27	239	91	2055	24	56.41	3.33	111.14	20.25	0.99	21.24
	B1	1	31	188	143	1854	36	47.92	4.92	70.24	27.03	1.46	28.49
		2	52	72	245	2009	34	54.38	9.13	130.45	52.55	2.72	55.28
	C1	1	54	66	158	1895	22	65.95	6.38	106.28	41.10	1.90	43.00
		2	24	283	72	1998	22	57.59	2.66	44.27	16.36	0.79	17.15
	H1	1	57	58	164	1800	23	66.38	6.66	141.78	42.94	1.99	44.92
		2	31	187	113	1800	29	53.50	4.09	87.09	23.84	1.21	25.06
	H2	1	15	485	277	1800	150	0.18	0.01	0.04	0.20	0.00	0.20
	A3	1	24	267	485	1980	150	0.29	0.04	3.97	0.56	0.00	0.56
	B3	1	20	347	388	1925	150	0.24	0.03	1.46	0.36	0.00	0.36
	C3	1	12	649	230	1915	150	0.13	0.01	0.82	0.12	0.00	0.12

Traffic Stream Results: Flows and signals

Time Segment	Arm	Traffic Stream	Calculated flow entering (PCU/hr)	Calculated flow out (PCU/hr)	Flow discrepancy (PCU/hr)	Adjusted flow warning	Calculated sat flow	Calculated capacity	Degree of saturation (%)	DOS Threshold exceeded	Practical reserve capacity	Mean modulus of error	Actual green (s (per cycle))
16:30-17:30	Aexit	1	352	352	0		Unrestricted	Unrestricted	0		Unrestricted	0.59	150
	Bexit	1	591	591	0		Unrestricted	Unrestricted	0		Unrestricted	0.16	150
	Cexit	1	235	235	0		Unrestricted	Unrestricted	0		Unrestricted	1.31	150
	Hexit	1	202	202	0		Unrestricted	Unrestricted	0		Unrestricted	0.42	150
	A1	1	394	394	0		1856	742	53		70	0.00	58
		2	91	91	0		2055	343	27		239	0.00	24
	B1	1	143	143	0		1854	457	31		188	0.00	36
		2	245	245	0		2009	469	52		72	0.00	34
	C1	1	158	158	0		1895	291	54		66	0.00	22
		2	72	72	0		1998	306	24		283	0.00	22
	H1	1	164	164	0		1800	288	57		58	0.00	23
		2	113	113	0		1800	360	31		187	0.00	29
	H2	1	277	277	0		1800	1800	15		485	0.00	150
	A3	1	485	485	0		1980	1980	24		267	0.00	150
	B3	1	388	388	0		1925	1925	20		347	0.00	150
	C3	1	230	230	0		1915	1915	12		649	0.00	150

Traffic Stream Results: Stops and delays

Time Segment	Arm	Traffic Stream	Mean Cruise Time per Veh (s)	Mean Delay per Veh (s)	Total delay (PCU-hr/hr)	Weighted cost of delay (€ per hr)	Mean stops per Veh (%)	Total stops (Stops per hr)	Weighted cost of stops (€ per hr)
16:30-17:30	Aexit	1	79.43	0.00	0.00	0.00	0.00	0.00	0.00
	Bexit	1	130.20	0.00	0.00	0.00	0.00	0.00	0.00
	Cexit	1	2.16	0.00	0.00	0.00	0.00	0.00	0.00
	Hexit	1	123.58	0.00	0.00	0.00	0.00	0.00	0.00
	A1	1	1.80	22.32	2.44	34.69	76.97	303.25	3.80
		2	1.80	56.41	1.43	20.25	87.14	79.30	0.99
	B1	1	4.68	47.92	1.90	27.03	81.69	116.82	1.46
		2	4.68	54.38	3.70	52.55	88.63	217.14	2.72
	C1	1	3.00	65.95	2.89	41.10	95.99	151.66	1.90
		2	3.00	57.59	1.15	16.36	87.74	63.17	0.79
	H1	1	3.24	66.38	3.02	42.94	96.55	158.33	1.99
		2	3.24	53.50	1.68	23.84	85.60	96.73	1.21
	H2	1	25.39	0.18	0.01	0.20	0.00	0.00	0.00
	A3	1	1.00	0.29	0.04	0.56	0.00	0.00	0.00
	B3	1	1.20	0.24	0.03	0.36	0.00	0.00	0.00
	C3	1	1.00	0.13	0.01	0.12	0.00	0.00	0.00

Traffic Stream Results: Queues and blocking

Time Segment	Arm	Traffic Stream	Initial queue (PCU)	Mean max queue (PCU)	Max queue storage (PCU)	Utilised storage (%)	Excess queue penalty (₹ per hr)	Wasted time total (s (per cycle))	Estimated blocking
16:30-17:30	Aexit	1	0.00	0.00	115.11	0.00	0.00	21.00	
	Bexit	1	0.00	0.00	188.69	0.00	0.00	0.00	
	Cexit	1	0.00	0.00	3.00	0.00	0.00	81.00	
	Hexit	1	0.00	0.00	179.09	0.00	0.00	14.00	
	A1	1	0.00	8.84	3.00	294.51	0.00	0.00	
		2	0.00	3.33	3.00	111.14	0.00	0.00	
	B1	1	0.00	4.92	7.00	70.24	0.00	0.00	
		2	0.00	9.13	7.00	130.45	0.00	0.00	
	C1	1	0.00	6.38	6.00	106.28	0.00	0.00	
		2	0.00	2.66	6.00	44.27	0.00	0.00	
	H1	1	0.00	6.66	4.70	141.78	0.00	0.00	
		2	0.00	4.09	4.70	87.09	0.00	0.00	
	H2	1	0.00	0.01	36.80	0.04	0.00	44.00	
	A3	1	0.00	0.04	1.00	3.97	0.00	65.00	
	B3	1	0.00	0.03	1.74	1.46	0.00	32.00	
	C3	1	0.00	0.01	1.00	0.82	0.00	9.00	

Final Prediction Table

Link Results

			SIGNALS		FLOWS		PERFORMANCE				PER PCU			QUEUES	WEIGH	
Link	Name	Traffic node	Controller stream	Phase	Calculated flow entering (PCU/hr)	Calculated sat flow (PCU/hr)	Actual green (s (per cycle))	Wasted time total (s (per cycle))	Degree of saturation (%)	Practical reserve capacity (%)	JourneyTime (s)	Mean Delay per Veh (s)	Mean stops per Veh (%)	Mean max queue (PCU)	Delay weighting (%)	w
Luas T	Luas	J1	1	H	30	1800	29	27.00	8	980	73.27	49.27	81.19	1.02	100	
Ped1	Ped1	J1	1	G	10	2500	1	1.00	30	200	98.84	95.96	112.30	0.47	100	
Ped2	Ped2	J1	1	G	10	2500	1	1.00	30	200	99.20	95.96	112.30	0.47	100	
Ped3	Ped3	J1	1	G	10	2500	1	1.00	30	200	98.00	95.96	112.30	0.47	100	
Ped8	Ped8	J1	1	G	10	2500	1	1.00	30	200	97.61	95.96	112.30	0.47	100	

Traffic Stream Results

				SIGNALS		FLOWS		PERFORMANCE				PER PCU			QUEUES
Arm	Traffic Stream	Name	Traffic node	Controller stream	Phase	Calculated flow entering (PCU/hr)	Calculated sat flow	Actual green (s (per cycle))	Wasted time total (s (per cycle))	Degree of saturation (%)	Practical reserve capacity	JourneyTime (s)	Mean Delay per Veh (s)	Mean stops per Veh (%)	Mean max queue (PCU)
Aexit	1	(untitled)				352	Unrestricted	150	21.00	0	Unrestricted	79.43	0.00	0.00	0.00
Bexit	1	(untitled)				591	Unrestricted	150	0.00	0	Unrestricted	130.20	0.00	0.00	0.00
Cexit	1	(untitled)				235	Unrestricted	150	81.00	0	Unrestricted	2.16	0.00	0.00	0.00
Hexit	1	(untitled)				202	Unrestricted	150	14.00	0	Unrestricted	123.58	0.00	0.00	0.00
A1	1		J1	1	B	394 <	1856	58	0.00	53	70	24.12	22.32	76.97	8.84 +
	2	(untitled)	J1	1	A	91 <	2055	24	0.00	27	239	58.21	56.41	87.14	3.33 +
B1	1	(untitled)	J1	1	D	143	1854	36	0.00	31	188	52.60	47.92	81.69	4.92
	2	(untitled)	J1	1	C	245 <	2009	34	0.00	52	72	59.06	54.38	88.63	9.13 +
C1	1	(untitled)	J1	1	F	158 <	1895	22	0.00	54	66	68.95	65.95	95.99	6.38 +
	2	(untitled)	J1	1	E	72	1998	22	0.00	24	283	60.59	57.59	87.74	2.66
H1	1	(untitled)	J1	1	J	164 <	1800	23	0.00	57	58	69.62	66.38	96.55	6.66 +
	2	(untitled)	J1	1	I	113	1800	29	0.00	31	187	56.74	53.50	85.60	4.09
H2	1	(untitled)	HH1			277	1800	150	44.00	15	485	25.57	0.18	0.00	0.01
A3	1	(untitled)	AA2			485	1980	150	65.00	24	267	1.29	0.29	0.00	0.04
B3	1	(untitled)	BB2			388	1925	150	32.00	20	347	1.44	0.24	0.00	0.03
C3	1	(untitled)	CC2			230	1915	150	9.00	12	649	1.13	0.13	0.00	0.01

Network Results

	Distance travelled (PCU-km/hr)	Time spent (PCU-hr/hr)	Mean journey speed (kph)	Total delay (PCU-hr/hr)	Weighted cost of delay (₹ per hr)	Weighted cost of stops (₹ per hr)	Excess queue penalty (₹ per hr)	Performance Index (₹ per hr)
Normal traffic	1190.77	59.09	20.15	19.38	275.13	15.44	0.00	290.57
Bus	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tram	3.00	0.61	4.91	0.41	5.83	0.08	0.00	5.91
Pedestrians								
TOTAL	1193.77	59.70	20.00	19.79	280.96	15.52	0.00	296.48

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

A5 - DS 2037 AM
D5 - DS 2037 AM*

Summary

Data Errors and Warnings

No errors or warnings

Run Summary

Analysis set used	Run start time	Run finish time	Modelling start time (HH:mm)	Network Cycle Time (s)	Performance Index (₹ per hr)	Total network delay (PCU-hr/hr)	Highest DOS (%)	Item with highest DOS	Number of oversaturated items	Percentage of oversaturated items (%)	Item with worst signalised PRC	Item with worst unsignalised PRC	Ite wit wor over PR
5	28/04/2021 12:52:53	28/04/2021 12:52:54	08:15	150	430.79	28.89	78.00	C1/1	0	0	C1/1	C3/1	C1/

Analysis Set Details

Name	Description	Demand set	Include in report	Locked
DS 2037 AM		D5	✓	

Demand Set Details

Name	Description	Composite	Demand sets	Start time (HH:mm)	Locked
DS 2037 AM				08:15	

Links

Links

Link	Name	Description	Traffic node	Length (m)	Has Saturation Flow	Use RR67	Saturation flow (PCU/hr)	Is signal controlled	Is give way	Traffic type	Is minor shared	Allow Nearside Turn On Red
Luas	Luas		J1	100.00	✓		1800	✓		Tram		
Ped1	Ped1		J1	24.00	✓		2500	✓		Normal		
Ped2	Ped2		J1	27.00	✓		2500	✓		Normal		
Ped3	Ped3		J1	17.00	✓		2500	✓		Normal		
Ped8	Ped8		J1	13.77	✓		2500	✓		Normal		

Modelling

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

Modelling - Normal traffic - Advanced

Link	Dispersion type for Normal Traffic	Initial queue (PCU)	Type of Vehicle-in-Service	Vehicle-in-Service	Type of random parameter	Random parameter	Auto cycle time	Cycle time
(ALL)	NetworkDefault	0.00	NetworkDefault	Not-Included	NetworkDefault	0.50	✓	150

Modelling - Trams - Advanced

Link	Dispersion type for trams	Use tram network default acceleration	Initial queue (PCU)	Type of Vehicle-in-Service	Vehicle-in-Service	Type of random parameter	Random parameter	Auto cycle time	Cycle time
Luas	NetworkDefault	✓	0.00	NetworkDefault	Not-Included	NetworkDefault	0.50	✓	150

Flows

Link	Total flow (Veh/hr)	PCU Factor
Luas	30	1.00
Ped1	10	1.00
Ped2	10	1.00
Ped3	10	1.00
Ped8	10	1.00

Flows - Advanced

Link	Detectors
(ALL)	

Signals

Link	Controller stream	Phase	Second phase enabled
Luas	1	H	
Ped1	1	G	
Ped2	1	G	
Ped3	1	G	
Ped8	1	G	

Arms and Traffic Streams

Arms

Arm	Name	Description	Traffic node
Aexit	(untitled)		
Bexit	(untitled)		
Cexit	(untitled)		
Hexit	(untitled)		
A1	Fortunestown Lane (East)		J1
B1	Fortunestown Lane (West)		J1
C1	Link Road		J1
H1	Citywest Ave Link Rd		J1
H2	Citywest Ave Link Rd		HH1
A3	Fortunestown Lane (East)		AA2
B3	Fortunestown Lane (West)		BB2
C3	Link Road		CC2

Traffic Streams

Arm	Traffic Stream	Name	Description	Auto length	Length (m)	Has Saturation Flow	Saturation flow source	Saturation flow (PCU/hr)	Is signal controlled	Is give way	Traffic type	Allow Nearside Turn On Red
Aexit	1	(untitled)		✓	661.88						Normal	
Bexit	1	(untitled)		✓	1084.96						Normal	
Cexit	1	(untitled)			18.00						Normal	
Hexit	1	(untitled)		✓	1029.80						Normal	
A1	1				15.00	✓	Sum of lanes	1856	✓		Normal	
	2	(untitled)			15.00	✓	Sum of lanes	2055	✓		Normal	
B1	1	(untitled)			39.00	✓	Sum of lanes	1854	✓		Normal	
	2	(untitled)			39.00	✓	Sum of lanes	2009	✓		Normal	
C1	1	(untitled)			25.00	✓	Sum of lanes	1895	✓		Normal	
	2	(untitled)			25.00	✓	Sum of lanes	1998	✓		Normal	
H1	1	(untitled)			27.00	✓	Sum of lanes	1800	✓		Normal	
	2	(untitled)			27.00	✓	Sum of lanes	1800	✓		Normal	
H2	1	(untitled)		✓	211.61	✓	Sum of lanes	1800			Normal	
A3	1	(untitled)			8.00	✓	Sum of lanes	1980			Normal	
B3	1	(untitled)			10.00	✓	Sum of lanes	1925			Normal	
C3	1	(untitled)			6.50	✓	Sum of lanes	1915			Normal	

Lanes

Arm	Traffic Stream	Lane	Name	Description	Use RR67	Surface condition	Site quality factor	Gradient (%)	Width (m)	Use connector turning radius	Proportion that turn (%)	Turning radius (m)	Nearside lane	Saturation flow (PCU/hr)
Aexit	1	1	(untitled)											
Bexit	1	1	(untitled)											
Cexit	1	1	(untitled)											
Hexit	1	1	(untitled)											
A1	1	1	Left Turn		✓	N/A	N/A	0	3.00		100	47.00	✓	1856
	2	1	Ahead & Right Turn		✓	N/A	N/A	0	3.00	✓	0	99999.00		2055
B1	1	1	Ahead & Left Turn		✓	N/A	N/A	0	3.10		100	39.00	✓	1854
	2	1	Right Turn		✓	N/A	N/A	0	3.10		100	53.50		2009
C1	1	1	Ahead & Left Turn		✓	N/A	N/A	0	3.30		100	56.50	✓	1895
	2	1	Right Turn		✓	N/A	N/A	0	3.00		100	53.00		1998
H1	1	1	Ahead & Left Turn											1800
	2	1	Right Turn											1800
H2	1	1	(untitled)											1800
A3	1	1	(untitled)		✓	N/A	N/A	0	3.65	✓	0	99999.00	✓	1980
B3	1	1	(untitled)		✓	N/A	N/A	0	3.10	✓	0	99999.00	✓	1925
C3	1	1	(untitled)		✓	N/A	N/A	0	3.00	✓	0	99999.00	✓	1915

Modelling

Arm	Traffic Stream	Traffic model	Stop weighting multiplier (%)	Delay weighting multiplier (%)	Assignment Cost Weighting (%)	Exclude from results calculation	Max queue storage (PCU)	Has queue limit	Has degree of saturation limit
Aexit	1	NetworkDefault	100	100	100		0.00		
Bexit	1	NetworkDefault	100	100	100		0.00		
Cexit	1	NetworkDefault	100	100	100		3.00		
Hexit	1	NetworkDefault	100	100	100		0.00		
A1	1	NetworkDefault	100	100	100		3.00		
	2	NetworkDefault	100	100	100		3.00		
B1	1	NetworkDefault	100	100	100		7.00		
	2	NetworkDefault	100	100	100		7.00		
C1	1	NetworkDefault	100	100	100		6.00		
	2	NetworkDefault	100	100	100		6.00		
H1	1	NetworkDefault	100	100	100		0.00		
	2	NetworkDefault	100	100	100		0.00		
H2	1	NetworkDefault	100	100	100		0.00		
A3	1	NetworkDefault	100	100	100		1.00		
B3	1	NetworkDefault	100	100	100		0.00		
C3	1	NetworkDefault	100	100	100		1.00		

Modelling - Advanced

Arm	Traffic Stream	Initial queue (PCU)	Type of Vehicle-in-Service	Vehicle-in-Service	Type of random parameter	Random parameter	Auto cycle time	Cycle time
(ALL)	(ALL)	0.00	NetworkDefault	Not-Included	NetworkDefault	0.50	✓	150

Normal traffic - Modelling

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

Normal traffic - Advanced

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

Flows

Arm	Traffic Stream	Total Flow (PCU/hr)	Normal Flow (PCU/hr)
Aexit	1	504	504
Bexit	1	525	525
Cexit	1	458	458
Hexit	1	220	220
A1	1	279	279
	2	214	214
B1	1	215	215
	2	230	230
C1	1	404	404
	2	152	152
H1	1	122	122
	2	91	91
H2	1	213	213
A3	1	493	493
B3	1	445	445
C3	1	556	556

Signals

Arm	Traffic Stream	Controller stream	Phase	Second phase enabled
A1	1	1	B	
	2	1	A	
B1	1	1	D	
	2	1	C	
C1	1	1	F	
	2	1	E	
H1	1	1	J	
	2	1	I	

Signal Timings

Network Default: 150s cycle time; 150 steps

Phases

Controller Stream	Phase	Name	Minimum green (s)	Maximum green (s)	Relative start displacement (s)	Relative end displacement (s)	Type
1	A	(untitled)	1	300	0	0	Indicative arrow
	B	(untitled)	1	300	0	0	Traffic
	C	(untitled)	1	300	0	0	Indicative arrow
	D	(untitled)	1	300	0	0	Traffic
	E	(untitled)	7	300	0	0	Indicative arrow
	F	(untitled)	7	300	0	0	Traffic
	G	(untitled)	1	300	0	0	Unknown
	H	(untitled)	1	300	0	0	Unknown
	I	(untitled)	1	300	0	0	Indicative arrow
	J	(untitled)	1	300	0	0	Traffic

Library Stages

Controller Stream	Library Stage	Phases in stage	User stage minimum (s)
1	1	B, C, H, I	2
	2	C, D, B	1
	3	A, B	1
	4	E, F	1
	5	G	1
	6	D, J	1

Stage Sequences

Controller Stream	Sequence	Name	Multiple cycling	Stage IDs	Stage ends
1	1	(untitled)	Single	5, 1, 2, 6, 4, 3	30, 51, 72, 92, 138, 14

Intergreen Matrix for Controller Stream 1

		To								
		A	B	C	D	E	F	G	H	I	J
From	A			6	6	6	6	14	6	6	6
	B					6	6	14			6
	C	6				6	6	14			6
	D	6				6	6	14	6	6	
	E	6	6	6	6			14	6	6	6
	F	6	6	6	6			14	6	6	6
	G	14	14	14	14	14	14		6	6	6
	H	6			6	6	6	6			6
	I	6			6	6	6	6			6
	J	6	6	6		6	6	6	6	6	

Interstage Matrix for Controller Stream 1

		To					
		1	2	3	4	5	6
From	1	0	6	6	6	14	6
	2	6	0	6	6	14	6
	3	6	6	0	6	14	6
	4	6	6	6	0	14	6
	5	14	14	14	14	0	14
	6	6	6	6	6	14	0

Resultant Stages

Controller Stream	Resultant Stage	Is base stage	Library Stage ID	Phases in this stage	Stage start (s)	Stage end (s)	Stage duration (s)	User stage minimum (s)	Stage minimum (s)
1	1	✓	5	G	28	30	2	1	1
	2	✓	1	B,C,H,I	44	51	7	2	2
	3	✓	2	C,D,B	57	72	15	1	1
	4	✓	6	D,J	78	92	14	1	1
	5	✓	4	E,F	98	138	40	1	7
	6	✓	3	A,B	144	14	20	1	1

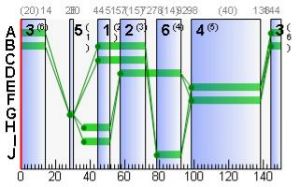
Resultant Phase Green Periods

Controller Stream	Phase	Green period	Is base green period	Start time (s)	End time (s)	Duration (s)
1	A	1	✓	144	14	20
	B	1	✓	44	72	28
		2	✓	144	14	20
	C	1	✓	44	72	28
	D	1	✓	57	92	35
	E	1	✓	98	138	40
	F	1	✓	98	138	40
	G	1	✓	28	30	2
	H	1	✓	36	51	15
	I	1	✓	36	51	15
	J	1	✓	78	92	14

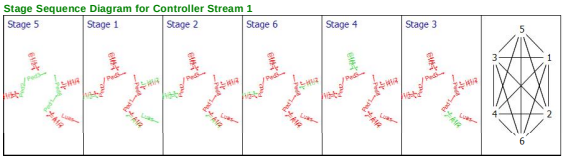
Traffic Stream Green Times

Arm	Traffic Stream	Traffic Node	Controller Stream	Phase	Green Period 1			Green Period 2		
					Start	End	Duration	Start	End	Duration
A1	1	J1	1	B	44	72	28	144	14	20
A1	2	J1	1	A	144	14	20			
B1	1	J1	1	D	57	92	35			
B1	2	J1	1	C	44	72	28			
C1	1	J1	1	F	98	138	40			
C1	2	J1	1	E	98	138	40			
H1	1	J1	1	J	78	92	14			
H1	2	J1	1	I	36	51	15			

Phase Timings Diagram for Controller Stream 1



Stage Sequence Diagram for Controller Stream 1



Link Results

Link Results: Vehicle summary

Time Segment	Link	Degree of saturation (%)	Practical reserve capacity (%)	Calculated flow entering (PCU/hr)	Calculated sat flow (PCU/hr)	Actual green (s (per cycle))	Mean Delay per Veh (s)	Mean max queue (PCU)	Utilised storage (%)	Weighted cost of delay (€ per hr)	Weighted cost of stops (€ per hr)	Performance Index (€ per hr)
08:15-09:15	Luas	16	476	30	1800	15	62.64	1.15	6.78	7.41	0.09	7.50
	Ped1	20	350	10	2500	2	81.42	0.43	7.68	3.21	0.13	3.34
	Ped2	20	350	10	2500	2	81.42	0.43	6.82	3.21	0.13	3.34
	Ped3	20	350	10	2500	2	81.42	0.43	10.84	3.21	0.13	3.34
	Ped8	20	350	10	2500	2	81.42	0.43	13.38	3.21	0.13	3.34

Link Results: Flows and signals

Time Segment	Link	Calculated flow entering (PCU/hr)	Calculated flow out (PCU/hr)	Flow discrepancy (PCU/hr)	Adjusted flow warning	Calculated sat flow (PCU/hr)	Calculated capacity (PCU/hr)	Degree of saturation (%)	DOS Threshold exceeded	Practical reserve capacity (%)	Mean modulus of error	Actual green (s (per cycle))
08:15-09:15	Luas	30	30	0		1800	192	16		476	0.00	15
	Ped1	10	10	0		2500	50	20		350	0.00	2
	Ped2	10	10	0		2500	50	20		350	0.00	2
	Ped3	10	10	0		2500	50	20		350	0.00	2
	Ped8	10	10	0		2500	50	20		350	0.00	2

Link Results: Stops and delays

Time Segment	Link	Mean Cruise Time per Veh (s)	Mean Delay per Veh (s)	Total delay (PCU-hr/hr)	Weighted cost of delay (€ per hr)	Mean stops per Veh (%)	Total stops (Stops per hr)	Weighted cost of stops (€ per hr)
08:15-09:15	Luas	24.00	62.64	0.52	7.41	91.47	27.44	0.09
	Ped1	2.88	81.42	0.23	3.21	103.06	10.31	0.13
	Ped2	3.24	81.42	0.23	3.21	103.06	10.31	0.13
	Ped3	2.04	81.42	0.23	3.21	103.06	10.31	0.13
	Ped8	1.65	81.42	0.23	3.21	103.06	10.31	0.13

Link Results: Queues and blocking

Time Segment	Link	Initial queue (PCU)	Mean max queue (PCU)	Max queue storage (PCU)	Utilised storage (%)	Excess queue penalty (€ per hr)	Wasted time total (s (per cycle))	Estimated blocking
08:15-09:15	Luas	0.00	1.15	16.92	6.78	0.00	13.00	
	Ped1	0.00	0.43	5.64	7.68	0.00	2.00	
	Ped2	0.00	0.43	6.35	6.82	0.00	2.00	
	Ped3	0.00	0.43	4.00	10.84	0.00	2.00	
	Ped8	0.00	0.43	3.24	13.38	0.00	2.00	

Traffic Stream Results

Traffic Stream Results: Vehicle summary

Time Segment	Arm	Traffic Stream	Degree of saturation (%)	Practical reserve capacity	Calculated flow entering (PCU/hr)	Calculated sat flow	Actual green (s (per cycle))	Mean Delay per Veh (s)	Mean max queue (PCU)	Utilised storage (%)	Weighted cost of delay (€ per hr)	Weighted cost of stops (€ per hr)	Performance Index (€ per hr)
08:15-09:15	Aexit	1	0	Unrestricted	504	Unrestricted	150	0.00	0.00	0.00	0.00	0.00	0.00
	Bexit	1	0	Unrestricted	525	Unrestricted	150	0.00	0.00	0.00	0.00	0.00	0.00
	Cexit	1	0	Unrestricted	458	Unrestricted	150	0.00	0.00	0.00	0.00	0.00	0.00
	Hexit	1	0	Unrestricted	220	Unrestricted	150	0.00	0.00	0.00	0.00	0.00	0.00
	A1	1	45	100	279	1856	48	25.46	6.62	220.57	28.02	2.76	30.79
		2	74	21	214	2055	20	79.25	9.53	317.70	66.90	2.84	69.74
	B1	1	48	86	215	1854	35	52.76	7.87	112.41	44.75	2.35	47.09
		2	59	52	230	2009	28	61.76	9.11	130.19	56.03	2.72	58.75
	C1	1	78	15	404	1895	40	62.22	16.82	280.33	99.15	5.00	104.15
		2	28	223	152	1998	40	44.13	4.99	83.23	26.46	1.49	27.95
	H1	1	68	33	122	1800	14	85.27	5.56	118.43	41.03	1.65	42.69
		2	47	90	91	1800	15	71.38	3.77	80.39	25.62	1.12	26.75
	H2	1	12	661	213	1800	150	0.13	0.01	0.02	0.11	0.00	0.11
	A3	1	25	261	493	1980	150	0.30	0.04	4.13	0.59	0.00	0.59
	B3	1	23	289	445	1925	150	0.28	0.03	2.00	0.49	0.00	0.49
	C3	1	29	210	556	1915	150	0.38	0.06	5.94	0.84	0.00	0.84

Traffic Stream Results: Flows and signals

Time Segment	Arm	Traffic Stream	Calculated flow entering (PCU/hr)	Calculated flow out (PCU/hr)	Flow discrepancy (PCU/hr)	Adjusted flow warning	Calculated sat flow	Calculated capacity	Degree of saturation (%)	DOS Threshold exceeded	Practical reserve capacity	Mean modulus of error	Actual green (s (per cycle))
08:15-09:15	Aexit	1	504	504	0		Unrestricted	Unrestricted	0		Unrestricted	0.46	150
	Bexit	1	525	525	0		Unrestricted	Unrestricted	0		Unrestricted	0.19	150
	Cexit	1	458	458	0		Unrestricted	Unrestricted	0		Unrestricted	1.28	150
	Hexit	1	220	220	0		Unrestricted	Unrestricted	0		Unrestricted	0.45	150
	A1	1	279	279	0		1856	619	45		100	0.00	48
		2	214	214	0		2055	288	74		21	0.00	20
	B1	1	215	215	0		1854	445	48		86	0.00	35
		2	230	230	0		2009	388	59		52	0.00	28
	C1	1	404	404	0		1895	518	78		15	0.00	40
		2	152	152	0		1998	546	28		223	0.00	40
	H1	1	122	122	0		1800	180	68		33	0.00	14
		2	91	91	0		1800	192	47		90	0.00	15
	H2	1	213	213	0		1800	1800	12		661	0.00	150
	A3	1	493	493	0		1980	1980	25		261	0.00	150
	B3	1	445	445	0		1925	1925	23		289	0.00	150
	C3	1	556	556	0		1915	1915	29		210	0.00	150

Traffic Stream Results: Stops and delays

Time Segment	Arm	Traffic Stream	Mean Cruise Time per Veh (s)	Mean Delay per Veh (s)	Total delay (PCU-hr/hr)	Weighted cost of delay (€ per hr)	Mean stops per Veh (%)	Total stops (Stops per hr)	Weighted cost of stops (€ per hr)
08:15-09:15	Aexit	1	79.43	0.00	0.00	0.00	0.00	0.00	0.00
	Bexit	1	130.20	0.00	0.00	0.00	0.00	0.00	0.00
	Cexit	1	2.16	0.00	0.00	0.00	0.00	0.00	0.00
	Hexit	1	123.58	0.00	0.00	0.00	0.00	0.00	0.00
	A1	1	1.80	25.46	1.97	28.02	79.04	220.51	2.76
		2	1.80	79.25	4.71	66.90	105.77	226.35	2.84
	B1	1	4.68	52.76	3.15	44.75	87.03	187.10	2.35
		2	4.68	61.76	3.95	56.03	94.21	216.68	2.72
	C1	1	3.00	62.22	6.98	99.15	98.75	398.94	5.00
		2	3.00	44.13	1.86	26.46	78.06	118.64	1.49
	H1	1	3.24	85.27	2.89	41.03	108.17	131.97	1.65
		2	3.24	71.38	1.80	25.62	98.53	89.67	1.12
	H2	1	25.39	0.13	0.01	0.11	0.00	0.00	0.00
	A3	1	1.00	0.30	0.04	0.59	0.00	0.00	0.00
	B3	1	1.20	0.28	0.03	0.49	0.00	0.00	0.00
	C3	1	1.00	0.38	0.06	0.84	0.00	0.00	0.00

