Project

Residential Development,
Sheriff Street Upper and East Road, Dublin 1

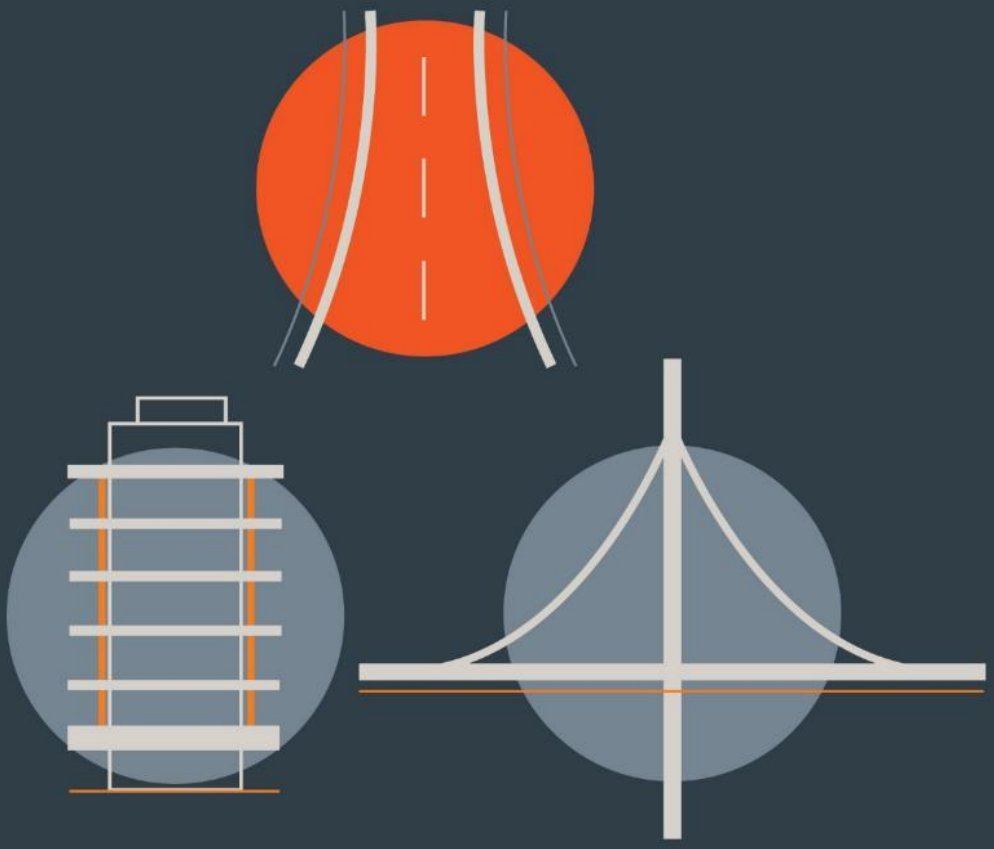
Report Title

TRAFFIC AND TRANSPORT ASSESSMENT REPORT

Client

Glenveagh Living Limited

TRANSPORTATION



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APPENDICES

1.0 INTRODUCTION

1.1 BACKGROUND

1.1.1 DBFL Consulting Engineers (DBFL) has been commissioned by Glenveagh Living Limited to prepare a Traffic and Transport Assessment (TTA) for a proposed residential development on a site which forms part of the Castleforbes Business Park, located on the eastern edge of Dublin City Centre. The subject site is currently occupied by the Castleforbes Industrial Estate, TAB Tyres & Batteries and Vernon Catering, amongst other businesses, with vehicular access provided directly from Sheriff Street Upper.

1.1.2 The development proposals include the demolition of the existing on-site Castleforbes Business Park development and its replacement with a residential development across c. 9 no. buildings (8 residential and 1 cultural) comprising residential apartments, cultural, retail, creche uses plus ancillary car / bicycle parking areas at basement level. The subject development site is located on the R101 Sheriff Street Upper within the Castleforbes area, east of Dublin City Centre.

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 transport impact generated as a result of the proposed residential development.

1.2.2 The scope of the assessment covers transport and sustainability issues including access, pedestrian, cyclist and public transport connections. Recommendations contained within this report are based on existing and proposed road layout plans, site visits, on site traffic observations and junction vehicle turning count data.

1.3 METHODOLOGY

1.3.1 Our approach to the study accords with policy and guidance both at a national and local level. The adopted approach has also been influenced by direction received during preplanning meetings with the local planning authority including a technical meeting undertaken with Dublin City Councils Transport Planning Officers on 4 September 2019.

1.3.2 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;
- *'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 (1994);
- *'Sustainable Urban Housing: Design Standards for New Apartments Guidelines for Planning Authorities'* Department of Housing, Planning and Local Government (2018);
- North Lotts & Grand Canal Dock SDZ Planning Scheme 2014; and
- *'Dublin City Council Development Plan 2016 - 2022'*.

1.3.3 The process has also included a review of the most relevant policy documentation with the objective of establishing the sites transportation planning framework as activity influenced by the following:

- Smarter Travel – A Sustainable Transport Future: A New Transport Policy for Ireland 2009-2020
- National Cycle Policy Framework 2009-2020
- Greater Dublin Area Cycle Network Plan (2014)
- Dublin City Centre Transport Study (May 2016)
- Transport Strategy for the Greater Dublin Area 2016-2035

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

- **Site Audit**: A site audit was undertaken on Thursday 31 October 2019 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**: Traffic counts were undertaken in February and March 2019 to supplement existing data available through previous applications

and analysed with the objective of establishing local traffic characteristics in the immediate area of the proposed residential development.

- **Development Policy Context:** Review of the most relevant policy documentation with the objective of establishing local development management standards and the Castleforbes development sites existing and emerging transportation planning framework.

- **Planning Review:** Review of permitted third party development proposals to confirm accessibility characteristics and associated planning condition that both the TTA assessment needs to consider and the subject development proposals integrate and respect.

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

- **Trip Distribution:** Based upon both the existing traffic characteristics and the network layout in addition to the spatial / land use configuration and density of the urban structure across the catchments area of the development, 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 **Section 2** of this report describes the existing conditions at the proposed development location and surrounding area, whilst **Section 3** provides a summary of the relevant transportation policies that influence the design and appraisal of the subject development proposals.

1.4.3 A description of the proposed residential development from a transportation perspective is detailed within **Section 4**.

1.4.4 In **Section 5** the trip generation and distribution exercises carried out and the adopted methodology for applying growth factors to establish a baseline for the design year network traffic flows. The subject impact of the development proposals is outlined in **Section 6**.

1.4.5 The operational performance of key junctions across the local road network as assessed for the 2022 Opening Year, 2027 Interim Year and the 2037 Future Design Year are summarised within **Section 7**.

1.4.6 The main conclusions and recommendations derived from the analysis are summarised in **Section 8**.

2.0 RECEIVING ENVIRONMENT

2.1 LOCATION

2.1.1 The Castleforbes development site is located in the North Wall district which forms the eastern edge of Dublin City Centre. The site is bounded to the south by Sheriff Street Upper and to the north and east by lands in the control of Irish Rail. Sheriff Street Upper terminates to the east at a signal-controlled junction with East Wall Road with links to North Wall Quay to the south. East Wall Road provides a direct connection to the strategic M50 and M1 Motorways via the Dublin Port Tunnel. To the west, Sheriff Street Upper provides access to Docklands train station, Connolly and Busáras Transportation Hubs, to North Circular Road via Seville Place and to Sir John Rogerson's Quay via Samuel Beckett Bridge.

2.1.2 The general location of the subject site in relation to the surrounding road network is illustrated in **Figure 2.1** below, whilst **Figure 2.2** indicatively shows the extent of the subject site boundary and neighbouring lands.

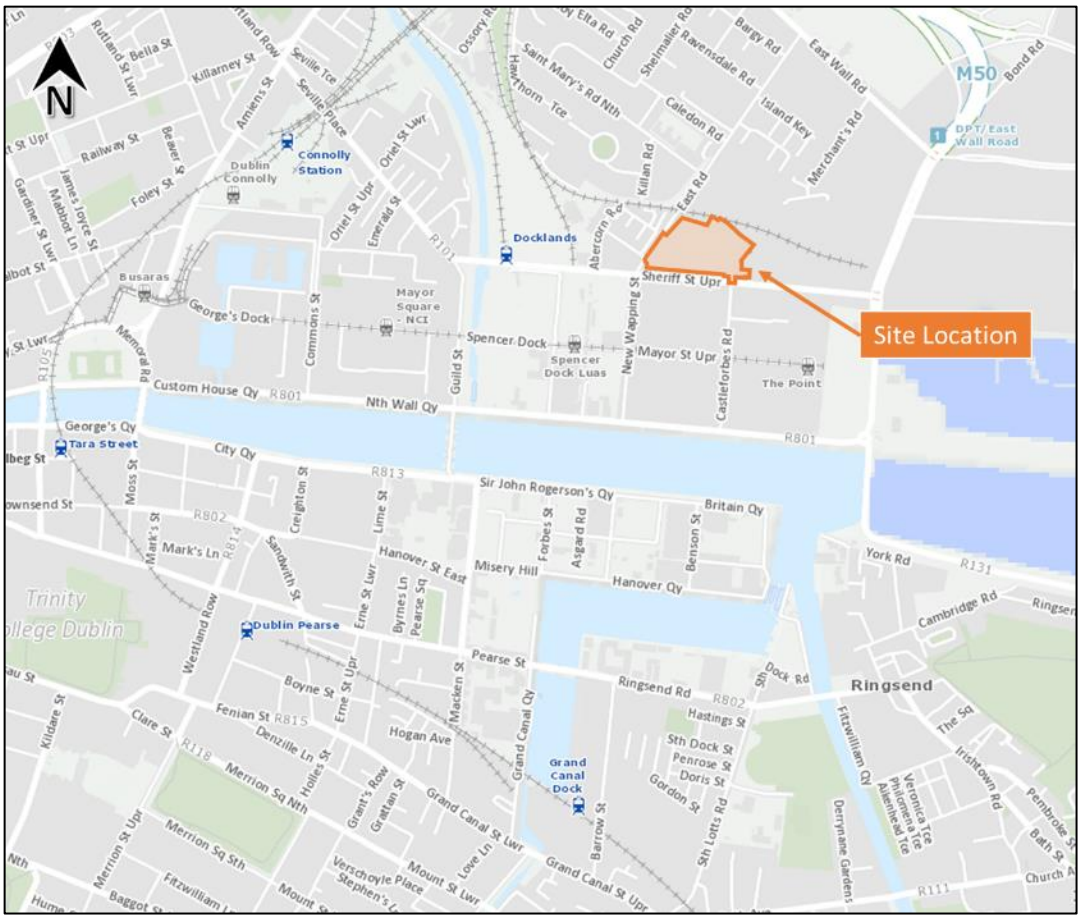


Figure 2.1: Site Location (Source: GeoHive)

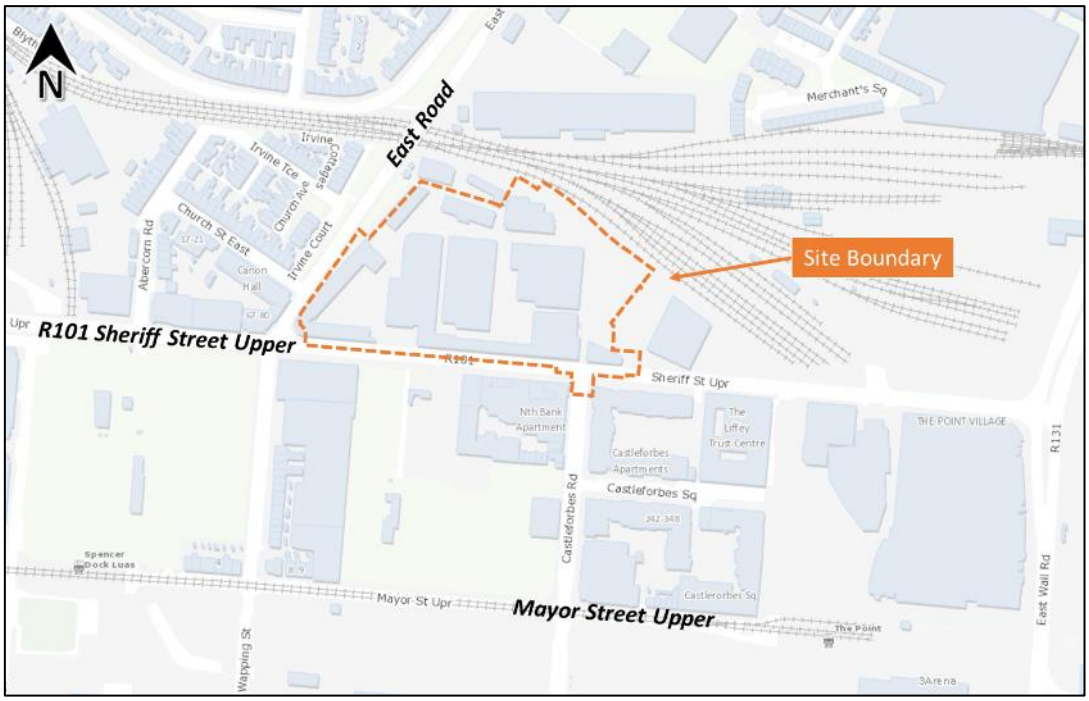


Figure 2.2: Indicative Site Boundary (Source: GeoHive)

2.2 LAND USE

2.2.1 The subject brownfield site is currently occupied by Castleforbes Industrial Estate, TAB Tyres & Batteries and Vernon Catering, amongst other businesses, with vehicular access currently provided via Sheriff Street Upper. The subject lands are situated on Sheriff Street in the North Dock area on the eastern edge of Dublin City Centre. The development site is bounded to the north and east by lands in the control of Irish Rail. The western boundary is formed by East Road, whilst Sheriff Street Upper forms the southern boundary. Railway sidings and the railway connection to Dublin Port form the northern boundary of the subject site.

2.2.2 The land uses surrounding the development site are a mix of office, hotel and residential blocks, all of which benefit from direct access to/from the R101 Sheriff Street Upper.

2.2.3 The subject development lands are zoned Z14 '*To seek social, economic and physical development and/or rejuvenation of an area with mixed use of which residential and "Z6" would be the predominant uses'.*

Land Use Zoning Objective Z6: *'To provide for the creation and protection of enterprise and facilitate opportunities for employment creation.'*

2.2.4 The subject development lands (**Figure 2.3**) are also located immediately to the north of the Docklands Strategic Development Zone (SDZ).

2.2.5 The designation of the Docklands, including the Docklands SDZ, as a strategic development and regeneration area (SDRA) provides for the continued physical and social regeneration of this part of the city, consolidating the area as a vibrant economic, cultural and amenity quarter of the city, whilst also nurturing sustainable neighbourhoods and communities.