Traffic Stream Results: Queues and blocking

Time Segment	Arm	Traffic Stream	Initial queue (PCU)	Mean max queue (PCU)	Max queue storage (PCU)	Utilised storage (%)	Excess queue penalty (€ per hr)	Wasted time total (s (per cycle))	Estimated blocking
08:15-09:15	Aexit	1	0.00	0.00	115.11	0.00	0.00	1.00	
	Bexit	1	0.00	0.00	188.69	0.00	0.00	0.00	
	Cexit	1	0.00	0.00	3.00	0.00	0.00	75.00	
	Hexit	1	0.00	0.00	179.09	0.00	0.00	0.00	
	A1	1	0.00	6.62	3.00	220.57	0.00	0.00	
		2	0.00	9.53	3.00	317.70	0.00	0.00	
	B1	1	0.00	7.87	7.00	112.41	0.00	0.00	
		2	0.00	9.11	7.00	130.19	0.00	0.00	
	C1	1	0.00	16.82	6.00	280.33	0.00	0.00	
		2	0.00	4.99	6.00	83.23	0.00	0.00	
	H1	1	0.00	5.56	4.70	118.43	0.00	0.00	
		2	0.00	3.77	4.70	80.39	0.00	0.00	
	H2	1	0.00	0.01	36.80	0.02	0.00	26.00	
	A3	1	0.00	0.04	1.00	4.13	0.00	110.00	
	B3	1	0.00	0.03	1.74	2.00	0.00	46.00	
	C3	1	0.00	0.06	1.00	5.94	0.00	97.00	

Final Prediction Table

Link Results

			SIGNALS		FLOWS		PERFORMANCE				PER PCU			QUEUES	WEIGH	
Link	Name	Traffic node	Controller stream	Phase	Calculated flow entering (PCU/hr)	Calculated sat flow (PCU/hr)	Actual green (s (per cycle))	Wasted time total (s (per cycle))	Degree of saturation (%)	Practical reserve capacity (%)	JourneyTime (s)	Mean Delay per Veh (s)	Mean stops per Veh (%)	Mean max queue (PCU)	Delay weighting (%)	w
Luas T	Luas	J1	1	H	30	1800	15	13.00	16	476	86.64	62.64	91.47	1.15	100	
Ped1	Ped1	J1	1	G	10	2500	2	2.00	20	350	84.30	81.42	103.06	0.43	100	
Ped2	Ped2	J1	1	G	10	2500	2	2.00	20	350	84.66	81.42	103.06	0.43	100	
Ped3	Ped3	J1	1	G	10	2500	2	2.00	20	350	83.46	81.42	103.06	0.43	100	
Ped8	Ped8	J1	1	G	10	2500	2	2.00	20	350	83.07	81.42	103.06	0.43	100	

Traffic Stream Results

				SIGNALS		FLOWS		PERFORMANCE				PER PCU			QUEUES
Arm	Traffic Stream	Name	Traffic node	Controller stream	Phase	Calculated flow entering (PCU/hr)	Calculated sat flow	Actual green (s (per cycle))	Wasted time total (s (per cycle))	Degree of saturation (%)	Practical reserve capacity	JourneyTime (s)	Mean Delay per Veh (s)	Mean stops per Veh (%)	Mean max queue (PCU)
Aexit	1	(untitled)				504	Unrestricted	150	1.00	0	Unrestricted	79.43	0.00	0.00	0.00
Bexit	1	(untitled)				525	Unrestricted	150	0.00	0	Unrestricted	130.20	0.00	0.00	0.00
Cexit	1	(untitled)				458	Unrestricted	150	75.00	0	Unrestricted	2.16	0.00	0.00	0.00
Hexit	1	(untitled)				220	Unrestricted	150	0.00	0	Unrestricted	123.58	0.00	0.00	0.00
A1	1		J1	1	B	279 <	1856	48	0.00	45	100	27.26	25.46	79.04	6.62 +
	2	(untitled)	J1	1	A	214 <	2055	20	0.00	74	21	81.05	79.25	105.77	9.53 +
B1	1	(untitled)	J1	1	D	215 <	1854	35	0.00	48	86	57.44	52.76	87.03	7.87 +
	2	(untitled)	J1	1	C	230 <	2009	28	0.00	59	52	66.44	61.76	94.21	9.11 +
C1	1	(untitled)	J1	1	F	404 <	1895	40	0.00	78	15	65.22	62.22	98.75	16.82 +
	2	(untitled)	J1	1	E	152	1998	40	0.00	28	223	47.13	44.13	78.06	4.99
H1	1	(untitled)	J1	1	J	122 <	1800	14	0.00	68	33	88.51	85.27	108.17	5.56 +
	2	(untitled)	J1	1	I	91	1800	15	0.00	47	90	74.62	71.38	98.53	3.77
H2	1	(untitled)	HH1			213	1800	150	26.00	12	661	25.53	0.13	0.00	0.01
A3	1	(untitled)	AA2			493	1980	150	110.00	25	261	1.30	0.30	0.00	0.04
B3	1	(untitled)	BB2			445	1925	150	46.00	23	289	1.48	0.28	0.00	0.03
C3	1	(untitled)	CC2			556	1915	150	97.00	29	210	1.38	0.38	0.00	0.06

Network Results

	Distance travelled (PCU-km/hr)	Time spent (PCU-hr/hr)	Mean journey speed (kph)	Total delay (PCU-hr/hr)	Weighted cost of delay (€ per hr)	Weighted cost of stops (€ per hr)	Excess queue penalty (€ per hr)	Performance Index (€ per hr)
Normal traffic	1240.29	69.75	17.78	28.37	402.84	20.45	0.00	423.29
Bus	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tram	3.00	0.72	4.16	0.52	7.41	0.09	0.00	7.50
Pedestrians								
TOTAL	1243.29	70.47	17.64	28.89	410.25	20.54	0.00	430.79

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

A6 - DS 2037 PM
D6 - DS 2037 PM*

Summary

Data Errors and Warnings

No errors or warnings

Run Summary

Analysis set used	Run start time	Run finish time	Modelling start time (HH:mm)	Network Cycle Time (s)	Performance Index (€ per hr)	Total network delay (PCU-hr/hr)	Highest DOS (%)	Item with highest DOS	Number of oversaturated items	Percentage of oversaturated items (%)	Item with worst signalised PRC	Item with worst unsignalised PRC	Ite wit wor over PR
6	28/04/2021 12:52:55	28/04/2021 12:52:56	16:30	150	310.62	20.72	59.03	H1/1	0	0	H1/1	A3/1	H1/

Analysis Set Details

Name	Description	Demand set	Include in report	Locked
DS 2037 PM		D6	✓	

Demand Set Details

Name	Description	Composite	Demand sets	Start time (HH:mm)	Locked
DS 2037 PM				16:30	

Links

Links

Link	Name	Description	Traffic node	Length (m)	Has Saturation Flow	Use RR67	Saturation flow (PCU/hr)	Is signal controlled	Is give way	Traffic type	Is minor shared	Allow Nearside Turn On Red
Luas	Luas		J1	100.00	✓		1800	✓		Tram		
Ped1	Ped1		J1	24.00	✓		2500	✓		Normal		
Ped2	Ped2		J1	27.00	✓		2500	✓		Normal		
Ped3	Ped3		J1	17.00	✓		2500	✓		Normal		
Ped8	Ped8		J1	13.77	✓		2500	✓		Normal		

Modelling

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

Modelling - Normal traffic - Advanced

Link	Dispersion type for Normal Traffic	Initial queue (PCU)	Type of Vehicle-in-Service	Vehicle-in-Service	Type of random parameter	Random parameter	Auto cycle time	Cycle time
(ALL)	NetworkDefault	0.00	NetworkDefault	Not-Included	NetworkDefault	0.50	✓	150

Modelling - Trams - Advanced

Link	Dispersion type for trams	Use tram network default acceleration	Initial queue (PCU)	Type of Vehicle-in-Service	Vehicle-in-Service	Type of random parameter	Random parameter	Auto cycle time	Cycle time
Luas	NetworkDefault	✓	0.00	NetworkDefault	Not-Included	NetworkDefault	0.50	✓	150

Flows

Link	Total flow (Veh/hr)	PCU Factor
Luas	30	1.00
Ped1	10	1.00
Ped2	10	1.00
Ped3	10	1.00
Ped8	10	1.00

Flows - Advanced

Link	Detectors
(ALL)	

Signals

Link	Controller stream	Phase	Second phase enabled
Luas	1	H	
Ped1	1	G	
Ped2	1	G	
Ped3	1	G	
Ped8	1	G	

Arms and Traffic Streams

Arms

Arm	Name	Description	Traffic node
Aexit	(untitled)		
Bexit	(untitled)		
Cexit	(untitled)		
Hexit	(untitled)		
A1	Fortunestown Lane (East)		J1
B1	Fortunestown Lane (West)		J1
C1	Link Road		J1
H1	Citywest Ave Link Rd		J1
H2	Citywest Ave Link Rd		HH1
A3	Fortunestown Lane (East)		AA2
B3	Fortunestown Lane (West)		BB2
C3	Link Road		CC2

Traffic Streams

Arm	Traffic Stream	Name	Description	Auto length	Length (m)	Has Saturation Flow	Saturation flow source	Saturation flow (PCU/hr)	Is signal controlled	Is give way	Traffic type	Allow Nearside Turn On Red
Aexit	1	(untitled)		✓	661.88						Normal	
Bexit	1	(untitled)		✓	1084.96						Normal	
Cexit	1	(untitled)			18.00						Normal	
Hexit	1	(untitled)		✓	1029.80						Normal	
A1	1				15.00	✓	Sum of lanes	1856	✓		Normal	
	2	(untitled)			15.00	✓	Sum of lanes	2055	✓		Normal	
B1	1	(untitled)			39.00	✓	Sum of lanes	1854	✓		Normal	
	2	(untitled)			39.00	✓	Sum of lanes	2009	✓		Normal	
C1	1	(untitled)			25.00	✓	Sum of lanes	1895	✓		Normal	
	2	(untitled)			25.00	✓	Sum of lanes	1998	✓		Normal	
H1	1	(untitled)			27.00	✓	Sum of lanes	1800	✓		Normal	
	2	(untitled)			27.00	✓	Sum of lanes	1800	✓		Normal	
H2	1	(untitled)		✓	211.61	✓	Sum of lanes	1800			Normal	
A3	1	(untitled)			8.00	✓	Sum of lanes	1980			Normal	
B3	1	(untitled)			10.00	✓	Sum of lanes	1925			Normal	
C3	1	(untitled)			6.50	✓	Sum of lanes	1915			Normal	

Lanes

Arm	Traffic Stream	Lane	Name	Description	Use RR67	Surface condition	Site quality factor	Gradient (%)	Width (m)	Use connector turning radius	Proportion that turn (%)	Turning radius (m)	Nearside lane	Saturation flow (PCU/hr)
Aexit	1	1	(untitled)											
Bexit	1	1	(untitled)											
Cexit	1	1	(untitled)											
Hexit	1	1	(untitled)											
A1	1	1	Left Turn		✓	N/A	N/A	0	3.00		100	47.00	✓	1856
	2	1	Ahead & Right Turn		✓	N/A	N/A	0	3.00	✓	0	99999.00		2055
B1	1	1	Ahead & Left Turn		✓	N/A	N/A	0	3.10		100	39.00	✓	1854
	2	1	Right Turn		✓	N/A	N/A	0	3.10		100	53.50		2009
C1	1	1	Ahead & Left Turn		✓	N/A	N/A	0	3.30		100	56.50	✓	1895
	2	1	Right Turn		✓	N/A	N/A	0	3.00		100	53.00		1998
H1	1	1	Ahead & Left Turn											1800
	2	1	Right Turn											1800
H2	1	1	(untitled)											1800
A3	1	1	(untitled)		✓	N/A	N/A	0	3.65	✓	0	99999.00	✓	1980
B3	1	1	(untitled)		✓	N/A	N/A	0	3.10	✓	0	99999.00	✓	1925
C3	1	1	(untitled)		✓	N/A	N/A	0	3.00	✓	0	99999.00	✓	1915

Modelling

Arm	Traffic Stream	Traffic model	Stop weighting multiplier (%)	Delay weighting multiplier (%)	Assignment Cost Weighting (%)	Exclude from results calculation	Max queue storage (PCU)	Has queue limit	Has degree of saturation limit
Aexit	1	NetworkDefault	100	100	100		0.00		
Bexit	1	NetworkDefault	100	100	100		0.00		
Cexit	1	NetworkDefault	100	100	100		3.00		
Hexit	1	NetworkDefault	100	100	100		0.00		
A1	1	NetworkDefault	100	100	100		3.00		
	2	NetworkDefault	100	100	100		3.00		
B1	1	NetworkDefault	100	100	100		7.00		
	2	NetworkDefault	100	100	100		7.00		
C1	1	NetworkDefault	100	100	100		6.00		
	2	NetworkDefault	100	100	100		6.00		
H1	1	NetworkDefault	100	100	100		0.00		
	2	NetworkDefault	100	100	100		0.00		
H2	1	NetworkDefault	100	100	100		0.00		
A3	1	NetworkDefault	100	100	100		1.00		
B3	1	NetworkDefault	100	100	100		0.00		
C3	1	NetworkDefault	100	100	100		1.00		

Modelling - Advanced

Arm	Traffic Stream	Initial queue (PCU)	Type of Vehicle-in-Service	Vehicle-in-Service	Type of random parameter	Random parameter	Auto cycle time	Cycle time
(ALL)	(ALL)	0.00	NetworkDefault	Not-Included	NetworkDefault	0.50	✓	150

Normal traffic - Modelling

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

Normal traffic - Advanced

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

Flows

Arm	Traffic Stream	Total Flow (PCU/hr)	Normal Flow (PCU/hr)
Aexit	1	372	372
Bexit	1	628	628
Cexit	1	239	239
Hexit	1	207	207
A1	1	422	422
	2	93	93
B1	1	149	149
	2	261	261
C1	1	161	161
	2	77	77
H1	1	170	170
	2	113	113
H2	1	283	283
A3	1	515	515
B3	1	410	410
C3	1	238	238

Signals

Arm	Traffic Stream	Controller stream	Phase	Second phase enabled
A1	1	1	B	
	2	1	A	
B1	1	1	D	
	2	1	C	
C1	1	1	F	
	2	1	E	
H1	1	1	J	
	2	1	I	

Signal Timings

Network Default: 150s cycle time; 150 steps

Phases

Controller Stream	Phase	Name	Minimum green (s)	Maximum green (s)	Relative start displacement (s)	Relative end displacement (s)	Type
1	A	(untitled)	1	300	0	0	Indicative arrow
	B	(untitled)	1	300	0	0	Traffic
	C	(untitled)	1	300	0	0	Indicative arrow
	D	(untitled)	1	300	0	0	Traffic
	E	(untitled)	1	300	0	0	Indicative arrow
	F	(untitled)	1	300	0	0	Traffic
	G	(untitled)	1	300	0	0	Unknown
	H	(untitled)	1	300	0	0	Unknown
	I	(untitled)	1	300	0	0	Indicative arrow
	J	(untitled)	1	300	0	0	Traffic

Library Stages

Controller Stream	Library Stage	Phases in stage	User stage minimum (s)
1	1	B, C, H, I	1
	2	B, C, D	1
	3	B, A	1
	4	E, F	1
	5	G	1
	6	D, J	1

Stage Sequences

Controller Stream	Sequence	Name	Multiple cycling	Stage IDs	Stage ends
1	1	(untitled)	Single	5, 1, 2, 6, 4, 3	28, 62, 77, 106, 134, 13

Intergreen Matrix for Controller Stream 1

From \ To	A	B	C	D	E	F	G	H	I	J
A			6	6	6	6	14	6	6	6
B					6	6	14			6
C	6				6	6	14			6
D	6				6	6	14	6	6	
E	6	6	6	6			14	6	6	6
F	6	6	6	6			14	6	6	6
G	14	14	14	14	14	14		6	6	6
H	6			6	6	6	6			6
I	6			6	6	6	6			6
J	6	6	6		6	6	6	6	6	

Interstage Matrix for Controller Stream 1

From \ To	1	2	3	4	5	6
1	0	6	6	6	14	6
2	6	0	6	6	14	6
3	6	6	0	6	14	6
4	6	6	6	0	14	6
5	14	14	14	14	0	14
6	6	6	6	6	14	0

Resultant Stages

Controller Stream	Resultant Stage	Is base stage	Library Stage ID	Phases in this stage	Stage start (s)	Stage end (s)	Stage duration (s)	User stage minimum (s)	Stage minimum (s)
1	1	✓	5	G	27	28	1	1	1
	2	✓	1	B,C,H,I	42	62	20	1	1
	3	✓	2	B,C,D	68	77	9	1	1
	4	✓	6	D,J	83	106	23	1	1
	5	✓	4	E,F	112	134	22	1	1
	6	✓	3	B,A	140	13	23	1	1

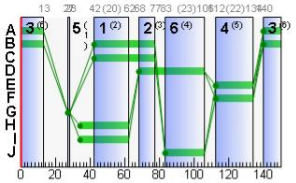
Resultant Phase Green Periods

Controller Stream	Phase	Green period	Is base green period	Start time (s)	End time (s)	Duration (s)
1	A	1	✓	140	13	23
	B	1	✓	42	77	35
		2	✓	140	13	23
	C	1	✓	42	77	35
	D	1	✓	68	106	38
	E	1	✓	112	134	22
	F	1	✓	112	134	22
	G	1	✓	27	28	1
	H	1	✓	34	62	28
	I	1	✓	34	62	28
	J	1	✓	83	106	23

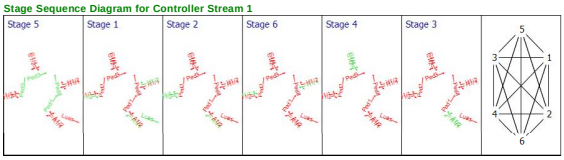
Traffic Stream Green Times

Arm	Traffic Stream	Traffic Node	Controller Stream	Phase	Green Period 1			Green Period 2		
					Start	End	Duration	Start	End	Duration
A1	1	J1	1	B	42	77	35	140	13	23
A1	2	J1	1	A	140	13	23			
B1	1	J1	1	D	68	106	38			
B1	2	J1	1	C	42	77	35			
C1	1	J1	1	F	112	134	22			
C1	2	J1	1	E	112	134	22			
H1	1	J1	1	J	83	106	23			
H1	2	J1	1	I	34	62	28			

Phase Timings Diagram for Controller Stream 1



Stage Sequence Diagram for Controller Stream 1



Link Results

Link Results: Vehicle summary

Time Segment	Link	Degree of saturation (%)	Practical reserve capacity (%)	Calculated flow entering (PCU/hr)	Calculated sat flow (PCU/hr)	Actual green (s (per cycle))	Mean Delay per Veh (s)	Mean max queue (PCU)	Utilised storage (%)	Weighted cost of delay (€ per hr)	Weighted cost of stops (€ per hr)	Performance Index (€ per hr)
16:30-17:30	Luas	9	944	30	1800	28	50.13	1.03	6.08	5.93	0.08	6.01
	Ped1	30	200	10	2500	1	95.96	0.47	8.39	3.78	0.14	3.93
	Ped2	30	200	10	2500	1	95.96	0.47	7.46	3.78	0.14	3.93
	Ped3	30	200	10	2500	1	95.96	0.47	11.85	3.78	0.14	3.93
	Ped8	30	200	10	2500	1	95.96	0.47	14.63	3.78	0.14	3.93

Link Results: Flows and signals

Time Segment	Link	Calculated flow entering (PCU/hr)	Calculated flow out (PCU/hr)	Flow discrepancy (PCU/hr)	Adjusted flow warning	Calculated sat flow (PCU/hr)	Calculated capacity (PCU/hr)	Degree of saturation (%)	DOS Threshold exceeded	Practical reserve capacity (%)	Mean modulus of error	Actual green (s (per cycle))
16:30-17:30	Luas	30	30	0		1800	348	9		944	0.00	28
	Ped1	10	10	0		2500	33	30		200	0.00	1
	Ped2	10	10	0		2500	33	30		200	0.00	1
	Ped3	10	10	0		2500	33	30		200	0.00	1
	Ped8	10	10	0		2500	33	30		200	0.00	1

Link Results: Stops and delays

Time Segment	Link	Mean Cruise Time per Veh (s)	Mean Delay per Veh (s)	Total delay (PCU-hr/hr)	Weighted cost of delay (€ per hr)	Mean stops per Veh (%)	Total stops (Stops per hr)	Weighted cost of stops (€ per hr)
16:30-17:30	Luas	24.00	50.13	0.42	5.93	81.94	24.58	0.08
	Ped1	2.88	95.96	0.27	3.78	112.30	11.23	0.14
	Ped2	3.24	95.96	0.27	3.78	112.30	11.23	0.14
	Ped3	2.04	95.96	0.27	3.78	112.30	11.23	0.14
	Ped8	1.65	95.96	0.27	3.78	112.30	11.23	0.14

Link Results: Queues and blocking

Time Segment	Link	Initial queue (PCU)	Mean max queue (PCU)	Max queue storage (PCU)	Utilised storage (%)	Excess queue penalty (€ per hr)	Wasted time total (s (per cycle))	Estimated blocking
16:30-17:30	Luas	0.00	1.03	16.92	6.08	0.00	26.00	
	Ped1	0.00	0.47	5.64	8.39	0.00	1.00	
	Ped2	0.00	0.47	6.35	7.46	0.00	1.00	
	Ped3	0.00	0.47	4.00	11.85	0.00	1.00	
	Ped8	0.00	0.47	3.24	14.63	0.00	1.00	

Traffic Stream Results

Traffic Stream Results: Vehicle summary

Time Segment	Arm	Traffic Stream	Degree of saturation (%)	Practical reserve capacity	Calculated flow entering (PCU/hr)	Calculated sat flow	Actual green (s (per cycle))	Mean Delay per Veh (s)	Mean max queue (PCU)	Utilised storage (%)	Weighted cost of delay (€ per hr)	Weighted cost of stops (€ per hr)	Performance Index (€ per hr)
16:30-17:30	Aexit	1	0	Unrestricted	372	Unrestricted	150	0.00	0.00	0.00	0.00	0.00	0.00
	Bexit	1	0	Unrestricted	628	Unrestricted	150	0.00	0.00	0.00	0.00	0.00	0.00
	Cexit	1	0	Unrestricted	239	Unrestricted	150	0.00	0.00	0.00	0.00	0.00	0.00
	Hexit	1	0	Unrestricted	207	Unrestricted	150	0.00	0.00	0.00	0.00	0.00	0.00
	A1	1	57	58	422	1856	58	23.15	9.75	325.00	38.53	4.18	42.71
		2	28	218	93	2055	23	57.58	3.44	114.66	21.12	1.03	22.15
	B1	1	31	191	149	1854	38	46.33	5.04	71.94	27.23	1.50	28.73
		2	54	66	261	2009	35	54.16	9.81	140.21	55.76	2.91	58.66
	C1	1	55	62	161	1895	22	66.35	6.51	108.52	42.14	1.94	44.08
		2	25	258	77	1998	22	57.89	2.87	47.76	17.58	0.85	18.44
	H1	1	59	52	170	1800	23	67.30	6.98	148.69	45.13	2.08	47.20
		2	32	177	113	1800	28	54.56	4.13	87.89	24.32	1.23	25.54
	H2	1	16	472	283	1800	150	0.19	0.01	0.04	0.21	0.00	0.21
	A3	1	26	246	515	1980	150	0.32	0.05	4.57	0.65	0.00	0.65
	B3	1	21	323	410	1925	150	0.25	0.03	1.66	0.41	0.00	0.41
	C3	1	12	624	238	1915	150	0.13	0.01	0.88	0.13	0.00	0.13

Traffic Stream Results: Flows and signals

Time Segment	Arm	Traffic Stream	Calculated flow entering (PCU/hr)	Calculated flow out (PCU/hr)	Flow discrepancy (PCU/hr)	Adjusted flow warning	Calculated sat flow	Calculated capacity	Degree of saturation (%)	DOS Threshold exceeded	Practical reserve capacity	Mean modulus of error	Actual green (s (per cycle))
16:30-17:30	Aexit	1	372	372	0		Unrestricted	Unrestricted	0		Unrestricted	0.59	150
	Bexit	1	628	628	0		Unrestricted	Unrestricted	0		Unrestricted	0.15	150
	Cexit	1	239	239	0		Unrestricted	Unrestricted	0		Unrestricted	1.31	150
	Hexit	1	207	207	0		Unrestricted	Unrestricted	0		Unrestricted	0.40	150
	A1	1	422	422	0		1856	742	57		58	0.00	58
		2	93	93	0		2055	329	28		218	0.00	23
	B1	1	149	149	0		1854	482	31		191	0.00	38
		2	261	261	0		2009	482	54		66	0.00	35
	C1	1	161	161	0		1895	291	55		62	0.00	22
		2	77	77	0		1998	306	25		258	0.00	22
	H1	1	170	170	0		1800	288	59		52	0.00	23
		2	113	113	0		1800	348	32		177	0.00	28
	H2	1	283	283	0		1800	1800	16		472	0.00	150
	A3	1	515	515	0		1980	1980	26		246	0.00	150
	B3	1	410	410	0		1925	1925	21		323	0.00	150
	C3	1	238	238	0		1915	1915	12		624	0.00	150

Traffic Stream Results: Stops and delays

Time Segment	Arm	Traffic Stream	Mean Cruise Time per Veh (s)	Mean Delay per Veh (s)	Total delay (PCU-hr/hr)	Weighted cost of delay (€ per hr)	Mean stops per Veh (%)	Total stops (Stops per hr)	Weighted cost of stops (€ per hr)
16:30-17:30	Aexit	1	79.43	0.00	0.00	0.00	0.00	0.00	0.00
	Bexit	1	130.20	0.00	0.00	0.00	0.00	0.00	0.00
	Cexit	1	2.16	0.00	0.00	0.00	0.00	0.00	0.00
	Hexit	1	123.58	0.00	0.00	0.00	0.00	0.00	0.00
	A1	1	1.80	23.15	2.71	38.53	79.06	333.61	4.18
		2	1.80	57.58	1.49	21.12	87.98	81.82	1.03
	B1	1	4.68	46.33	1.92	27.23	80.32	119.67	1.50
		2	4.68	54.16	3.93	55.76	88.81	231.80	2.91
	C1	1	3.00	66.35	2.97	42.14	96.21	154.90	1.94
		2	3.00	57.89	1.24	17.58	88.34	68.02	0.85
	H1	1	3.24	67.30	3.18	45.13	97.43	165.63	2.08
		2	3.24	54.56	1.71	24.32	86.62	97.88	1.23
	H2	1	25.39	0.19	0.01	0.21	0.00	0.00	0.00
	A3	1	1.00	0.32	0.05	0.65	0.00	0.00	0.00
	B3	1	1.20	0.25	0.03	0.41	0.00	0.00	0.00
	C3	1	1.00	0.13	0.01	0.13	0.00	0.00	0.00

Traffic Stream Results: Queues and blocking

Time Segment	Arm	Traffic Stream	Initial queue (PCU)	Mean max queue (PCU)	Max queue storage (PCU)	Utilised storage (%)	Excess queue penalty (€ per hr)	Wasted time total (s (per cycle))	Estimated blocking
16:30-17:30	Aexit	1	0.00	0.00	115.11	0.00	0.00	19.00	
	Bexit	1	0.00	0.00	188.69	0.00	0.00	0.00	
	Cexit	1	0.00	0.00	3.00	0.00	0.00	82.00	
	Hexit	1	0.00	0.00	179.09	0.00	0.00	12.00	
	A1	1	0.00	9.75	3.00	325.00	0.00	0.00	
		2	0.00	3.44	3.00	114.66	0.00	0.00	
	B1	1	0.00	5.04	7.00	71.94	0.00	0.00	
		2	0.00	9.81	7.00	140.21	0.00	0.00	
	C1	1	0.00	6.51	6.00	108.52	0.00	0.00	
		2	0.00	2.87	6.00	47.76	0.00	0.00	
	H1	1	0.00	6.98	4.70	148.69	0.00	0.00	
		2	0.00	4.13	4.70	87.89	0.00	0.00	
	H2	1	0.00	0.01	36.80	0.04	0.00	49.00	
	A3	1	0.00	0.05	1.00	4.57	0.00	72.00	
	B3	1	0.00	0.03	1.74	1.66	0.00	39.00	
	C3	1	0.00	0.01	1.00	0.88	0.00	12.00	

Final Prediction Table

Link Results

			SIGNALS		FLOWS		PERFORMANCE				PER PCU			QUEUES	WEIGH	
Link	Name	Traffic node	Controller stream	Phase	Calculated flow entering (PCU/hr)	Calculated sat flow (PCU/hr)	Actual green (s (per cycle))	Wasted time total (s (per cycle))	Degree of saturation (%)	Practical reserve capacity (%)	JourneyTime (s)	Mean Delay per Veh (s)	Mean stops per Veh (%)	Mean max queue (PCU)	Delay weighting (%)	w
Luas T	Luas	J1	1	H	30	1800	28	26.00	9	944	74.13	50.13	81.94	1.03	100	
Ped1	Ped1	J1	1	G	10	2500	1	1.00	30	200	98.84	95.96	112.30	0.47	100	
Ped2	Ped2	J1	1	G	10	2500	1	1.00	30	200	99.20	95.96	112.30	0.47	100	
Ped3	Ped3	J1	1	G	10	2500	1	1.00	30	200	98.00	95.96	112.30	0.47	100	
Ped8	Ped8	J1	1	G	10	2500	1	1.00	30	200	97.61	95.96	112.30	0.47	100	

Traffic Stream Results

				SIGNALS		FLOWS		PERFORMANCE				PER PCU			QUEUES
Arm	Traffic Stream	Name	Traffic node	Controller stream	Phase	Calculated flow entering (PCU/hr)	Calculated sat flow	Actual green (s (per cycle))	Wasted time total (s (per cycle))	Degree of saturation (%)	Practical reserve capacity	JourneyTime (s)	Mean Delay per Veh (s)	Mean stops per Veh (%)	Mean max queue (PCU)
Aexit	1	(untitled)				372	Unrestricted	150	19.00	0	Unrestricted	79.43	0.00	0.00	0.00
Bexit	1	(untitled)				628	Unrestricted	150	0.00	0	Unrestricted	130.20	0.00	0.00	0.00
Cexit	1	(untitled)				239	Unrestricted	150	82.00	0	Unrestricted	2.16	0.00	0.00	0.00
Hexit	1	(untitled)				207	Unrestricted	150	12.00	0	Unrestricted	123.58	0.00	0.00	0.00
A1	1		J1	1	B	422 <	1856	58	0.00	57	58	24.95	23.15	79.06	9.75 +
	2	(untitled)	J1	1	A	93 <	2055	23	0.00	28	218	59.38	57.58	87.98	3.44 +
B1	1	(untitled)	J1	1	D	149	1854	38	0.00	31	191	51.01	46.33	80.32	5.04
	2	(untitled)	J1	1	C	261 <	2009	35	0.00	54	66	58.84	54.16	88.81	9.81 +
C1	1	(untitled)	J1	1	F	161 <	1895	22	0.00	55	62	69.35	66.35	96.21	6.51 +
	2	(untitled)	J1	1	E	77	1998	22	0.00	25	258	60.89	57.89	88.34	2.87
H1	1	(untitled)	J1	1	J	170 <	1800	23	0.00	59	52	70.54	67.30	97.43	6.98 +
	2	(untitled)	J1	1	I	113	1800	28	0.00	32	177	57.80	54.56	86.62	4.13
H2	1	(untitled)	HH1			283	1800	150	49.00	16	472	25.58	0.19	0.00	0.01
A3	1	(untitled)	AA2			515	1980	150	72.00	26	246	1.32	0.32	0.00	0.05
B3	1	(untitled)	BB2			410	1925	150	39.00	21	323	1.45	0.25	0.00	0.03
C3	1	(untitled)	CC2			238	1915	150	12.00	12	624	1.13	0.13	0.00	0.01

Network Results

	Distance travelled (PCU-km/hr)	Time spent (PCU-hr/hr)	Mean journey speed (kph)	Total delay (PCU-hr/hr)	Weighted cost of delay (€ per hr)	Weighted cost of stops (€ per hr)	Excess queue penalty (€ per hr)	Performance Index (€ per hr)
Normal traffic	1252.82	62.09	20.18	20.31	288.34	16.28	0.00	304.61
Bus	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tram	3.00	0.62	4.86	0.42	5.93	0.08	0.00	6.01
Pedestrians								
TOTAL	1255.82	62.70	20.03	20.72	294.27	16.36	0.00	310.62

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

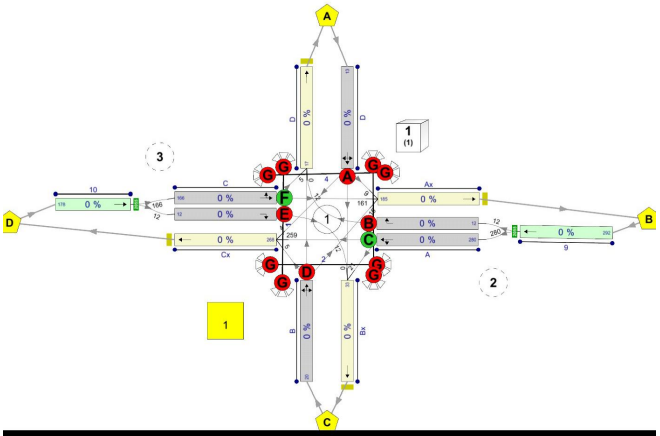
TRANSYT 15

Version: 15.5.2.7994

Filename: Junction 6 Site Access Junction Do-Nothing.t15
Path: G:\2019\p190003\calcs\transyt
Report generation date: 15/10/2020 17:34:47

»A1 - 2022 DN AM : D1 - 2022 DN AM* :
»A2 - 2022 DN PM : D2 - 2022 DN PM* :
»A3 - 2027 DN AM : D3 - 2027 DN AM* :
»A4 - 2027 DN PM : D4 - 2027 DN PM* :
»A5 - 2037 DN AM : D5 - 2037 DN AM* :
»A6 - 2037 DN PM : D6 - 2037 DN PM* :

Network Diagrams



A1 - 2022 DN AM
D1 - 2022 DN AM*

Arms and Traffic Streams

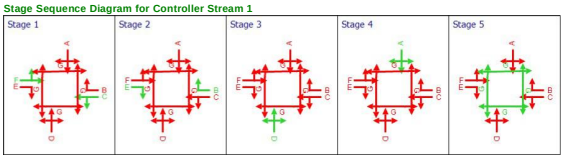
Flows

Arm	Traffic Stream	Total Flow (PCU/hr)	Normal Flow (PCU/hr)
A	1	162	162
	2	7	7
Ax	1	319	319
B	1	43	43
Bx	1	10	10
C	1	266	266
	2	3	3
Cx	1	169	169
D	1	27	27
Dx	1	10	10
9	1	169	169
10	1	269	269

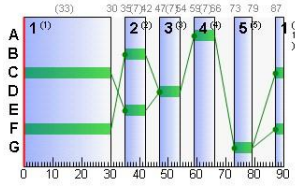
Signal Timings

Network Default: 90s cycle time; 90 steps

Stage Sequence Diagram for Controller Stream 1



Phase Timings Diagram for Controller Stream 1



Traffic Stream Results

Traffic Stream Results: Vehicle summary

Time Segment	Arm	Traffic Stream	Degree of saturation (%)	Practical reserve capacity (%)	Calculated flow entering (PCU/hr)	Calculated sat flow (PCU/hr)	Actual green (s (per cycle))	Mean Delay per Veh (s)	Mean max queue (PCU)	Utilised storage (%)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Performance Index (£ per hr)
08:15-09:15	A	1	26	248	162	1659	33	20.31	2.83	114.80	12.98	1.38	14.36
		2	4	2249	7	2055	7	38.20	0.16	6.49	1.05	0.08	1.13
	Ax	1	0	Unrestricted	319	Unrestricted	90	0.00	0.00	0.00	0.00	0.00	0.00
	B	1	28	227	43	1758	7	42.65	1.06	2.43	7.23	0.52	7.75
	Bx	1	0	Unrestricted	10	Unrestricted	90	0.00	0.00	0.00	0.00	0.00	0.00
	C	1	41	119	266	1717	33	22.55	5.02	69.54	23.66	2.46	26.11
		2	2	5380	3	2055	7	37.98	0.00	0.00	0.45	0.03	0.48
	Cx	1	0	Unrestricted	169	Unrestricted	90	0.00	0.00	0.00	0.00	0.00	0.00
	D	1	17	421	27	1758	7	40.41	0.64	1.84	4.30	0.32	4.62
	Dx	1	0	Unrestricted	10	Unrestricted	90	0.00	0.00	0.00	0.00	0.00	0.00
	9	1	8	994	169	2055	90	0.08	0.00	0.01	0.05	0.00	0.05
	10	1	13	588	269	2055	90	0.13	0.01	0.02	0.14	0.00	0.14

Traffic Stream Results: Flows and signals

Time Segment	Arm	Traffic Stream	Calculated flow entering (PCU/hr)	Calculated flow out (PCU/hr)	Flow discrepancy (PCU/hr)	Adjusted flow warning	Calculated sat flow (PCU/hr)	Calculated capacity (PCU/hr)	Degree of saturation (%)	DOS Threshold exceeded	Practical reserve capacity (%)	Mean modulus of error	Actual green (s (per cycle))	Effec gree (pe cycl
08:15-09:15	A	1	162	162	0		1659	627	26		248	0.00	33	34
		2	7	7	0		2055	183	4		2249	0.00	7	8
	Ax	1	319	319	0		Unrestricted	Unrestricted	0		Unrestricted	0.72	90	90
	B	1	43	43	0		1758	156	28		227	0.00	7	8
	Bx	1	10	10	0		Unrestricted	Unrestricted	0		Unrestricted	0.76	90	90
	C	1	266	266	0		1717	649	41		119	0.00	33	34
		2	3	3	0		2055	183	2		5380	0.00	7	8
	Cx	1	169	169	0		Unrestricted	Unrestricted	0		Unrestricted	0.88	90	90
	D	1	27	27	0		1758	156	17		421	0.00	7	8
	Dx	1	10	10	0		Unrestricted	Unrestricted	0		Unrestricted	0.96	90	90
	9	1	169	169	0		2055	2055	8		994	0.00	90	90
	10	1	269	269	0		2055	2055	13		588	0.00	90	90

Traffic Stream Results: Queues and blocking

Time Segment	Arm	Traffic Stream	Initial queue (PCU)	Mean max queue (PCU)	Max queue storage (PCU)	Utilised storage (%)	Average storage excess queue (PCU)	Average limit excess queue (PCU)	Excess queue penalty (£ per hr)	Max end of green queue (PCU)	Max end of red queue (PCU)	Wasted time starvation (s (per cycle))	Wasted time blocking back (s (per cycle))	Wasted time total (s (per cycle))	Estimated blocking
08:15-09:15	A	1	0.00	2.83	2.47	114.80	0.02	0.00	0.00	0.04	2.56	0.00	0.00	0.00	
		2	0.00	0.16	2.47	6.49	0.00	0.00	0.00	0.00	0.16	7.00	0.00	7.00	
	Ax	1	0.00	0.00	43.48	0.00	0.00	0.00	0.00			13.00	0.00	13.00	
	B	1	0.00	1.06	43.48	2.43	0.00	0.00	0.00	0.05	1.03	5.00	0.00	5.00	
	Bx	1	0.00	0.00	43.48	0.00	0.00	0.00	0.00			90.00	0.00	90.00	
	C	1	0.00	5.02	7.22	69.54	0.00	0.00	0.00	0.14	4.28	0.00	0.00	0.00	
		2	0.00	0.00	7.22	0.00	0.00	0.00	0.00	0.00	0.00	7.00	0.00	7.00	
	Cx	1	0.00	0.00	43.48	0.00	0.00	0.00	0.00			37.00	0.00	37.00	
	D	1	0.00	0.64	34.78	1.84	0.00	0.00	0.00	0.02	0.63	6.00	0.00	6.00	
	Dx	1	0.00	0.00	34.78	0.00	0.00	0.00	0.00			87.00	0.00	87.00	
	9	1	0.00	0.00	43.48	0.01	0.00	0.00	0.00			0.00	9.00	9.00	
	10	1	0.00	0.01	43.48	0.02	0.00	0.00	0.00			0.00	0.00	0.00	

Final Prediction Table

Traffic Stream Results

				SIGNALS		FLOWS			PERFORMANCE			PER PCU			QUEUES	
Arm	Traffic Stream	Name	Traffic node	Controller stream	Phase	Calculated flow entering (PCU/hr)	Calculated sat flow (PCU/hr)	Actual green (s (per cycle))	Wasted time total (s (per cycle))	Degree of saturation (%)	Practical reserve capacity (%)	JourneyTime (s)	Mean Delay per Veh (s)	Mean stops per Veh (%)	Mean max queue (PCU)	M en of r que (PC
A	1	(untitled)	1	1	C	162 <	1659	33	0.00	26	248	22.01	20.31	67.91	2.83 +	2.
	2	(untitled)	1	1	B	7	2055	7	7.00	4	2249	39.91	38.20	90.23	0.16	0.
Ax	1	(untitled)				319	Unrestricted	90	13.00	0	Unrestricted	30.00	0.00	0.00	0.00	
B	1	(untitled)	1	1	D	43	1758	7	5.00	28	227	72.65	42.65	96.50	1.06	1.
Bx	1	(untitled)				10	Unrestricted	90	90.00	0	Unrestricted	30.00	0.00	0.00	0.00	
C	1	(untitled)	1	1	F	266	1717	33	0.00	41	119	27.53	22.55	73.70	5.02	4.
	2	(untitled)	1	1	E	3	2055	7	7.00	2	5380	42.96	37.98	89.80	0.00	0.
Cx	1	(untitled)				169	Unrestricted	90	37.00	0	Unrestricted	30.00	0.00	0.00	0.00	
D	1	(untitled)	1	1	A	27	1758	7	6.00	17	421	64.41	40.41	93.56	0.64	0.
Dx	1	(untitled)				10	Unrestricted	90	87.00	0	Unrestricted	24.00	0.00	0.00	0.00	
9	1	(untitled)	2			169	2055	90	9.00	8	994	30.08	0.08	0.00	0.00	
10	1	(untitled)	3			269	2055	90	0.00	13	588	30.13	0.13	0.00	0.01	

Network Results

	Distance travelled (PCU-km/hr)	Time spent (PCU-hr/hr)	Mean journey speed (kph)	Uniform delay (PCU-hr/hr)	Random plus oversat delay (PCU-hr/hr)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Excess queue penalty (£ per hr)	Performance Index (£ per hr)
Normal traffic	265.71	12.37	21.48	3.24	0.27	49.87	4.79	0.00	54.66
Bus	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tram	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pedestrians	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	265.71	12.37	21.48	3.24	0.27	49.87	4.79	0.00	54.66

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

A2 - 2022 DN PM
D2 - 2022 DN PM*

Arms and Traffic Streams

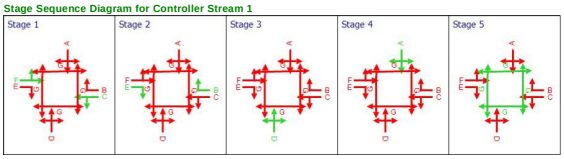
Flows

Arm	Traffic Stream	Total Flow (PCU/hr)	Normal Flow (PCU/hr)
A	1	218	218
	2	11	11
Ax	1	139	139
B	1	20	20
Bx	1	33	33
C	1	120	120
	2	12	12
Cx	1	206	206
D	1	12	12
Dx	1	15	15
9	1	229	229
10	1	132	132

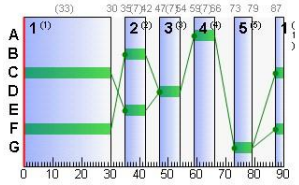
Signal Timings

Network Default: 90s cycle time; 90 steps

Stage Sequence Diagram for Controller Stream 1



Phase Timings Diagram for Controller Stream 1



Traffic Stream Results

Traffic Stream Results: Vehicle summary

Time Segment	Arm	Traffic Stream	Degree of saturation (%)	Practical reserve capacity (%)	Calculated flow entering (PCU/hr)	Calculated sat flow (PCU/hr)	Actual green (s (per cycle))	Mean Delay per Veh (s)	Mean max queue (PCU)	Utilised storage (%)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Performance Index (£ per hr)
16:30-17:30	A	1	35	159	218	1659	33	21.60	3.97	160.68	18.57	1.95	20.52
		2	6	1395	11	2055	7	38.44	0.25	10.22	1.67	0.12	1.79
	Ax	1	0	Unrestricted	139	Unrestricted	90	0.00	0.00	0.00	0.00	0.00	0.00
	B	1	13	603	20	1758	7	39.50	0.46	1.07	3.12	0.23	3.35
	Bx	1	0	Unrestricted	33	Unrestricted	90	0.00	0.00	0.00	0.00	0.00	0.00
	C	1	19	386	120	1717	33	19.37	2.02	28.00	9.17	0.99	10.16
		2	7	1270	12	2055	7	38.50	0.28	3.82	1.82	0.14	1.96
	Cx	1	0	Unrestricted	206	Unrestricted	90	0.00	0.00	0.00	0.00	0.00	0.00
	D	1	8	1072	12	1758	7	38.77	0.28	0.80	1.84	0.14	1.97
	Dx	1	0	Unrestricted	15	Unrestricted	90	0.00	0.00	0.00	0.00	0.00	0.00
	9	1	11	708	229	2055	90	0.11	0.01	0.02	0.10	0.00	0.10
	10	1	6	1301	132	2055	90	0.06	0.00	0.01	0.03	0.00	0.03

Traffic Stream Results: Flows and signals

Time Segment	Arm	Traffic Stream	Calculated flow entering (PCU/hr)	Calculated flow out (PCU/hr)	Flow discrepancy (PCU/hr)	Adjusted flow warning	Calculated sat flow (PCU/hr)	Calculated capacity (PCU/hr)	Degree of saturation (%)	DOS Threshold exceeded	Practical reserve capacity (%)	Mean modulus of error	Actual green (s (per cycle))	Effec gree (pe cycl
16:30-17:30	A	1	218	218	0		1659	627	35		159	0.00	33	34
		2	11	11	0		2055	183	6		1395	0.00	7	8
	Ax	1	139	139	0		Unrestricted	Unrestricted	0		Unrestricted	0.74	90	90
	B	1	20	20	0		1758	156	13		603	0.00	7	8
	Bx	1	33	33	0		Unrestricted	Unrestricted	0		Unrestricted	0.75	90	90
	C	1	120	120	0		1717	649	19		386	0.00	33	34
		2	12	12	0		2055	183	7		1270	0.00	7	8
	Cx	1	206	206	0		Unrestricted	Unrestricted	0		Unrestricted	0.95	90	90
	D	1	12	12	0		1758	156	8		1072	0.00	7	8
	Dx	1	15	15	0		Unrestricted	Unrestricted	0		Unrestricted	1.01	90	90
	9	1	229	229	0		2055	2055	11		708	0.00	90	90
	10	1	132	132	0		2055	2055	6		1301	0.00	90	90

Traffic Stream Results: Queues and blocking

Time Segment	Arm	Traffic Stream	Initial queue (PCU)	Mean max queue (PCU)	Max queue storage (PCU)	Utilised storage (%)	Average storage excess queue (PCU)	Average limit excess queue (PCU)	Excess queue penalty (£ per hr)	Max end of green queue (PCU)	Max end of red queue (PCU)	Wasted time starvation (s (per cycle))	Wasted time blocking back (s (per cycle))	Wasted time total (s (per cycle))	Estimated blocking
16:30-17:30	A	1	0.00	3.97	2.47	160.68	0.21	0.00	0.00	0.09	3.48	0.00	0.00	0.00	
		2	0.00	0.25	2.47	10.22	0.00	0.00	0.00	0.00	0.25	7.00	0.00	7.00	
	Ax	1	0.00	0.00	43.48	0.00	0.00	0.00	0.00			32.00	0.00	32.00	
	B	1	0.00	0.46	43.48	1.07	0.00	0.00	0.00	0.01	0.46	7.00	0.00	7.00	
	Bx	1	0.00	0.00	43.48	0.00	0.00	0.00	0.00			72.00	0.00	72.00	
	C	1	0.00	2.02	7.22	28.00	0.00	0.00	0.00	0.02	1.89	0.00	0.00	0.00	
		2	0.00	0.28	7.22	3.82	0.00	0.00	0.00	0.00	0.28	7.00	0.00	7.00	
	Cx	1	0.00	0.00	43.48	0.00	0.00	0.00	0.00			41.00	0.00	41.00	
	D	1	0.00	0.28	34.78	0.80	0.00	0.00	0.00	0.00	0.28	7.00	0.00	7.00	
	Dx	1	0.00	0.00	34.78	0.00	0.00	0.00	0.00			84.00	0.00	84.00	
	9	1	0.00	0.01	43.48	0.02	0.00	0.00	0.00			0.00	25.00	25.00	
	10	1	0.00	0.00	43.48	0.01	0.00	0.00	0.00			0.00	0.00	0.00	

Final Prediction Table

Traffic Stream Results

				SIGNALS		FLOWS			PERFORMANCE			PER PCU			QUEUES	
Arm	Traffic Stream	Name	Traffic node	Controller stream	Phase	Calculated flow entering (PCU/hr)	Calculated sat flow (PCU/hr)	Actual green (s (per cycle))	Wasted time total (s (per cycle))	Degree of saturation (%)	Practical reserve capacity (%)	JourneyTime (s)	Mean Delay per Veh (s)	Mean stops per Veh (%)	Mean max queue (PCU)	M en of r que (PC
A	1	(untitled)	1	1	C	218 <	1659	33	0.00	35	159	23.30	21.60	71.29	3.97 +	3.
	2	(untitled)	1	1	B	11	2055	7	7.00	6	1395	40.15	38.44	90.50	0.25	0.
Ax	1	(untitled)				139	Unrestricted	90	32.00	0	Unrestricted	30.00	0.00	0.00	0.00	
B	1	(untitled)	1	1	D	20	1758	7	7.00	13	603	69.50	39.50	91.66	0.46	0.
Bx	1	(untitled)				33	Unrestricted	90	72.00	0	Unrestricted	30.00	0.00	0.00	0.00	
C	1	(untitled)	1	1	F	120	1717	33	0.00	19	386	24.35	19.37	65.82	2.02	1.
	2	(untitled)	1	1	E	12	2055	7	7.00	7	1270	43.48	38.50	90.56	0.28	0.
Cx	1	(untitled)				206	Unrestricted	90	41.00	0	Unrestricted	30.00	0.00	0.00	0.00	
D	1	(untitled)	1	1	A	12	1758	7	7.00	8	1072	62.77	38.77	90.86	0.28	0.
Dx	1	(untitled)				15	Unrestricted	90	84.00	0	Unrestricted	24.00	0.00	0.00	0.00	
9	1	(untitled)	2			229	2055	90	25.00	11	708	30.11	0.11	0.00	0.01	
10	1	(untitled)	3			132	2055	90	0.00	6	1301	30.06	0.06	0.00	0.00	

Network Results

	Distance travelled (PCU-km/hr)	Time spent (PCU-hr/hr)	Mean journey speed (kph)	Uniform delay (PCU-hr/hr)	Random plus oversat delay (PCU-hr/hr)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Excess queue penalty (£ per hr)	Performance Index (£ per hr)
Normal traffic	203.88	9.35	21.80	2.42	0.14	36.31	3.57	0.00	39.88
Bus	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tram	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pedestrians	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	203.88	9.35	21.80	2.42	0.14	36.31	3.57	0.00	39.88

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

A3 - 2027 DN AM
D3 - 2027 DN AM*

Arms and Traffic Streams

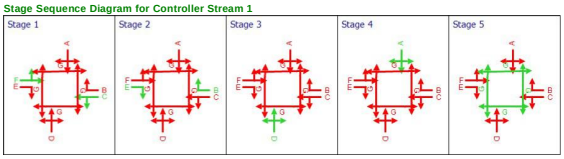
Flows

Arm	Traffic Stream	Total Flow (PCU/hr)	Normal Flow (PCU/hr)
A	1	193	193
	2	8	8
Ax	1	399	399
B	1	43	43
Bx	1	10	10
C	1	344	344
	2	3	3
Cx	1	200	200
D	1	29	29
Dx	1	11	11
9	1	201	201
10	1	347	347

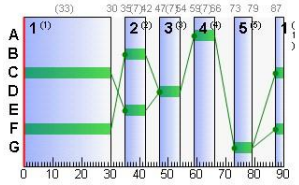
Signal Timings

Network Default: 90s cycle time; 90 steps

Stage Sequence Diagram for Controller Stream 1



Phase Timings Diagram for Controller Stream 1



Traffic Stream Results

Traffic Stream Results: Vehicle summary

Time Segment	Arm	Traffic Stream	Degree of saturation (%)	Practical reserve capacity (%)	Calculated flow entering (PCU/hr)	Calculated sat flow (PCU/hr)	Actual green (s (per cycle))	Mean Delay per Veh (s)	Mean max queue (PCU)	Utilised storage (%)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Performance Index (£ per hr)
08:15-09:15	A	1	31	192	193	1659	33	21.00	3.45	139.53	15.99	1.69	17.68
		2	4	1955	8	2055	7	38.26	0.18	7.42	1.21	0.09	1.30
	Ax	1	0	Unrestricted	399	Unrestricted	90	0.00	0.00	0.00	0.00	0.00	0.00
	B	1	28	227	43	1758	7	42.65	1.06	2.43	7.23	0.52	7.75
	Bx	1	0	Unrestricted	10	Unrestricted	90	0.00	0.00	0.00	0.00	0.00	0.00
	C	1	53	70	344	1717	33	24.90	6.99	96.80	33.79	3.40	37.19
		2	2	5380	3	2055	7	37.98	0.00	0.00	0.45	0.03	0.48
	Cx	1	0	Unrestricted	200	Unrestricted	90	0.00	0.00	0.00	0.00	0.00	0.00
	D	1	19	385	29	1758	7	40.68	0.69	1.98	4.65	0.34	4.99
	Dx	1	0	Unrestricted	11	Unrestricted	90	0.00	0.00	0.00	0.00	0.00	0.00
	9	1	10	820	201	2055	90	0.09	0.01	0.01	0.08	0.00	0.08
	10	1	17	433	347	2055	90	0.18	0.02	0.04	0.24	0.00	0.24

Traffic Stream Results: Flows and signals

Time Segment	Arm	Traffic Stream	Calculated flow entering (PCU/hr)	Calculated flow out (PCU/hr)	Flow discrepancy (PCU/hr)	Adjusted flow warning	Calculated sat flow (PCU/hr)	Calculated capacity (PCU/hr)	Degree of saturation (%)	DOS Threshold exceeded	Practical reserve capacity (%)	Mean modulus of error	Actual green (s (per cycle))	Effec gree (pe cycl
08:15-09:15	A	1	193	193	0		1659	627	31		192	0.00	33	34
		2	8	8	0		2055	183	4		1955	0.00	7	8
	Ax	1	399	399	0		Unrestricted	Unrestricted	0		Unrestricted	0.77	90	90
	B	1	43	43	0		1758	156	28		227	0.00	7	8
	Bx	1	10	10	0		Unrestricted	Unrestricted	0		Unrestricted	0.76	90	90
	C	1	344	344	0		1717	649	53		70	0.00	33	34
		2	3	3	0		2055	183	2		5380	0.00	7	8
	Cx	1	200	200	0		Unrestricted	Unrestricted	0		Unrestricted	0.90	90	90
	D	1	29	29	0		1758	156	19		385	0.00	7	8
	Dx	1	11	11	0		Unrestricted	Unrestricted	0		Unrestricted	0.97	90	90
	9	1	201	201	0		2055	2055	10		820	0.00	90	90
	10	1	347	347	0		2055	2055	17		433	0.00	90	90

Traffic Stream Results: Queues and blocking

Time Segment	Arm	Traffic Stream	Initial queue (PCU)	Mean max queue (PCU)	Max queue storage (PCU)	Utilised storage (%)	Average storage excess queue (PCU)	Average limit excess queue (PCU)	Excess queue penalty (£ per hr)	Max end of green queue (PCU)	Max end of red queue (PCU)	Wasted time starvation (s (per cycle))	Wasted time blocking back (s (per cycle))	Wasted time total (s (per cycle))	Estimated blocking
08:15-09:15	A	1	0.00	3.45	2.47	139.53	0.10	0.00	0.00	0.07	3.07	0.00	0.00	0.00	
		2	0.00	0.18	2.47	7.42	0.00	0.00	0.00	0.00	0.18	7.00	0.00	7.00	
	Ax	1	0.00	0.00	43.48	0.00	0.00	0.00	0.00			12.00	0.00	12.00	
	B	1	0.00	1.06	43.48	2.43	0.00	0.00	0.00	0.05	1.03	5.00	0.00	5.00	
	Bx	1	0.00	0.00	43.48	0.00	0.00	0.00	0.00			90.00	0.00	90.00	
	C	1	0.00	6.99	7.22	96.80	0.00	0.00	0.00	0.30	5.65	0.00	0.00	0.00	
		2	0.00	0.00	7.22	0.00	0.00	0.00	0.00	0.00	0.00	7.00	0.00	7.00	
	Cx	1	0.00	0.00	43.48	0.00	0.00	0.00	0.00			35.00	0.00	35.00	
	D	1	0.00	0.69	34.78	1.98	0.00	0.00	0.00	0.02	0.68	6.00	0.00	6.00	
	Dx	1	0.00	0.00	34.78	0.00	0.00	0.00	0.00			86.00	0.00	86.00	
	9	1	0.00	0.01	43.48	0.01	0.00	0.00	0.00			0.00	19.00	19.00	
	10	1	0.00	0.02	43.48	0.04	0.00	0.00	0.00			0.00	0.00	0.00	

Final Prediction Table

Traffic Stream Results

				SIGNALS		FLOWS			PERFORMANCE			PER PCU			QUEUES	
Arm	Traffic Stream	Name	Traffic node	Controller stream	Phase	Calculated flow entering (PCU/hr)	Calculated sat flow (PCU/hr)	Actual green (s (per cycle))	Wasted time total (s (per cycle))	Degree of saturation (%)	Practical reserve capacity (%)	JourneyTime (s)	Mean Delay per Veh (s)	Mean stops per Veh (%)	Mean max queue (PCU)	M en of r que (PC
A	1	(untitled)	1	1	C	193 <	1659	33	0.00	31	192	22.71	21.00	69.87	3.45 +	3.
	2	(untitled)	1	1	B	8	2055	7	7.00	4	1955	39.97	38.26	90.30	0.18	0.
Ax	1	(untitled)				399	Unrestricted	90	12.00	0	Unrestricted	30.00	0.00	0.00	0.00	
B	1	(untitled)	1	1	D	43	1758	7	5.00	28	227	72.65	42.65	96.50	1.06	1.
Bx	1	(untitled)				10	Unrestricted	90	90.00	0	Unrestricted	30.00	0.00	0.00	0.00	
C	1	(untitled)	1	1	F	344	1717	33	0.00	53	70	29.88	24.90	78.73	6.99	5.
	2	(untitled)	1	1	E	3	2055	7	7.00	2	5380	42.96	37.98	89.80	0.00	0.
Cx	1	(untitled)				200	Unrestricted	90	35.00	0	Unrestricted	30.00	0.00	0.00	0.00	
D	1	(untitled)	1	1	A	29	1758	7	6.00	19	385	64.68	40.68	93.79	0.69	0.
Dx	1	(untitled)				11	Unrestricted	90	86.00	0	Unrestricted	24.00	0.00	0.00	0.00	
9	1	(untitled)	2			201	2055	90	19.00	10	820	30.09	0.09	0.00	0.01	
10	1	(untitled)	3			347	2055	90	0.00	17	433	30.18	0.18	0.00	0.02	

Network Results

	Distance travelled (PCU-km/hr)	Time spent (PCU-hr/hr)	Mean journey speed (kph)	Uniform delay (PCU-hr/hr)	Random plus oversat delay (PCU-hr/hr)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Excess queue penalty (£ per hr)	Performance Index (£ per hr)
Normal traffic	325.25	15.32	21.23	4.02	0.46	63.64	6.07	0.00	69.72
Bus	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tram	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pedestrians	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	325.25	15.32	21.23	4.02	0.46	63.64	6.07	0.00	69.72

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

A4 - 2027 DN PM
D4 - 2027 DN PM*

Arms and Traffic Streams

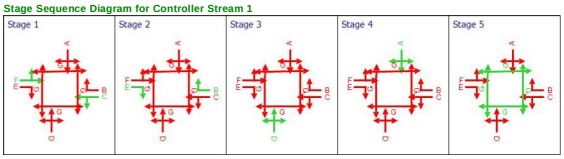
Flows

Arm	Traffic Stream	Total Flow (PCU/hr)	Normal Flow (PCU/hr)
A	1	272	272
	2	11	11
Ax	1	181	181
B	1	20	20
Bx	1	33	33
C	1	162	162
	2	12	12
Cx	1	260	260
D	1	13	13
Dx	1	16	16
9	1	283	283
10	1	174	174