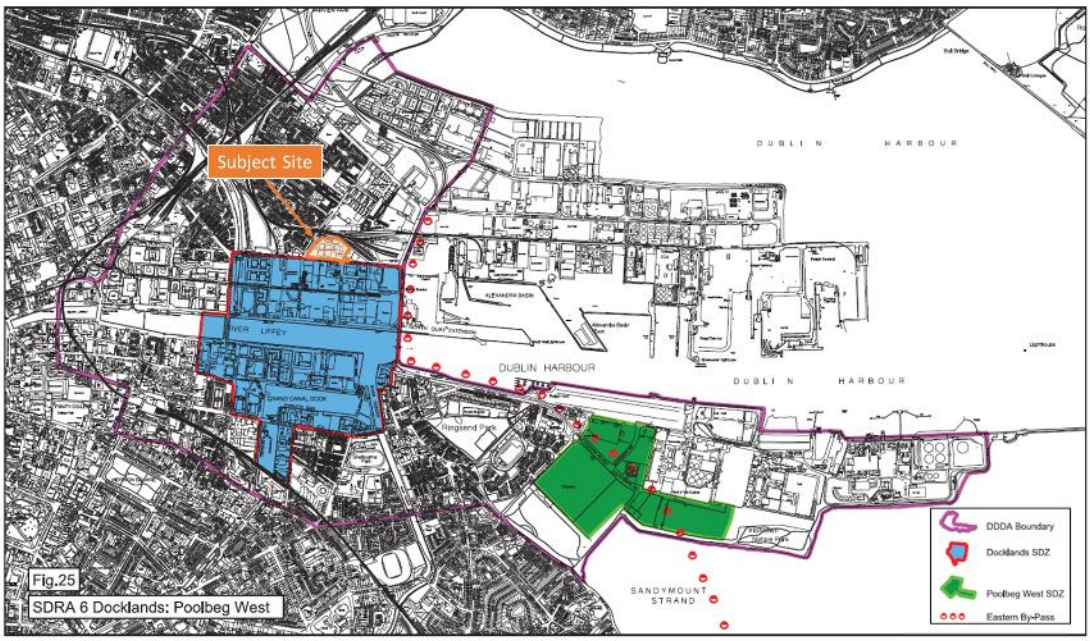


Figure 2.3: SDRA 6 Docklands (Source: Extract Map E DCC Development Plan)

2.3 EXISTING TRANSPORTATION INFRASTRUCTURE

Background

2.3.1 An important stage in the development of a Traffic and Transportation Assessment is the identification and appreciation of the local networks existing transport conditions and vehicle movement characteristics.

2.3.2 An audit of the local road network has therefore been undertaken to establish the existing transport conditions and vehicle movement patterns across the existing network.

Existing Pedestrian Environment

2.3.3 All pedestrian routes leading to/from the subject site benefit from the provision of street lighting in addition to good quality pedestrian footways. There are controlled pedestrian crossing facilities available adjacent to the subject site at the Sheriff Street Upper/North Wall Avenue junction and to the East at the East Road/R101 Sheriff Street Upper/New Wapping Street junction.

Photo 2.1: View of Sheriff Street Upper Looking East

Photo 2.2: View of Sheriff Street Upper Looking West

Existing Cycling Environment

2.3.4 In the immediate vicinity of the subject site cyclists must share the carriageway with general vehicular traffic. Nonetheless, cyclists traveling to/from the subject site

from the surrounding area can benefit from the provision of a variety of cycle facilities (cycle lanes/tracks) along Seville Place / Guild Street (550m to the west), and the Quays (400m to the south). The NTA's Cycle Network Plan for the Greater Dublin Area includes proposals for the provision of a secondary cycle route along East Road adjacent to the subject site (**Figure 2.4**).

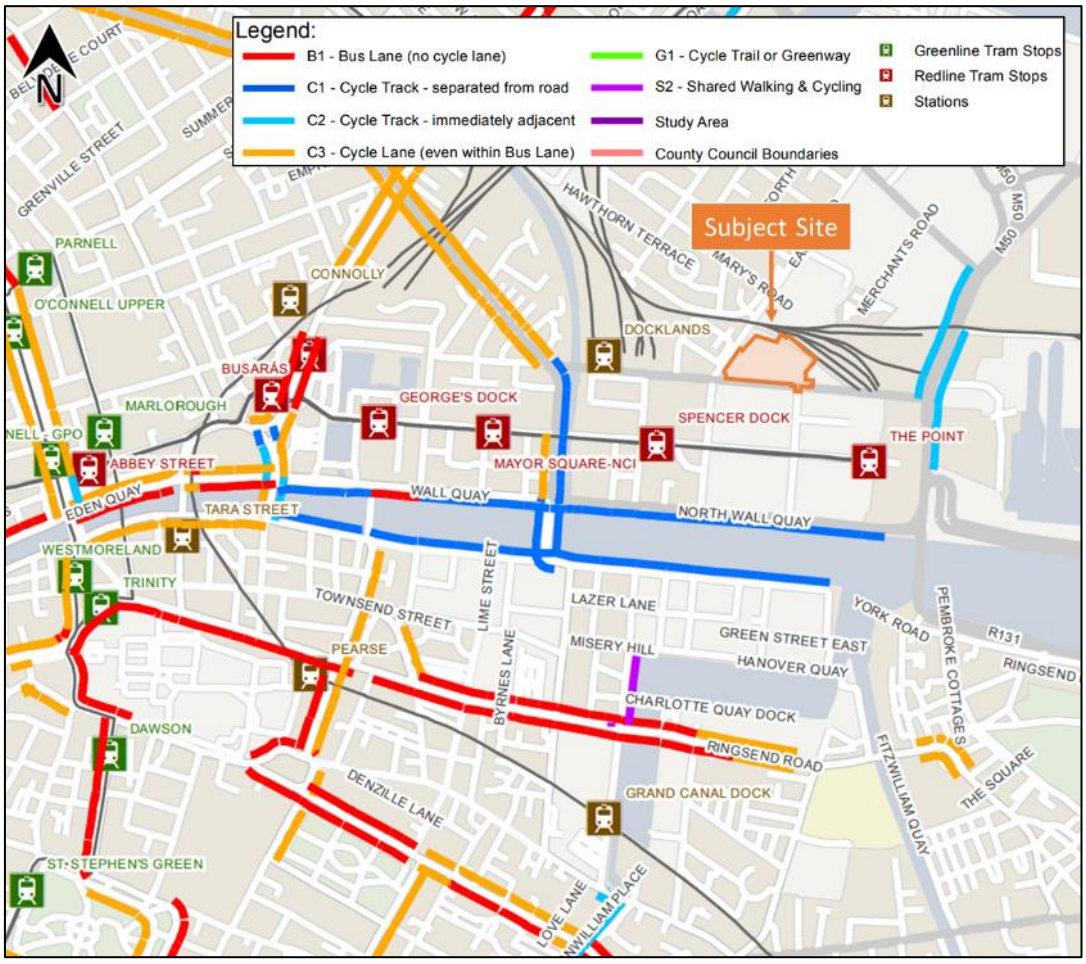


Figure 2.4: Existing Cycle Facilities (Source: Sheet E1 GDA Cycle Network Plan)

2.3.5 There are also a number of Dublinbikes stations (**Figure 2.5**) located surrounding the subject site area on North Wall Quay, Custom House Quay and City Quay. The bike station on North Wall Quay is accessible within approximately 500m walking distance of the subject site.

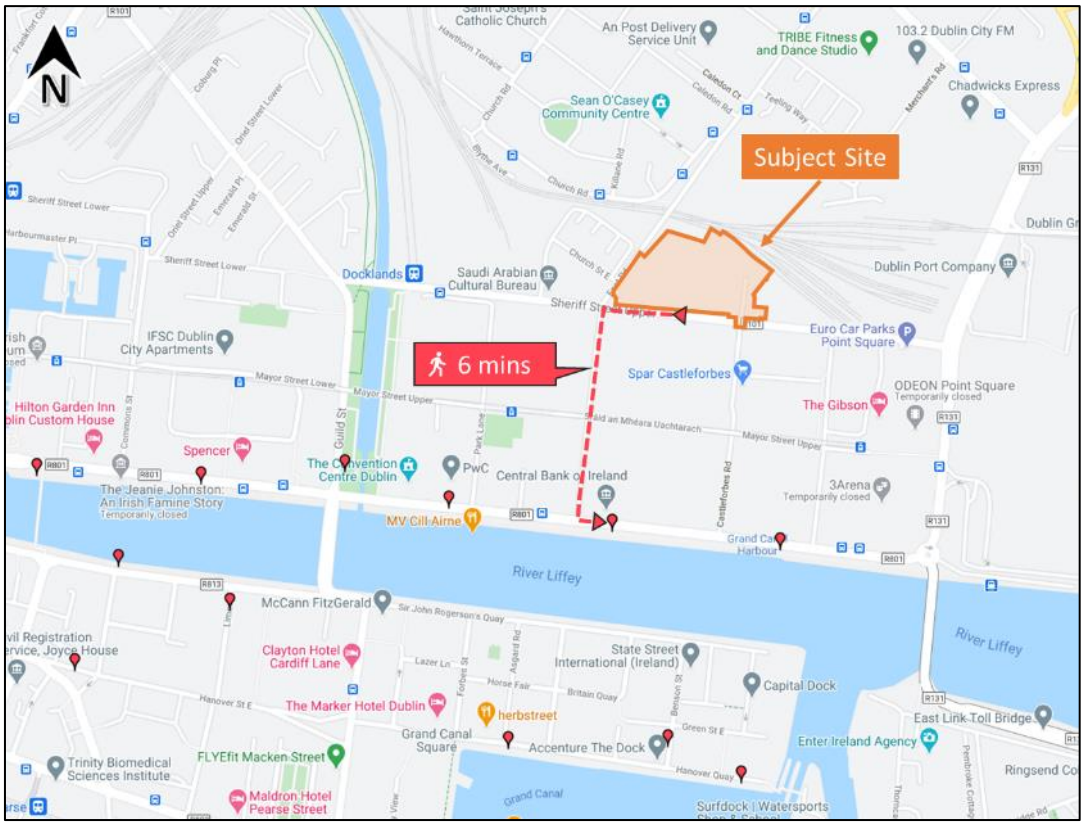


Figure 2.5: Dublinbikes Stations (Source: Dublinbikes)

Public Transport

2.3.6 As graphically illustrated in **Figure 2.6** below, the site is ideally situated to benefit from a comprehensive range of transport connections which result in the site achieving excellent accessibility levels for all modes of travel. Furthermore, the range and proximity of a number of existing (and emerging) public transport interchanges further enhances the sustainability characteristics of the site.

2.3.7 These include both the Docklands Rail Station and the LUAS Red Line (The Point and Spencer Dock interchanges) being only 400m and 450m respectively from the proposed development. In addition, Connolly Station and the proposed Clongriffin-Tallaght BRT interchange are within 1.2km from the site, whilst the proposed interchange for the Dart Underground is located at the Docklands Rail Station, approximately 450m from the subject site.

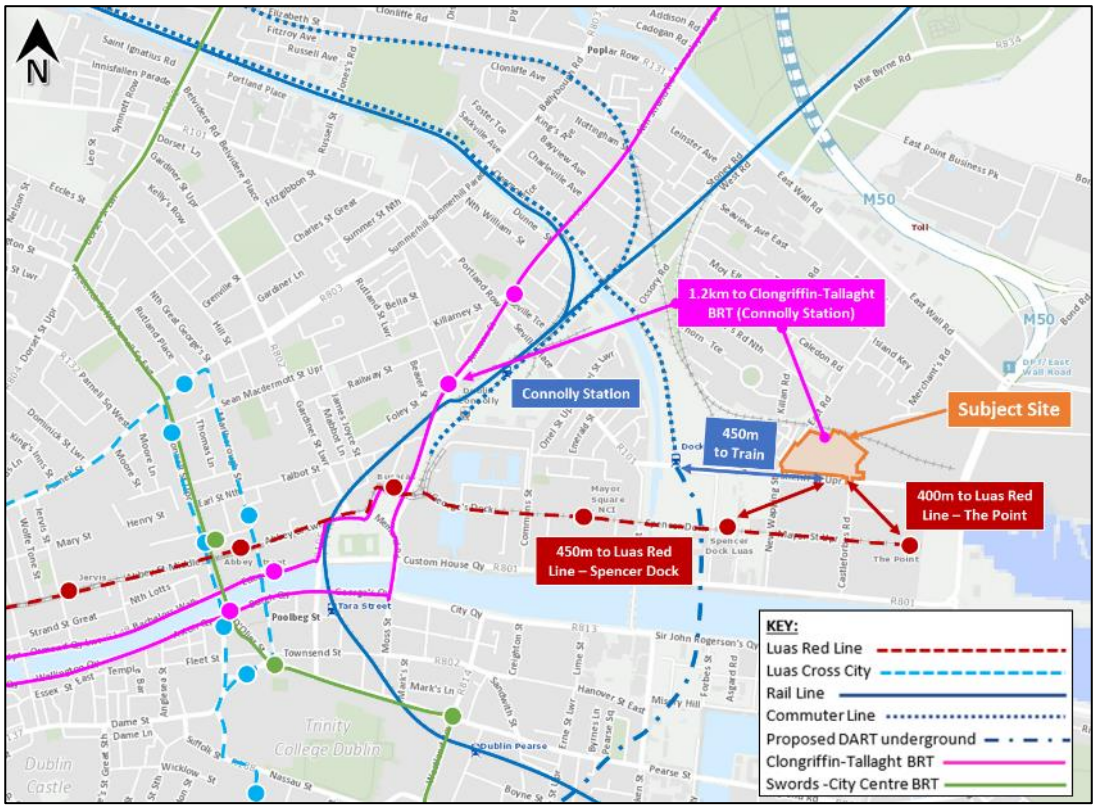


Figure 2.6: Existing & Proposed Public Transport Rail and BRT Connections

Public Transport – Bus

2.3.8 Dublin Bus operates route numbers 53 and 151 along the East Road corridor, travelling in both directions providing links between Dublin City Centre and Dublin Ferryport and also Foxborough and the Docklands. Routes 33d, 33x, 41x, 142 and 151, in addition to Airlink bus routes 747 and 757 operate along the R801 North Wall Quay (to the south of the subject site) providing links to/from a range of additional destinations including Dublin City Centre and Dublin Airport.

2.3.9 Route numbers 53 and 151 are highly accessible with the closest interchange opportunities within 500m of the subject site access whilst route numbers 33b, 33x, 41x, 142, 747 and 757 are accessible within 550m of the subject site access as detailed in **Figure 2.7** below.

Figure 2.7: Bus Interchange Locations (Source: DublinBus)

2.3.10 The Swords Express, which operates daily services, is also accessible along the R131 East Wall Road approximately 500m northeast of the subject site. These Dublin Bus operated bus services operate on a daily basis and offer relatively frequent schedules as summarised in **Table 2.1** below.

Route No.	Route	Mon – Fri	Sat	Sun
33d	Custom House Quay / St. Stephen's Green to Portrane	1*	-	-
	Portrane to Custom House Quay / St. Stephen's Green	1*	-	-
33x	Custom House Quay / St. Stephen's Green to Skerries	5*	-	-
	Skerries to Custom House Quay / St. Stephen's Green	5*	-	-
41x	UCD Belfield to Knocksedan	3*	-	-
	Knocksedan to UCD Belfield	7*	-	-
53a	Talbot Street to Sheriff Street Upper	5	-	-
	Sheriff Street Upper to Talbot Street	5	-	-
53	Talbot Street to Dublin Ferryport	14	13	7
	Dublin Ferryport to Talbot Street	13	13	7
142	Portmarnock to UCD Belfield	11	-	-
	UCD Belfield to Portmarnock	10	-	-
151	Docklands (East Road) to Foxborough (Balgaddy Road)	48	46	31
	Foxborough (Balgaddy Road) to Docklands (East Road)	51	48	34
747	Heuston Rail Station to Dublin Airport	99	74	61
	Dublin Airport to Heuston Rail Station	100	70	61
757	Camden Street (Charlotte Way) to Dublin Airport	38	38	35
	Dublin Airport to Camden Street (Charlotte Way)	39	39	35

**excluding Bank Holidays*

Table 2.1: Dublin Bus Service Frequency – No. of services (Source: DublinBus)

2.3.11 Reference can also be made to DBFL Drawing No. 180159-1001 which shows the existing transportation linkages within a 2000m radius of the subject site.

Public Transport - Heavy Rail Network

2.3.12 The Docklands Train Station is located approximately 450m (6-minute walk) walking distance to the west of the subject site, as shown in **Figure 2.8** below. This interchange provides access to DART and regional Commuter rail services. Furthermore, Connolly Station is only 1.2km to the west where additional DART and regional commuter services are available in addition to intercity services, whilst Heuston Station is accessible via the LUAS Red Line connection.

Public Transport – LUAS

2.3.13 The LUAS Red Line is also accessible with the 'The Point' interchange located approximately 400m (5-minute walk) walking distance to the southeast of the subject site. The LUAS Red Line currently provides access to Busáras, Connolly Station, Dublin City Centre, Heuston Railway Station, Tallaght and Saggart in addition to other intermediate destinations along its route.

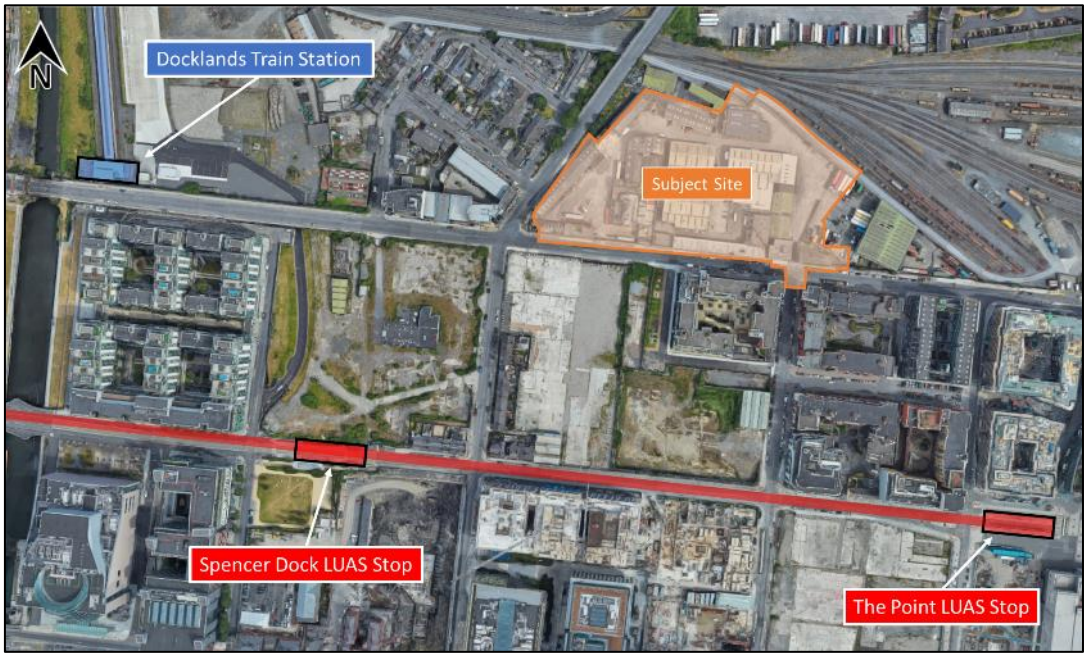


Figure 2.8: Train Station and LUAS Interchange Locations

2.3.14 Reference can also be made to DBFL Drawing No. 180159-1003 which shows the existing heavy and light rail linkages within a 2000m radius of the subject site.

2.4 SITE ACCESSIBILITY

Walking

2.4.1 The pedestrian catchments accessible from the subject site are shown in **Figure 2.9** below for different walking times, from 15 minutes to 45 minutes. In 15-minutes walking time, several nearby bus and LUAS interchanges are reachable, as well as Ringsend. In 30-minutes walking time, Dublin City Centre can be accessed, as well as Grand Canal Dock, Irishtown and North Strand. In 45-minutes walking time, Dublin neighbourhoods such as Drumcondra, Phibsborough and Sandymount are accessible.

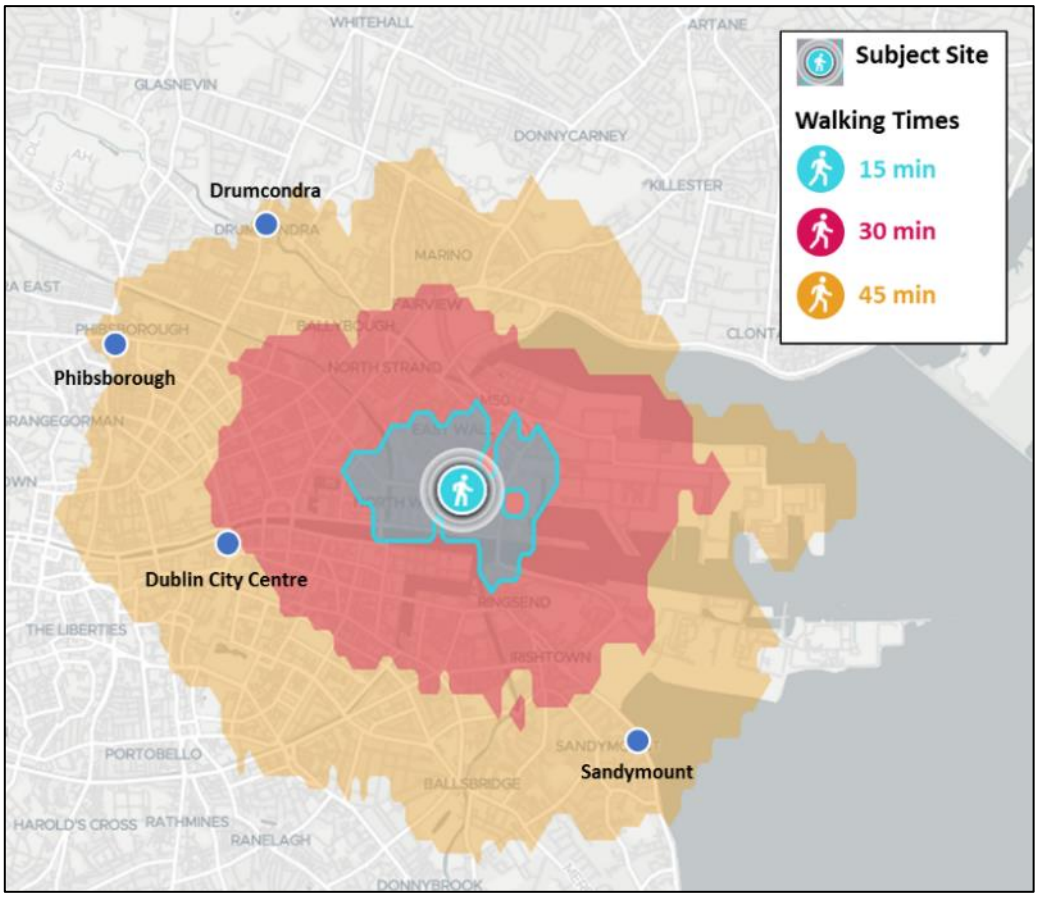


Figure 2.9: Pedestrian Accessibility (Walking Time from Site) (Source: TravelTime platform)

Cycling

2.4.2 The subject site is very accessible by bicycle, being located within a network of cyclable streets in the vicinity of the Castleforbes Business Park. Existing local cycling infrastructure relative to the subject site was outlined previously in Section 2.3. **Figure 2.10** below illustrates cycle travel time catchment areas from the subject site.

2.4.3 In 15 minutes of cycling, a number of areas and their facilities are accessible from Castleforbes, namely Dublin City Centre North and South, Fairview, Ballsbridge and Connolly Train Station facilitating further onward connections.

2.4.4 In 30 minutes of cycling, areas such as Rathmines and Ballymun are accessible as well as Blackrock. While in 45 minutes of cycling, areas such as Blanchardstown, Tallaght, Sandyford and Dún Laoghaire on the east coast are all accessible from the subject site.

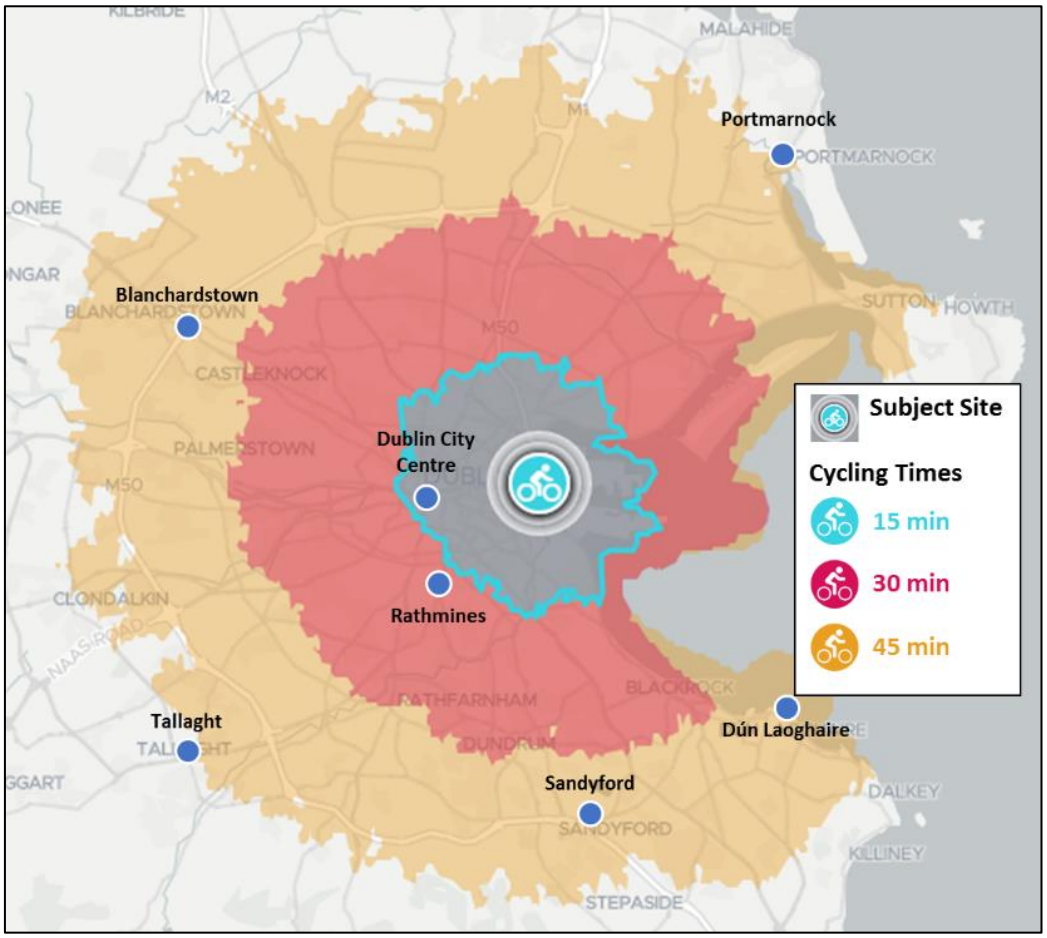


Figure 2.10: Bicycle Accessibility (Cycle Time from Site) (Source: TravelTime platform)

Public Transport & Walking

2.4.5 Regarding public transport accessibility, the subject site currently benefits from a significant range of LUAS and bus services in close proximity to the site as outlined in the previous sections. **Figure 2.11** below illustrates an analysis of public transport catchment areas from the site within a 30 minute to 60 minute transit and walking time. Dublin City Centre North and South and Grand Canal Dock are easily accessible from the subject site within 30 minutes.

2.4.6 Swords and Naas among other Dublin neighbourhoods can be reached with 45 minutes. In 60 minutes, the public transport catchment is extended to include towns such as Balbriggan, Ashbourne, Howth, Leixlip, Celbridge, Clondalkin and Dalkey.

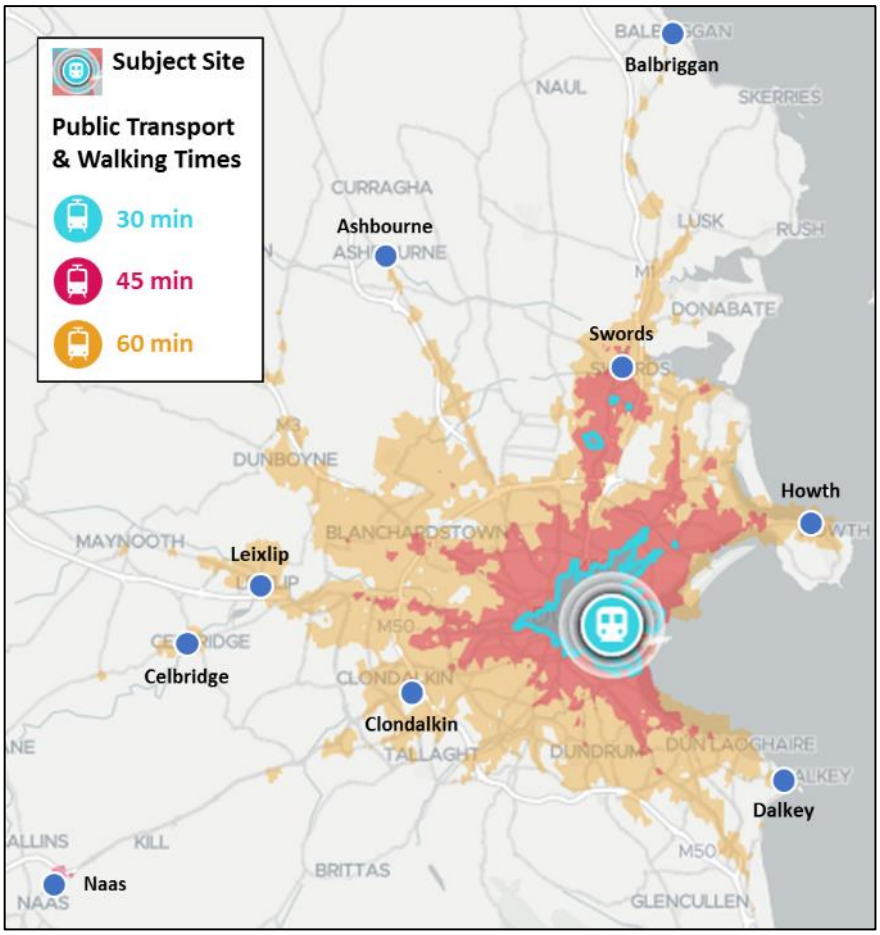


Figure 2.11: Public Transport & Walking Accessibility (Source: TravelTime platform)

2.5 ROAD SAFETY REVIEW

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

2.5.2 **Table 2.2** and **Figure 2.12** below outline the recorded collisions which have occurred in the immediate vicinity of the site on Sheriff Street Upper (R101) during the study period (2005-2016 inclusive). All collisions recorded were minor severity involving only one casualty at a time. With the exception of one collision recorded

in 2011 involving a motorcycle and one collision in 2014 involving a bicycle, the remaining collisions involved cars.

Road Collision Location	Year	Severity	Vehicle / Pedestrian	Circumstances	Day of Week	Time	Speed Limit	No. Casualties
R101 Sheriff Street Upper	2006	Minor	Car	Angle, right turn	Sunday	16:00 – 19:00	50 KPH	1 minor
	2007	Minor	Car	Angle, both	Monday	10:00 – 16:00	50 KPH	1 minor
	2011	Minor	Motorcycle	Single vehicle	Friday	10:00 – 16:00	50 KPH	1 minor
	2014	Minor	Bicycle	-	Saturday	07:00 – 10:00	50 KPH	1 minor
	2014	Minor	Car	-	Friday	10:00 – 16:00	30 KPH	1 minor

Table 2.2: Road Collisions on the R101 Sheriff Street Upper (Source: RSA)

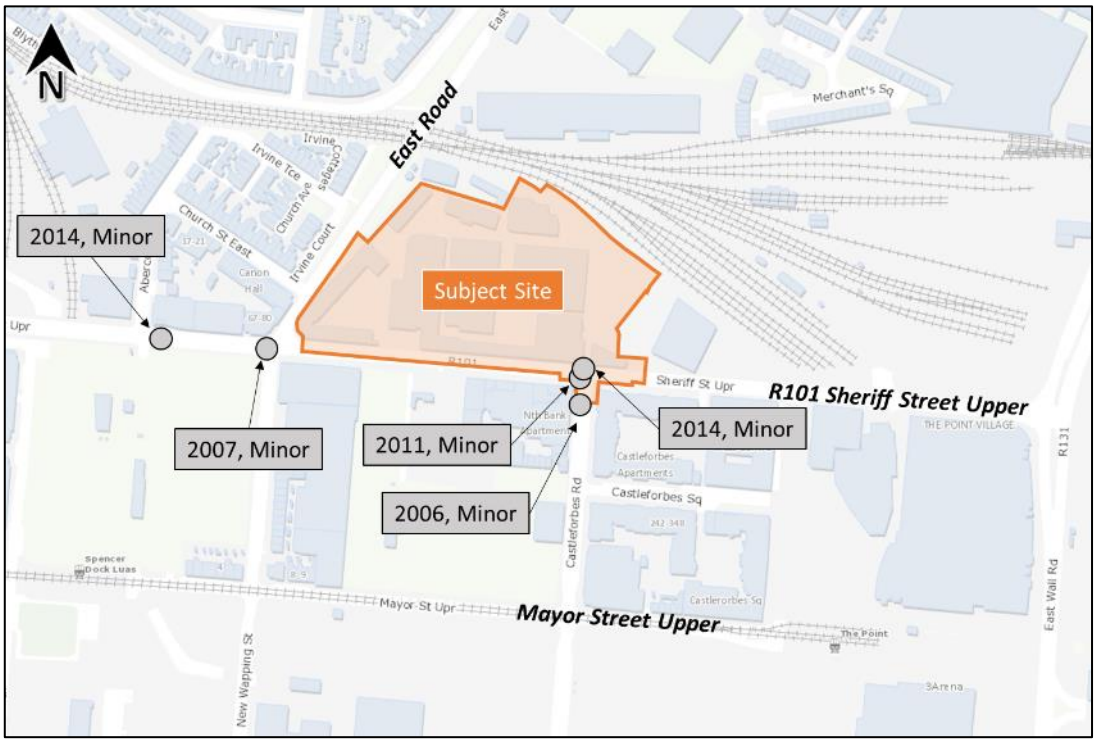


Figure 2.12: Road Collisions on R101 Sheriff Street Upper (Source: RSA)

2.5.3 The review of the RSA data reveals that the local road network exhibits a good safety record considering the volume of traffic travelling across the local road network. In summary, the nature of the collisions recorded on Sheriff Street Upper in the vicinity of the proposed development were sporadic and minor in nature.