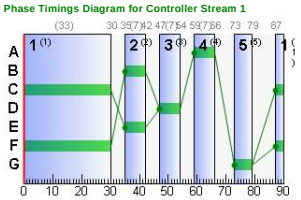
Signal Timings

Network Default: 90s cycle time; 90 steps

Stage Sequence Diagram for Controller Stream 1



Phase Timings Diagram for Controller Stream 1



Traffic Stream Results

Traffic Stream Results: Vehicle summary

Time Segment	Arm	Traffic Stream	Degree of saturation (%)	Practical reserve capacity (%)	Calculated flow entering (PCU/hr)	Calculated sat flow (PCU/hr)	Actual green (s (per cycle))	Mean Delay per Veh (s)	Mean max queue (PCU)	Utilised storage (%)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Performance Index (£ per hr)
16:30-17:30	A	1	43	107	272	1659	33	23.03	5.15	208.64	24.71	2.54	27.25
		2	6	1395	11	2055	7	38.44	0.25	10.22	1.67	0.12	1.79
	Ax	1	0	Unrestricted	181	Unrestricted	90	0.00	0.00	0.00	0.00	0.00	0.00
	B	1	13	603	20	1758	7	39.50	0.46	1.07	3.12	0.23	3.35
	Bx	1	0	Unrestricted	33	Unrestricted	90	0.00	0.00	0.00	0.00	0.00	0.00
	C	1	25	260	162	1717	33	20.17	2.79	38.61	12.89	1.37	14.26
		2	7	1270	12	2055	7	38.50	0.28	3.82	1.82	0.14	1.96
	Cx	1	0	Unrestricted	260	Unrestricted	90	0.00	0.00	0.00	0.00	0.00	0.00
	D	1	8	982	13	1758	7	38.86	0.30	0.86	1.99	0.15	2.14
	Dx	1	0	Unrestricted	16	Unrestricted	90	0.00	0.00	0.00	0.00	0.00	0.00
	9	1	14	554	283	2055	90	0.14	0.01	0.03	0.16	0.00	0.16
	10	1	8	963	174	2055	90	0.08	0.00	0.01	0.06	0.00	0.06

Traffic Stream Results: Flows and signals

Time Segment	Arm	Traffic Stream	Calculated flow entering (PCU/hr)	Calculated flow out (PCU/hr)	Flow discrepancy (PCU/hr)	Adjusted flow warning	Calculated sat flow (PCU/hr)	Calculated capacity (PCU/hr)	Degree of saturation (%)	DOS Threshold exceeded	Practical reserve capacity (%)	Mean modulus of error	Actual green (s (per cycle))	Effec gree (pe cycl
16:30-17:30	A	1	272	272	0		1659	627	43		107	0.00	33	34
		2	11	11	0		2055	183	6		1395	0.00	7	8
	Ax	1	181	181	0		Unrestricted	Unrestricted	0		Unrestricted	0.80	90	90
	B	1	20	20	0		1758	156	13		603	0.00	7	8
	Bx	1	33	33	0		Unrestricted	Unrestricted	0		Unrestricted	0.74	90	90
	C	1	162	162	0		1717	649	25		260	0.00	33	34
		2	12	12	0		2055	183	7		1270	0.00	7	8
	Cx	1	260	260	0		Unrestricted	Unrestricted	0		Unrestricted	0.96	90	90
	D	1	13	13	0		1758	156	8		982	0.00	7	8
	Dx	1	16	16	0		Unrestricted	Unrestricted	0		Unrestricted	0.97	90	90
	9	1	283	283	0		2055	2055	14		554	0.00	90	90
	10	1	174	174	0		2055	2055	8		963	0.00	90	90

Traffic Stream Results: Queues and blocking

Time Segment	Arm	Traffic Stream	Initial queue (PCU)	Mean max queue (PCU)	Max queue storage (PCU)	Utilised storage (%)	Average storage excess queue (PCU)	Average limit excess queue (PCU)	Excess queue penalty (£ per hr)	Max end of green queue (PCU)	Max end of red queue (PCU)	Wasted time starvation (s (per cycle))	Wasted time blocking back (s (per cycle))	Wasted time total (s (per cycle))	Estimated blocking
16:30-17:30	A	1	0.00	5.15	2.47	208.64	0.54	0.00	0.00	0.17	4.40	0.00	0.00	0.00	
		2	0.00	0.25	2.47	10.22	0.00	0.00	0.00	0.00	0.25	7.00	0.00	7.00	
	Ax	1	0.00	0.00	43.48	0.00	0.00	0.00	0.00			29.00	0.00	29.00	
	B	1	0.00	0.46	43.48	1.07	0.00	0.00	0.00	0.01	0.46	7.00	0.00	7.00	
	Bx	1	0.00	0.00	43.48	0.00	0.00	0.00	0.00			71.00	0.00	71.00	
	C	1	0.00	2.79	7.22	38.61	0.00	0.00	0.00	0.04	2.56	0.00	0.00	0.00	
		2	0.00	0.28	7.22	3.82	0.00	0.00	0.00	0.00	0.28	7.00	0.00	7.00	
	Cx	1	0.00	0.00	43.48	0.00	0.00	0.00	0.00			37.00	0.00	37.00	
	D	1	0.00	0.30	34.78	0.86	0.00	0.00	0.00	0.00	0.30	7.00	0.00	7.00	
	Dx	1	0.00	0.00	34.78	0.00	0.00	0.00	0.00			84.00	0.00	84.00	
	9	1	0.00	0.01	43.48	0.03	0.00	0.00	0.00			0.00	36.00	36.00	
	10	1	0.00	0.00	43.48	0.01	0.00	0.00	0.00			0.00	0.00	0.00	

Final Prediction Table

Traffic Stream Results

				SIGNALS		FLOWS		PERFORMANCE			PER PCU			QUEUES	
Arm	Traffic Stream	Name	Traffic node	Controller stream	Phase	Calculated flow entering (PCU/hr)	Calculated sat flow (PCU/hr)	Actual green (s (per cycle))	Wasted time total (s (per cycle))	Degree of saturation (%)	Practical reserve capacity (%)	JourneyTime (s)	Mean Delay per Veh (s)	Mean stops per Veh (%)	Mean max queue (PCU)	M en of r que (PC
A	1	(untitled)	1	1	C	272 <	1659	33	0.00	43	107	24.74	23.03	74.36	5.15 +	4.
	2	(untitled)	1	1	B	11	2055	7	7.00	6	1395	40.15	38.44	90.50	0.25	0.
Ax	1	(untitled)				181	Unrestricted	90	29.00	0	Unrestricted	30.00	0.00	0.00	0.00	
B	1	(untitled)	1	1	D	20	1758	7	7.00	13	603	69.50	39.50	91.66	0.46	0.
Bx	1	(untitled)				33	Unrestricted	90	71.00	0	Unrestricted	30.00	0.00	0.00	0.00	
C	1	(untitled)	1	1	F	162	1717	33	0.00	25	260	25.15	20.17	67.48	2.79	2.
	2	(untitled)	1	1	E	12	2055	7	7.00	7	1270	43.48	38.50	90.56	0.28	0.
Cx	1	(untitled)				260	Unrestricted	90	37.00	0	Unrestricted	30.00	0.00	0.00	0.00	
D	1	(untitled)	1	1	A	13	1758	7	7.00	8	982	62.86	38.86	90.95	0.30	0.
Dx	1	(untitled)				16	Unrestricted	90	84.00	0	Unrestricted	24.00	0.00	0.00	0.00	
9	1	(untitled)	2			283	2055	90	36.00	14	554	30.14	0.14	0.00	0.01	
10	1	(untitled)	3			174	2055	90	0.00	8	963	30.08	0.08	0.00	0.00	

Network Results

	Distance travelled (PCU-km/hr)	Time spent (PCU-hr/hr)	Mean journey speed (kph)	Uniform delay (PCU-hr/hr)	Random plus oversat delay (PCU-hr/hr)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Excess queue penalty (£ per hr)	Performance Index (£ per hr)
Normal traffic	254.79	11.76	21.66	3.03	0.24	46.41	4.55	0.00	50.96
Bus	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tram	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pedestrians	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	254.79	11.76	21.66	3.03	0.24	46.41	4.55	0.00	50.96

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

A5 - 2037 DN AM
D5 - 2037 DN AM*

Arms and Traffic Streams

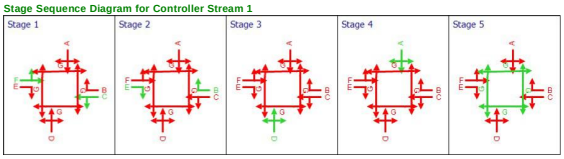
Flows

Arm	Traffic Stream	Total Flow (PCU/hr)	Normal Flow (PCU/hr)
A	1	202	202
	2	8	8
Ax	1	412	412
B	1	43	43
Bx	1	10	10
C	1	356	356
	2	3	3
Cx	1	210	210
D	1	31	31
Dx	1	11	11
9	1	210	210
10	1	359	359

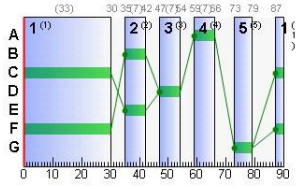
Signal Timings

Network Default: 90s cycle time; 90 steps

Stage Sequence Diagram for Controller Stream 1



Phase Timings Diagram for Controller Stream 1



Traffic Stream Results

Traffic Stream Results: Vehicle summary

Time Segment	Arm	Traffic Stream	Degree of saturation (%)	Practical reserve capacity (%)	Calculated flow entering (PCU/hr)	Calculated sat flow (PCU/hr)	Actual green (s (per cycle))	Mean Delay per Veh (s)	Mean max queue (PCU)	Utilised storage (%)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Performance Index (£ per hr)
08:15-09:15	A	1	32	179	202	1659	33	21.21	3.61	146.24	16.90	1.78	18.67
		2	4	1955	8	2055	7	38.26	0.18	7.42	1.21	0.09	1.30
	Ax	1	0	Unrestricted	412	Unrestricted	90	0.00	0.00	0.00	0.00	0.00	0.00
	B	1	28	227	43	1758	7	42.65	1.06	2.43	7.23	0.52	7.75
	Bx	1	0	Unrestricted	10	Unrestricted	90	0.00	0.00	0.00	0.00	0.00	0.00
	C	1	55	64	356	1717	33	25.34	7.25	100.51	35.58	3.56	39.15
		2	2	5380	3	2055	7	37.98	0.00	0.00	0.45	0.03	0.48
	Cx	1	0	Unrestricted	210	Unrestricted	90	0.00	0.00	0.00	0.00	0.00	0.00
	D	1	20	354	31	1758	7	40.94	0.74	2.13	5.01	0.37	5.37
	Dx	1	0	Unrestricted	11	Unrestricted	90	0.00	0.00	0.00	0.00	0.00	0.00
	9	1	10	781	210	2055	90	0.10	0.01	0.01	0.08	0.00	0.08
	10	1	17	415	359	2055	90	0.19	0.02	0.04	0.26	0.00	0.26

Traffic Stream Results: Flows and signals

Time Segment	Arm	Traffic Stream	Calculated flow entering (PCU/hr)	Calculated flow out (PCU/hr)	Flow discrepancy (PCU/hr)	Adjusted flow warning	Calculated sat flow (PCU/hr)	Calculated capacity (PCU/hr)	Degree of saturation (%)	DOS Threshold exceeded	Practical reserve capacity (%)	Mean modulus of error	Actual green (s (per cycle))	Effec gree (pe cycl
08:15-09:15	A	1	202	202	0		1659	627	32		179	0.00	33	34
		2	8	8	0		2055	183	4		1955	0.00	7	8
	Ax	1	412	412	0		Unrestricted	Unrestricted	0		Unrestricted	0.77	90	90
	B	1	43	43	0		1758	156	28		227	0.00	7	8
	Bx	1	10	10	0		Unrestricted	Unrestricted	0		Unrestricted	0.76	90	90
	C	1	356	356	0		1717	649	55		64	0.00	33	34
		2	3	3	0		2055	183	2		5380	0.00	7	8
	Cx	1	210	210	0		Unrestricted	Unrestricted	0		Unrestricted	0.90	90	90
	D	1	31	31	0		1758	156	20		354	0.00	7	8
	Dx	1	11	11	0		Unrestricted	Unrestricted	0		Unrestricted	0.97	90	90
	9	1	210	210	0		2055	2055	10		781	0.00	90	90
	10	1	359	359	0		2055	2055	17		415	0.00	90	90

Traffic Stream Results: Queues and blocking

Time Segment	Arm	Traffic Stream	Initial queue (PCU)	Mean max queue (PCU)	Max queue storage (PCU)	Utilised storage (%)	Average storage excess queue (PCU)	Average limit excess queue (PCU)	Excess queue penalty (£ per hr)	Max end of green queue (PCU)	Max end of red queue (PCU)	Wasted time starvation (s (per cycle))	Wasted time blocking back (s (per cycle))	Wasted time total (s (per cycle))	Estimated blocking
08:15-09:15	A	1	0.00	3.61	2.47	146.24	0.14	0.00	0.00	0.08	3.22	0.00	0.00	0.00	
		2	0.00	0.18	2.47	7.42	0.00	0.00	0.00	0.00	0.18	7.00	0.00	7.00	
	Ax	1	0.00	0.00	43.48	0.00	0.00	0.00	0.00			11.00	0.00	11.00	
	B	1	0.00	1.06	43.48	2.43	0.00	0.00	0.00	0.05	1.03	5.00	0.00	5.00	
	Bx	1	0.00	0.00	43.48	0.00	0.00	0.00	0.00			90.00	0.00	90.00	
	C	1	0.00	7.25	7.22	100.51	0.00	0.00	0.00	0.33	5.87	0.00	0.00	0.00	
		2	0.00	0.00	7.22	0.00	0.00	0.00	0.00	0.00	0.00	7.00	0.00	7.00	
	Cx	1	0.00	0.00	43.48	0.00	0.00	0.00	0.00			33.00	0.00	33.00	
	D	1	0.00	0.74	34.78	2.13	0.00	0.00	0.00	0.02	0.73	6.00	0.00	6.00	
	Dx	1	0.00	0.00	34.78	0.00	0.00	0.00	0.00			86.00	0.00	86.00	
	9	1	0.00	0.01	43.48	0.01	0.00	0.00	0.00			0.00	21.00	21.00	
	10	1	0.00	0.02	43.48	0.04	0.00	0.00	0.00			0.00	1.00	1.00	

Final Prediction Table

Traffic Stream Results

				SIGNALS		FLOWS			PERFORMANCE			PER PCU			QUEUES	
Arm	Traffic Stream	Name	Traffic node	Controller stream	Phase	Calculated flow entering (PCU/hr)	Calculated sat flow (PCU/hr)	Actual green (s (per cycle))	Wasted time total (s (per cycle))	Degree of saturation (%)	Practical reserve capacity (%)	JourneyTime (s)	Mean Delay per Veh (s)	Mean stops per Veh (%)	Mean max queue (PCU)	M en of r que (PC
A	1	(untitled)	1	1	C	202 <	1659	33	0.00	32	179	22.91	21.21	70.13	3.61 +	3.
	2	(untitled)	1	1	B	8	2055	7	7.00	4	1955	39.97	38.26	90.30	0.18	0.
Ax	1	(untitled)				412	Unrestricted	90	11.00	0	Unrestricted	30.00	0.00	0.00	0.00	
B	1	(untitled)	1	1	D	43	1758	7	5.00	28	227	72.65	42.65	96.50	1.06	1.
Bx	1	(untitled)				10	Unrestricted	90	90.00	0	Unrestricted	30.00	0.00	0.00	0.00	
C	1	(untitled)	1	1	F	356 <	1717	33	0.00	55	64	30.32	25.34	79.85	7.25 +	5.
	2	(untitled)	1	1	E	3	2055	7	7.00	2	5380	42.96	37.98	89.80	0.00	0.
Cx	1	(untitled)				210	Unrestricted	90	33.00	0	Unrestricted	30.00	0.00	0.00	0.00	
D	1	(untitled)	1	1	A	31	1758	7	6.00	20	354	64.94	40.94	94.04	0.74	0.
Dx	1	(untitled)				11	Unrestricted	90	86.00	0	Unrestricted	24.00	0.00	0.00	0.00	
9	1	(untitled)	2			210	2055	90	21.00	10	781	30.10	0.10	0.00	0.01	
10	1	(untitled)	3			359	2055	90	1.00	17	415	30.19	0.19	0.00	0.02	

Network Results

	Distance travelled (PCU-km/hr)	Time spent (PCU-hr/hr)	Mean journey speed (kph)	Uniform delay (PCU-hr/hr)	Random plus oversat delay (PCU-hr/hr)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Excess queue penalty (£ per hr)	Performance Index (£ per hr)
Normal traffic	337.28	15.94	21.16	4.19	0.51	66.72	6.35	0.00	73.07
Bus	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tram	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pedestrians	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	337.28	15.94	21.16	4.19	0.51	66.72	6.35	0.00	73.07

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

A6 - 2037 DN PM
D6 - 2037 DN PM*

Arms and Traffic Streams

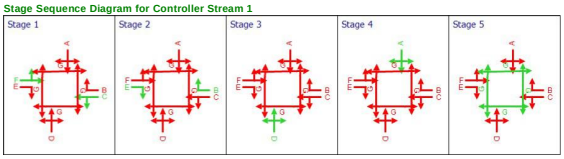
Flows

Arm	Traffic Stream	Total Flow (PCU/hr)	Normal Flow (PCU/hr)
A	1	280	280
	2	12	12
Ax	1	185	185
B	1	20	20
Bx	1	33	33
C	1	166	166
	2	12	12
Cx	1	268	268
D	1	13	13
Dx	1	17	17
9	1	292	292
10	1	178	178

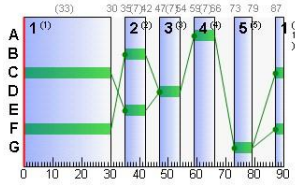
Signal Timings

Network Default: 90s cycle time; 90 steps

Stage Sequence Diagram for Controller Stream 1



Phase Timings Diagram for Controller Stream 1



Traffic Stream Results

Traffic Stream Results: Vehicle summary

Time Segment	Arm	Traffic Stream	Degree of saturation (%)	Practical reserve capacity (%)	Calculated flow entering (PCU/hr)	Calculated sat flow (PCU/hr)	Actual green (s (per cycle))	Mean Delay per Veh (s)	Mean max queue (PCU)	Utilised storage (%)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Performance Index (£ per hr)
16:30-17:30	A	1	45	101	280	1659	33	23.28	5.39	218.29	25.71	2.64	28.35
		2	7	1270	12	2055	7	38.50	0.28	11.16	1.82	0.14	1.96
	Ax	1	0	Unrestricted	185	Unrestricted	90	0.00	0.00	0.00	0.00	0.00	0.00
	B	1	13	603	20	1758	7	39.50	0.46	1.07	3.12	0.23	3.35
	Bx	1	0	Unrestricted	33	Unrestricted	90	0.00	0.00	0.00	0.00	0.00	0.00
	C	1	26	252	166	1717	33	20.24	2.86	39.58	13.25	1.41	14.66
		2	7	1270	12	2055	7	38.50	0.28	3.82	1.82	0.14	1.96
	Cx	1	0	Unrestricted	268	Unrestricted	90	0.00	0.00	0.00	0.00	0.00	0.00
	D	1	8	982	13	1758	7	38.86	0.30	0.86	1.99	0.15	2.14
	Dx	1	0	Unrestricted	17	Unrestricted	90	0.00	0.00	0.00	0.00	0.00	0.00
	9	1	14	533	292	2055	90	0.15	0.01	0.03	0.17	0.00	0.17
	10	1	9	939	178	2055	90	0.08	0.00	0.01	0.06	0.00	0.06

Traffic Stream Results: Flows and signals

Time Segment	Arm	Traffic Stream	Calculated flow entering (PCU/hr)	Calculated flow out (PCU/hr)	Flow discrepancy (PCU/hr)	Adjusted flow warning	Calculated sat flow (PCU/hr)	Calculated capacity (PCU/hr)	Degree of saturation (%)	DOS Threshold exceeded	Practical reserve capacity (%)	Mean modulus of error	Actual green (s (per cycle))	Effec gree (pe cycl
16:30-17:30	A	1	280	280	0		1659	627	45		101	0.00	33	34
		2	12	12	0		2055	183	7		1270	0.00	7	8
	Ax	1	185	185	0		Unrestricted	Unrestricted	0		Unrestricted	0.80	90	90
	B	1	20	20	0		1758	156	13		603	0.00	7	8
	Bx	1	33	33	0		Unrestricted	Unrestricted	0		Unrestricted	0.74	90	90
	C	1	166	166	0		1717	649	26		252	0.00	33	34
		2	12	12	0		2055	183	7		1270	0.00	7	8
	Cx	1	268	268	0		Unrestricted	Unrestricted	0		Unrestricted	0.96	90	90
	D	1	13	13	0		1758	156	8		982	0.00	7	8
	Dx	1	17	17	0		Unrestricted	Unrestricted	0		Unrestricted	0.98	90	90
	9	1	292	292	0		2055	2055	14		533	0.00	90	90
	10	1	178	178	0		2055	2055	9		939	0.00	90	90

Traffic Stream Results: Queues and blocking

Time Segment	Arm	Traffic Stream	Initial queue (PCU)	Mean max queue (PCU)	Max queue storage (PCU)	Utilised storage (%)	Average storage excess queue (PCU)	Average limit excess queue (PCU)	Excess queue penalty (£ per hr)	Max end of green queue (PCU)	Max end of red queue (PCU)	Wasted time starvation (s (per cycle))	Wasted time blocking back (s (per cycle))	Wasted time total (s (per cycle))	Estimated blocking
16:30-17:30	A	1	0.00	5.39	2.47	218.29	0.63	0.00	0.00	0.18	4.54	0.00	0.00	0.00	
		2	0.00	0.28	2.47	11.16	0.00	0.00	0.00	0.00	0.28	7.00	0.00	7.00	
	Ax	1	0.00	0.00	43.48	0.00	0.00	0.00	0.00			28.00	0.00	28.00	
	B	1	0.00	0.46	43.48	1.07	0.00	0.00	0.00	0.01	0.46	7.00	0.00	7.00	
	Bx	1	0.00	0.00	43.48	0.00	0.00	0.00	0.00			71.00	0.00	71.00	
	C	1	0.00	2.86	7.22	39.58	0.00	0.00	0.00	0.04	2.63	0.00	0.00	0.00	
		2	0.00	0.28	7.22	3.82	0.00	0.00	0.00	0.00	0.28	7.00	0.00	7.00	
	Cx	1	0.00	0.00	43.48	0.00	0.00	0.00	0.00			35.00	0.00	35.00	
	D	1	0.00	0.30	34.78	0.86	0.00	0.00	0.00	0.00	0.30	7.00	0.00	7.00	
	Dx	1	0.00	0.00	34.78	0.00	0.00	0.00	0.00			83.00	0.00	83.00	
	9	1	0.00	0.01	43.48	0.03	0.00	0.00	0.00			0.00	38.00	38.00	
	10	1	0.00	0.00	43.48	0.01	0.00	0.00	0.00			0.00	0.00	0.00	

Final Prediction Table

Traffic Stream Results

				SIGNALS		FLOWS			PERFORMANCE			PER PCU			QUEUES	
Arm	Traffic Stream	Name	Traffic node	Controller stream	Phase	Calculated flow entering (PCU/hr)	Calculated sat flow (PCU/hr)	Actual green (s (per cycle))	Wasted time total (s (per cycle))	Degree of saturation (%)	Practical reserve capacity (%)	JourneyTime (s)	Mean Delay per Veh (s)	Mean stops per Veh (%)	Mean max queue (PCU)	M en of r que (PC
A	1	(untitled)	1	1	C	280 <	1659	33	0.00	45	101	24.98	23.28	75.30	5.39 +	4.
	2	(untitled)	1	1	B	12	2055	7	7.00	7	1270	40.21	38.50	90.56	0.28	0.
Ax	1	(untitled)				185	Unrestricted	90	28.00	0	Unrestricted	30.00	0.00	0.00	0.00	
B	1	(untitled)	1	1	D	20	1758	7	7.00	13	603	69.50	39.50	91.66	0.46	0.
Bx	1	(untitled)				33	Unrestricted	90	71.00	0	Unrestricted	30.00	0.00	0.00	0.00	
C	1	(untitled)	1	1	F	166	1717	33	0.00	26	252	25.22	20.24	67.52	2.86	2.
	2	(untitled)	1	1	E	12	2055	7	7.00	7	1270	43.48	38.50	90.56	0.28	0.
Cx	1	(untitled)				268	Unrestricted	90	35.00	0	Unrestricted	30.00	0.00	0.00	0.00	
D	1	(untitled)	1	1	A	13	1758	7	7.00	8	982	62.86	38.86	90.95	0.30	0.
Dx	1	(untitled)				17	Unrestricted	90	83.00	0	Unrestricted	24.00	0.00	0.00	0.00	
9	1	(untitled)	2			292	2055	90	38.00	14	533	30.15	0.15	0.00	0.01	
10	1	(untitled)	3			178	2055	90	0.00	9	939	30.08	0.08	0.00	0.00	

Network Results

	Distance travelled (PCU-km/hr)	Time spent (PCU-hr/hr)	Mean journey speed (kph)	Uniform delay (PCU-hr/hr)	Random plus oversat delay (PCU-hr/hr)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Excess queue penalty (£ per hr)	Performance Index (£ per hr)
Normal traffic	261.53	12.09	21.63	3.12	0.26	47.94	4.70	0.00	52.64
Bus	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tram	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pedestrians	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	261.53	12.09	21.63	3.12	0.26	47.94	4.70	0.00	52.64

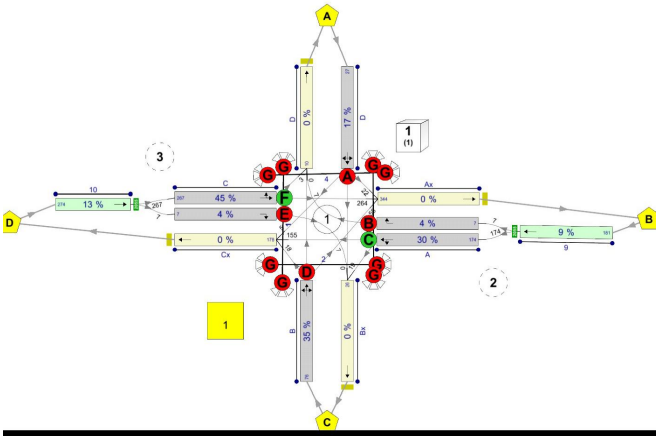
- *< = adjusted flow warning (upstream links/traffic streams are over-saturated)*
- ** = Traffic Stream - Normal, Bus or Tram Stop or Delay weighting has been set to a value other than 100%*
- *^ = Traffic Stream - Normal, Bus or Tram Stop or Delay Path weighting has been set to a value other than 100%*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

TRANSYT 15

Filename: Junction 6 Site Access Junction Do-Something.t15
Path: G:\2019\p190003\calcs\transyt
Report generation date: 28/04/2021 14:24:33

»A1 - 2022 DS AM : D1 - 2022 DS AM* :
»A2 - 2022 DS PM : D2 - 2022 DS PM* :
»A3 - 2027 DS AM : D3 - 2027 DS AM* :
»A4 - 2027 DS PM : D4 - 2027 DS PM* :
»A5 - 2037 DS AM : D5 - 2037 DS AM* :
»A6 - 2037 DS PM : D6 - 2037 DS PM* :

Network Diagrams



A1 - 2022 DS AM
D1 - 2022 DS AM*

Arms and Traffic Streams

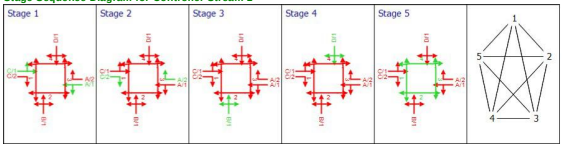
Flows

Arm	Traffic Stream	Total Flow (PCU/hr)	Normal Flow (PCU/hr)
A	1	174	174
	2	7	7
Ax	1	344	344
B	1	76	76
Bx	1	26	26
C	1	267	267
	2	7	7
Cx	1	178	178
D	1	27	27
Dx	1	10	10
9	1	181	181
10	1	274	274

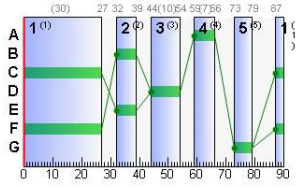
Signal Timings

Network Default: 90s cycle time; 90 steps

Stage Sequence Diagram for Controller Stream 1



Phase Timings Diagram for Controller Stream 1



Traffic Stream Results

Traffic Stream Results: Vehicle summary

Time Segment	Arm	Traffic Stream	Degree of saturation (%)	Practical reserve capacity (%)	Calculated flow entering (PCU/hr)	Calculated sat flow (PCU/hr)	Actual green (s (per cycle))	Mean Delay per Veh (s)	Mean max queue (PCU)	Utilised storage (%)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Performance Index (£ per hr)
08:15-09:15	A	1	30	196	174	1659	30	22.99	3.21	129.91	15.78	1.58	17.36
		2	4	2249	7	2055	7	38.20	0.16	6.49	1.05	0.08	1.13
	Ax	1	0	Unrestricted	344	Unrestricted	90	0.00	0.00	0.00	0.00	0.00	0.00
	B	1	35	154	76	1758	10	40.82	1.83	4.20	12.24	0.90	13.14
	Bx	1	0	Unrestricted	26	Unrestricted	90	0.00	0.00	0.00	0.00	0.00	0.00
	C	1	45	99	267	1717	30	25.40	5.30	73.47	26.75	2.61	29.36
		2	4	2249	7	2055	7	38.20	0.16	2.22	1.05	0.08	1.13
	Cx	1	0	Unrestricted	178	Unrestricted	90	0.00	0.00	0.00	0.00	0.00	0.00
	D	1	17	421	27	1758	7	40.41	0.64	1.84	4.30	0.32	4.62
	Dx	1	0	Unrestricted	10	Unrestricted	90	0.00	0.00	0.00	0.00	0.00	0.00
	9	1	9	922	181	2055	90	0.08	0.00	0.01	0.06	0.00	0.06
	10	1	13	575	274	2055	90	0.13	0.01	0.02	0.15	0.00	0.15

Traffic Stream Results: Flows and signals

Time Segment	Arm	Traffic Stream	Calculated flow entering (PCU/hr)	Calculated flow out (PCU/hr)	Flow discrepancy (PCU/hr)	Adjusted flow warning	Calculated sat flow (PCU/hr)	Calculated capacity (PCU/hr)	Degree of saturation (%)	DOS Threshold exceeded	Practical reserve capacity (%)	Mean modulus of error	Actual green (s (per cycle))	Effec gree (pe cycl
08:15-09:15	A	1	174	174	0		1659	571	30		196	0.00	30	31
		2	7	7	0		2055	183	4		2249	0.00	7	8
	Ax	1	344	344	0		Unrestricted	Unrestricted	0		Unrestricted	0.69	90	90
	B	1	76	76	0		1758	215	35		154	0.00	10	11
	Bx	1	26	26	0		Unrestricted	Unrestricted	0		Unrestricted	0.82	90	90
	C	1	267	267	0		1717	591	45		99	0.00	30	31
		2	7	7	0		2055	183	4		2249	0.00	7	8
	Cx	1	178	178	0		Unrestricted	Unrestricted	0		Unrestricted	0.85	90	90
	D	1	27	27	0		1758	156	17		421	0.00	7	8
	Dx	1	10	10	0		Unrestricted	Unrestricted	0		Unrestricted	0.97	90	90
	9	1	181	181	0		2055	2055	9		922	0.00	90	90
	10	1	274	274	0		2055	2055	13		575	0.00	90	90

Traffic Stream Results: Queues and blocking

Time Segment	Arm	Traffic Stream	Initial queue (PCU)	Mean max queue (PCU)	Max queue storage (PCU)	Utilised storage (%)	Average storage excess queue (PCU)	Average limit excess queue (PCU)	Excess queue penalty (£ per hr)	Max end of green queue (PCU)	Max end of red queue (PCU)	Wasted time starvation (s (per cycle))	Wasted time blocking back (s (per cycle))	Wasted time total (s (per cycle))	Estimated blocking
08:15-09:15	A	1	0.00	3.21	2.47	129.91	0.07	0.00	0.00	0.07	2.92	0.00	0.00	0.00	
		2	0.00	0.16	2.47	6.49	0.00	0.00	0.00	0.00	0.16	7.00	0.00	7.00	
	Ax	1	0.00	0.00	43.48	0.00	0.00	0.00	0.00			12.00	0.00	12.00	
	B	1	0.00	1.83	43.48	4.20	0.00	0.00	0.00	0.10	1.76	0.00	0.00	0.00	
	Bx	1	0.00	0.00	43.48	0.00	0.00	0.00	0.00			78.00	0.00	78.00	
	C	1	0.00	5.30	7.22	73.47	0.00	0.00	0.00	0.19	4.56	0.00	0.00	0.00	
		2	0.00	0.16	7.22	2.22	0.00	0.00	0.00	0.00	0.16	7.00	0.00	7.00	
	Cx	1	0.00	0.00	43.48	0.00	0.00	0.00	0.00			32.00	0.00	32.00	
	D	1	0.00	0.64	34.78	1.84	0.00	0.00	0.00	0.02	0.63	6.00	0.00	6.00	
	Dx	1	0.00	0.00	34.78	0.00	0.00	0.00	0.00			87.00	0.00	87.00	
	9	1	0.00	0.00	43.48	0.01	0.00	0.00	0.00			0.00	16.00	16.00	
	10	1	0.00	0.01	43.48	0.02	0.00	0.00	0.00			0.00	0.00	0.00	

Final Prediction Table

Traffic Stream Results

				SIGNALS		FLOWS			PERFORMANCE			PER PCU			QUEUES	
Arm	Traffic Stream	Name	Traffic node	Controller stream	Phase	Calculated flow entering (PCU/hr)	Calculated sat flow (PCU/hr)	Actual green (s (per cycle))	Wasted time total (s (per cycle))	Degree of saturation (%)	Practical reserve capacity (%)	JourneyTime (s)	Mean Delay per Veh (s)	Mean stops per Veh (%)	Mean max queue (PCU)	M en of r que (PC
A	1	(untitled)	1	1	C	174 <	1659	30	0.00	30	196	24.69	22.99	72.42	3.21 +	2.
	2	(untitled)	1	1	B	7	2055	7	7.00	4	2249	39.91	38.20	90.23	0.16	0.
Ax	1	(untitled)				344	Unrestricted	90	12.00	0	Unrestricted	30.00	0.00	0.00	0.00	
B	1	(untitled)	1	1	D	76	1758	10	0.00	35	154	70.82	40.82	94.79	1.83	1.
Bx	1	(untitled)				26	Unrestricted	90	78.00	0	Unrestricted	30.00	0.00	0.00	0.00	
C	1	(untitled)	1	1	F	267	1717	30	0.00	45	99	30.38	25.40	78.01	5.30	4.
	2	(untitled)	1	1	E	7	2055	7	7.00	4	2249	43.18	38.20	90.23	0.16	0.
Cx	1	(untitled)				178	Unrestricted	90	32.00	0	Unrestricted	30.00	0.00	0.00	0.00	
D	1	(untitled)	1	1	A	27	1758	7	6.00	17	421	64.41	40.41	93.56	0.64	0.
Dx	1	(untitled)				10	Unrestricted	90	87.00	0	Unrestricted	24.00	0.00	0.00	0.00	
9	1	(untitled)	2			181	2055	90	16.00	9	922	30.08	0.08	0.00	0.00	
10	1	(untitled)	3			274	2055	90	0.00	13	575	30.13	0.13	0.00	0.01	

Network Results

	Distance travelled (PCU-km/hr)	Time spent (PCU-hr/hr)	Mean journey speed (kph)	Uniform delay (PCU-hr/hr)	Random plus oversat delay (PCU-hr/hr)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Excess queue penalty (£ per hr)	Performance Index (£ per hr)
Normal traffic	291.09	14.03	20.75	3.94	0.38	61.38	5.57	0.00	66.95
Bus	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tram	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pedestrians	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Controller streams									30000
TOTAL	291.09	14.03	20.75	3.94	0.38	61.38	5.57	0.00	30066.95

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

A2 - 2022 DS PM
D2 - 2022 DS PM*

Arms and Traffic Streams

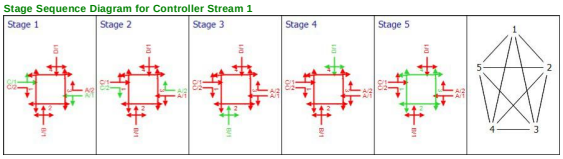
Flows

Arm	Traffic Stream	Total Flow (PCU/hr)	Normal Flow (PCU/hr)
A	1	233	233
	2	11	11
Ax	1	154	154
B	1	43	43
Bx	1	55	55
C	1	121	121
	2	20	20
Cx	1	216	216
D	1	12	12
Dx	1	15	15
9	1	244	244
10	1	141	141

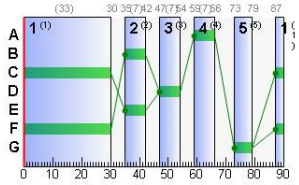
Signal Timings

Network Default: 90s cycle time; 90 steps

Stage Sequence Diagram for Controller Stream 1



Phase Timings Diagram for Controller Stream 1



Traffic Stream Results

Traffic Stream Results: Vehicle summary

Time Segment	Arm	Traffic Stream	Degree of saturation (%)	Practical reserve capacity (%)	Calculated flow entering (PCU/hr)	Calculated sat flow (PCU/hr)	Actual green (s (per cycle))	Mean Delay per Veh (s)	Mean max queue (PCU)	Utilised storage (%)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Performance Index (£ per hr)
16:30-17:30	A	1	37	142	233	1659	33	21.97	4.32	174.80	20.19	2.11	22.30
		2	6	1395	11	2055	7	38.44	0.25	10.22	1.67	0.12	1.79
	Ax	1	0	Unrestricted	154	Unrestricted	90	0.00	0.00	0.00	0.00	0.00	0.00
	B	1	28	227	43	1758	7	42.65	1.06	2.43	7.23	0.52	7.75
	Bx	1	0	Unrestricted	55	Unrestricted	90	0.00	0.00	0.00	0.00	0.00	0.00
	C	1	19	382	121	1717	33	19.39	2.04	28.24	9.26	1.00	10.25
		2	11	722	20	2055	7	39.02	0.46	6.41	3.08	0.23	3.31
	Cx	1	0	Unrestricted	216	Unrestricted	90	0.00	0.00	0.00	0.00	0.00	0.00
	D	1	8	1072	12	1758	7	38.77	0.28	0.80	1.84	0.14	1.97
	Dx	1	0	Unrestricted	15	Unrestricted	90	0.00	0.00	0.00	0.00	0.00	0.00
	9	1	12	658	244	2055	90	0.12	0.01	0.02	0.11	0.00	0.11
	10	1	7	1212	141	2055	90	0.06	0.00	0.01	0.04	0.00	0.04

Traffic Stream Results: Flows and signals

Time Segment	Arm	Traffic Stream	Calculated flow entering (PCU/hr)	Calculated flow out (PCU/hr)	Flow discrepancy (PCU/hr)	Adjusted flow warning	Calculated sat flow (PCU/hr)	Calculated capacity (PCU/hr)	Degree of saturation (%)	DOS Threshold exceeded	Practical reserve capacity (%)	Mean modulus of error	Actual green (s (per cycle))	Effec gree (pe cycl
16:30-17:30	A	1	233	233	0		1659	627	37		142	0.00	33	34
		2	11	11	0		2055	183	6		1395	0.00	7	8
	Ax	1	154	154	0		Unrestricted	Unrestricted	0		Unrestricted	0.67	90	90
	B	1	43	43	0		1758	156	28		227	0.00	7	8
	Bx	1	55	55	0		Unrestricted	Unrestricted	0		Unrestricted	0.75	90	90
	C	1	121	121	0		1717	649	19		382	0.00	33	34
		2	20	20	0		2055	183	11		722	0.00	7	8
	Cx	1	216	216	0		Unrestricted	Unrestricted	0		Unrestricted	0.88	90	90
	D	1	12	12	0		1758	156	8		1072	0.00	7	8
	Dx	1	15	15	0		Unrestricted	Unrestricted	0		Unrestricted	1.01	90	90
	9	1	244	244	0		2055	2055	12		658	0.00	90	90
	10	1	141	141	0		2055	2055	7		1212	0.00	90	90

Traffic Stream Results: Queues and blocking

Time Segment	Arm	Traffic Stream	Initial queue (PCU)	Mean max queue (PCU)	Max queue storage (PCU)	Utilised storage (%)	Average storage excess queue (PCU)	Average limit excess queue (PCU)	Excess queue penalty (£ per hr)	Max end of green queue (PCU)	Max end of red queue (PCU)	Wasted time starvation (s (per cycle))	Wasted time blocking back (s (per cycle))	Wasted time total (s (per cycle))	Estimated blocking
16:30-17:30	A	1	0.00	4.32	2.47	174.80	0.30	0.00	0.00	0.11	3.73	0.00	0.00	0.00	
		2	0.00	0.25	2.47	10.22	0.00	0.00	0.00	0.00	0.25	7.00	0.00	7.00	
	Ax	1	0.00	0.00	43.48	0.00	0.00	0.00	0.00			28.00	0.00	28.00	
	B	1	0.00	1.06	43.48	2.43	0.00	0.00	0.00	0.05	1.03	5.00	0.00	5.00	
	Bx	1	0.00	0.00	43.48	0.00	0.00	0.00	0.00			57.00	0.00	57.00	
	C	1	0.00	2.04	7.22	28.24	0.00	0.00	0.00	0.02	1.90	0.00	0.00	0.00	
		2	0.00	0.46	7.22	6.41	0.00	0.00	0.00	0.01	0.46	7.00	0.00	7.00	
	Cx	1	0.00	0.00	43.48	0.00	0.00	0.00	0.00			30.00	0.00	30.00	
	D	1	0.00	0.28	34.78	0.80	0.00	0.00	0.00	0.00	0.28	7.00	0.00	7.00	
	Dx	1	0.00	0.00	34.78	0.00	0.00	0.00	0.00			84.00	0.00	84.00	
	9	1	0.00	0.01	43.48	0.02	0.00	0.00	0.00			0.00	29.00	29.00	
	10	1	0.00	0.00	43.48	0.01	0.00	0.00	0.00			0.00	0.00	0.00	

Final Prediction Table

Traffic Stream Results

				SIGNALS		FLOWS			PERFORMANCE			PER PCU			QUEUES	
Arm	Traffic Stream	Name	Traffic node	Controller stream	Phase	Calculated flow entering (PCU/hr)	Calculated sat flow (PCU/hr)	Actual green (s (per cycle))	Wasted time total (s (per cycle))	Degree of saturation (%)	Practical reserve capacity (%)	JourneyTime (s)	Mean Delay per Veh (s)	Mean stops per Veh (%)	Mean max queue (PCU)	M en of r que (PC
A	1	(untitled)	1	1	C	233 <	1659	33	0.00	37	142	23.67	21.97	72.21	4.32 +	3.
	2	(untitled)	1	1	B	11	2055	7	7.00	6	1395	40.15	38.44	90.50	0.25	0.
Ax	1	(untitled)				154	Unrestricted	90	28.00	0	Unrestricted	30.00	0.00	0.00	0.00	
B	1	(untitled)	1	1	D	43	1758	7	5.00	28	227	72.65	42.65	96.50	1.06	1.
Bx	1	(untitled)				55	Unrestricted	90	57.00	0	Unrestricted	30.00	0.00	0.00	0.00	
C	1	(untitled)	1	1	F	121	1717	33	0.00	19	382	24.37	19.39	65.87	2.04	1.
	2	(untitled)	1	1	E	20	2055	7	7.00	11	722	44.00	39.02	91.14	0.46	0.
Cx	1	(untitled)				216	Unrestricted	90	30.00	0	Unrestricted	30.00	0.00	0.00	0.00	
D	1	(untitled)	1	1	A	12	1758	7	7.00	8	1072	62.77	38.77	90.86	0.28	0.
Dx	1	(untitled)				15	Unrestricted	90	84.00	0	Unrestricted	24.00	0.00	0.00	0.00	
9	1	(untitled)	2			244	2055	90	29.00	12	658	30.12	0.12	0.00	0.01	
10	1	(untitled)	3			141	2055	90	0.00	7	1212	30.06	0.06	0.00	0.00	

Network Results

	Distance travelled (PCU-km/hr)	Time spent (PCU-hr/hr)	Mean journey speed (kph)	Uniform delay (PCU-hr/hr)	Random plus oversat delay (PCU-hr/hr)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Excess queue penalty (£ per hr)	Performance Index (£ per hr)
Normal traffic	227.97	10.66	21.39	2.85	0.21	43.41	4.12	0.00	47.53
Bus	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tram	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pedestrians	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	227.97	10.66	21.39	2.85	0.21	43.41	4.12	0.00	47.53

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

A3 - 2027 DS AM
D3 - 2027 DS AM*

Arms and Traffic Streams

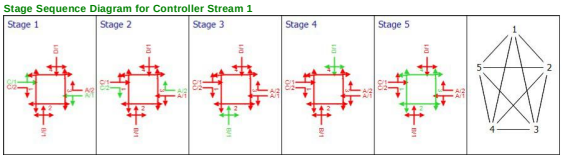
Flows

Arm	Traffic Stream	Total Flow (PCU/hr)	Normal Flow (PCU/hr)
A	1	221	221
	2	8	8
Ax	1	479	479
B	1	148	148
Bx	1	47	47
C	1	347	347
	2	13	13
Cx	1	229	229
D	1	29	29
Dx	1	11	11
9	1	229	229
10	1	360	360

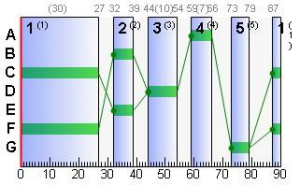
Signal Timings

Network Default: 90s cycle time; 90 steps

Stage Sequence Diagram for Controller Stream 1



Phase Timings Diagram for Controller Stream 1



Traffic Stream Results

Traffic Stream Results: Vehicle summary

Time Segment	Arm	Traffic Stream	Degree of saturation (%)	Practical reserve capacity (%)	Calculated flow entering (PCU/hr)	Calculated sat flow (PCU/hr)	Actual green (s (per cycle))	Mean Delay per Veh (s)	Mean max queue (PCU)	Utilised storage (%)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Performance Index (£ per hr)
08:15-09:15	A	1	39	133	221	1659	30	24.29	4.30	173.96	21.18	2.09	23.27
		2	4	1955	8	2055	7	38.26	0.18	7.42	1.21	0.09	1.30
	Ax	1	0	Unrestricted	479	Unrestricted	90	0.00	0.00	0.00	0.00	0.00	0.00
	B	1	69	31	148	1758	10	55.66	4.27	9.81	32.49	2.09	34.59
	Bx	1	0	Unrestricted	47	Unrestricted	90	0.00	0.00	0.00	0.00	0.00	0.00
	C	1	59	53	347	1717	30	28.52	7.45	103.22	39.04	3.67	42.71
		2	7	1165	13	2055	7	38.57	0.30	4.14	1.98	0.15	2.13
	Cx	1	0	Unrestricted	229	Unrestricted	90	0.00	0.00	0.00	0.00	0.00	0.00
	D	1	19	385	29	1758	7	40.68	0.69	1.98	4.65	0.34	4.99
	Dx	1	0	Unrestricted	11	Unrestricted	90	0.00	0.00	0.00	0.00	0.00	0.00
	9	1	11	708	229	2055	90	0.11	0.01	0.02	0.10	0.00	0.10
	10	1	18	414	360	2055	90	0.19	0.02	0.04	0.26	0.00	0.26

Traffic Stream Results: Flows and signals

Time Segment	Arm	Traffic Stream	Calculated flow entering (PCU/hr)	Calculated flow out (PCU/hr)	Flow discrepancy (PCU/hr)	Adjusted flow warning	Calculated sat flow (PCU/hr)	Calculated capacity (PCU/hr)	Degree of saturation (%)	DOS Threshold exceeded	Practical reserve capacity (%)	Mean modulus of error	Actual green (s (per cycle))	Effec gree (pe cycl
08:15-09:15	A	1	221	221	0		1659	571	39		133	0.00	30	31
		2	8	8	0		2055	183	4		1955	0.00	7	8
	Ax	1	479	479	0		Unrestricted	Unrestricted	0		Unrestricted	0.64	90	90
	B	1	148	148	0		1758	215	69		31	0.00	10	11
	Bx	1	47	47	0		Unrestricted	Unrestricted	0		Unrestricted	0.81	90	90
	C	1	347	347	0		1717	591	59		53	0.00	30	31
		2	13	13	0		2055	183	7		1165	0.00	7	8
	Cx	1	229	229	0		Unrestricted	Unrestricted	0		Unrestricted	0.76	90	90
	D	1	29	29	0		1758	156	19		385	0.00	7	8
	Dx	1	11	11	0		Unrestricted	Unrestricted	0		Unrestricted	0.97	90	90
	9	1	229	229	0		2055	2055	11		708	0.00	90	90
	10	1	360	360	0		2055	2055	18		414	0.00	90	90

Traffic Stream Results: Queues and blocking

Time Segment	Arm	Traffic Stream	Initial queue (PCU)	Mean max queue (PCU)	Max queue storage (PCU)	Utilised storage (%)	Average storage excess queue (PCU)	Average limit excess queue (PCU)	Excess queue penalty (£ per hr)	Max end of green queue (PCU)	Max end of red queue (PCU)	Wasted time starvation (s (per cycle))	Wasted time blocking back (s (per cycle))	Wasted time total (s (per cycle))	Estimated blocking
08:15-09:15	A	1	0.00	4.30	2.47	173.96	0.31	0.00	0.00	0.12	3.74	0.00	0.00	0.00	
		2	0.00	0.18	2.47	7.42	0.00	0.00	0.00	0.00	0.18	7.00	0.00	7.00	
	Ax	1	0.00	0.00	43.48	0.00	0.00	0.00	0.00			8.00	0.00	8.00	
	B	1	0.00	4.27	43.48	9.81	0.00	0.00	0.00	0.73	3.98	0.00	0.00	0.00	
	Bx	1	0.00	0.00	43.48	0.00	0.00	0.00	0.00			60.00	0.00	60.00	
	C	1	0.00	7.45	7.22	103.22	0.00	0.00	0.00	0.41	6.10	0.00	0.00	0.00	
		2	0.00	0.30	7.22	4.14	0.00	0.00	0.00	0.00	0.30	7.00	0.00	7.00	
	Cx	1	0.00	0.00	43.48	0.00	0.00	0.00	0.00			23.00	0.00	23.00	
	D	1	0.00	0.69	34.78	1.98	0.00	0.00	0.00	0.02	0.68	6.00	0.00	6.00	
	Dx	1	0.00	0.00	34.78	0.00	0.00	0.00	0.00			86.00	0.00	86.00	
	9	1	0.00	0.01	43.48	0.02	0.00	0.00	0.00			0.00	30.00	30.00	
	10	1	0.00	0.02	43.48	0.04	0.00	0.00	0.00			0.00	3.00	3.00	

Final Prediction Table

Traffic Stream Results

				SIGNALS		FLOWS		PERFORMANCE			PER PCU			QUEUE	
Arm	Traffic Stream	Name	Traffic node	Controller stream	Phase	Calculated flow entering (PCU/hr)	Calculated sat flow (PCU/hr)	Actual green (s (per cycle))	Wasted time total (s (per cycle))	Degree of saturation (%)	Practical reserve capacity (%)	JourneyTime (s)	Mean Delay per Veh (s)	Mean stops per Veh (%)	Mean max queue (PCU)	M e of qu (P
A	1	(untitled)	1	1	C	221 <	1659	30	0.00	39	133	26.00	24.29	75.56	4.30 +	3.
	2	(untitled)	1	1	B	8	2055	7	7.00	4	1955	39.97	38.26	90.30	0.18	0.
Ax	1	(untitled)				479	Unrestricted	90	8.00	0	Unrestricted	30.00	0.00	0.00	0.00	
B	1	(untitled)	1	1	D	148	1758	10	0.00	69	31	85.66	55.66	112.84	4.27	3.
Bx	1	(untitled)				47	Unrestricted	90	60.00	0	Unrestricted	30.00	0.00	0.00	0.00	
C	1	(untitled)	1	1	F	347 <	1717	30	0.00	59	53	33.50	28.52	84.34	7.45 +	6.
	2	(untitled)	1	1	E	13	2055	7	7.00	7	1165	43.55	38.57	90.63	0.30	0.
Cx	1	(untitled)				229	Unrestricted	90	23.00	0	Unrestricted	30.00	0.00	0.00	0.00	
D	1	(untitled)	1	1	A	29	1758	7	6.00	19	385	64.68	40.68	93.79	0.69	0.
Dx	1	(untitled)				11	Unrestricted	90	86.00	0	Unrestricted	24.00	0.00	0.00	0.00	
9	1	(untitled)	2			229	2055	90	30.00	11	708	30.11	0.11	0.00	0.01	
10	1	(untitled)	3			360	2055	90	3.00	18	414	30.19	0.19	0.00	0.02	

Network Results

	Distance travelled (PCU-km/hr)	Time spent (PCU-hr/hr)	Mean journey speed (kph)	Uniform delay (PCU-hr/hr)	Random plus oversat delay (PCU-hr/hr)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Excess queue penalty (£ per hr)	Performance Index (£ per hr)
Normal traffic	399.19	20.41	19.56	5.79	1.32	100.91	8.44	0.00	109.35
Bus	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tram	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pedestrians	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Controller streams									30000
TOTAL	399.19	20.41	19.56	5.79	1.32	100.91	8.44	0.00	30109.35

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

A4 - 2027 DS PM
D4 - 2027 DS PM*

Arms and Traffic Streams

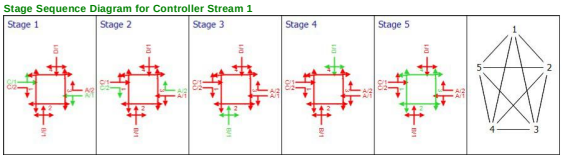
Flows

Arm	Traffic Stream	Total Flow (PCU/hr)	Normal Flow (PCU/hr)
A	1	317	317
	2	11	11
Ax	1	221	221
B	1	81	81
Bx	1	104	104
C	1	164	164
	2	39	39
Cx	1	284	284
D	1	13	13
Dx	1	16	16
9	1	328	328
10	1	203	203

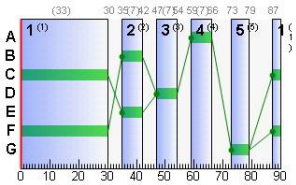
Signal Timings

Network Default: 90s cycle time; 90 steps

Stage Sequence Diagram for Controller Stream 1



Phase Timings Diagram for Controller Stream 1



Traffic Stream Results

Traffic Stream Results: Vehicle summary

Time Segment	Arm	Traffic Stream	Degree of saturation (%)	Practical reserve capacity (%)	Calculated flow entering (PCU/hr)	Calculated sat flow (PCU/hr)	Actual green (s (per cycle))	Mean Delay per Veh (s)	Mean max queue (PCU)	Utilised storage (%)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Performance Index (£ per hr)
16:30-17:30	A	1	51	78	317	1659	33	24.47	6.33	256.46	30.59	3.10	33.69
		2	6	1395	11	2055	7	38.44	0.25	10.22	1.67	0.12	1.79
	Ax	1	0	Unrestricted	221	Unrestricted	90	0.00	0.00	0.00	0.00	0.00	0.00
	B	1	52	74	81	1758	7	51.31	2.19	5.03	16.39	1.08	17.47
	Bx	1	0	Unrestricted	104	Unrestricted	90	0.00	0.00	0.00	0.00	0.00	0.00
	C	1	25	256	164	1717	33	20.20	2.82	39.09	13.07	1.39	14.46
		2	21	322	39	2055	7	40.81	0.93	12.86	6.28	0.46	6.74
	Cx	1	0	Unrestricted	284	Unrestricted	90	0.00	0.00	0.00	0.00	0.00	0.00
	D	1	8	982	13	1758	7	38.86	0.30	0.86	1.99	0.15	2.14
	Dx	1	0	Unrestricted	16	Unrestricted	90	0.00	0.00	0.00	0.00	0.00	0.00
	9	1	16	464	328	2055	90	0.17	0.02	0.03	0.22	0.00	0.22
	10	1	10	811	203	2055	90	0.10	0.01	0.01	0.08	0.00	0.08

Traffic Stream Results: Flows and signals

Time Segment	Arm	Traffic Stream	Calculated flow entering (PCU/hr)	Calculated flow out (PCU/hr)	Flow discrepancy (PCU/hr)	Adjusted flow warning	Calculated sat flow (PCU/hr)	Calculated capacity (PCU/hr)	Degree of saturation (%)	DOS Threshold exceeded	Practical reserve capacity (%)	Mean modulus of error	Actual green (s (per cycle))	Effec gree (pe cycl
16:30-17:30	A	1	317	317	0		1659	627	51		78	0.00	33	34
		2	11	11	0		2055	183	6		1395	0.00	7	8
	Ax	1	221	221	0		Unrestricted	Unrestricted	0		Unrestricted	0.65	90	90
	B	1	81	81	0		1758	156	52		74	0.00	7	8
	Bx	1	104	104	0		Unrestricted	Unrestricted	0		Unrestricted	0.73	90	90
	C	1	164	164	0		1717	649	25		256	0.00	33	34
		2	39	39	0		2055	183	21		322	0.00	7	8
	Cx	1	284	284	0		Unrestricted	Unrestricted	0		Unrestricted	0.82	90	90
	D	1	13	13	0		1758	156	8		982	0.00	7	8
	Dx	1	16	16	0		Unrestricted	Unrestricted	0		Unrestricted	0.97	90	90
	9	1	328	328	0		2055	2055	16		464	0.00	90	90
	10	1	203	203	0		2055	2055	10		811	0.00	90	90

Traffic Stream Results: Queues and blocking

Time Segment	Arm	Traffic Stream	Initial queue (PCU)	Mean max queue (PCU)	Max queue storage (PCU)	Utilised storage (%)	Average storage excess queue (PCU)	Average limit excess queue (PCU)	Excess queue penalty (£ per hr)	Max end of green queue (PCU)	Max end of red queue (PCU)	Wasted time starvation (s (per cycle))	Wasted time blocking back (s (per cycle))	Wasted time total (s (per cycle))	Estimated blocking
16:30-17:30	A	1	0.00	6.33	2.47	256.46	0.96	0.00	0.00	0.26	5.19	0.00	0.00	0.00	
		2	0.00	0.25	2.47	10.22	0.00	0.00	0.00	0.00	0.25	7.00	0.00	7.00	
	Ax	1	0.00	0.00	43.48	0.00	0.00	0.00	0.00			21.00	0.00	21.00	
	B	1	0.00	2.19	43.48	5.03	0.00	0.00	0.00	0.27	2.12	0.00	0.00	0.00	
	Bx	1	0.00	0.00	43.48	0.00	0.00	0.00	0.00			36.00	0.00	36.00	
	C	1	0.00	2.82	7.22	39.09	0.00	0.00	0.00	0.04	2.59	0.00	0.00	0.00	
		2	0.00	0.93	7.22	12.86	0.00	0.00	0.00	0.03	0.92	6.00	0.00	6.00	
	Cx	1	0.00	0.00	43.48	0.00	0.00	0.00	0.00			21.00	0.00	21.00	
	D	1	0.00	0.30	34.78	0.86	0.00	0.00	0.00	0.00	0.30	7.00	0.00	7.00	
	Dx	1	0.00	0.00	34.78	0.00	0.00	0.00	0.00			84.00	0.00	84.00	
	9	1	0.00	0.02	43.48	0.03	0.00	0.00	0.00			0.00	44.00	44.00	
	10	1	0.00	0.01	43.48	0.01	0.00	0.00	0.00			0.00	0.00	0.00	

Final Prediction Table

Traffic Stream Results

				SIGNALS		FLOWS			PERFORMANCE			PER PCU			QUEUE	
Arm	Traffic Stream	Name	Traffic node	Controller stream	Phase	Calculated flow entering (PCU/hr)	Calculated sat flow (PCU/hr)	Actual green (s (per cycle))	Wasted time total (s (per cycle))	Degree of saturation (%)	Practical reserve capacity (%)	JourneyTime (s)	Mean Delay per Veh (s)	Mean stops per Veh (%)	Mean max queue (PCU)	M e of qu (P
A	1	(untitled)	1	1	C	317 <	1659	33	0.00	51	78	26.17	24.47	77.98	6.33 +	5.
	2	(untitled)	1	1	B	11	2055	7	7.00	6	1395	40.15	38.44	90.50	0.25	0.
Ax	1	(untitled)				221	Unrestricted	90	21.00	0	Unrestricted	30.00	0.00	0.00	0.00	
B	1	(untitled)	1	1	D	81	1758	7	0.00	52	74	81.31	51.31	106.18	2.19	2.
Bx	1	(untitled)				104	Unrestricted	90	36.00	0	Unrestricted	30.00	0.00	0.00	0.00	
C	1	(untitled)	1	1	F	164	1717	33	0.00	25	256	25.18	20.20	67.50	2.82	2.
	2	(untitled)	1	1	E	39	2055	7	6.00	21	322	45.79	40.81	93.85	0.93	0.
Cx	1	(untitled)				284	Unrestricted	90	21.00	0	Unrestricted	30.00	0.00	0.00	0.00	
D	1	(untitled)	1	1	A	13	1758	7	7.00	8	982	62.86	38.86	90.95	0.30	0.
Dx	1	(untitled)				16	Unrestricted	90	84.00	0	Unrestricted	24.00	0.00	0.00	0.00	
9	1	(untitled)	2			328	2055	90	44.00	16	464	30.17	0.17	0.00	0.02	
10	1	(untitled)	3			203	2055	90	0.00	10	811	30.10	0.10	0.00	0.01	