2.5.4 Nevertheless, the analysis demonstrates that no significant incident trends or significant safety concerns are evident across the local road network in the immediate vicinity of the proposed development.

2.6 PROPOSED TRANSPORT INFRASTRUCTURE

Cycle Network Proposals

2.6.1 The subject site is located within the *'Dublin City Centre Sector'* within the Greater Dublin Area Cycle Network Plan (2013). According to the GDA Plan `*The Dublin City Centre Sector is defined by the Royal Canal and Grand Canal ring on the northern, eastern and southern side. The western boundary is taken as about 0.5km west of a north-south line between Phibsborough and Harold's Cross, and includes areas such as Pimlico, Thomas Street, Manor Street and Grangegorman. This area includes the commercial heart of the city where most employment is concentrated. It excludes the mostly residential areas within the canal ring further west, as these are in effect inner suburbs that do not attract significant numbers of non-local inward trips. On the other hand, the recently redeveloped Docklands area spreads a little way east of the canal ring and has been included in the City Centre sector as it contains significant employment'*.

2.6.2 In the vicinity of the subject site the following route additions are proposed (**Figure 2.13**):-

- **Secondary Route 1E** (adjacent to the site): *"branches off Route 1A at Clontarf Road and provides an alternative link to the Docklands area via East Wall";*
- ***Primary Route 5****: "Docklands to the North West Sector along the Liffey Quays to Heuston Station, and then through the Phoenix Park to Castleknock and Blanchardstown"*;
- ***Royal Canal Greenway***: *"from Sheriff Street in the Docklands to Drumcondra Road past Croke Park stadium (partly in place west of North Strand)*
- **Primary Route NO1**: *"North Circular Route at the outer edge of the city centre, from Route 1 at Five Lamps westwards to Phibsborough and eastwards to the Docklands"; and*
- **Secondary Route C8**: *"North Circular Road East: From Royal Canal Bank at Phibsborough eastward to Docklands".*

Figure 2.13: Proposed Cycle Network Enhancements (Source: Extract of Sheet N1a GDA)

Public Transport Proposals

2.6.3 Map J of the *Dublin City Development Plan 2016-2022* presents both the existing and proposed public transport routes in the region. An extract of this map illustrating the existing and proposed routes in the vicinity of the subject development site is presented in **Figure 2.14** below.

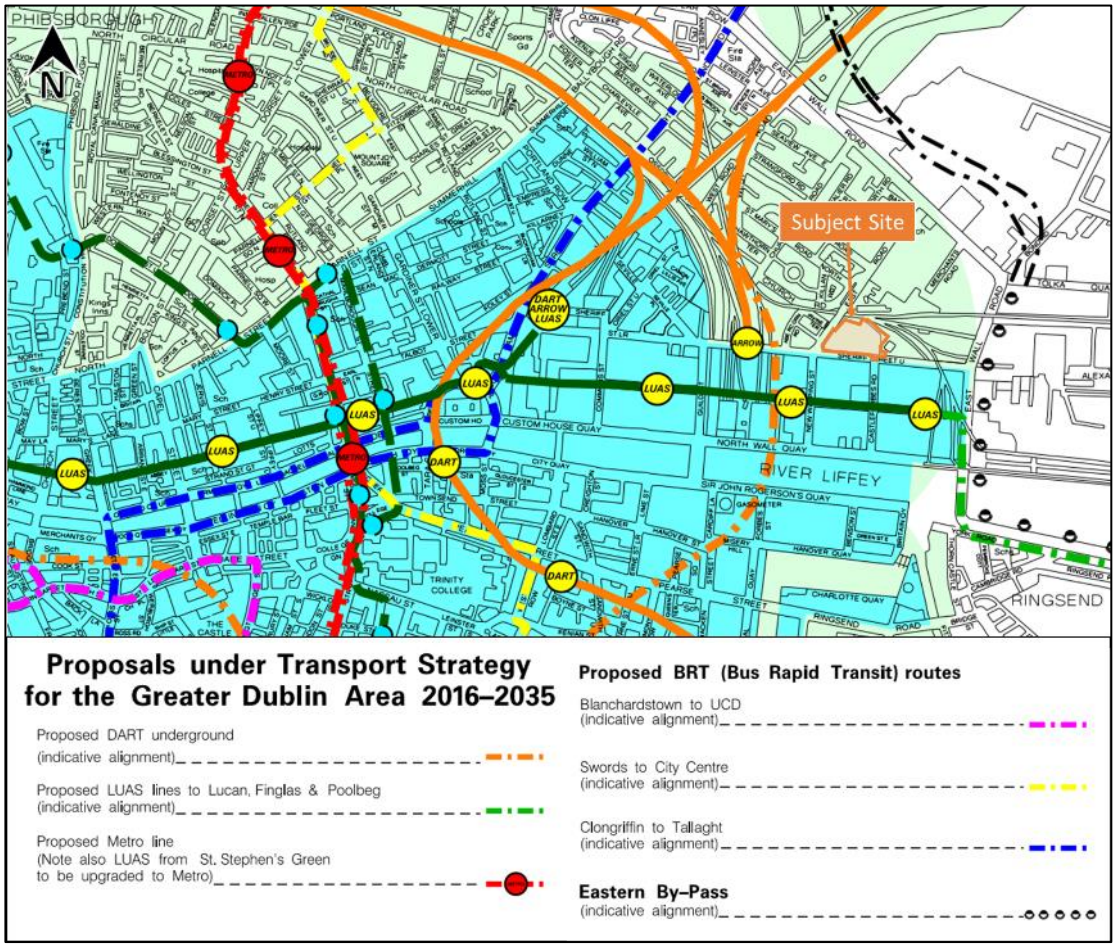


Figure 2.14: DCC Existing & Proposed Public Transport Routes in the Vicinity of the Subject Site (Source: Extract of Mapset J DCC Development Plan)

BusConnects

2.6.4 In 2017 the National Transport Authority (NTA) in collaboration with Dublin Bus and other key stakeholders began work on reviewing the Dublin Area bus network. This culminated in a draft BusConnects Network being published in 2018. The Dublin Area Bus Network Redesign proposals sought to introduce a number of significant changes to the bus services within Dublin including: -

- *"Services to be arranged along seven cross-city super-frequent spines*
- *Dramatic increase in the numbers of orbital services*
- *Increase in the number of all-day high-frequency services*
- *Move to a simplified two-fare system*
- *A new route numbering system".*

"Under the proposals, the level of bus service will increase by 27%. This includes services on 11 brand-new orbital routes that will operate on a 15-minute frequency or better, in the north, south and west of the network area."

2.6.5 Since then, three rounds of public consultation regarding the Bus Network Redesign proposals and BusConnects have taken place. The proposed bus network was subsequently revised in light of the feedback received and the final version of the network proposals have recently been published (September, 2020) and are shown in **Figure 2.15** below. This indicates the proposed bus service routes in the vicinity of the subject site, following the BusConnects network redesign.

2.6.6 Under the BusConnects proposals, the following routes will operate at the following frequencies within the immediate vicinity of the subject site:-

- **Spine Branch Route G1:** From Spencer Dock to Red Cow Luas via City Centre, Inchicore and Ballyfermot, operating every 10 – 15 minutes;
- **Spine Branch Route G2:** From Spencer Dock to Liffey Valley via City Centre, Ballyfermot and Neilstown, operating every 10 – 15 minutes;
- **Orbital Route N4:** From Spencer Dock to Blanchardstown via East Wall, Whitehall, DCU and Finglas, operating every 10 – 15 minutes;
- **Route 71:** From East Wall to Tallaght via City Centre, Crumlin and Walkinstown, operating every 30 minutes;
- **Route 72:** From East Wall to Crumlin Hospital via City Centre, Kevin Street, South Circular Road and Drimnagh, operating every 30 minutes;
- **Route 58:** From Dublin Port to Rathcoole via East Wall, Islandbridge, Red Cow and Saggart, operating every 60 minutes;
- **Route 95:** From Spencer Dock to Cherry Orchard via City Centre, Inchicore and Ballyfermot, operating every 60 minutes; and
- **Route L91:** From Sheriff Street to Talbot Street, operating every 60 minutes from 10am to 2pm.

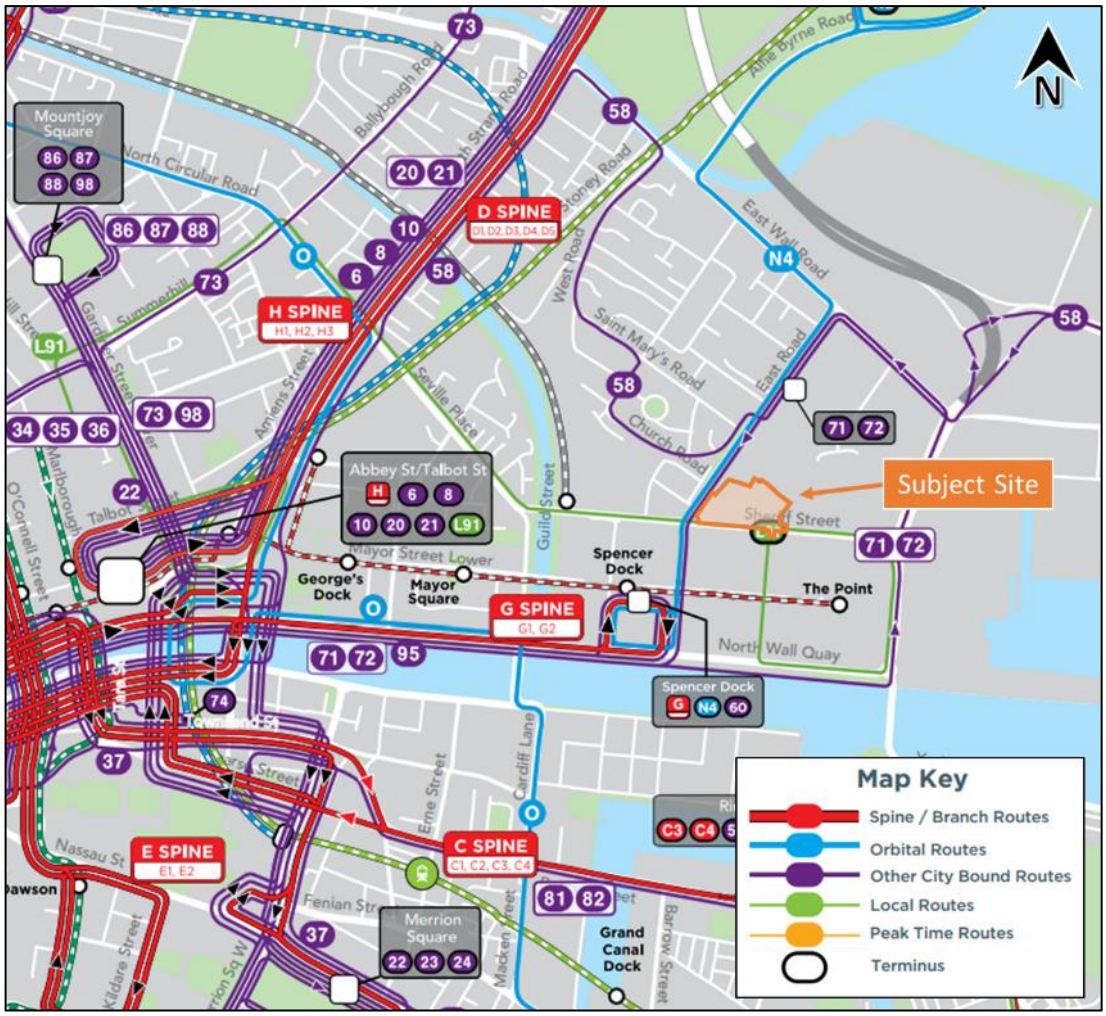


Figure 2.15: Proposed Public Transport Services (weekday midday frequency)
(Source: BusConnects Revised Bus Network Map 2020)

2.6.7 As part of the BusConnects public consultation, maps are available to show how the proposed changes will affect each area. **Figure 2.16** below indicates the areas reachable within 30, 45- and 60-minute journey times. The travel times of 30, 45 and 60 minutes are based upon the following parameters:-

- The times/distances are based upon the public transport frequencies between 09:00-15:00 weekdays;
- There is the assumption that the waiting time for a particular service is half the time of the bus frequency (i.e. if the frequency of the bus is 20 minutes, there is an estimated 10-minute wait time); and
- There are higher frequencies available on some routes during the AM and PM peak hour periods, however this is not applicable to the routes which are within walking distance of the subject site.

2.6.8 The maps also provide information regarding how many more jobs that are accessible from a particular location within the 30, 45 and 60-minute travel time. It can be seen from **Table 2.3** below, that residents of the subject site will have the benefit of being able to gain convenient access to an additional 25,400 jobs within a 30-minute travel when compared to the existing bus services.

How Many More Jobs Can I Reach?			
Travel Time	Jobs in Existing	Jobs in Proposed	% Change
30 mins	232,200	257,600	+11%
45 mins	373,000	405,600	+9%
60 mins	547,700	555,400	+1%

Table 2.3: Percentage Change in Number of Jobs Accessible before/after BusConnects Implementation

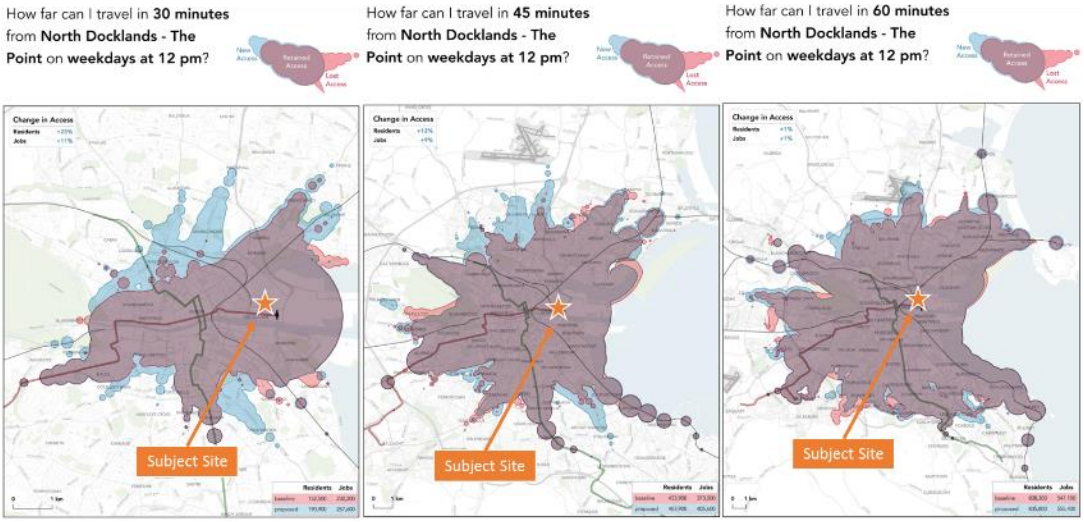


Figure 2.16: Areas Reachable Within 30, 45, and 60 minutes by Bus

2.6.9 The subject site on the R101 Sheriff Street Upper is ideally located to benefit from the enhanced accessibility levels delivered by the BusConnects proposals. **Figure 2.17** illustrates the bus radial infrastructural corridors to be implemented as part of the BusConnects initiative.