Network Results

	Distance travelled (PCU-km/hr)	Time spent (PCU-hr/hr)	Mean journey speed (kph)	Uniform delay (PCU-hr/hr)	Random plus oversat delay (PCU-hr/hr)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Excess queue penalty (£ per hr)	Performance Index (£ per hr)
Normal traffic	324.13	15.75	20.57	4.32	0.63	70.29	6.30	0.00	76.58
Bus	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tram	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pedestrians	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	324.13	15.75	20.57	4.32	0.63	70.29	6.30	0.00	76.58

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

A5 - 2037 DS AM
D5 - 2037 DS AM*

Arms and Traffic Streams

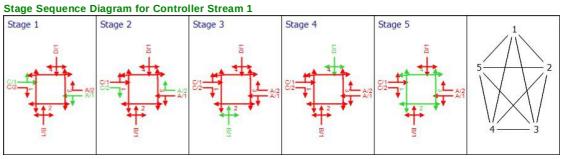
Flows

Arm	Traffic Stream	Total Flow (PCU/hr)	Normal Flow (PCU/hr)
A	1	230	230
	2	8	8
Ax	1	492	492
B	1	148	148
Bx	1	47	47
C	1	359	359
	2	13	13
Cx	1	239	239
D	1	31	31
Dx	1	11	11
9	1	238	238
10	1	372	372

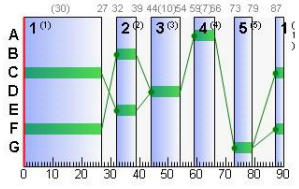
Signal Timings

Network Default: 90s cycle time; 90 steps

Stage Sequence Diagram for Controller Stream 1



Phase Timings Diagram for Controller Stream 1



Traffic Stream Results

Traffic Stream Results: Vehicle summary

Time Segment	Arm	Traffic Stream	Degree of saturation (%)	Practical reserve capacity (%)	Calculated flow entering (PCU/hr)	Calculated sat flow (PCU/hr)	Actual green (s (per cycle))	Mean Delay per Veh (s)	Mean max queue (PCU)	Utilised storage (%)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Performance Index (£ per hr)
08:15-09:15	A	1	40	124	230	1659	30	24.58	4.48	181.39	22.30	2.20	24.50
		2	4	1955	8	2055	7	38.26	0.18	7.42	1.21	0.09	1.30
	Ax	1	0	Unrestricted	492	Unrestricted	90	0.00	0.00	0.00	0.00	0.00	0.00
	B	1	69	31	148	1758	10	55.66	4.27	9.81	32.49	2.09	34.59
	Bx	1	0	Unrestricted	47	Unrestricted	90	0.00	0.00	0.00	0.00	0.00	0.00
	C	1	61	48	359	1717	30	29.11	7.84	108.68	41.23	3.86	45.09
		2	7	1165	13	2055	7	38.57	0.30	4.14	1.98	0.15	2.13
	Cx	1	0	Unrestricted	239	Unrestricted	90	0.00	0.00	0.00	0.00	0.00	0.00
	D	1	20	354	31	1758	7	40.94	0.74	2.13	5.01	0.37	5.37
	Dx	1	0	Unrestricted	11	Unrestricted	90	0.00	0.00	0.00	0.00	0.00	0.00
	9	1	12	677	238	2055	90	0.11	0.01	0.02	0.11	0.00	0.11
	10	1	18	397	372	2055	90	0.19	0.02	0.05	0.28	0.00	0.28

Traffic Stream Results: Flows and signals

Time Segment	Arm	Traffic Stream	Calculated flow entering (PCU/hr)	Calculated flow out (PCU/hr)	Flow discrepancy (PCU/hr)	Adjusted flow warning	Calculated sat flow (PCU/hr)	Calculated capacity (PCU/hr)	Degree of saturation (%)	DOS Threshold exceeded	Practical reserve capacity (%)	Mean modulus of error	Actual green (s (per cycle))	Effec gree (pe cycl
08:15-09:15	A	1	230	230	0		1659	571	40		124	0.00	30	31
		2	8	8	0		2055	183	4		1955	0.00	7	8
	Ax	1	492	492	0		Unrestricted	Unrestricted	0		Unrestricted	0.64	90	90
	B	1	148	148	0		1758	215	69		31	0.00	10	11
	Bx	1	47	47	0		Unrestricted	Unrestricted	0		Unrestricted	0.81	90	90
	C	1	359	359	0		1717	591	61		48	0.00	30	31
		2	13	13	0		2055	183	7		1165	0.00	7	8
	Cx	1	239	239	0		Unrestricted	Unrestricted	0		Unrestricted	0.76	90	90
	D	1	31	31	0		1758	156	20		354	0.00	7	8
	Dx	1	11	11	0		Unrestricted	Unrestricted	0		Unrestricted	0.97	90	90
	9	1	238	238	0		2055	2055	12		677	0.00	90	90
	10	1	372	372	0		2055	2055	18		397	0.00	90	90

Traffic Stream Results: Queues and blocking

Time Segment	Arm	Traffic Stream	Initial queue (PCU)	Mean max queue (PCU)	Max queue storage (PCU)	Utilised storage (%)	Average storage excess queue (PCU)	Average limit excess queue (PCU)	Excess queue penalty (£ per hr)	Max end of green queue (PCU)	Max end of red queue (PCU)	Wasted time starvation (s (per cycle))	Wasted time blocking back (s (per cycle))	Wasted time total (s (per cycle))	Estimated blocking
08:15-09:15	A	1	0.00	4.48	2.47	181.39	0.36	0.00	0.00	0.14	3.90	0.00	0.00	0.00	
		2	0.00	0.18	2.47	7.42	0.00	0.00	0.00	0.00	0.18	7.00	0.00	7.00	
	Ax	1	0.00	0.00	43.48	0.00	0.00	0.00	0.00			7.00	0.00	7.00	
	B	1	0.00	4.27	43.48	9.81	0.00	0.00	0.00	0.73	3.98	0.00	0.00	0.00	
	Bx	1	0.00	0.00	43.48	0.00	0.00	0.00	0.00			60.00	0.00	60.00	
	C	1	0.00	7.84	7.22	108.68	0.03	0.00	0.00	0.46	6.35	0.00	0.00	0.00	
		2	0.00	0.30	7.22	4.14	0.00	0.00	0.00	0.00	0.30	7.00	0.00	7.00	
	Cx	1	0.00	0.00	43.48	0.00	0.00	0.00	0.00			21.00	0.00	21.00	
	D	1	0.00	0.74	34.78	2.13	0.00	0.00	0.00	0.02	0.73	6.00	0.00	6.00	
	Dx	1	0.00	0.00	34.78	0.00	0.00	0.00	0.00			86.00	0.00	86.00	
	9	1	0.00	0.01	43.48	0.02	0.00	0.00	0.00			0.00	32.00	32.00	
	10	1	0.00	0.02	43.48	0.05	0.00	0.00	0.00			0.00	7.00	7.00	

Final Prediction Table

Traffic Stream Results

				SIGNALS		FLOWS			PERFORMANCE			PER PCU			QUEUE	
Arm	Traffic Stream	Name	Traffic node	Controller stream	Phase	Calculated flow entering (PCU/hr)	Calculated sat flow (PCU/hr)	Actual green (s (per cycle))	Wasted time total (s (per cycle))	Degree of saturation (%)	Practical reserve capacity (%)	JourneyTime (s)	Mean Delay per Veh (s)	Mean stops per Veh (%)	Mean max queue (PCU)	M e of qu (P
A	1	(untitled)	1	1	C	230 <	1659	30	0.00	40	124	26.28	24.58	76.38	4.48 +	3.
	2	(untitled)	1	1	B	8	2055	7	7.00	4	1955	39.97	38.26	90.30	0.18	0.
Ax	1	(untitled)				492	Unrestricted	90	7.00	0	Unrestricted	30.00	0.00	0.00	0.00	
B	1	(untitled)	1	1	D	148	1758	10	0.00	69	31	85.66	55.66	112.84	4.27	3.
Bx	1	(untitled)				47	Unrestricted	90	60.00	0	Unrestricted	30.00	0.00	0.00	0.00	
C	1	(untitled)	1	1	F	359 <	1717	30	0.00	61	48	34.09	29.11	85.68	7.84 +	6.
	2	(untitled)	1	1	E	13	2055	7	7.00	7	1165	43.55	38.57	90.63	0.30	0.
Cx	1	(untitled)				239	Unrestricted	90	21.00	0	Unrestricted	30.00	0.00	0.00	0.00	
D	1	(untitled)	1	1	A	31	1758	7	6.00	20	354	64.94	40.94	94.04	0.74	0.
Dx	1	(untitled)				11	Unrestricted	90	86.00	0	Unrestricted	24.00	0.00	0.00	0.00	
9	1	(untitled)	2			238	2055	90	32.00	12	677	30.11	0.11	0.00	0.01	
10	1	(untitled)	3			372	2055	90	7.00	18	397	30.19	0.19	0.00	0.02	

Network Results

	Distance travelled (PCU-km/hr)	Time spent (PCU-hr/hr)	Mean journey speed (kph)	Uniform delay (PCU-hr/hr)	Random plus oversat delay (PCU-hr/hr)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Excess queue penalty (£ per hr)	Performance Index (£ per hr)
Normal traffic	411.22	21.07	19.51	5.98	1.39	104.60	8.76	0.00	113.36
Bus	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tram	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pedestrians	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Controller streams									30000
TOTAL	411.22	21.07	19.51	5.98	1.39	104.60	8.76	0.00	30113.36

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

A6 - 2037 DS PM
D6 - 2037 DS PM*

Arms and Traffic Streams

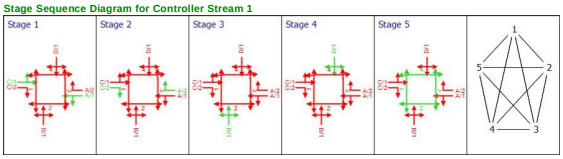
Flows

Arm	Traffic Stream	Total Flow (PCU/hr)	Normal Flow (PCU/hr)
A	1	326	326
	2	12	12
Ax	1	225	225
B	1	81	81
Bx	1	104	104
C	1	168	168
	2	39	39
Cx	1	293	293
D	1	13	13
Dx	1	17	17
9	1	338	338
10	1	207	207

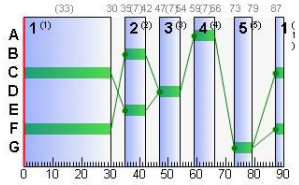
Signal Timings

Network Default: 90s cycle time; 90 steps

Stage Sequence Diagram for Controller Stream 1



Phase Timings Diagram for Controller Stream 1



Traffic Stream Results

Traffic Stream Results: Vehicle summary

Time Segment	Arm	Traffic Stream	Degree of saturation (%)	Practical reserve capacity (%)	Calculated flow entering (PCU/hr)	Calculated sat flow (PCU/hr)	Actual green (s (per cycle))	Mean Delay per Veh (s)	Mean max queue (PCU)	Utilised storage (%)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Performance Index (£ per hr)
16:30-17:30	A	1	52	73	326	1659	33	24.78	6.53	264.37	31.87	3.21	35.08
		2	7	1270	12	2055	7	38.50	0.28	11.16	1.82	0.14	1.96
	Ax	1	0	Unrestricted	225	Unrestricted	90	0.00	0.00	0.00	0.00	0.00	0.00
	B	1	52	74	81	1758	7	51.31	2.19	5.03	16.39	1.08	17.47
	Bx	1	0	Unrestricted	104	Unrestricted	90	0.00	0.00	0.00	0.00	0.00	0.00
	C	1	26	247	168	1717	33	20.28	2.94	40.71	13.44	1.43	14.87
		2	21	322	39	2055	7	40.81	0.93	12.86	6.28	0.46	6.74
	Cx	1	0	Unrestricted	293	Unrestricted	90	0.00	0.00	0.00	0.00	0.00	0.00
	D	1	8	982	13	1758	7	38.86	0.30	0.86	1.99	0.15	2.14
	Dx	1	0	Unrestricted	17	Unrestricted	90	0.00	0.00	0.00	0.00	0.00	0.00
	9	1	16	447	338	2055	90	0.17	0.02	0.04	0.23	0.00	0.23
	10	1	10	793	207	2055	90	0.10	0.01	0.01	0.08	0.00	0.08

Traffic Stream Results: Flows and signals

Time Segment	Arm	Traffic Stream	Calculated flow entering (PCU/hr)	Calculated flow out (PCU/hr)	Flow discrepancy (PCU/hr)	Adjusted flow warning	Calculated sat flow (PCU/hr)	Calculated capacity (PCU/hr)	Degree of saturation (%)	DOS Threshold exceeded	Practical reserve capacity (%)	Mean modulus of error	Actual green (s (per cycle))	Effec gree (pe cycl
16:30-17:30	A	1	326	326	0		1659	627	52		73	0.00	33	34
		2	12	12	0		2055	183	7		1270	0.00	7	8
	Ax	1	225	225	0		Unrestricted	Unrestricted	0		Unrestricted	0.65	90	90
	B	1	81	81	0		1758	156	52		74	0.00	7	8
	Bx	1	104	104	0		Unrestricted	Unrestricted	0		Unrestricted	0.73	90	90
	C	1	168	168	0		1717	649	26		247	0.00	33	34
		2	39	39	0		2055	183	21		322	0.00	7	8
	Cx	1	293	293	0		Unrestricted	Unrestricted	0		Unrestricted	0.83	90	90
	D	1	13	13	0		1758	156	8		982	0.00	7	8
	Dx	1	17	17	0		Unrestricted	Unrestricted	0		Unrestricted	0.98	90	90
	9	1	338	338	0		2055	2055	16		447	0.00	90	90
	10	1	207	207	0		2055	2055	10		793	0.00	90	90

Traffic Stream Results: Queues and blocking

Time Segment	Arm	Traffic Stream	Initial queue (PCU)	Mean max queue (PCU)	Max queue storage (PCU)	Utilised storage (%)	Average storage excess queue (PCU)	Average limit excess queue (PCU)	Excess queue penalty (£ per hr)	Max end of green queue (PCU)	Max end of red queue (PCU)	Wasted time starvation (s (per cycle))	Wasted time blocking back (s (per cycle))	Wasted time total (s (per cycle))	Estimated blocking
16:30-17:30	A	1	0.00	6.53	2.47	264.37	1.03	0.00	0.00	0.28	5.35	0.00	0.00	0.00	
		2	0.00	0.28	2.47	11.16	0.00	0.00	0.00	0.00	0.28	7.00	0.00	7.00	
	Ax	1	0.00	0.00	43.48	0.00	0.00	0.00	0.00			21.00	0.00	21.00	
	B	1	0.00	2.19	43.48	5.03	0.00	0.00	0.00	0.27	2.12	0.00	0.00	0.00	
	Bx	1	0.00	0.00	43.48	0.00	0.00	0.00	0.00			35.00	0.00	35.00	
	C	1	0.00	2.94	7.22	40.71	0.00	0.00	0.00	0.05	2.66	0.00	0.00	0.00	
		2	0.00	0.93	7.22	12.86	0.00	0.00	0.00	0.03	0.92	6.00	0.00	6.00	
	Cx	1	0.00	0.00	43.48	0.00	0.00	0.00	0.00			21.00	0.00	21.00	
	D	1	0.00	0.30	34.78	0.86	0.00	0.00	0.00	0.00	0.30	7.00	0.00	7.00	
	Dx	1	0.00	0.00	34.78	0.00	0.00	0.00	0.00			83.00	0.00	83.00	
	9	1	0.00	0.02	43.48	0.04	0.00	0.00	0.00			0.00	45.00	45.00	
	10	1	0.00	0.01	43.48	0.01	0.00	0.00	0.00			0.00	0.00	0.00	

Final Prediction Table

Traffic Stream Results

				SIGNALS		FLOWS			PERFORMANCE			PER PCU			QUEUE	
Arm	Traffic Stream	Name	Traffic node	Controller stream	Phase	Calculated flow entering (PCU/hr)	Calculated sat flow (PCU/hr)	Actual green (s (per cycle))	Wasted time total (s (per cycle))	Degree of saturation (%)	Practical reserve capacity (%)	JourneyTime (s)	Mean Delay per Veh (s)	Mean stops per Veh (%)	Mean max queue (PCU)	M e of qu (P
A	1	(untitled)	1	1	C	326 <	1659	33	0.00	52	73	26.49	24.78	78.52	6.53 +	5.
	2	(untitled)	1	1	B	12	2055	7	7.00	7	1270	40.21	38.50	90.56	0.28	0.
Ax	1	(untitled)				225	Unrestricted	90	21.00	0	Unrestricted	30.00	0.00	0.00	0.00	
B	1	(untitled)	1	1	D	81	1758	7	0.00	52	74	81.31	51.31	106.18	2.19	2.
Bx	1	(untitled)				104	Unrestricted	90	35.00	0	Unrestricted	30.00	0.00	0.00	0.00	
C	1	(untitled)	1	1	F	168	1717	33	0.00	26	247	25.26	20.28	67.95	2.94	2.
	2	(untitled)	1	1	E	39	2055	7	6.00	21	322	45.79	40.81	93.85	0.93	0.
Cx	1	(untitled)				293	Unrestricted	90	21.00	0	Unrestricted	30.00	0.00	0.00	0.00	
D	1	(untitled)	1	1	A	13	1758	7	7.00	8	982	62.86	38.86	90.95	0.30	0.
Dx	1	(untitled)				17	Unrestricted	90	83.00	0	Unrestricted	24.00	0.00	0.00	0.00	
9	1	(untitled)	2			338	2055	90	45.00	16	447	30.17	0.17	0.00	0.02	
10	1	(untitled)	3			207	2055	90	0.00	10	793	30.10	0.10	0.00	0.01	

Network Results

	Distance travelled (PCU-km/hr)	Time spent (PCU-hr/hr)	Mean journey speed (kph)	Uniform delay (PCU-hr/hr)	Random plus oversat delay (PCU-hr/hr)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Excess queue penalty (£ per hr)	Performance Index (£ per hr)
Normal traffic	331.39	16.12	20.55	4.42	0.66	72.11	6.46	0.00	78.57
Bus	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tram	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pedestrians	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	331.39	16.12	20.55	4.42	0.66	72.11	6.46	0.00	78.57

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

APPENDIX D

PICADY Output Files

Junctions 9

PICADY 9 - Priority Intersection Module

Filename: Western Priority Junction.j9
Path: G:\2019\p190003\calcs\picady
Report generation date: 16/10/2020 10:31:40

»Do-Nothing - 2022 DN, AM
»Do-Nothing - 2022 DN, PM
»Do-Nothing - 2027 DN, AM
»Do-Nothing - 2027 DN, PM
»Do-Nothing - 2037 DN, AM
»Do-Nothing - 2037 DN, PM
»Do-Something - 2022 DS, AM
»Do-Something - 2022 DS, PM
»Do-Something - 2027 DS, AM
»Do-Something - 2027 DS, PM
»Do-Something - 2037 DS, AM
»Do-Something - 2037 DS, PM

Summary of junction performance

	AM					PM				
	Queue (PCU)	Delay (s)	RFC	LOS	Network Residual Capacity	Queue (PCU)	Delay (s)	RFC	LOS	Network Residual Capacity
Do-Nothing - 2022 DN										
Stream B-AC	0.2	9.69	0.14	A	211 % [Stream B-AC]	0.1	8.81	0.06	A	334 % [Stream B-AC]
Stream C-AB	0.0	5.40	0.01	A		0.0	5.61	0.02	A	
Stream C-A										
Stream A-B										
Stream A-C										
Do-Nothing - 2027 DN										
Stream B-AC	0.2	10.13	0.15	B	175 % [Stream B-AC]	0.1	9.18	0.07	A	266 % [Stream B-AC]
Stream C-AB	0.0	5.47	0.01	A		0.0	5.74	0.02	A	
Stream C-A										
Stream A-B										
Stream A-C										
Do-Nothing - 2037 DN										
Stream B-AC	0.2	10.23	0.15	B	168 % [Stream B-AC]	0.1	9.24	0.07	A	258 % [Stream B-AC]
Stream C-AB	0.0	5.49	0.01	A		0.0	5.76	0.02	A	
Stream C-A										
Stream A-B										
Stream A-C										

	AM					PM				
	Queue (PCU)	Delay (s)	RFC	LOS	Network Residual Capacity	Queue (PCU)	Delay (s)	RFC	LOS	Network Residual Capacity
Do-Something - 2022 DS										
Stream B-AC	0.2	9.69	0.16	A	198 % [Stream B-AC]	0.1	8.73	0.07	A	313 % [Stream B-AC]
Stream C-AB	0.0	5.45	0.01	A		0.0	5.67	0.03	A	
Stream C-A										
Stream A-B										
Stream A-C										
Do-Something - 2027 DS										
Stream B-AC	0.2	10.26	0.19	B	145 % [Stream B-AC]	0.1	9.05	0.09	A	225 % [Stream B-AC]
Stream C-AB	0.0	5.59	0.02	A		0.0	5.91	0.04	A	
Stream C-A										
Stream A-B										
Stream A-C										
Do-Something - 2037 DS										
Stream B-AC	0.2	10.36	0.19	B	140 % [Stream B-AC]	0.1	9.10	0.09	A	219 % [Stream B-AC]
Stream C-AB	0.0	5.61	0.02	A		0.0	5.93	0.04	A	
Stream C-A										
Stream A-B										
Stream A-C										

Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle. Network Residual Capacity indicates the amount by which network flow could be increased before a user-definable threshold (see Analysis Options) is met.

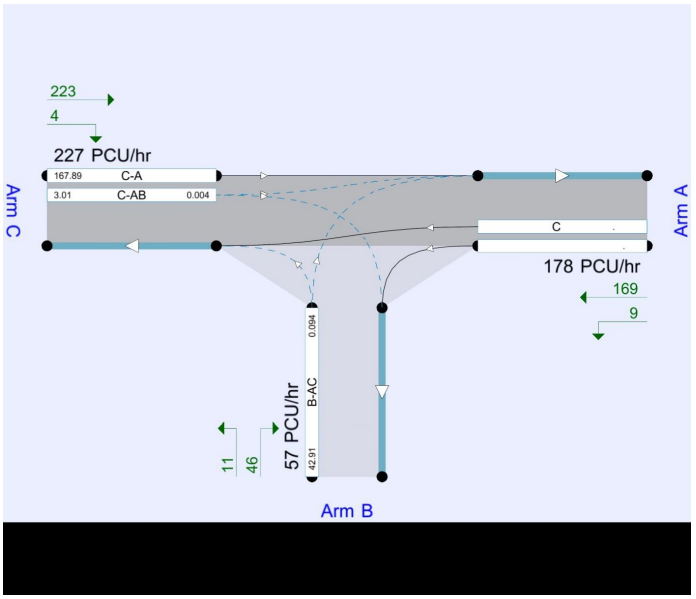
File summary

File Description

Title	Cooldown Commons Phase 3
Location	Citywest
Site number	
Date	02/10/2020
Version	
Status	TTA
Identifier	
Client	Cairn
Jobnumber	190003
Enumerator	HEADOFFICE\mckennam
Description	Eastern Priority

Units

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



The junction diagram reflects the last run of Junctions.

Analysis Options

Vehicle length (m)	Calculate Queue Percentiles	Calculate detailed queueing delay	Calculate residual capacity	Residual capacity criteria type	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)
5.75			✓	Delay	0.85	36.00	20.00

Demand Set Summary

Scenario name	Time Period name	Traffic profile type	Model start time (HH:mm)	Model finish time (HH:mm)	Time segment length (min)	Run automatically
2022 DN	AM	ONE HOUR	08:00	09:30	15	✓
2022 DN	PM	ONE HOUR	16:15	17:45	15	✓
2027 DN	AM	ONE HOUR	08:00	09:30	15	✓
2027 DN	PM	ONE HOUR	16:15	17:45	15	✓
2037 DN	AM	ONE HOUR	08:00	09:30	15	✓
2037 DN	PM	ONE HOUR	16:15	17:45	15	✓
2022 DS	AM	ONE HOUR	08:00	09:30	15	✓
2022 DS	PM	ONE HOUR	16:15	17:45	15	✓
2027 DS	AM	ONE HOUR	08:00	09:30	15	✓
2027 DS	PM	ONE HOUR	16:15	17:45	15	✓
2037 DS	AM	ONE HOUR	08:00	09:30	15	✓
2037 DS	PM	ONE HOUR	16:15	17:45	15	✓

Do-Nothing - 2022 DN, AM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

ID	Name	Include in report	Use specific Demand Set (s)	Specific Demand Set (s)	Network flow scaling factor (%)	Network capacity scaling factor (%)
A1	Do-Nothing	✓	✓	D1,D2,D3,D4,D5,D6	100.000	100.000

Junction Network

Junctions

Junction	Name	Junction Type	Major road direction	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way	1.24	A

Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	211	Stream B-AC

Arms

Arms

Arm	Name	Description	Arm type
A	Cityeest Ave East		Major
B	Site Access		Minor
C	Citywest Ave West		Major

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Has right turn bay	Width for right turn (m)	Visibility for right turn (m)	Blocks?	Blocking queue (PCU)
C	9.00		✓	2.50	210.0	✓	2.00

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

Minor Arm Geometry

Arm	Minor arm type	Lane width (m)	Visibility to left (m)	Visibility to right (m)
B	One lane	2.75	14	14

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Junction	Stream	Intercept (PCU/hr)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
1	B-A	476.834	0.076	0.191	0.120	0.273
1	B-C	616.913	0.082	0.208	-	-
1	C-B	718.287	0.242	0.242	-	-

The slopes and intercepts shown above do NOT include any corrections or adjustments.
Streams may be combined, in which case capacity will be adjusted.
Values are shown for the first time segment only; they may differ for subsequent time segments.

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Model start time (HH:mm)	Model finish time (HH:mm)	Time segment length (min)	Run automatically
D1	2022 DN	AM	ONE HOUR	08:00	09:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	178.00	100.000
B		ONE HOUR	✓	57.00	100.000
C		ONE HOUR	✓	227.00	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A	B	C
From	A	0.000	9.000	169.000
	B	46.000	0.000	11.000
	C	223.000	4.000	0.000

Proportions

		To		
		A	B	C
From	A	0.00	0.05	0.95
	B	0.81	0.00	0.19
	C	0.98	0.02	0.00

Vehicle Mix

Heavy Vehicle proportion

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

Average PCU Per Veh

		To		
		A	B	C
From	A	1.000	1.000	1.000
	B	1.000	1.000	1.000
	C	1.000	1.000	1.000

Results

Results Summary for whole modelled period

Stream	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-AC	0.14	9.69	0.2	A	52.30	78.46
C-AB	0.01	5.40	0.0	A	3.67	5.51
C-A					204.63	306.94
A-B					8.26	12.39
A-C					155.08	232.62

Main Results for each time segment

Main results: (08:00-08:15)

Stream	Total Demand (PCU/hr)	Junction demand (PCU/hr)	Junction Arrivals (PCU)	Bypass demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-AC	42.91	42.91	10.73	0.00	454.69	0.094	42.50	0.0	0.1	8.725	A
C-AB	3.01	3.01	0.75	0.00	685.86	0.004	2.99	0.0	0.0	5.271	A
C-A	167.89	167.89	41.97	0.00			167.89				
A-B	6.78	6.78	1.69	0.00			6.78				
A-C	127.23	127.23	31.81	0.00			127.23				

Main results: (08:15-08:30)

Stream	Total Demand (PCU/hr)	Junction demand (PCU/hr)	Junction Arrivals (PCU)	Bypass demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-AC	51.24	51.24	12.81	0.00	446.09	0.115	51.14	0.1	0.1	9.113	A
C-AB	3.60	3.60	0.90	0.00	679.57	0.005	3.59	0.0	0.0	5.325	A
C-A	200.47	200.47	50.12	0.00			200.47				
A-B	8.09	8.09	2.02	0.00			8.09				
A-C	151.93	151.93	37.98	0.00			151.93				

Main results: (08:30-08:45)

Stream	Total Demand (PCU/hr)	Junction demand (PCU/hr)	Junction Arrivals (PCU)	Bypass demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-AC	62.76	62.76	15.69	0.00	434.19	0.145	62.60	0.1	0.2	9.684	A
C-AB	4.40	4.40	1.10	0.00	670.87	0.007	4.40	0.0	0.0	5.401	A
C-A	245.53	245.53	61.38	0.00			245.53				
A-B	9.91	9.91	2.48	0.00			9.91				
A-C	186.07	186.07	46.52	0.00			186.07				

Main results: (08:45-09:00)

Stream	Total Demand (PCU/hr)	Junction demand (PCU/hr)	Junction Arrivals (PCU)	Bypass demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-AC	62.76	62.76	15.69	0.00	434.19	0.145	62.75	0.2	0.2	9.691	A
C-AB	4.40	4.40	1.10	0.00	670.87	0.007	4.40	0.0	0.0	5.401	A
C-A	245.53	245.53	61.38	0.00			245.53				
A-B	9.91	9.91	2.48	0.00			9.91				
A-C	186.07	186.07	46.52	0.00			186.07				

Main results: (09:00-09:15)

Stream	Total Demand (PCU/hr)	Junction demand (PCU/hr)	Junction Arrivals (PCU)	Bypass demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-AC	51.24	51.24	12.81	0.00	446.09	0.115	51.39	0.2	0.1	9.123	A
C-AB	3.60	3.60	0.90	0.00	679.57	0.005	3.60	0.0	0.0	5.325	A
C-A	200.47	200.47	50.12	0.00			200.47				
A-B	8.09	8.09	2.02	0.00			8.09				
A-C	151.93	151.93	37.98	0.00			151.93				

Main results: (09:15-09:30)

Stream	Total Demand (PCU/hr)	Junction demand (PCU/hr)	Junction Arrivals (PCU)	Bypass demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-AC	42.91	42.91	10.73	0.00	454.68	0.094	43.02	0.1	0.1	8.748	A
C-AB	3.01	3.01	0.75	0.00	685.86	0.004	3.02	0.0	0.0	5.273	A
C-A	167.89	167.89	41.97	0.00			167.89				
A-B	6.78	6.78	1.69	0.00			6.78				
A-C	127.23	127.23	31.81	0.00			127.23				

Do-Nothing - 2022 DN, PM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

ID	Name	Include in report	Use specific Demand Set (s)	Specific Demand Set (s)	Network flow scaling factor (%)	Network capacity scaling factor (%)
A1	Do-Nothing	✓	✓	D1,D2,D3,D4,D5,D6	100.000	100.000

Junction Network

Junctions

Junction	Name	Junction Type	Major road direction	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way	0.76	A

Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	334	Stream B-AC

Arms

Arms

Arm	Name	Description	Arm type
A	Cityeast Ave East		Major
B	Site Access		Minor
C	Citywest Ave West		Major