2.6.10 In relation to the subject site, the proposed development is approx. 550m from the nearest bus stop which will serve the radial core bus corridor of Ringsend to City Centre where bus journey time is anticipated to be approximately 18 minutes along the 5 km route, once constructed.

Figure 2.17: Proposed Radial Core Bus Corridors (Source: BusConnects)

2.6.11 Shown in **Figure 2.18** below is the proposed cross-section for the Core Bus Corridor Route 16, Ringsend to City Centre, at the R801 North Wall Quay, 550m south from the subject site. The BusConnects CBC scheme will enable further enhancements to the existing cycle track on the R801 North Wall Quay as well as ensuring an elevated level of service and shorter journey times for the buses travelling on these routes.

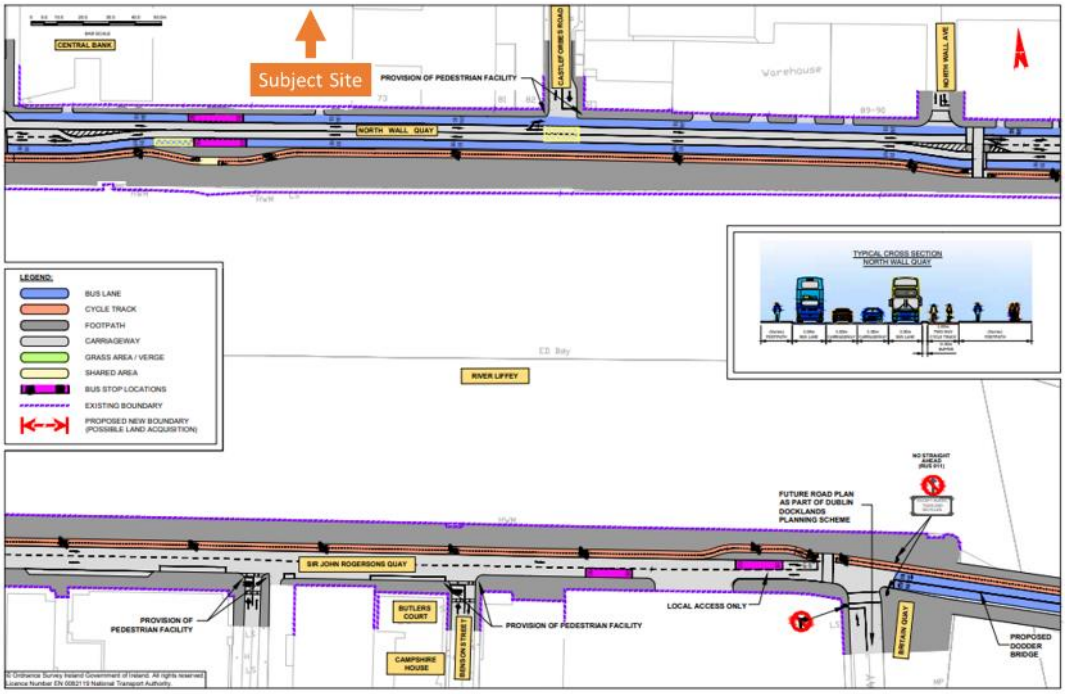


Figure 2.18: Emerging Preferred Route for Core Bus Corridor 16
(Source: BusConnects)

2.6.12 Reference can also be made to **DBFL Drawing No. 180159-1002** which shows the proposed transportation linkages within a 2000m radius of the subject site.

DART Proposals

2.6.13 The DART+ Programme will see the DART system expanded, providing fast, high-frequency electrified services to Drogheda on the Northern Line, Hazelhatch on the Kildare Line, Maynooth and M3 Parkway on the Maynooth Line, while continuing to provide DART services on the Coastal Line as far south as Greystones (**Figure 2.19**).

2.6.14 A location for a DART+ West station has been proposed for the existing Docklands Train Station, located approximately within 5-minutes walking distance from the subject site. **Figure 2.20** below shows the route map for the proposed DART+ West Line.

Figure 2.19: DART+ Programme (Source: Irish Rail)

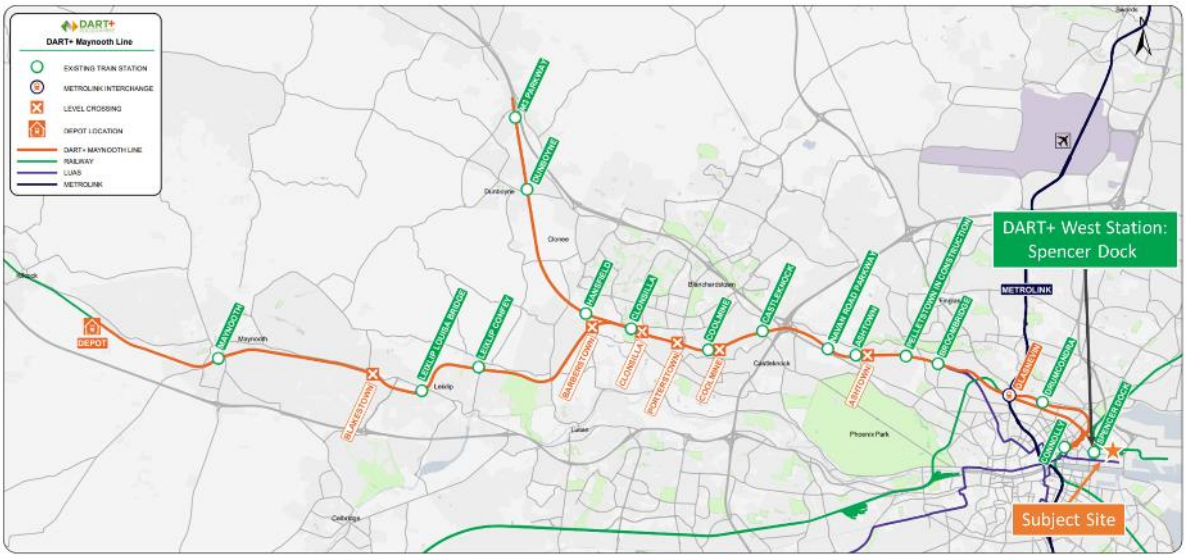


Figure 2.20: DART+ West Line Route Map (Source: Irish Rail)

Road & Bridge Infrastructure Proposals

2.6.15 As outlined within both the Dublin City Council Development Plan (2016-2022), and the North Lotts & Grand Canal Dock Planning Scheme 2014, there are objectives for the provision of the following road and bridge infrastructure / improvement schemes within the six-year period of the Development Plan (**Figure 2.21**):-

- ***Roads***
  - *East Wall Road/Sheriff Street to North Quays*
- ***Bridges***
  - *Two new bridges proposed as part of the North Lotts and Grand Canal Dock SDZ, plus Dodder Bridge*

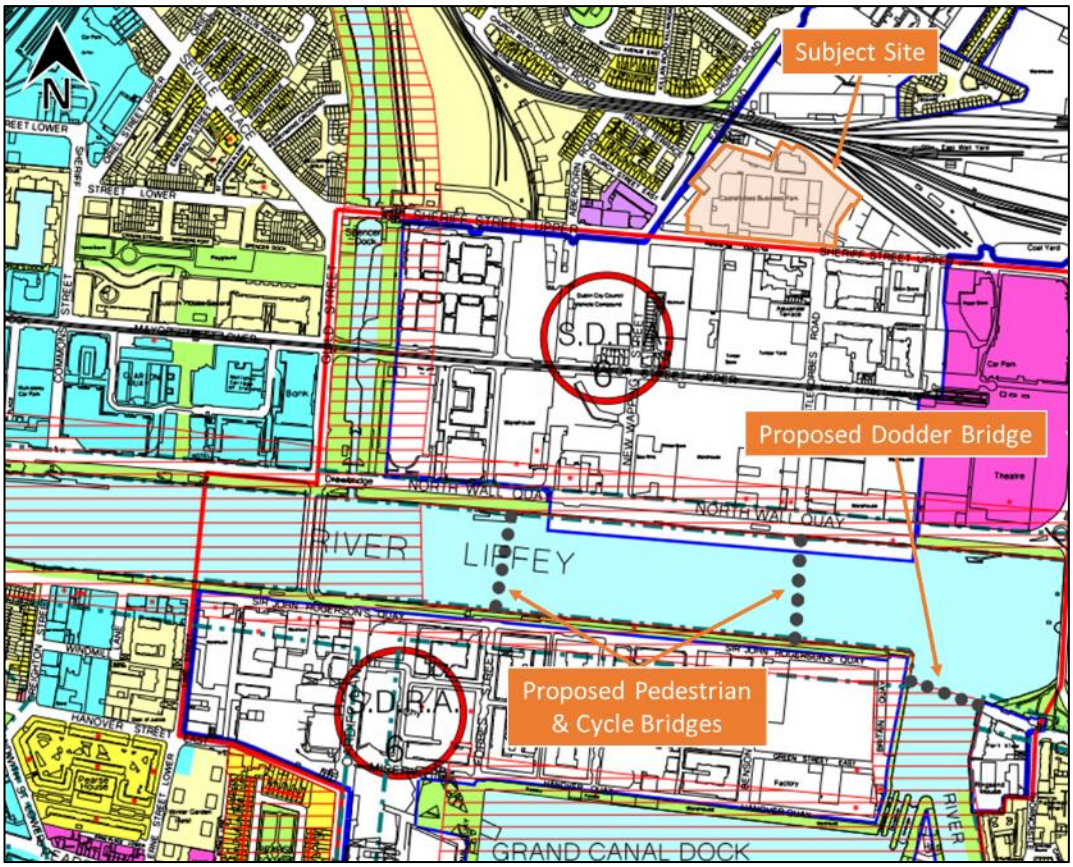


Figure 2.21: Proposed Bridge Infrastructure (Source: DCC Development Plan Map E)

Proposed Amendments to North Lotts and Grand Canal Planning Scheme 2014 (February 2018)

2.6.16 In February 2018 Dublin City Council made a request to ABP to make amendments to the North Lotts and Grand Canal Planning Scheme 2014 stating:- *'The proposed amendments would allow for the effective relocation of two pedestrian/cycle bridges from the locations shown in the Planning Scheme document, and in response to changed circumstances'.*

2.6.17 As indicated in **Figure 2.21** above, the North Lotts and Grand Canal Dock SDZ Planning Scheme contains objectives to provide two separate pedestrian/cycle bridges across the River Liffey, at Forbes Street and Castleforbes Road.

2.6.18 In 2019 permission was sought from ABP to relocate the proposed bridges, which was refused in September 2020 as there is a "*logical and clear desire line for pedestrians and cyclists between north and south of the River Liffey"* from the originally proposed bridge locations.

Timescales

2.6.19 The implementation of the above infrastructure schemes will be subject to further design, public consultation, approval, and importantly availability of funding and resources.

2.7 COMMITTED DEVELOPMENTS

2.7.1 The review of DCC planning files revealed that the subject development's receiving environment benefits from having a number of permitted developments which are not yet occupied/completed. As per good practice this assessment has imported these local permitted schemes as 'Committed' developments with the objective of providing a robust appraisal of the local road network. As detailed in Section 5.3 a total of 12 separate 'Committed' development schemes have been included within this assessment. These committed schemes include the Castleforbes Office and Hotel Development (Ref. 3433/19) and the Castleforbes Hotel Development (Ref. 2143/20) as located to the east and west of the subject site respectively. The design and layout of the subject development actively safeguards the access and servicing requirements to these two adjoining schemes.

3.0 POLICY FRAMEWORK

3.1 DEVELOPMENT POLICY

Transport Strategy for the Greater Dublin Area 2016-2035

3.1.1 The *Transport Strategy for the Greater Dublin Area 2016-2035* is a document compiled by the National Transport Authority (NTA) which sets out the Strategic Transport Plan for the Greater Dublin Area for the period up to 2035.

3.1.2 This document will influence transport planning across the region until 2035 and replaces '*A Platform for Change – An Integrated Transportation Strategy for the Greater Dublin Area 2000 to 2016*'. It thereby underpins all transportation strategies, traffic management schemes and development plans prepared by Dublin City Council during this timeframe.

3.1.3 The Strategy sets out a clear hierarchy of transport users, commencing with the sustainable modes of travel such as walking, cycling and public transport users at the very top of the hierarchy. The Strategy adopts the general principle that these users should have their safety and convenience needs considered first and that the hierarchy is applied where a large share of travel is (or could be) made by walking, cycling and public transport.

3.1.4 In addition to guiding the development of specific Strategy measures, the NTA encourages that the *"transport user hierarchy should guide engineers, planners and urban designers on the order in which the needs of transport users should be considered in designing new developments or traffic schemes in the Greater Dublin Area."*

Sustainable Urban Housing: Design Standards for New Apartments, Guidelines for Planning Authorities, 2018

3.1.5 This guidance document was produced by the Department of Housing, Planning and Local Government (DHPLG) and was updated with the latest version in March 2018. The purpose of this document is to set out new standards for apartment development, mainly in response to circumstances that had arisen whereby some local authority standards were at odds with national guidance.

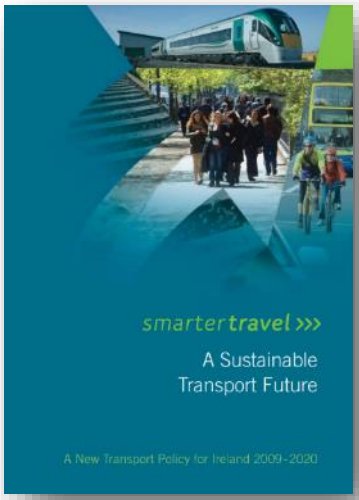
3.1.6 These Guidelines apply to all housing developments that include apartments that may be made available for sale, whether for owner occupation or for individual lease. They also apply to housing developments that include apartments that are built specifically for rental purposes, whether as 'build to rent' or as 'shared accommodation'.

3.1.7 Cycling provides a flexible, efficient and attractive transport option for urban living and these guidelines require that this transport mode is fully integrated into the design and operation of all new apartment development schemes.

3.1.8 The quantum of car parking or the requirement for any such provision for apartment developments will vary, having regard to the types of sustainable location characteristics in cities and towns that may be suitable for apartment development, broadly based on proximity and accessibility criteria. For residential developments located within an ***Accessible Urban Location***, such as the subject Castleforbes Development site, the DHPLG design standards state in reference to local authority development management requirements that ***"the default policy is for car parking provision to be minimised, substantially reduced or wholly eliminated in certain circumstances."***

3.1.9 For all types of locations, where it is sought to eliminate or reduce car parking provision, it is necessary to ensure, where possible, the provision of an appropriate number of drop off, service, visitor parking spaces and parking for the mobility impaired. Provision is also to be made for alternative mobility solutions including facilities for car sharing club vehicles and cycle parking and secure storage.

Smarter Travel – A Sustainable Transport Future



3.1.10 Smarter Travel was published in 2009 by the Department of Transport which represents the national policy documentation outlining a broad vision for the future and establishes objectives and targets for transport. The document examines past trends in population and economic growth and transport concluding that these trends are unsustainable into the future.

3.1.11 In order to address the unsustainable nature of current travel behaviour, Smarter Travel sets down a number of key goals and targets for 2020 - including:

- Total vehicle km travelled by car will not significantly increase;
- Work-related commuting by car will be reduced from 65% to 45%;
- 10% of all trips will be by cycling;
- The efficiency of the transport system will be significantly improved.

3.1.12 The document recognises that these are ambitious targets, and outlines a suite of 49 actions required to achieve these targets – summarised under the following four main headings:

- Actions aimed at reducing distances travelled by car and the use of fiscal measures to discourage use of the car;
- Actions aimed at ensuring that alternatives to the car are more widely available;
- Actions aimed at improving fuel efficiency of motorised travel; and
- Actions aimed at strengthening institutional arrangements to deliver the targets.

Dublin City Council Development Plan 2016-2022

3.1.13 The *Dublin City Development Plan 2016 - 2022* sets out a new approach to meet the needs and aspirations of citizens of Dublin and the country, not only for the 6-year life of the plan, but for the long term. This approach is based on the principles of sustainability and resilience on the social, economic and environmental fronts.

3.1.14 The Development Plan's Strategic Approach in response to the challenges facing the economy of the city and its role as the national and regional economic engine are as follows:

- Developing enterprise, particularly the services sector which is the critical sector for the city;
- Developing academic medical centres providing excellence in research, care and teaching in the medical and health sectors;
- Promoting the development of the three innovation corridors identified in the Economic Development Action Plan for the Dublin City Region;
- Improving the general attractiveness of a city for people and investors as a key part of maintaining competitiveness and creating a vibrant place that attracts and retains creative people within the city; and
- Providing appropriate office and commercial spaces as the workplaces for the new knowledge and services economy and enables the city to compete as an attractive location internationally.

3.1.15 The *Dublin City Council Development Plan 2016-2022* states that it is the policy of Dublin City Council:

- *"To promote and enhance the city's competitiveness and address deficits, to improve the business environment so that existing jobs are supported and employment generated and be creative and practical in its responses to present economic challenges."*
- *"To recognise the crucial need for the planning and sustainable development system to be agile and responsive in the face of challenging and rapidly changing circumstances."*
- *"Dublin City Council will promote sustainable development by balancing complex sets of economic, environmental or social goals in planning decisions."*

3.1.16 The *Dublin City Council Development Plan 2016-2022* states the following objectives:

- *"To examine the need and opportunity for new development and financing models that will allow desirable developments to go ahead in the short-term while ensuring that the optimum development of the site will be achieved in stages."*

- *"To examine how key economic generators could have greater spin-off benefits for their surrounding areas and to actively promote their development."*

3.1.17 A range of multimodal policies and objectives are outlined in the development plan to achieve these targets and includes the following;

Integrated Land-use and Transportation Policies & Objectives

- ***"MTO1:** To encourage intensification and mixed-use development along existing and planned public transport corridors and at transport nodes where sufficient public transport capacity and accessibility exists to meet the sustainable transport requirements of the development, having regard to conservation policies set out elsewhere in this plan and the need to make best use of urban land."*

Public Transport Policies & Objectives

- ***"MT3:** To support and facilitate the development of an integrated public transport network with efficient interchange between transport modes, serving the existing and future needs of the city in association with relevant transport providers, agencies and stakeholders."*
- ***"MTO2**: To support the development and implementation of integrated ticketing and real time passenger information systems across the public transport network in association with relevant transport providers and agencies. Progress on the integration of Dublin shared bike scheme and Leap Card schemes will be monitored."*
- ***"MTO4:** To support improvements to the city's bus network and related services to encourage greater usage of public transport in accordance with the objectives of the NTA's strategy and the Government's 'Smarter Travel' document."*

Promoting Active Travel: Cycling & Walking Policies & Objectives

- ***"MT7:** To improve the city's environment for walking and cycling through the implementation of improvements to thoroughfares and junctions and also through the development of new and safe routes, including the provision of foot and cycle bridges. Routes within the network will be planned in*

conjunction with green infrastructure objectives and on foot of (inter alia) the NTA's Cycle Network Plan for the Greater Dublin Area, and the National Cycle Manual, having regard to policy GI5 and objective GIO18."

- ***"MTO8:** To promote and facilitate, in co-operation with key agencies and stakeholders, the provision of high density cycle parking facilities at appropriate locations, taking into consideration (inter alia) the NTAs Cycle Network Plan, Dublin City Centre Cycle Parking Strategy, and Dublin City Council's Public Realm Strategy."*
- ***"MTO9:** To develop, within the lifetime of this plan, the Strategic Cycle Network for Dublin city - connecting key city centre destinations to the wider city and the national cycle network, and to implement the NTA's Greater Dublin Area Cycle Network Plan to bring forward planning and design of the Santry River Greenway, incorporating strongly integrative social and community development initiatives."*
- ***"MTO10:** "To improve existing cycleways and bicycle priority measures throughout the city, and to create guarded cycle lanes, where appropriate and feasible."*
- ***"MTO11:** To review the 30kph speed limit that applies within the city centre (i.e. area between the canals)."*
- ***"MTO12:** (i) To monitor the success of the shared bike scheme and to expand it to the entire city, in accordance with the content of the dublinbikes Strategic Planning Framework 2011-2016 or any subsequent review (ii) That developers will agree to fund the provision of a shared bike station near large developments, as community gain."*
- ***"MTO18:** To develop a high-quality pedestrian environment at new public transport interchanges and to consider the needs of pedestrians in the design of all infrastructure projects."*
- ***"MTO21:** To avail of opportunities to increase footpath widths particularly within the city centre where appropriate."*

Mobility Management & Travel Planning Polices & Objectives

- ***"MT13:** To promote best practice mobility management and travel planning to balance car use to capacity and provide for necessary mobility via sustainable transport modes."*
- ***"MTO23:** To require Travel Plans and Transport Assessments for all relevant new developments and/or extensions or alterations to existing developments."*
- ***"MT14:** To minimise loss of on-street car parking, whilst recognizing that some loss of spaces is required for, or in relation to, sustainable transport provision, access to new developments, or public realm improvements."*
- ***"MT15:** To discourage commuter parking and to ensure adequate but not excessive parking provision for short-term shopping, business and leisure uses."*
- ***"MT16:** To control the supply and price of all parking in the city in order to achieve sustainable transportation policy objectives."*
- ***"MT17:** To provide for sustainable levels of car parking and car storage in residential schemes in accordance with development plan car parking standards (section 16.38) so as to promote city centre living and reduce the requirement for car parking."*
- ***"MT18:** To encourage new ways of addressing the parking needs of residents (such as car clubs) to reduce the requirement for car parking."*
- ***"MT19:** To safeguard the residential parking component in mixed-use developments"*
- ***"MTO26:** To progressively eliminate all 'free' on street parking, both within the canals and in adjacent areas where there is evidence of 'all day' commuter parking, through the imposition of appropriate parking controls, including disc parking."*

Road & Bridge Improvements

- ***"MT20:** To increase capacity of public transport, cycling and walking, where required, in order to achieve sustainable transportation policy objectives. Any works undertaken will include as an objective, enhanced provision for safety,*

public transportation, cyclists and pedestrians, and will be subject to environmental and conservation considerations."

- ***"MTO31:** To initiate and/or implement the following road improvement schemes and bridges within the six year period of the development plan, subject to the availability of funding and environmental requirements and compliance with the 'Principles of Road Development' set out in the NTA Transport Strategy."*
  - ***Roads***
    - *East Wall Road/Sheriff Street to North Quays*
  - ***Bridges***
    - *Dodder Bridge*
    - *Three new bridges proposed as part of the North Lotts and Grand Canal Dock SDZ.*

3.2 DEVELOPMENT STANDARDS

Car Parking

3.2.1 Reference has been made to Chapter 4 of *Sustainable Urban Housing: Design Standards for New Apartments Guidelines for Planning Authorities*, as published by the DHPLG in March 2018. The subject development site is located within an ***Accessible Urban Location*** as designated within the DHPLG standards and therefore the quantum of car parking provision should be minimised.

3.2.2 Accordingly, the opportunity is available to provide a reduced quantum of residential car parking (i.e. below the DCC standards) for the proposed residential development. For developments located within an "*Accessible Urban Location*" the DHPLG design standards state in reference to local authority development management requirements that;

> ***"the default policy is for car parking provision to be minimised, substantially reduced or wholly eliminated in certain circumstances."***

3.2.3 In addition, as per the DCC Parking Standards, the following provisions are to be allocated:

- 5% of the total car parking provision allocated as mobility impaired parking;

- 10% of the total car parking provision allocated as electric vehicle charging stations; and
- Motorcycle parking spaces provided at a quantum of 4% of the total car parking provision.

Land Use		DCC Development Plan (Zone 2)		DHPLG Standards
		Standards	Requirements	
Residential	Apartments	1 space / unit	698	*"minimised, substantially reduced or wholly eliminated"*
	Live/Work Units	1 space / unit[A]	4	
	Visitor Parking	None detailed[B]	-	*"it is necessary to ensure, where possible, the provision of an appropriate number of drop off, service, **visitor parking spaces**…"*
Commercial	Retail	1 space / 100 m^2	12	N/A
	Creche	1 per class	4	
		Total	**718**	**-**

Supplementary Notes;

A – Land use subcategory not specifically detailed in DCC Development Plan. Closest corresponding standard detailed.

B – The DCC Development Plan (2016-2022) does not currently state any specific standards for residential visitor parking however recent SHD practices have generally required that 10% of all on-site car parking is safeguarded for visitors.

Table 3.1: Car Parking Standards

3.2.4 As indicated in **Table 3.1**, a maximum of 718 car park spaces are required by the DCC Development Plan standards based on the proposed development quantum.

Bicycle Parking

3.2.5 In order to determine an appropriate level of cycle parking provision for the proposed residential development, reference is made to both (i) the DCC requirements, and (ii) the DHPLG guidelines. The cycle parking standards from both standards are detailed in **Table 3.2** and the corresponding required number of cycle parking spaces shown in **Table 3.3** below.

Land Use		DCC Standards		DHPLG Standards	
		Short Term	Long Term	Short Term	Long Term
Residential	Apartments	-	1 / unit	1 / 2 units	1 / bed
	Live/Work Units	-	1 / unit		
Commercial	Retail	-	1 / 150 m^2	N/A	N/A
	Creche	-	1 / 3 children		

Table 3.2: Bicycle Parking Standards

Land Use		Units / GFA	DCC Standards		DHPLG Standards	
			Short Term	Long Term	Short Term	Long Term
Residential	Apartments	698	-	698	351	911
	Live/Work Units	4	-	4		
Commercial	Retail	1,154m^2	-	8	-	-
	Creche	469m^2	-	20		
Sub Total			**-**	**730**	**352**	**911**
Total			**730**		**1,262**	

Table 3.3: Proposed Development Bicycle Parking Requirements

3.2.6 As indicated in **Table 3.3** above the proposed development, based on the DCC Development Plan, is required to provide a total of 730 cycle parking. Whilst the DHPLG Standards require a total of 1,262 cycle parking spaces to be provided.

4.0 CHARACTERISTICS OF PROPOSALS

4.1 OVERVIEW

4.1.1 The development proposals include the demolition of the existing on-site Castleforbes Business Park facilities and its replacement with a residential development across c. 9 No. buildings (8 residential and 1 cultural) comprising of Build to Rent (BTR) residential apartments, community, retail, creche plus ancillary car / bicycle parking areas at basement level.

4.1.2 With reference to O'Mahony Pike Architects scheme drawings the proposed development schedule is summarised in **Table 4.1** below.

Unit Type			No. of Units	Total No. Units	GIA (m^2)
Residential	Apartments	Residential (Studio)	100	698	56,938
		Residential (1 Bed Apt.)	406		
		Residential (2 Bed Apt.)	169		
		Residential (3 Bed Apt.)	15		
		Duplex (2 Bed Apt.)	8		
	Live/Work Residential Units		4		
	Residential Communal Amenity		-		1,263
Commercial	Retail		3		1,154
Other	Cultural		1		2,859
	Creche		1		469
				Total GIA:	**63,025**

Table 4.1: Development Schedule Summary

4.2 SITE ACCESS ARRANGEMENTS

Vehicle Access

4.2.1 As illustrated in DBFL drawing 180159-2100, the proposed site will be accessible to vehicles via a total of three access points. Two number 'all moves' priority junctions are to be located on the R101 Sheriff Street Upper, as shown in **Figure 4.1** below. The western vehicular access on the R101 Sheriff Street Upper will allow residents and visitors to the development to gain entry to / from the western basement level car park via internal vehicular ramps. The eastern vehicular access allows entry to / from the eastern basement car park for residents of the development via internal ramps off of the R101 Sheriff Street Upper.

4.2.2 A third vehicle access is to be accommodated on the R101 Sheriff Street Upper as shown in **Figure 4.1** below. This access point will enable 'service' traffic to turn right or left off Sheriff Street Upper (at permitted times only) into a shared surface area at the eastern boundary of the site.

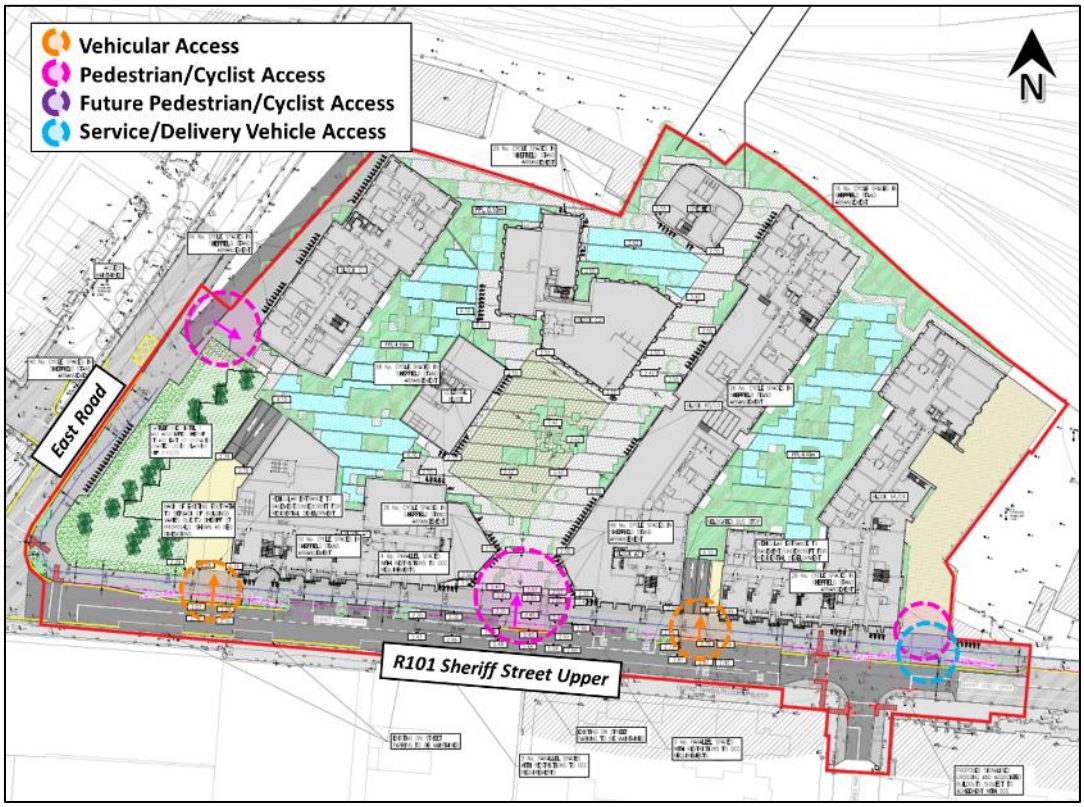


Figure 4.1: Subject Site Accesses

4.2.3 Sheriff Street Upper forms part of the DCC areas subject to the DCC Special Limit Bye-Laws 2018, whereby the exiting 30km/h speed limit is extended to additional

residential areas in the city. Consequently, it is proposed to reduce the speed limit on the R101 from 50km/h to 30km/h.