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Has right turn bay	Width for right turn (m)	Visibility for right turn (m)	Blocks?	Blocking queue (PCU)
C	9.00		✓	2.50	210.0	✓	2.00

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

Minor Arm Geometry

Arm	Minor arm type	Lane width (m)	Visibility to left (m)	Visibility to right (m)
B	One lane	2.75	14	14

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Junction	Stream	Intercept (PCU/hr)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
1	B-A	476.834	0.076	0.191	0.120	0.273
1	B-C	616.913	0.082	0.208	-	-
1	C-B	718.287	0.242	0.242	-	-

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

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

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

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Model start time (HH:mm)	Model finish time (HH:mm)	Time segment length (min)	Run automatically
D2	2022 DN	PM	ONE HOUR	16:15	17:45	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	234.00	100.000
B		ONE HOUR	✓	25.00	100.000
C		ONE HOUR	✓	126.00	100.000

Origin-Destination Data

Demand (PCU/hr)

From \ To	A	B	C
A	0.000	28.000	206.000
B	20.000	0.000	5.000
C	113.000	13.000	0.000

Proportions

From \ To	A	B	C
A	0.00	0.12	0.88
B	0.80	0.00	0.20
C	0.90	0.10	0.00

Vehicle Mix

Heavy Vehicle proportion

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

Average PCU Per Veh

From \ To	A	B	C
A	1.000	1.000	1.000
B	1.000	1.000	1.000
C	1.000	1.000	1.000

Results

Results Summary for whole modelled period

Stream	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-AC	0.06	8.81	0.1	A	22.94	34.41
C-AB	0.02	5.61	0.0	A	11.93	17.89
C-A					103.69	155.54
A-B					25.69	38.54
A-C					189.03	283.54

Main Results for each time segment

Main results: (16:15-16:30)

Stream	Total Demand (PCU/hr)	Junction demand (PCU/hr)	Junction Arrivals (PCU)	Bypass demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-AC	18.82	18.82	4.71	0.00	456.27	0.041	18.65	0.0	0.0	8.226	A
C-AB	9.79	9.79	2.45	0.00	675.68	0.014	9.73	0.0	0.0	5.405	A
C-A	85.07	85.07	21.27	0.00			85.07				
A-B	21.08	21.08	5.27	0.00			21.08				
A-C	155.09	155.09	38.77	0.00			155.09				

Main results: (16:30-16:45)

Stream	Total Demand (PCU/hr)	Junction demand (PCU/hr)	Junction Arrivals (PCU)	Bypass demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-AC	22.47	22.47	5.62	0.00	447.83	0.050	22.44	0.0	0.1	8.463	A
C-AB	11.69	11.69	2.92	0.00	667.42	0.018	11.67	0.0	0.0	5.489	A
C-A	101.58	101.58	25.40	0.00			101.58				
A-B	25.17	25.17	6.29	0.00			25.17				
A-C	185.19	185.19	46.30	0.00			185.19				

Main results: (16:45-17:00)

Stream	Total Demand (PCU/hr)	Junction demand (PCU/hr)	Junction Arrivals (PCU)	Bypass demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-AC	27.53	27.53	6.88	0.00	436.17	0.063	27.47	0.1	0.1	8.807	A
C-AB	14.31	14.31	3.58	0.00	656.00	0.022	14.30	0.0	0.0	5.609	A
C-A	124.41	124.41	31.10	0.00			124.41				
A-B	30.83	30.83	7.71	0.00			30.83				
A-C	226.81	226.81	56.70	0.00			226.81				

Main results: (17:00-17:15)

Stream	Total Demand (PCU/hr)	Junction demand (PCU/hr)	Junction Arrivals (PCU)	Bypass demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-AC	27.53	27.53	6.88	0.00	436.17	0.063	27.52	0.1	0.1	8.809	A
C-AB	14.31	14.31	3.58	0.00	656.00	0.022	14.31	0.0	0.0	5.609	A
C-A	124.41	124.41	31.10	0.00			124.41				
A-B	30.83	30.83	7.71	0.00			30.83				
A-C	226.81	226.81	56.70	0.00			226.81				

Main results: (17:15-17:30)

Stream	Total Demand (PCU/hr)	Junction demand (PCU/hr)	Junction Arrivals (PCU)	Bypass demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-AC	22.47	22.47	5.62	0.00	447.83	0.050	22.53	0.1	0.1	8.465	A
C-AB	11.69	11.69	2.92	0.00	667.42	0.018	11.70	0.0	0.0	5.491	A
C-A	101.58	101.58	25.40	0.00			101.58				
A-B	25.17	25.17	6.29	0.00			25.17				
A-C	185.19	185.19	46.30	0.00			185.19				

Main results: (17:30-17:45)

Stream	Total Demand (PCU/hr)	Junction demand (PCU/hr)	Junction Arrivals (PCU)	Bypass demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-AC	18.82	18.82	4.71	0.00	456.25	0.041	18.86	0.1	0.0	8.232	A
C-AB	9.79	9.79	2.45	0.00	675.68	0.014	9.80	0.0	0.0	5.408	A
C-A	85.07	85.07	21.27	0.00			85.07				
A-B	21.08	21.08	5.27	0.00			21.08				
A-C	155.09	155.09	38.77	0.00			155.09				

Do-Nothing - 2027 DN, AM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

ID	Name	Include in report	Use specific Demand Set (s)	Specific Demand Set (s)	Network flow scaling factor (%)	Network capacity scaling factor (%)
A1	Do-Nothing	✓	✓	D1,D2,D3,D4,D5,D6	100.000	100.000

Junction Network

Junctions

Junction	Name	Junction Type	Major road direction	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way	1.05	A

Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	175	Stream B-AC

Arms

Arms

Arm	Name	Description	Arm type
A	Cityeast Ave East		Major
B	Site Access		Minor
C	Citywest Ave West		Major

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Has right turn bay	Width for right turn (m)	Visibility for right turn (m)	Blocks?	Blocking queue (PCU)
C	9.00		✓	2.50	210.0	✓	2.00

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

Minor Arm Geometry

Arm	Minor arm type	Lane width (m)	Visibility to left (m)	Visibility to right (m)
B	One lane	2.75	14	14

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Junction	Stream	Intercept (PCU/hr)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
1	B-A	476.834	0.076	0.191	0.120	0.273
1	B-C	616.913	0.082	0.208	-	-
1	C-B	718.287	0.242	0.242	-	-

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

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

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

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Model start time (HH:mm)	Model finish time (HH:mm)	Time segment length (min)	Run automatically
D3	2027 DN	AM	ONE HOUR	08:00	09:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	209.00	100.000
B		ONE HOUR	✓	57.00	100.000
C		ONE HOUR	✓	305.00	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A	B	C
From	A	0.000	9.000	200.000
	B	46.000	0.000	11.000
	C	301.000	4.000	0.000

Proportions

		To		
		A	B	C
From	A	0.00	0.04	0.96
	B	0.81	0.00	0.19
	C	0.99	0.01	0.00

Vehicle Mix

Heavy Vehicle proportion

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

Average PCU Per Veh

		To		
		A	B	C
From	A	1.000	1.000	1.000
	B	1.000	1.000	1.000
	C	1.000	1.000	1.000

Results

Results Summary for whole modelled period

Stream	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-AC	0.15	10.13	0.2	B	52.30	78.46
C-AB	0.01	5.47	0.0	A	3.67	5.51
C-A					276.20	414.30
A-B					8.26	12.39
A-C					183.52	275.29

Main Results for each time segment

Main results: (08:00-08:15)

Stream	Total Demand (PCU/hr)	Junction demand (PCU/hr)	Junction Arrivals (PCU)	Bypass demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-AC	42.91	42.91	10.73	0.00	443.78	0.097	42.49	0.0	0.1	8.962	A
C-AB	3.01	3.01	0.75	0.00	680.22	0.004	2.99	0.0	0.0	5.315	A
C-A	226.61	226.61	56.65	0.00			226.61				
A-B	6.78	6.78	1.69	0.00			6.78				
A-C	150.57	150.57	37.64	0.00			150.57				

Main results: (08:15-08:30)

Stream	Total Demand (PCU/hr)	Junction demand (PCU/hr)	Junction Arrivals (PCU)	Bypass demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-AC	51.24	51.24	12.81	0.00	433.03	0.118	51.13	0.1	0.1	9.425	A
C-AB	3.60	3.60	0.90	0.00	672.83	0.005	3.59	0.0	0.0	5.378	A
C-A	270.59	270.59	67.65	0.00			270.59				
A-B	8.09	8.09	2.02	0.00			8.09				
A-C	179.80	179.80	44.95	0.00			179.80				

Main results: (08:30-08:45)

Stream	Total Demand (PCU/hr)	Junction demand (PCU/hr)	Junction Arrivals (PCU)	Bypass demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-AC	62.76	62.76	15.69	0.00	418.14	0.150	62.59	0.1	0.2	10.121	B
C-AB	4.40	4.40	1.10	0.00	662.62	0.007	4.40	0.0	0.0	5.468	A
C-A	331.41	331.41	82.85	0.00			331.41				
A-B	9.91	9.91	2.48	0.00			9.91				
A-C	220.20	220.20	55.05	0.00			220.20				

Main results: (08:45-09:00)

Stream	Total Demand (PCU/hr)	Junction demand (PCU/hr)	Junction Arrivals (PCU)	Bypass demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-AC	62.76	62.76	15.69	0.00	418.13	0.150	62.75	0.2	0.2	10.129	B
C-AB	4.40	4.40	1.10	0.00	662.62	0.007	4.40	0.0	0.0	5.468	A
C-A	331.41	331.41	82.85	0.00			331.41				
A-B	9.91	9.91	2.48	0.00			9.91				
A-C	220.20	220.20	55.05	0.00			220.20				

Main results: (09:00-09:15)

Stream	Total Demand (PCU/hr)	Junction demand (PCU/hr)	Junction Arrivals (PCU)	Bypass demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-AC	51.24	51.24	12.81	0.00	433.03	0.118	51.40	0.2	0.1	9.436	A
C-AB	3.60	3.60	0.90	0.00	672.83	0.005	3.60	0.0	0.0	5.380	A
C-A	270.59	270.59	67.65	0.00			270.59				
A-B	8.09	8.09	2.02	0.00			8.09				
A-C	179.80	179.80	44.95	0.00			179.80				

Main results: (09:15-09:30)

Stream	Total Demand (PCU/hr)	Junction demand (PCU/hr)	Junction Arrivals (PCU)	Bypass demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-AC	42.91	42.91	10.73	0.00	443.77	0.097	43.02	0.1	0.1	8.985	A
C-AB	3.01	3.01	0.75	0.00	680.22	0.004	3.02	0.0	0.0	5.315	A
C-A	226.61	226.61	56.65	0.00			226.61				
A-B	6.78	6.78	1.69	0.00			6.78				
A-C	150.57	150.57	37.64	0.00			150.57				

Do-Nothing - 2027 DN, PM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

ID	Name	Include in report	Use specific Demand Set (s)	Specific Demand Set (s)	Network flow scaling factor (%)	Network capacity scaling factor (%)
A1	Do-Nothing	✓	✓	D1,D2,D3,D4,D5,D6	100.000	100.000

Junction Network

Junctions

Junction	Name	Junction Type	Major road direction	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way	0.63	A

Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	266	Stream B-AC

Arms

Arms

Arm	Name	Description	Arm type
A	Cityeast Ave East		Major
B	Site Access		Minor
C	Citywest Ave West		Major

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Has right turn bay	Width for right turn (m)	Visibility for right turn (m)	Blocks?	Blocking queue (PCU)
C	9.00		✓	2.50	210.0	✓	2.00

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

Minor Arm Geometry

Arm	Minor arm type	Lane width (m)	Visibility to left (m)	Visibility to right (m)
B	One lane	2.75	14	14

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Junction	Stream	Intercept (PCU/hr)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
1	B-A	476.834	0.076	0.191	0.120	0.273
1	B-C	616.913	0.082	0.208	-	-
1	C-B	718.287	0.242	0.242	-	-

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

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

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

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Model start time (HH:mm)	Model finish time (HH:mm)	Time segment length (min)	Run automatically
D4	2027 DN	PM	ONE HOUR	16:15	17:45	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	288.00	100.000
B		ONE HOUR	✓	25.00	100.000
C		ONE HOUR	✓	167.00	100.000

Origin-Destination Data

Demand (PCU/hr)

From \ To	A	B	C
A	0.000	28.000	260.000
B	20.000	0.000	5.000
C	154.000	13.000	0.000

Proportions

From \ To	A	B	C
A	0.00	0.10	0.90
B	0.80	0.00	0.20
C	0.92	0.08	0.00

Vehicle Mix

Heavy Vehicle proportion

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

Average PCU Per Veh

From \ To	A	B	C
A	1.000	1.000	1.000
B	1.000	1.000	1.000
C	1.000	1.000	1.000

Results

Results Summary for whole modelled period

Stream	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-AC	0.07	9.18	0.1	A	22.94	34.41
C-AB	0.02	5.74	0.0	A	11.93	17.90
C-A					141.31	211.97
A-B					25.69	38.54
A-C					238.58	357.87

Main Results for each time segment

Main results: (16:15-16:30)

Stream	Total Demand (PCU/hr)	Junction demand (PCU/hr)	Junction Arrivals (PCU)	Bypass demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-AC	18.82	18.82	4.71	0.00	445.03	0.042	18.65	0.0	0.0	8.439	A
C-AB	9.79	9.79	2.45	0.00	665.85	0.015	9.73	0.0	0.0	5.486	A
C-A	115.94	115.94	28.98	0.00			115.94				
A-B	21.08	21.08	5.27	0.00			21.08				
A-C	195.74	195.74	48.94	0.00			195.74				

Main results: (16:30-16:45)

Stream	Total Demand (PCU/hr)	Junction demand (PCU/hr)	Junction Arrivals (PCU)	Bypass demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-AC	22.47	22.47	5.62	0.00	434.39	0.052	22.43	0.0	0.1	8.737	A
C-AB	11.69	11.69	2.92	0.00	655.68	0.018	11.67	0.0	0.0	5.589	A
C-A	138.44	138.44	34.61	0.00			138.44				
A-B	25.17	25.17	6.29	0.00			25.17				
A-C	233.73	233.73	58.43	0.00			233.73				

Main results: (16:45-17:00)

Stream	Total Demand (PCU/hr)	Junction demand (PCU/hr)	Junction Arrivals (PCU)	Bypass demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-AC	27.53	27.53	6.88	0.00	419.68	0.066	27.46	0.1	0.1	9.177	A
C-AB	14.32	14.32	3.58	0.00	641.64	0.022	14.30	0.0	0.0	5.738	A
C-A	169.56	169.56	42.39	0.00			169.56				
A-B	30.83	30.83	7.71	0.00			30.83				
A-C	286.27	286.27	71.57	0.00			286.27				

Main results: (17:00-17:15)

Stream	Total Demand (PCU/hr)	Junction demand (PCU/hr)	Junction Arrivals (PCU)	Bypass demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-AC	27.53	27.53	6.88	0.00	419.68	0.066	27.52	0.1	0.1	9.179	A
C-AB	14.32	14.32	3.58	0.00	641.64	0.022	14.31	0.0	0.0	5.738	A
C-A	169.56	169.56	42.39	0.00			169.56				
A-B	30.83	30.83	7.71	0.00			30.83				
A-C	286.27	286.27	71.57	0.00			286.27				

Main results: (17:15-17:30)

Stream	Total Demand (PCU/hr)	Junction demand (PCU/hr)	Junction Arrivals (PCU)	Bypass demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-AC	22.47	22.47	5.62	0.00	434.38	0.052	22.53	0.1	0.1	8.743	A
C-AB	11.69	11.69	2.92	0.00	655.68	0.018	11.71	0.0	0.0	5.592	A
C-A	138.44	138.44	34.61	0.00			138.44				
A-B	25.17	25.17	6.29	0.00			25.17				
A-C	233.73	233.73	58.43	0.00			233.73				

Main results: (17:30-17:45)

Stream	Total Demand (PCU/hr)	Junction demand (PCU/hr)	Junction Arrivals (PCU)	Bypass demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-AC	18.82	18.82	4.71	0.00	445.01	0.042	18.86	0.1	0.0	8.450	A
C-AB	9.79	9.79	2.45	0.00	665.85	0.015	9.80	0.0	0.0	5.486	A
C-A	115.94	115.94	28.98	0.00			115.94				
A-B	21.08	21.08	5.27	0.00			21.08				
A-C	195.74	195.74	48.94	0.00			195.74				

Do-Nothing - 2037 DN, AM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

ID	Name	Include in report	Use specific Demand Set (s)	Specific Demand Set (s)	Network flow scaling factor (%)	Network capacity scaling factor (%)
A1	Do-Nothing	✓	✓	D1,D2,D3,D4,D5,D6	100.000	100.000

Junction Network

Junctions

Junction	Name	Junction Type	Major road direction	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way	1.02	A

Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	168	Stream B-AC

Arms

Arms

Arm	Name	Description	Arm type
A	Cityeast Ave East		Major
B	Site Access		Minor
C	Citywest Ave West		Major

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Has right turn bay	Width for right turn (m)	Visibility for right turn (m)	Blocks?	Blocking queue (PCU)
C	9.00		✓	2.50	210.0	✓	2.00

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

Minor Arm Geometry

Arm	Minor arm type	Lane width (m)	Visibility to left (m)	Visibility to right (m)
B	One lane	2.75	14	14

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Junction	Stream	Intercept (PCU/hr)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
1	B-A	476.834	0.076	0.191	0.120	0.273
1	B-C	616.913	0.082	0.208	-	-
1	C-B	718.287	0.242	0.242	-	-

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

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

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

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Model start time (HH:mm)	Model finish time (HH:mm)	Time segment length (min)	Run automatically
D5	2037 DN	AM	ONE HOUR	08:00	09:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	218.00	100.000
B		ONE HOUR	✓	57.00	100.000
C		ONE HOUR	✓	318.00	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A	B	C
From	A	0.000	9.000	209.000
	B	46.000	0.000	11.000
	C	314.000	4.000	0.000

Proportions

		To		
		A	B	C
From	A	0.00	0.04	0.96
	B	0.81	0.00	0.19
	C	0.99	0.01	0.00

Vehicle Mix

Heavy Vehicle proportion

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

Average PCU Per Veh

		To		
		A	B	C
From	A	1.000	1.000	1.000
	B	1.000	1.000	1.000
	C	1.000	1.000	1.000

Results

Results Summary for whole modelled period

Stream	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-AC	0.15	10.23	0.2	B	52.30	78.46
C-AB	0.01	5.49	0.0	A	3.67	5.51
C-A					288.13	432.20
A-B					8.26	12.39
A-C					191.78	287.67

Main Results for each time segment

Main results: (08:00-08:15)

Stream	Total Demand (PCU/hr)	Junction demand (PCU/hr)	Junction Arrivals (PCU)	Bypass demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-AC	42.91	42.91	10.73	0.00	441.39	0.097	42.49	0.0	0.1	9.016	A
C-AB	3.01	3.01	0.75	0.00	678.58	0.004	2.99	0.0	0.0	5.328	A
C-A	236.40	236.40	59.10	0.00			236.40				
A-B	6.78	6.78	1.69	0.00			6.78				
A-C	157.35	157.35	39.34	0.00			157.35				

Main results: (08:15-08:30)

Stream	Total Demand (PCU/hr)	Junction demand (PCU/hr)	Junction Arrivals (PCU)	Bypass demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-AC	51.24	51.24	12.81	0.00	430.18	0.119	51.13	0.1	0.1	9.494	A
C-AB	3.60	3.60	0.90	0.00	670.87	0.005	3.59	0.0	0.0	5.394	A
C-A	282.28	282.28	70.57	0.00			282.28				
A-B	8.09	8.09	2.02	0.00			8.09				
A-C	187.89	187.89	46.97	0.00			187.89				

Main results: (08:30-08:45)

Stream	Total Demand (PCU/hr)	Junction demand (PCU/hr)	Junction Arrivals (PCU)	Bypass demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-AC	62.76	62.76	15.69	0.00	414.62	0.151	62.59	0.1	0.2	10.220	B
C-AB	4.40	4.40	1.10	0.00	660.22	0.007	4.40	0.0	0.0	5.488	A
C-A	345.72	345.72	86.43	0.00			345.72				
A-B	9.91	9.91	2.48	0.00			9.91				
A-C	230.11	230.11	57.53	0.00			230.11				

Main results: (08:45-09:00)

Stream	Total Demand (PCU/hr)	Junction demand (PCU/hr)	Junction Arrivals (PCU)	Bypass demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-AC	62.76	62.76	15.69	0.00	414.62	0.151	62.75	0.2	0.2	10.230	B
C-AB	4.40	4.40	1.10	0.00	660.22	0.007	4.40	0.0	0.0	5.488	A
C-A	345.72	345.72	86.43	0.00			345.72				
A-B	9.91	9.91	2.48	0.00			9.91				
A-C	230.11	230.11	57.53	0.00			230.11				

Main results: (09:00-09:15)

Stream	Total Demand (PCU/hr)	Junction demand (PCU/hr)	Junction Arrivals (PCU)	Bypass demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-AC	51.24	51.24	12.81	0.00	430.18	0.119	51.40	0.2	0.1	9.510	A
C-AB	3.60	3.60	0.90	0.00	670.87	0.005	3.60	0.0	0.0	5.396	A
C-A	282.28	282.28	70.57	0.00			282.28				
A-B	8.09	8.09	2.02	0.00			8.09				
A-C	187.89	187.89	46.97	0.00			187.89				

Main results: (09:15-09:30)

Stream	Total Demand (PCU/hr)	Junction demand (PCU/hr)	Junction Arrivals (PCU)	Bypass demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-AC	42.91	42.91	10.73	0.00	441.39	0.097	43.02	0.1	0.1	9.039	A
C-AB	3.01	3.01	0.75	0.00	678.58	0.004	3.02	0.0	0.0	5.328	A
C-A	236.40	236.40	59.10	0.00			236.40				
A-B	6.78	6.78	1.69	0.00			6.78				
A-C	157.35	157.35	39.34	0.00			157.35				

Do-Nothing - 2037 DN, PM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

ID	Name	Include in report	Use specific Demand Set (s)	Specific Demand Set (s)	Network flow scaling factor (%)	Network capacity scaling factor (%)
A1	Do-Nothing	✓	✓	D1,D2,D3,D4,D5,D6	100.000	100.000

Junction Network

Junctions

Junction	Name	Junction Type	Major road direction	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way	0.62	A

Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	258	Stream B-AC

Arms

Arms

Arm	Name	Description	Arm type
A	Cityeast Ave East		Major
B	Site Access		Minor
C	Citywest Ave West		Major

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Has right turn bay	Width for right turn (m)	Visibility for right turn (m)	Blocks?	Blocking queue (PCU)
C	9.00		✓	2.50	210.0	✓	2.00

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

Minor Arm Geometry

Arm	Minor arm type	Lane width (m)	Visibility to left (m)	Visibility to right (m)
B	One lane	2.75	14	14

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Junction	Stream	Intercept (PCU/hr)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
1	B-A	476.834	0.076	0.191	0.120	0.273
1	B-C	616.913	0.082	0.208	-	-
1	C-B	718.287	0.242	0.242	-	-

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

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

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

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Model start time (HH:mm)	Model finish time (HH:mm)	Time segment length (min)	Run automatically
D6	2037 DN	PM	ONE HOUR	16:15	17:45	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	297.00	100.000
B		ONE HOUR	✓	25.00	100.000
C		ONE HOUR	✓	171.00	100.000

Origin-Destination Data

Demand (PCU/hr)

From \ To	A	B	C
A	0.000	28.000	269.000
B	20.000	0.000	5.000
C	158.000	13.000	0.000

Proportions

From \ To	A	B	C
A	0.00	0.09	0.91
B	0.80	0.00	0.20
C	0.92	0.08	0.00

Vehicle Mix

Heavy Vehicle proportion

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

Average PCU Per Veh

From \ To	A	B	C
A	1.000	1.000	1.000
B	1.000	1.000	1.000
C	1.000	1.000	1.000

Results

Results Summary for whole modelled period

Stream	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-AC	0.07	9.24	0.1	A	22.94	34.41
C-AB	0.02	5.76	0.0	A	11.93	17.90
C-A					144.98	217.47
A-B					25.69	38.54
A-C					246.84	370.26

Main Results for each time segment

Main results: (16:15-16:30)

Stream	Total Demand (PCU/hr)	Junction demand (PCU/hr)	Junction Arrivals (PCU)	Bypass demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-AC	18.82	18.82	4.71	0.00	443.38	0.042	18.65	0.0	0.0	8.472	A
C-AB	9.79	9.79	2.45	0.00	664.21	0.015	9.73	0.0	0.0	5.500	A
C-A	118.95	118.95	29.74	0.00			118.95				
A-B	21.08	21.08	5.27	0.00			21.08				
A-C	202.52	202.52	50.63	0.00			202.52				

Main results: (16:30-16:45)

Stream	Total Demand (PCU/hr)	Junction demand (PCU/hr)	Junction Arrivals (PCU)	Bypass demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-AC	22.47	22.47	5.62	0.00	432.42	0.052	22.43	0.0	0.1	8.779	A
C-AB	11.69	11.69	2.92	0.00	653.72	0.018	11.67	0.0	0.0	5.606	A
C-A	142.04	142.04	35.51	0.00			142.04				
A-B	25.17	25.17	6.29	0.00			25.17				
A-C	241.83	241.83	60.46	0.00			241.83				

Main results: (16:45-17:00)

Stream	Total Demand (PCU/hr)	Junction demand (PCU/hr)	Junction Arrivals (PCU)	Bypass demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-AC	27.53	27.53	6.88	0.00	417.27	0.066	27.46	0.1	0.1	9.234	A
C-AB	14.32	14.32	3.58	0.00	639.25	0.022	14.30	0.0	0.0	5.760	A
C-A	173.96	173.96	43.49	0.00			173.96				
A-B	30.83	30.83	7.71	0.00			30.83				
A-C	296.17	296.17	74.04	0.00			296.17				

Main results: (17:00-17:15)

Stream	Total Demand (PCU/hr)	Junction demand (PCU/hr)	Junction Arrivals (PCU)	Bypass demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-AC	27.53	27.53	6.88	0.00	417.26	0.066	27.52	0.1	0.1	9.236	A
C-AB	14.32	14.32	3.58	0.00	639.25	0.022	14.31	0.0	0.0	5.760	A
C-A	173.96	173.96	43.49	0.00			173.96				
A-B	30.83	30.83	7.71	0.00			30.83				
A-C	296.17	296.17	74.04	0.00			296.17				

Main results: (17:15-17:30)

Stream	Total Demand (PCU/hr)	Junction demand (PCU/hr)	Junction Arrivals (PCU)	Bypass demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-AC	22.47	22.47	5.62	0.00	432.42	0.052	22.53	0.1	0.1	8.785	A
C-AB	11.69	11.69	2.92	0.00	653.72	0.018	11.71	0.0	0.0	5.606	A
C-A	142.04	142.04	35.51	0.00			142.04				
A-B	25.17	25.17	6.29	0.00			25.17				
A-C	241.83	241.83	60.46	0.00			241.83				

Main results: (17:30-17:45)

Stream	Total Demand (PCU/hr)	Junction demand (PCU/hr)	Junction Arrivals (PCU)	Bypass demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-AC	18.82	18.82	4.71	0.00	443.36	0.042	18.86	0.1	0.0	8.482	A
C-AB	9.79	9.79	2.45	0.00	664.21	0.015	9.80	0.0	0.0	5.502	A
C-A	118.95	118.95	29.74	0.00			118.95				
A-B	21.08	21.08	5.27	0.00			21.08				
A-C	202.52	202.52	50.63	0.00			202.52				

Do-Something - 2022 DS, AM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

ID	Name	Include in report	Use specific Demand Set (s)	Specific Demand Set(s)	Network flow scaling factor (%)	Network capacity scaling factor (%)
A2	Do-Something	✓	✓	D7,D8,D9,D10,D11,D12	100.000	100.000

Junction Network

Junctions

Junction	Name	Junction Type	Major road direction	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way	1.32	A

Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	198	Stream B-AC

Arms

Arms

Arm	Name	Description	Arm type
A	Cityeast Ave East		Major
B	Site Access		Minor
C	Citywest Ave West		Major

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Has right turn bay	Width for right turn (m)	Visibility for right turn (m)	Blocks?	Blocking queue (PCU)
C	9.00		✓	2.50	210.0	✓	2.00

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

Minor Arm Geometry

Arm	Minor arm type	Lane width (m)	Visibility to left (m)	Visibility to right (m)
B	One lane	2.75	14	14

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Junction	Stream	Intercept (PCU/hr)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
1	B-A	476.834	0.076	0.191	0.120	0.273
1	B-C	616.913	0.082	0.208	-	-
1	C-B	718.287	0.242	0.242	-	-

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

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

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

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Model start time (HH:mm)	Model finish time (HH:mm)	Time segment length (min)	Run automatically
D7	2022 DS	AM	ONE HOUR	08:00	09:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	187.00	100.000
B		ONE HOUR	✓	62.00	100.000
C		ONE HOUR	✓	234.00	100.000

Origin-Destination Data

Demand (PCU/hr)

From \ To	A	B	C
A	0.000	9.000	178.000
B	46.000	0.000	16.000
C	227.000	7.000	0.000

Proportions

From \ To	A	B	C
A	0.00	0.05	0.95
B	0.74	0.00	0.26
C	0.97	0.03	0.00

Vehicle Mix

Heavy Vehicle proportion

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

Average PCU Per Veh

From \ To	A	B	C
A	1.000	1.000	1.000
B	1.000	1.000	1.000
C	1.000	1.000	1.000

Results

Results Summary for whole modelled period

Stream	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-AC	0.16	9.69	0.2	A	56.89	85.34
C-AB	0.01	5.45	0.0	A	6.42	9.64
C-A					208.30	312.45
A-B					8.26	12.39
A-C					163.34	245.00

Main Results for each time segment

Main results: (08:00-08:15)

Stream	Total Demand (PCU/hr)	Junction demand (PCU/hr)	Junction Arrivals (PCU)	Bypass demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-AC	46.68	46.68	11.67	0.00	461.08	0.101	46.23	0.0	0.1	8.669	A
C-AB	5.27	5.27	1.32	0.00	684.23	0.008	5.24	0.0	0.0	5.301	A
C-A	170.90	170.90	42.72	0.00			170.90				
A-B	6.78	6.78	1.69	0.00			6.78				
A-C	134.01	134.01	33.50	0.00			134.01				

Main results: (08:15-08:30)

Stream	Total Demand (PCU/hr)	Junction demand (PCU/hr)	Junction Arrivals (PCU)	Bypass demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-AC	55.74	55.74	13.93	0.00	452.19	0.123	55.63	0.1	0.1	9.076	A
C-AB	6.29	6.29	1.57	0.00	677.63	0.009	6.29	0.0	0.0	5.361	A
C-A	204.07	204.07	51.02	0.00			204.07				
A-B	8.09	8.09	2.02	0.00			8.09				
A-C	160.02	160.02	40.00	0.00			160.02				

Main results: (08:30-08:45)

Stream	Total Demand (PCU/hr)	Junction demand (PCU/hr)	Junction Arrivals (PCU)	Bypass demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-AC	68.26	68.26	17.07	0.00	439.86	0.155	68.09	0.1	0.2	9.679	A
C-AB	7.71	7.71	1.93	0.00	668.50	0.012	7.70	0.0	0.0	5.447	A
C-A	249.93	249.93	62.48	0.00			249.93				
A-B	9.91	9.91	2.48	0.00			9.91				
A-C	195.98	195.98	49.00	0.00			195.98				

Main results: (08:45-09:00)

Stream	Total Demand (PCU/hr)	Junction demand (PCU/hr)	Junction Arrivals (PCU)	Bypass demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-AC	68.26	68.26	17.07	0.00	439.86	0.155	68.26	0.2	0.2	9.687	A
C-AB	7.71	7.71	1.93	0.00	668.50	0.012	7.71	0.0	0.0	5.447	A
C-A	249.93	249.93	62.48	0.00			249.93				
A-B	9.91	9.91	2.48	0.00			9.91				
A-C	195.98	195.98	49.00	0.00			195.98				

Main results: (09:00-09:15)

Stream	Total Demand (PCU/hr)	Junction demand (PCU/hr)	Junction Arrivals (PCU)	Bypass demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-AC	55.74	55.74	13.93	0.00	452.18	0.123	55.90	0.2	0.1	9.087	A
C-AB	6.29	6.29	1.57	0.00	677.63	0.009	6.30	0.0	0.0	5.364	A
C-A	204.07	204.07	51.02	0.00			204.07				
A-B	8.09	8.09	2.02	0.00			8.09				
A-C	160.02	160.02	40.00	0.00			160.02				

Main results: (09:15-09:30)

Stream	Total Demand (PCU/hr)	Junction demand (PCU/hr)	Junction Arrivals (PCU)	Bypass demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-AC	46.68	46.68	11.67	0.00	461.07	0.101	46.79	0.1	0.1	8.691	A
C-AB	5.27	5.27	1.32	0.00	684.23	0.008	5.28	0.0	0.0	5.303	A
C-A	170.90	170.90	42.72	0.00			170.90				
A-B	6.78	6.78	1.69	0.00			6.78				
A-C	134.01	134.01	33.50	0.00			134.01				

Do-Something - 2022 DS, PM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

ID	Name	Include in report	Use specific Demand Set (s)	Specific Demand Set(s)	Network flow scaling factor (%)	Network capacity scaling factor (%)
A2	Do-Something	✓	✓	D7,D8,D9,D10,D11,D12	100.000	100.000

Junction Network

Junctions

Junction	Name	Junction Type	Major road direction	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way	0.83	A

Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	313	Stream B-AC

Arms

Arms

Arm	Name	Description	Arm type
A	Cityeast Ave East		Major
B	Site Access		Minor
C	Citywest Ave West		Major

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Has right turn bay	Width for right turn (m)	Visibility for right turn (m)	Blocks?	Blocking queue (PCU)
C	9.00		✓	2.50	210.0	✓	2.00

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

Minor Arm Geometry

Arm	Minor arm type	Lane width (m)	Visibility to left (m)	Visibility to right (m)
B	One lane	2.75	14	14

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Junction	Stream	Intercept (PCU/hr)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
1	B-A	476.834	0.076	0.191	0.120	0.273
1	B-C	616.913	0.082	0.208	-	-
1	C-B	718.287	0.242	0.242	-	-

The slopes and intercepts shown above do NOT include any corrections or adjustments.
Streams may be combined, in which case capacity will be adjusted.
Values are shown for the first time segment only; they may differ for subsequent time segments.