4.2.4 Therefore, in accordance with the *Design Manual for Urban Roads and Streets (DMURS)*, a Stopping Sight Distance (SSD) of 24m for a 30km/h speed limit has been maintained for the forward visibility of vehicles at the two access junctions on the R101 Sheriff Street Upper, as demonstrated on **DBFL Drawing: 180159-2100.**

Pedestrians and Cyclists

4.2.5 The site will be accessible to pedestrians via three main accesses; two from Sheriff Street Upper and one from East Road (**Figure 4.1**). The pedestrian accesses lead into a central public open space within the site, thereby enhancing site connectivity, permeability through the site and providing access to the mixed uses and retail opportunities within the development.

4.2.6 Residents of the proposed development will have a number of access points into each residential block from the ground floor and directly from Sheriff Street Upper. Nine resident foyers are located on the ground floor as well as the main resident reception and amenity spaces. Ground floor retail/commercial units with frontage onto the central core plaza area will be designed as own door units, as shown in **Figure 4.1**. Pedestrians can also access the basement directly from within the development via 7 No. internal stair/lift wells forming the site core. Cyclists will be able to access each of the basement car parks via a dedicated two-way cycle ramp.

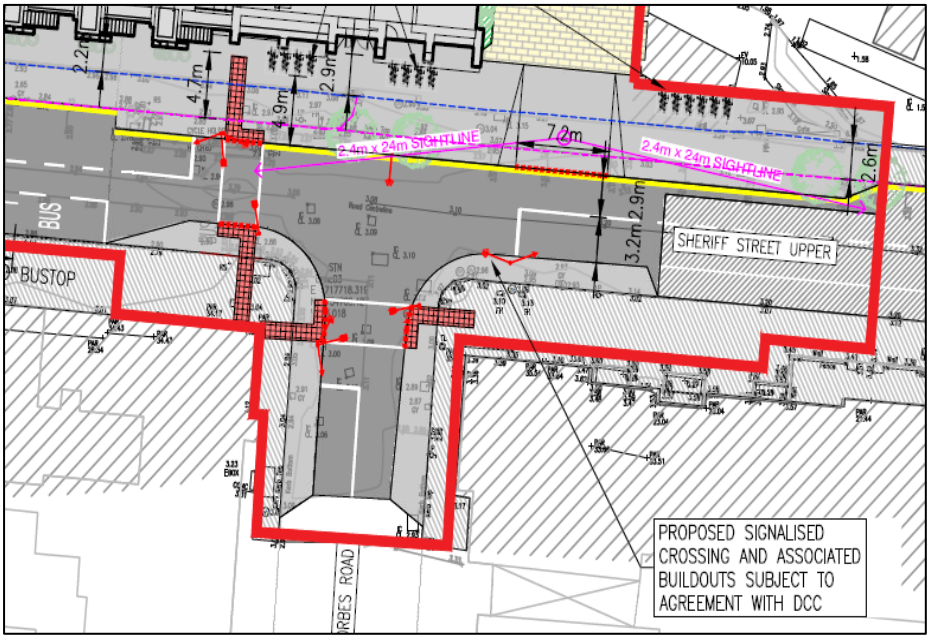


Figure 4.2: Proposed Sheriff Street Upper / Castleforbes Road Upgrades

4.2.7 Furthermore, it is proposed to enhance the existing off-site pedestrian infrastructure immediately surrounding the site through the construction of controlled pedestrian crossings on the western and southern arms of the Sheriff Street Upper / Castleforbes Road junction. Consequently, the existing priority controlled junction will be upgraded to a signalised junction as shown in **Figure 4.2.** These junction improvements have been permitted as part of the adjacent Castleforbes Hotel and Office commercial development.

4.3 SERVICING AND DELIVERIES

4.3.1 Waste storage and collection arrangements at the proposed development have been prepared with due consideration of the proposed site layout and location as well as best practice standards, local and national waste management requirements including those of DCC. In particular, consideration has been given to the following documents:

- BS 5906:2005 Waste Management in Buildings – Code of Practice;
- EMR Waste Management Plan 2015 – 2021;
- Dublin City Council Development Plan 2016 – 2022 (Appendix 10);
- DCC, Bye-Laws for the Storage, Presentation and Collection of Household and Commercial Waste (2013); and
- DoEHLG, Sustainable Urban Housing: Design Standards for New Apartments, Guidelines for Planning Authorities (2018).

Residential Development

4.3.2 The residential waste rooms are located in the development's basement level. A residential waste room is provided in each of the basement car parks, adjacent to the site cores. The residential waste room locations have been selected to minimise the required distances the tenants must travel from the building cores.

4.3.3 A dedicated retail waste room is located in the western basement car park of the development. On collection days all waste bins will be transferred to ground level for collection by the appointed waste contractor. All wastes will be collected on at least a weekly basis.

4.3.4 The remaining commercial uses (e.g. retail, creche etc) all front onto the central plaza area within the development. Both deliveries and collections to/from these units will be undertaken via the loading spaces on the R101 Sheriff Street Upper or

the third vehicular access to the east of the development. Emergency vehicles will also be able to use this internal 'service' route should the need arise.

4.4 CAR PARKING PROVISION

Introduction

4.4.1 The proposed parking strategy for the Castleforbes residential development has sought to respond to both the sites excellent accessibility levels in parallel with acknowledging the approach adopted at similar third party committed developments as granted planning permission by ABP as part of the Strategic Housing Development (SHD) process. Accordingly, a reduction in residential car parking below DCC standards forms part of the adopted strategy.

4.4.2 Further details are also provided in the accompanying DBFL Report entitled 'Parking Strategy'.

Car Parking Layout

4.4.3 The car parking provision for the proposed development (179 No. car parking spaces) is divided between 2 No. internal car park locations within the development. These 2 No. basement level car parks will be accessible via the western and the eastern site accesses on the R101 Sheriff Street Upper as illustrated in **Figure 4.3** below and also shown in **DBFL Drawing No 180159-2101-P02** and **DBFL Drawing No 180159-2102-P02**.

Figure 4.3: Basement Car Park Layout

4.4.4 Access to the on-site car parking spaces will be managed and operate / assigned as follows;

- Western Basement Car Park 1 (85 No. bays) – Residents only access; and
- Eastern Basement Car Park 2 (94 No. bays) – Residents only access.

Residential Development - Apartments

4.4.5 A residential apartment (702 No.) car parking ratio of approximately 0.25 spaces to every residential apartment has been adopted for this development. A total of 179 No. car parking spaces have been allocated to residents of the development. The residential car parking spaces are located at basement level, in the western and eastern basement car parks where direct access to 'residential' core lifts is available.

4.4.6 The 4 No. Live/Work units included within the development will not be assigned a resident car parking provision as due to the nature of the residential units it is not expected there will be a car parking demand associated with these units.

4.4.7 No visitor car parking will be provided given the site's proximity to public transport and surrounding off-street parking facilities. However, residents will be able to apply for a short-term visitor's car parking permit as outlined in the Parking Strategy prepared for the proposed development which should be read in conjunction with this report.

Non-Residential Development

4.4.8 No car parking is proposed to be provided or assigned to the commercial (non-residential) aspects of the scheme proposals which include retail and creche activity. It is noted however, that 7 no. on-street spaces will be provided over the SHD site extents along Sheriff Street Upper. Whilst these cannot be allocated to individual uses on-site, they will be publicly available and subject to a Pay & Display enforcement regime.

Visitor Car Parking / Loading / Collections

4.4.9 The adopted car parking strategy includes the following on-street parking and set down / loading provision;

- **On-Street – R101 Sheriff Street Upper** The redesign of the development's new site boundary treatments with the R101 Sheriff Street Upper accommodates 7 no. on-street parallel spaces across 2 banks (4 spaces and

3 spaces). These spaces will be available as per DCC parking regulations for the local area (currently subject to Pay & Display parking restrictions). In addition, a set down area of approx. 20.6m is located in front of the main development entrance on the R101 Sheriff Street Upper.

4.4.10 The implementation of these regulations will ensure that visitors seeking access to the development will have the opportunity to avail of on-street car park spaces in addition to the off-street public parking facilities available in the surrounding area.

Mobility Impaired Parking

4.4.11 A total of 9 No. mobility impaired car parking spaces will be allocated between the development's mixed-uses, as detailed below:

- 4 No. spaces will be located in the western basement car park, accessible from the western site access; and
- 5 No. spaces will be located in the eastern basement car park, accessible from the eastern site access.

Car Share

4.4.12 As part of the Castleforbes Residential Development proposals, a total of 3 No. car share spaces will be provided at the locations shown in **Figure 4.4**, these being;

- 1 No. space will be located in the western basement car park, accessible via the western site access; and
- 2 No. spaces will be located in the eastern basement car park, accessible via the eastern site access.

Figure 4.4: Location of Car Share Parking Bays

Electric Vehicle Parking

4.4.13 A total of 10% of the development's car parking provision will be fitted out with electric vehicle charging stations. This is equivalent to 18 No. spaces and is compliant with *Dublin City Development Plan 2016-2022* Standards. The remaining on-site car parking will benefit from having the EV infrastructure implemented thereby enabling easy retro fitting of charge points in the future as and when they may be required.

Motorcycle Parking

4.4.14 In compliance with the *Dublin City Development Plan 2016-2022* Standards, a total of 12 No. motorcycle spaces will be provided within the development, this exceeds the 8 no. required under the development plan standards. The location of the motorcycle parking is illustrated in **Figure 4.5** below.

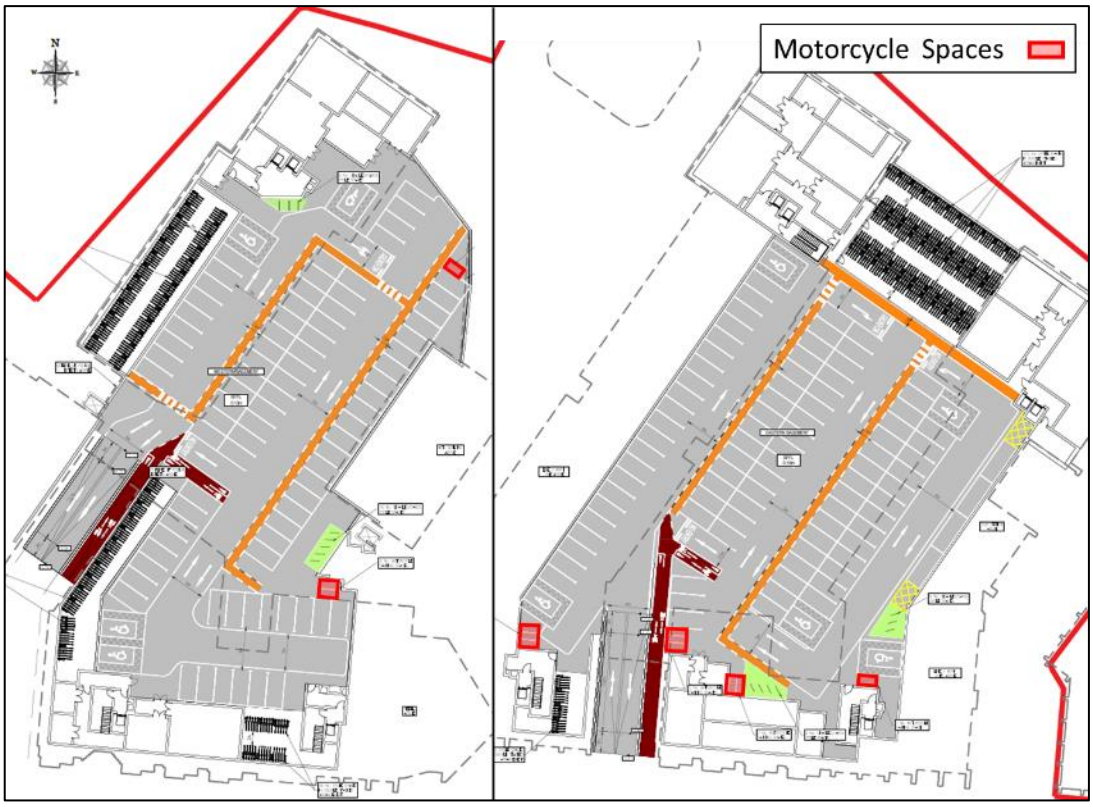


Figure 4.5: Location of Motorcycle Parking Spaces

Comparison with Development Standards

4.4.15 **Table 4.2** below compares the *Dublin City Development Plan 2016-2022* standards with the car parking provision at the proposed development; **Table 4.2** should be reviewed in reference to **Table 3.1**.

4.4.16 Residential car parking is provided at a ratio of 0.25 car parking spaces per apartment unit, a reduced quantum from the DCC standard of one car parking space per residential unit. This reduced provision leans towards the DHPLG requirement, considering the proposed developments highly accessible urban characteristics.

Land Use		DCC Requirements	Proposed Car Parking
Residential	Apartments	698	176 (Basement Car Park)
	Live/Work Units	4	
	Visitor Parking	-	
Commercial	Retail	12	-
	Creche	4	

Other	GoCar	-	3 (Basement Car Park)
	Drop-off / Collection Spaces	-	1
	External Public Parking Spaces (Sheriff Street Upper)	-	7
Sub Total (Internal On-Site)		**-**	**179**
Total		**718**	**187**

Table 4.2: Comparison of Car Parking Requirements & Provision

4.5 CAR PARKING PROVISION FOR BUILD TO RENT APARTMENTS

4.4.15 With the objective of establishing whether this parking ratio (approximately 0.25/unit) would be appropriate to accommodate the likely demand generated for car parking at the subject Castleforbes development, DBFL have reviewed the following data sources; -

- Review of trends in BTR schemes in terms of demographics;
- Review of 2016 Census Data – Car Ownership trends;
- Review of National Transport Authority– National Household Survey 2017.

Build To Rent (BTR) Schemes

4.5.1 Although considered a relatively new feature within Ireland and the UK property market the Build to Rent (BTR) scheme is being increasingly recognised as an exciting opportunity for investors, local authorities and developers. Significant research has been undertaken, in particular within the UK, with regard to this emerging concept. The research affirms the value of BTR to the property industry as it seeks to accelerate new developments to help address the housing crisis whilst also delivering broader social and economic benefits to local communities.

4.5.2 By delivering high quality and well managed homes and creating new, sustainable communities, BTR will enhance the overall quality of housing and become woven into the residential landscape.

4.5.3 From a number of surveys undertaken in the UK regarding BTR schemes, the surveys suggest that the main age demographic interested in the BTR schemes are

the 25 – 35 year age bracket. This is likely due to a number of factors including the difficulty of procuring a mortgage and getting on to the property ladder in this current property climate. Also a consideration for this is that renting properties tends to suit this age demographic as many people of this age may wish to move around and travel and may not wish to buy at that time.

4.5.4 The UK reference document 'Unlocking the Benefits and Potential of Build to Rent' identifies a link, from the UK Census 2011, between car ownership and the tenure of a residence, ie, whether a resident is renting in the public domain or privately owns their residence. The graph in **Figure 4.6** shows that residents who own their residence are more likely to own a car than residents who rent their property. It shows that the total average of car ownership for privately owned residences is 0.8 cars per residential unit, this is compared with a car ownership of just 0.4 cars per residential unit for residences that are publicly rented. This suggests that car parking demand for the rental market may well be lower than traditional build to sell schemes.