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Model start time (HH:mm)	Model finish time (HH:mm)	Time segment length (min)	Run automatically
D8	2022 DS	PM	ONE HOUR	16:15	17:45	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	243.00	100.000
B		ONE HOUR	✓	28.00	100.000
C		ONE HOUR	✓	138.00	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A	B	C
From	A	0.000	28.000	215.000
	B	20.000	0.000	8.000
	C	121.000	17.000	0.000

Proportions

		To		
		A	B	C
From	A	0.00	0.12	0.88
	B	0.71	0.00	0.29
	C	0.88	0.12	0.00

Vehicle Mix

Heavy Vehicle proportion

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

Average PCU Per Veh

		To		
		A	B	C
From	A	1.000	1.000	1.000
	B	1.000	1.000	1.000
	C	1.000	1.000	1.000

Results

Results Summary for whole modelled period

Stream	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-AC	0.07	8.73	0.1	A	25.69	38.54
C-AB	0.03	5.67	0.0	A	15.60	23.40
C-A					111.03	166.55
A-B					25.69	38.54
A-C					197.29	295.93

Main Results for each time segment

Main results: (16:15-16:30)

Stream	Total Demand (PCU/hr)	Junction demand (PCU/hr)	Junction Arrivals (PCU)	Bypass demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-AC	21.08	21.08	5.27	0.00	464.52	0.045	20.89	0.0	0.0	8.111	A
C-AB	12.80	12.80	3.20	0.00	674.05	0.019	12.72	0.0	0.0	5.443	A
C-A	91.09	91.09	22.77	0.00			91.09				
A-B	21.08	21.08	5.27	0.00			21.08				
A-C	161.86	161.86	40.47	0.00			161.86				

Main results: (16:30-16:45)

Stream	Total Demand (PCU/hr)	Junction demand (PCU/hr)	Junction Arrivals (PCU)	Bypass demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-AC	25.17	25.17	6.29	0.00	455.65	0.055	25.13	0.0	0.1	8.360	A
C-AB	15.28	15.28	3.82	0.00	665.48	0.023	15.27	0.0	0.0	5.536	A
C-A	108.78	108.78	27.19	0.00			108.78				
A-B	25.17	25.17	6.29	0.00			25.17				
A-C	193.28	193.28	48.32	0.00			193.28				

Main results: (16:45-17:00)

Stream	Total Demand (PCU/hr)	Junction demand (PCU/hr)	Junction Arrivals (PCU)	Bypass demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-AC	30.83	30.83	7.71	0.00	443.38	0.070	30.76	0.1	0.1	8.724	A
C-AB	18.72	18.72	4.68	0.00	653.66	0.029	18.70	0.0	0.0	5.669	A
C-A	133.22	133.22	33.31	0.00			133.22				
A-B	30.83	30.83	7.71	0.00			30.83				
A-C	236.72	236.72	59.18	0.00			236.72				

Main results: (17:00-17:15)

Stream	Total Demand (PCU/hr)	Junction demand (PCU/hr)	Junction Arrivals (PCU)	Bypass demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-AC	30.83	30.83	7.71	0.00	443.38	0.070	30.83	0.1	0.1	8.725	A
C-AB	18.72	18.72	4.68	0.00	653.66	0.029	18.72	0.0	0.0	5.669	A
C-A	133.22	133.22	33.31	0.00			133.22				
A-B	30.83	30.83	7.71	0.00			30.83				
A-C	236.72	236.72	59.18	0.00			236.72				

Main results: (17:15-17:30)

Stream	Total Demand (PCU/hr)	Junction demand (PCU/hr)	Junction Arrivals (PCU)	Bypass demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-AC	25.17	25.17	6.29	0.00	455.64	0.055	25.23	0.1	0.1	8.365	A
C-AB	15.28	15.28	3.82	0.00	665.48	0.023	15.31	0.0	0.0	5.538	A
C-A	108.78	108.78	27.19	0.00			108.78				
A-B	25.17	25.17	6.29	0.00			25.17				
A-C	193.28	193.28	48.32	0.00			193.28				

Main results: (17:30-17:45)

Stream	Total Demand (PCU/hr)	Junction demand (PCU/hr)	Junction Arrivals (PCU)	Bypass demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-AC	21.08	21.08	5.27	0.00	464.50	0.045	21.12	0.1	0.0	8.121	A
C-AB	12.80	12.80	3.20	0.00	674.05	0.019	12.82	0.0	0.0	5.443	A
C-A	91.09	91.09	22.77	0.00			91.09				
A-B	21.08	21.08	5.27	0.00			21.08				
A-C	161.86	161.86	40.47	0.00			161.86				

Do-Something - 2027 DS, AM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

ID	Name	Include in report	Use specific Demand Set (s)	Specific Demand Set(s)	Network flow scaling factor (%)	Network capacity scaling factor (%)
A2	Do-Something	✓	✓	D7,D8,D9,D10,D11,D12	100.000	100.000

Junction Network

Junctions

Junction	Name	Junction Type	Major road direction	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way	1.30	A

Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	145	Stream B-AC

Arms

Arms

Arm	Name	Description	Arm type
A	Cityeast Ave East		Major
B	Site Access		Minor
C	Citywest Ave West		Major

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Has right turn bay	Width for right turn (m)	Visibility for right turn (m)	Blocks?	Blocking queue (PCU)
C	9.00		✓	2.50	210.0	✓	2.00

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

Minor Arm Geometry

Arm	Minor arm type	Lane width (m)	Visibility to left (m)	Visibility to right (m)
B	One lane	2.75	14	14

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Junction	Stream	Intercept (PCU/hr)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
1	B-A	476.834	0.076	0.191	0.120	0.273
1	B-C	616.913	0.082	0.208	-	-
1	C-B	718.287	0.242	0.242	-	-

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

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

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

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Model start time (HH:mm)	Model finish time (HH:mm)	Time segment length (min)	Run automatically
D9	2027 DS	AM	ONE HOUR	08:00	09:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	239.00	100.000
B		ONE HOUR	✓	75.00	100.000
C		ONE HOUR	✓	321.00	100.000

Origin-Destination Data

Demand (PCU/hr)

From \ To	A	B	C
A	0.000	10.000	229.000
B	48.000	0.000	27.000
C	311.000	10.000	0.000

Proportions

From \ To	A	B	C
A	0.00	0.04	0.96
B	0.64	0.00	0.36
C	0.97	0.03	0.00

Vehicle Mix

Heavy Vehicle proportion

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

Average PCU Per Veh

From \ To	A	B	C
A	1.000	1.000	1.000
B	1.000	1.000	1.000
C	1.000	1.000	1.000

Results

Results Summary for whole modelled period

Stream	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-AC	0.19	10.26	0.2	B	68.82	103.23
C-AB	0.02	5.59	0.0	A	9.18	13.77
C-A					285.38	428.07
A-B					9.18	13.76
A-C					210.13	315.20

Main Results for each time segment

Main results: (08:00-08:15)

Stream	Total Demand (PCU/hr)	Junction demand (PCU/hr)	Junction Arrivals (PCU)	Bypass demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-AC	56.46	56.46	14.12	0.00	461.02	0.122	55.91	0.0	0.1	8.875	A
C-AB	7.53	7.53	1.88	0.00	674.78	0.011	7.48	0.0	0.0	5.394	A
C-A	234.14	234.14	58.53	0.00			234.14				
A-B	7.53	7.53	1.88	0.00			7.53				
A-C	172.40	172.40	43.10	0.00			172.40				

Main results: (08:15-08:30)

Stream	Total Demand (PCU/hr)	Junction demand (PCU/hr)	Junction Arrivals (PCU)	Bypass demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-AC	67.42	67.42	16.86	0.00	449.53	0.150	67.28	0.1	0.2	9.410	A
C-AB	8.99	8.99	2.25	0.00	666.35	0.013	8.98	0.0	0.0	5.475	A
C-A	279.58	279.58	69.90	0.00			279.58				
A-B	8.99	8.99	2.25	0.00			8.99				
A-C	205.87	205.87	51.47	0.00			205.87				

Main results: (08:30-08:45)

Stream	Total Demand (PCU/hr)	Junction demand (PCU/hr)	Junction Arrivals (PCU)	Bypass demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-AC	82.58	82.58	20.64	0.00	433.55	0.190	82.35	0.2	0.2	10.244	B
C-AB	11.01	11.01	2.75	0.00	654.71	0.017	11.00	0.0	0.0	5.592	A
C-A	342.42	342.42	85.60	0.00			342.42				
A-B	11.01	11.01	2.75	0.00			11.01				
A-C	252.13	252.13	63.03	0.00			252.13				

Main results: (08:45-09:00)

Stream	Total Demand (PCU/hr)	Junction demand (PCU/hr)	Junction Arrivals (PCU)	Bypass demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-AC	82.58	82.58	20.64	0.00	433.55	0.190	82.57	0.2	0.2	10.256	B
C-AB	11.01	11.01	2.75	0.00	654.71	0.017	11.01	0.0	0.0	5.592	A
C-A	342.42	342.42	85.60	0.00			342.42				
A-B	11.01	11.01	2.75	0.00			11.01				
A-C	252.13	252.13	63.03	0.00			252.13				

Main results: (09:00-09:15)

Stream	Total Demand (PCU/hr)	Junction demand (PCU/hr)	Junction Arrivals (PCU)	Bypass demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-AC	67.42	67.42	16.86	0.00	449.52	0.150	67.64	0.2	0.2	9.432	A
C-AB	8.99	8.99	2.25	0.00	666.35	0.013	9.00	0.0	0.0	5.478	A
C-A	279.58	279.58	69.90	0.00			279.58				
A-B	8.99	8.99	2.25	0.00			8.99				
A-C	205.87	205.87	51.47	0.00			205.87				

Main results: (09:15-09:30)

Stream	Total Demand (PCU/hr)	Junction demand (PCU/hr)	Junction Arrivals (PCU)	Bypass demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-AC	56.46	56.46	14.12	0.00	461.01	0.122	56.61	0.2	0.1	8.907	A
C-AB	7.53	7.53	1.88	0.00	674.78	0.011	7.54	0.0	0.0	5.397	A
C-A	234.14	234.14	58.53	0.00			234.14				
A-B	7.53	7.53	1.88	0.00			7.53				
A-C	172.40	172.40	43.10	0.00			172.40				

Do-Something - 2027 DS, PM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

ID	Name	Include in report	Use specific Demand Set (s)	Specific Demand Set(s)	Network flow scaling factor (%)	Network capacity scaling factor (%)
A2	Do-Something	✓	✓	D7,D8,D9,D10,D11,D12	100.000	100.000

Junction Network

Junctions

Junction	Name	Junction Type	Major road direction	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way	0.83	A

Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	225	Stream B-AC

Arms

Arms

Arm	Name	Description	Arm type
A	Cityeast Ave East		Major
B	Site Access		Minor
C	Citywest Ave West		Major

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Has right turn bay	Width for right turn (m)	Visibility for right turn (m)	Blocks?	Blocking queue (PCU)
C	9.00		✓	2.50	210.0	✓	2.00

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

Minor Arm Geometry

Arm	Minor arm type	Lane width (m)	Visibility to left (m)	Visibility to right (m)
B	One lane	2.75	14	14

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Junction	Stream	Intercept (PCU/hr)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
1	B-A	476.834	0.076	0.191	0.120	0.273
1	B-C	616.913	0.082	0.208	-	-
1	C-B	718.287	0.242	0.242	-	-

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

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

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

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Model start time (HH:mm)	Model finish time (HH:mm)	Time segment length (min)	Run automatically
D10	2027 DS	PM	ONE HOUR	16:15	17:45	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	312.00	100.000
B		ONE HOUR	✓	35.00	100.000
C		ONE HOUR	✓	205.00	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A	B	C
From	A	0.000	29.000	283.000
	B	21.000	0.000	14.000
	C	181.000	24.000	0.000

Proportions

		To		
		A	B	C
From	A	0.00	0.09	0.91
	B	0.60	0.00	0.40
	C	0.88	0.12	0.00

Vehicle Mix

Heavy Vehicle proportion

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

Average PCU Per Veh

		To		
		A	B	C
From	A	1.000	1.000	1.000
	B	1.000	1.000	1.000
	C	1.000	1.000	1.000

Results

Results Summary for whole modelled period

Stream	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-AC	0.09	9.05	0.1	A	32.12	48.17
C-AB	0.04	5.91	0.0	A	22.03	33.05
C-A					166.08	249.12
A-B					26.61	39.92
A-C					259.69	389.53

Main Results for each time segment

Main results: (16:15-16:30)

Stream	Total Demand (PCU/hr)	Junction demand (PCU/hr)	Junction Arrivals (PCU)	Bypass demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-AC	26.35	26.35	6.59	0.00	464.53	0.057	26.11	0.0	0.1	8.207	A
C-AB	18.07	18.07	4.52	0.00	661.55	0.027	17.96	0.0	0.0	5.593	A
C-A	136.26	136.26	34.07	0.00			136.26				
A-B	21.83	21.83	5.46	0.00			21.83				
A-C	213.06	213.06	53.26	0.00			213.06				

Main results: (16:30-16:45)

Stream	Total Demand (PCU/hr)	Junction demand (PCU/hr)	Junction Arrivals (PCU)	Bypass demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-AC	31.46	31.46	7.87	0.00	452.76	0.069	31.41	0.1	0.1	8.543	A
C-AB	21.58	21.58	5.40	0.00	650.60	0.033	21.56	0.0	0.0	5.722	A
C-A	162.71	162.71	40.68	0.00			162.71				
A-B	26.07	26.07	6.52	0.00			26.07				
A-C	254.41	254.41	63.60	0.00			254.41				

Main results: (16:45-17:00)

Stream	Total Demand (PCU/hr)	Junction demand (PCU/hr)	Junction Arrivals (PCU)	Bypass demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-AC	38.54	38.54	9.63	0.00	436.43	0.088	38.45	0.1	0.1	9.043	A
C-AB	26.44	26.44	6.61	0.00	635.51	0.042	26.40	0.0	0.0	5.910	A
C-A	199.27	199.27	49.82	0.00			199.27				
A-B	31.93	31.93	7.98	0.00			31.93				
A-C	311.59	311.59	77.90	0.00			311.59				

Main results: (17:00-17:15)

Stream	Total Demand (PCU/hr)	Junction demand (PCU/hr)	Junction Arrivals (PCU)	Bypass demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-AC	38.54	38.54	9.63	0.00	436.43	0.088	38.53	0.1	0.1	9.047	A
C-AB	26.44	26.44	6.61	0.00	635.51	0.042	26.44	0.0	0.0	5.910	A
C-A	199.27	199.27	49.82	0.00			199.27				
A-B	31.93	31.93	7.98	0.00			31.93				
A-C	311.59	311.59	77.90	0.00			311.59				

Main results: (17:15-17:30)

Stream	Total Demand (PCU/hr)	Junction demand (PCU/hr)	Junction Arrivals (PCU)	Bypass demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-AC	31.46	31.46	7.87	0.00	452.75	0.070	31.55	0.1	0.1	8.548	A
C-AB	21.58	21.58	5.40	0.00	650.60	0.033	21.62	0.0	0.0	5.723	A
C-A	162.71	162.71	40.68	0.00			162.71				
A-B	26.07	26.07	6.52	0.00			26.07				
A-C	254.41	254.41	63.60	0.00			254.41				

Main results: (17:30-17:45)

Stream	Total Demand (PCU/hr)	Junction demand (PCU/hr)	Junction Arrivals (PCU)	Bypass demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-AC	26.35	26.35	6.59	0.00	464.50	0.057	26.41	0.1	0.1	8.218	A
C-AB	18.07	18.07	4.52	0.00	661.55	0.027	18.10	0.0	0.0	5.596	A
C-A	136.26	136.26	34.07	0.00			136.26				
A-B	21.83	21.83	5.46	0.00			21.83				
A-C	213.06	213.06	53.26	0.00			213.06				

Do-Something - 2037 DS, AM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

ID	Name	Include in report	Use specific Demand Set (s)	Specific Demand Set(s)	Network flow scaling factor (%)	Network capacity scaling factor (%)
A2	Do-Something	✓	✓	D7,D8,D9,D10,D11,D12	100.000	100.000

Junction Network

Junctions

Junction	Name	Junction Type	Major road direction	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way	1.27	A

Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	140	Stream B-AC

Arms

Arms

Arm	Name	Description	Arm type
A	Cityeast Ave East		Major
B	Site Access		Minor
C	Citywest Ave West		Major

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Has right turn bay	Width for right turn (m)	Visibility for right turn (m)	Blocks?	Blocking queue (PCU)
C	9.00		✓	2.50	210.0	✓	2.00

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

Minor Arm Geometry

Arm	Minor arm type	Lane width (m)	Visibility to left (m)	Visibility to right (m)
B	One lane	2.75	14	14

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Junction	Stream	Intercept (PCU/hr)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
1	B-A	476.834	0.076	0.191	0.120	0.273
1	B-C	616.913	0.082	0.208	-	-
1	C-B	718.287	0.242	0.242	-	-

The slopes and intercepts shown above do NOT include any corrections or adjustments.
Streams may be combined, in which case capacity will be adjusted.
Values are shown for the first time segment only; they may differ for subsequent time segments.

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Model start time (HH:mm)	Model finish time (HH:mm)	Time segment length (min)	Run automatically
D11	2037 DS	AM	ONE HOUR	08:00	09:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	248.00	100.000
B		ONE HOUR	✓	75.00	100.000
C		ONE HOUR	✓	334.00	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A	B	C
From	A	0.000	10.000	238.000
	B	48.000	0.000	27.000
	C	324.000	10.000	0.000

Proportions

		To		
		A	B	C
From	A	0.00	0.04	0.96
	B	0.64	0.00	0.36
	C	0.97	0.03	0.00

Vehicle Mix

Heavy Vehicle proportion

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

Average PCU Per Veh

		To		
		A	B	C
From	A	1.000	1.000	1.000
	B	1.000	1.000	1.000
	C	1.000	1.000	1.000

Results

Results Summary for whole modelled period

Stream	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-AC	0.19	10.36	0.2	B	68.82	103.23
C-AB	0.02	5.61	0.0	A	9.18	13.77
C-A					297.31	445.96
A-B					9.18	13.76
A-C					218.39	327.59

Main Results for each time segment

Main results: (08:00-08:15)

Stream	Total Demand (PCU/hr)	Junction demand (PCU/hr)	Junction Arrivals (PCU)	Bypass demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-AC	56.46	56.46	14.12	0.00	458.73	0.123	55.91	0.0	0.1	8.927	A
C-AB	7.53	7.53	1.88	0.00	673.14	0.011	7.48	0.0	0.0	5.408	A
C-A	243.92	243.92	60.98	0.00			243.92				
A-B	7.53	7.53	1.88	0.00			7.53				
A-C	179.18	179.18	44.79	0.00			179.18				

Main results: (08:15-08:30)

Stream	Total Demand (PCU/hr)	Junction demand (PCU/hr)	Junction Arrivals (PCU)	Bypass demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-AC	67.42	67.42	16.86	0.00	446.78	0.151	67.28	0.1	0.2	9.481	A
C-AB	8.99	8.99	2.25	0.00	664.39	0.014	8.98	0.0	0.0	5.492	A
C-A	291.27	291.27	72.82	0.00			291.27				
A-B	8.99	8.99	2.25	0.00			8.99				
A-C	213.96	213.96	53.49	0.00			213.96				

Main results: (08:30-08:45)

Stream	Total Demand (PCU/hr)	Junction demand (PCU/hr)	Junction Arrivals (PCU)	Bypass demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-AC	82.58	82.58	20.64	0.00	430.16	0.192	82.34	0.2	0.2	10.342	B
C-AB	11.01	11.01	2.75	0.00	652.32	0.017	11.00	0.0	0.0	5.612	A
C-A	356.73	356.73	89.18	0.00			356.73				
A-B	11.01	11.01	2.75	0.00			11.01				
A-C	262.04	262.04	65.51	0.00			262.04				

Main results: (08:45-09:00)

Stream	Total Demand (PCU/hr)	Junction demand (PCU/hr)	Junction Arrivals (PCU)	Bypass demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-AC	82.58	82.58	20.64	0.00	430.16	0.192	82.57	0.2	0.2	10.356	B
C-AB	11.01	11.01	2.75	0.00	652.32	0.017	11.01	0.0	0.0	5.612	A
C-A	356.73	356.73	89.18	0.00			356.73				
A-B	11.01	11.01	2.75	0.00			11.01				
A-C	262.04	262.04	65.51	0.00			262.04				

Main results: (09:00-09:15)

Stream	Total Demand (PCU/hr)	Junction demand (PCU/hr)	Junction Arrivals (PCU)	Bypass demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-AC	67.42	67.42	16.86	0.00	446.78	0.151	67.65	0.2	0.2	9.500	A
C-AB	8.99	8.99	2.25	0.00	664.39	0.014	9.00	0.0	0.0	5.494	A
C-A	291.27	291.27	72.82	0.00			291.27				
A-B	8.99	8.99	2.25	0.00			8.99				
A-C	213.96	213.96	53.49	0.00			213.96				

Main results: (09:15-09:30)

Stream	Total Demand (PCU/hr)	Junction demand (PCU/hr)	Junction Arrivals (PCU)	Bypass demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-AC	56.46	56.46	14.12	0.00	458.72	0.123	56.62	0.2	0.1	8.957	A
C-AB	7.53	7.53	1.88	0.00	673.14	0.011	7.54	0.0	0.0	5.410	A
C-A	243.92	243.92	60.98	0.00			243.92				
A-B	7.53	7.53	1.88	0.00			7.53				
A-C	179.18	179.18	44.79	0.00			179.18				

Do-Something - 2037 DS, PM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

ID	Name	Include in report	Use specific Demand Set (s)	Specific Demand Set(s)	Network flow scaling factor (%)	Network capacity scaling factor (%)
A2	Do-Something	✓	✓	D7,D8,D9,D10,D11,D12	100.000	100.000

Junction Network

Junctions

Junction	Name	Junction Type	Major road direction	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way	0.82	A

Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	219	Stream B-AC

Arms

Arms

Arm	Name	Description	Arm type
A	Cityeast Ave East		Major
B	Site Access		Minor
C	Citywest Ave West		Major

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Has right turn bay	Width for right turn (m)	Visibility for right turn (m)	Blocks?	Blocking queue (PCU)
C	9.00		✓	2.50	210.0	✓	2.00

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

Minor Arm Geometry

Arm	Minor arm type	Lane width (m)	Visibility to left (m)	Visibility to right (m)
B	One lane	2.75	14	14

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Junction	Stream	Intercept (PCU/hr)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
1	B-A	476.834	0.076	0.191	0.120	0.273
1	B-C	616.913	0.082	0.208	-	-
1	C-B	718.287	0.242	0.242	-	-

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

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

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

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Model start time (HH:mm)	Model finish time (HH:mm)	Time segment length (min)	Run automatically
D12	2037 DS	PM	ONE HOUR	16:15	17:45	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	321.00	100.000
B		ONE HOUR	✓	35.00	100.000
C		ONE HOUR	✓	209.00	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A	B	C
From	A	0.000	29.000	292.000
	B	21.000	0.000	14.000
	C	185.000	24.000	0.000

Proportions

		To		
		A	B	C
From	A	0.00	0.09	0.91
	B	0.60	0.00	0.40
	C	0.89	0.11	0.00

Vehicle Mix

Heavy Vehicle proportion

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

Average PCU Per Veh

		To		
		A	B	C
From	A	1.000	1.000	1.000
	B	1.000	1.000	1.000
	C	1.000	1.000	1.000

Results

Results Summary for whole modelled period

Stream	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-AC	0.09	9.10	0.1	A	32.12	48.17
C-AB	0.04	5.93	0.0	A	22.03	33.05
C-A					169.75	254.63
A-B					26.61	39.92
A-C					267.94	401.92

Main Results for each time segment

Main results: (16:15-16:30)

Stream	Total Demand (PCU/hr)	Junction demand (PCU/hr)	Junction Arrivals (PCU)	Bypass demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-AC	26.35	26.35	6.59	0.00	462.90	0.057	26.11	0.0	0.1	8.238	A
C-AB	18.07	18.07	4.52	0.00	659.91	0.027	17.96	0.0	0.0	5.608	A
C-A	139.27	139.27	34.82	0.00			139.27				
A-B	21.83	21.83	5.46	0.00			21.83				
A-C	219.83	219.83	54.96	0.00			219.83				

Main results: (16:30-16:45)

Stream	Total Demand (PCU/hr)	Junction demand (PCU/hr)	Junction Arrivals (PCU)	Bypass demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-AC	31.46	31.46	7.87	0.00	450.81	0.070	31.41	0.1	0.1	8.582	A
C-AB	21.58	21.58	5.40	0.00	648.64	0.033	21.56	0.0	0.0	5.740	A
C-A	166.31	166.31	41.58	0.00			166.31				
A-B	26.07	26.07	6.52	0.00			26.07				
A-C	262.50	262.50	65.63	0.00			262.50				

Main results: (16:45-17:00)

Stream	Total Demand (PCU/hr)	Junction demand (PCU/hr)	Junction Arrivals (PCU)	Bypass demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-AC	38.54	38.54	9.63	0.00	434.04	0.089	38.45	0.1	0.1	9.098	A
C-AB	26.44	26.44	6.61	0.00	633.12	0.042	26.40	0.0	0.0	5.933	A
C-A	203.67	203.67	50.92	0.00			203.67				
A-B	31.93	31.93	7.98	0.00			31.93				
A-C	321.50	321.50	80.37	0.00			321.50				

Main results: (17:00-17:15)

Stream	Total Demand (PCU/hr)	Junction demand (PCU/hr)	Junction Arrivals (PCU)	Bypass demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-AC	38.54	38.54	9.63	0.00	434.03	0.089	38.53	0.1	0.1	9.102	A
C-AB	26.44	26.44	6.61	0.00	633.12	0.042	26.44	0.0	0.0	5.933	A
C-A	203.67	203.67	50.92	0.00			203.67				
A-B	31.93	31.93	7.98	0.00			31.93				
A-C	321.50	321.50	80.37	0.00			321.50				

Main results: (17:15-17:30)

Stream	Total Demand (PCU/hr)	Junction demand (PCU/hr)	Junction Arrivals (PCU)	Bypass demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-AC	31.46	31.46	7.87	0.00	450.80	0.070	31.55	0.1	0.1	8.589	A
C-AB	21.58	21.58	5.40	0.00	648.64	0.033	21.62	0.0	0.0	5.743	A
C-A	166.31	166.31	41.58	0.00			166.31				
A-B	26.07	26.07	6.52	0.00			26.07				
A-C	262.50	262.50	65.63	0.00			262.50				

Main results: (17:30-17:45)

Stream	Total Demand (PCU/hr)	Junction demand (PCU/hr)	Junction Arrivals (PCU)	Bypass demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-AC	26.35	26.35	6.59	0.00	462.88	0.057	26.41	0.1	0.1	8.248	A
C-AB	18.07	18.07	4.52	0.00	659.91	0.027	18.10	0.0	0.0	5.608	A
C-A	139.27	139.27	34.82	0.00			139.27				
A-B	21.83	21.83	5.46	0.00			21.83				
A-C	219.83	219.83	54.96	0.00			219.83				