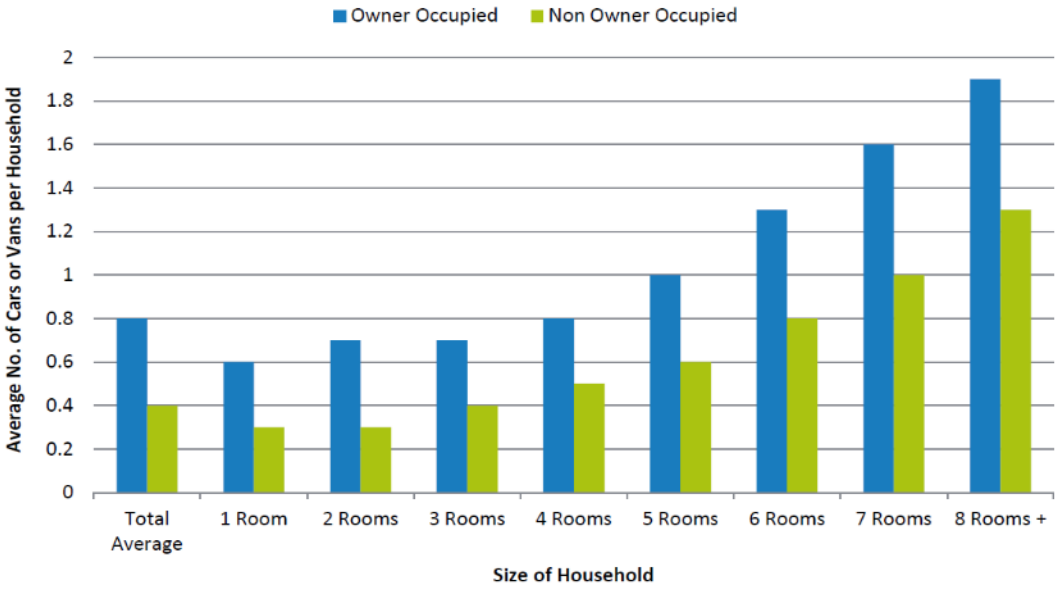


Figure 4.6: Car Ownership between Privately Owned and Publicly Rented Dwellings
(Source: Unlocking the Benefits and Potential of Build to Rent by British Property Federation)

Car Ownership & Usage

4.5.5 In order to determine an appropriate parking provision for the subject development the current demand for car parking within the surrounding area of the proposed development site was researched using the 2016 CSO data and in particular the level of current car ownership by reviewing the CSO small area maps.

4.5.6 Within the vicinity of the proposed development, there are several existing apartment blocks which are considered reflective of the type of development proposed in terms of accessibility to sustainable modes including the Luas Red Line. Therefore, an analysis was undertaken comparing travel patterns and car ownership levels for those apartment blocks similar to that of the proposed development. A total of 15 small areas were assessed, as detailed in **Figure 4.7**.

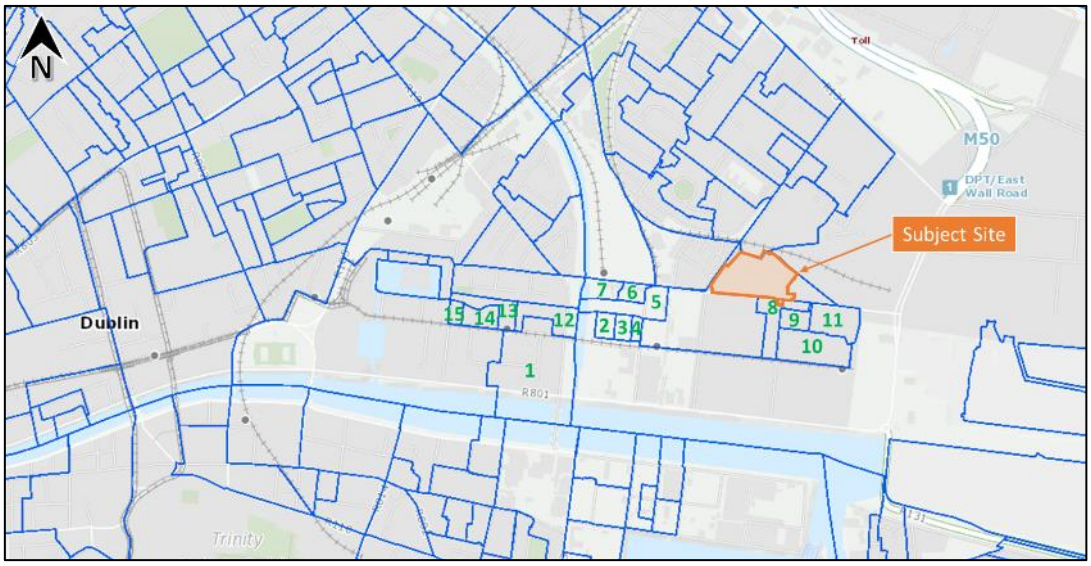


Figure 4.7: 2016 CSO Small Areas containing apartments close to proposed site

4.5.7 A total of 1,448 units were included in this assessment, with CSO data for households not owning a car in each of these areas presented in **Table 4.3** below.

Small Area	No. Apts	No. Houses	No. Households with No Car	% of Households with No Car	Equivalent Rate of Parking Required (Space/Unit)
1	141	-	93	66%	0.34
2	65	-	36	55%	0.45
3	70	-	40	57%	0.43
4	41	-	22	54%	0.46
5	85	-	52	61%	0.39
6	73	-	43	59%	0.41
7	80	-	41	51%	0.49
8	120	2	59	49%	0.51
9	108	-	55	51%	0.49
10	190	3	77	41%	0.59
11	86	-	46	53%	0.47
12	151	-	95	63%	0.37
13	100	-	55	55%	0.45
14	82	-	54	66%	0.34
15	51	-	29	57%	0.43
			Average	**56%**	**0.44**

Table 4.3: 2016 CSO Car Ownership Data

4.5.8 **Table 4.3** highlights that the level of households that do not own a car within each small area varies between 41% in Area 10 up to 66% in both Area 1 and Area 14. The level of car parking required within these locations would be, on average, 0.44 spaces per unit. However, it is noted that these areas do not currently accommodate BTR apartments but are in general traditional BTS apartments where higher car ownership should be expected.

4.5.9 It should also be considered that whilst some households own a car, they may not avail of their car for commuting purposes and may use their vehicle infrequently. Using a vehicle for commuting purposes could also be hindered by a commuter's destination, for example, if their place of work has restricted car parking allocation in force.

4.5.10 Therefore, in order to assess the level of daily use for commuters who drive their vehicle to work, the 2016 CSO data was again reviewed for the modal split for people travelling to work, school or college. This was assessed for the same 15 small areas as previously analysed. The results of this assessment are detailed in **Table 4.4**.

Small Area	No. Commuters	% Households with No Car	No. Commuters that Drive	% Commuters that Drive
1	385	66%	13	3%
2	109	55%	11	10%
3	117	57%	8	7%
4	70	54%	10	14%
5	134	61%	9	7%
6	128	59%	13	10%
7	133	51%	11	8%
8	240	49%	23	10%
9	187	51%	17	9%
10	347	41%	36	10%
11	163	53%	11	7%
12	258	63%	21	8%
13	192	55%	14	7%
14	145	66%	4	3%
15	83	57%	10	12%
			Average	8%

Table 4.4: 2016 CSO Data – Percentage of Commuters that use their Vehicle

4.5.11 **Table 4.4** outlines that although car ownership across these small areas is at an average 56%, the percentage of commuters that use their vehicle to drive to work, college or school is significantly lower at an average of 8% over all areas assessed. This indicates that although commuters may own vehicles within these areas, a very

high proportion of them avail of other, more sustainable, modes of travel for commuting purposes.

4.5.12 In summary, existing levels of car ownership and usage indicate a very strong trend towards the use of sustainable travel modes by residents of surrounding apartment developments in the area. The site's excellent public transport accessibility levels mean that there are viable sustainable travel alternatives provided for residents. Consequently, the demand for using private cars is significantly reduced and the corresponding requirement for car parking demand is also substantially minimised.

4.5.13 The use of sustainable modes of transport at the subject Castleforbes Development will be further encouraged and supported through the measures and initiatives set out in the Mobility Management Plan (MMP) which has been produced for the development and should be read in conjunction with this report.

National Household Survey 2017

4.5.14 The National Transport Authority (NTA) has undertaken National Household Travel Survey (2017) which is a representative study of Ireland's travel habits. The main aim of this study is to obtain accurate data describing the typical travel habits of the representative sample of the Irish population throughout the week, across all regions of the country and including number of trips made daily, the mode and time of travel, the distance travelled and the journey purpose.

4.5.15 This intensive study reveals that within the Dublin City region, there is an upsurge in cycling for the 18-34-year age group which indicates that cycling is a more popular mode of transport for this age group with approximately 15% modal share. Walking is also popular mode of transport for the same age group with approximately 30% modal share. The study also reveals that travel by car is about 0.34 for the 25-34-year age group. This has a strong correlation with the CSO data analysis for car usage and age demographics which indicated that the main age group in the Castleforbes area is 25-34.

4.5.16 **Figure 4.8** below illustrates Mode of Transport by Age within Dublin City Region.

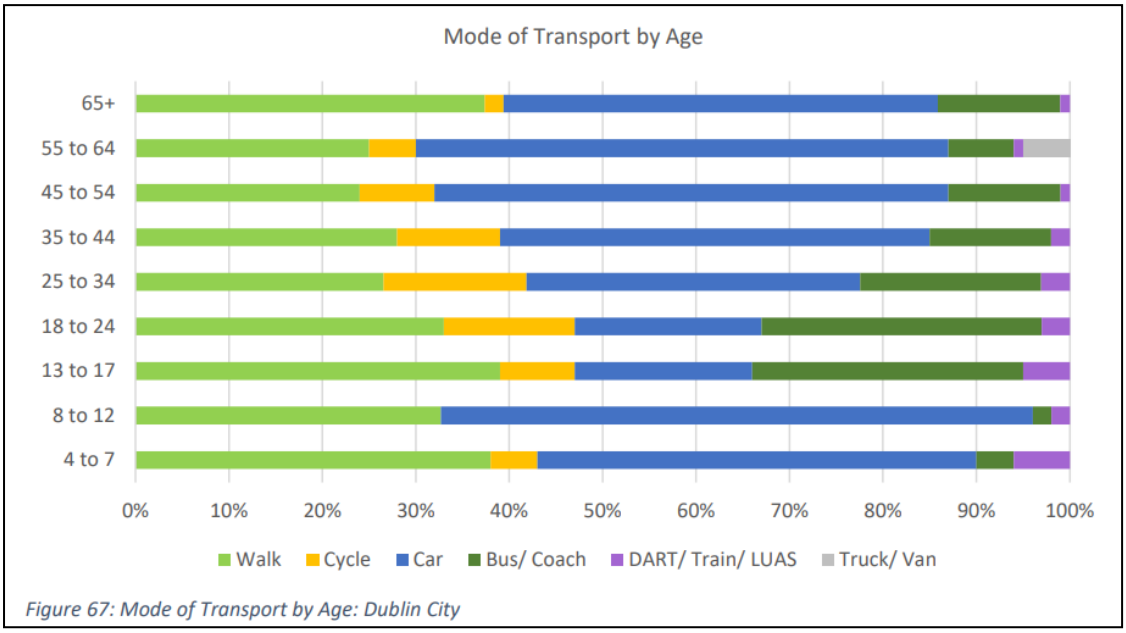


Figure 4.8: Mode of Transport by Age-GDA (National Household Travel Survey 2017)

4.5.17 Similarly, the proposed parking of 0.25 per BTR unit, is deemed appropriate considering access to sustainable modes of travel in the area. Further, provisions made in this subject development such as an excess in the provision of cycle parking, GoCar availability within the subject site, Parking Management and an MMP to govern the development when operated, all contribute to the suitability of the 0.25 per BTR unit parking proposal. The Parking Strategy included within this application package includes more detail to further justify the proposed development car parking ratio and provision.

4.6 CAR PARKING MANAGEMENT REGIME

4.6.1 The previous paragraphs have introduced the quantum, location and vehicle / pedestrian access arrangements to the basement located car parking facilities within the proposed residential development. In response to the different profiles of vehicle drivers utilising these on-site car parking facilities, a range of management initiatives are set out in the Parking Strategy prepared in support of the proposed development and should be read in conjunction with this TTA.

4.6.2 In summary the Parking Strategy seeks to ensure that;

- Residents, staff, visitors and service vehicles that have a genuine need to gain access to an on-site parking space have the ability to access one;

- The level of car parking provided on-site is sufficient to meet the projected demand thereby minimising the generation of any potential overspill of parking across the external (on-street) road network;
- Only individual residents who are assigned a specific on-site car parking space can gain access to the managed on-site parking facilities; and
- The availability and control of the on-site car parking actively discourages the use of private motorised travel for all journeys to/from the Castleforbes site.

4.6.3 All marketing material will make it clear that the Castleforbes residential development is a 'low car allocation' or 'Car-Lite' development and that the ownership or signing of a rental agreement for a residential apartment will NOT include access to a designated on-site parking space.

4.6.4 Accordingly, the proposed development's on-site car parking spaces 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 and visitors.

4.7 CYCLE PARKING

Residential Development

4.7.1 A total of 1,392 cycle parking spaces are provided for both residents and visitors to the development. The proposals include the provision of a total of 1,010 no. long term bicycle parking spaces and 30 no. disabled / cargo bicycle parking spaces at basement level and 352 no. short stay visitor spaces at surface level within the subject Castleforbes Development. The locations of the basement long stay cycle parking spaces are shown in **Figure 4.9** and **Figure 4.10** below illustrates the location of the short stay bicycle parking at surface level.

4.7.2 Further details of the approach adopted in regard to cycle provision is detailed in the following drawings which accompany the planning application:

- DBFL Drawing No. 180159-2101-P02 – Western Basement Layout
- DBFL Drawing No. 180159-2102-P02 – Eastern Basement Layout
- DBFL Drawing No. 180159-2100-P02 – Roads Layout.

4.7.3 Both the western and eastern basements benefit from a dedicated cycle ramp to/from the basement car park.

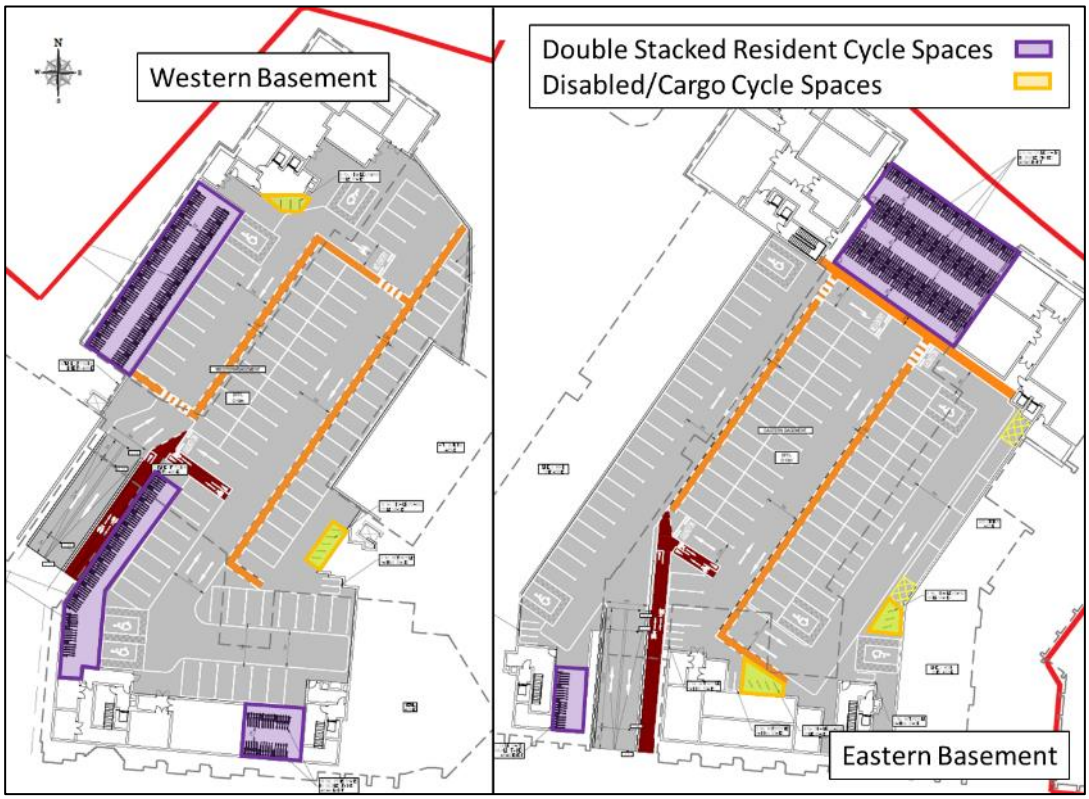


Figure 4.9: Basement Level Long Stay & Cargo Bicycle Parking

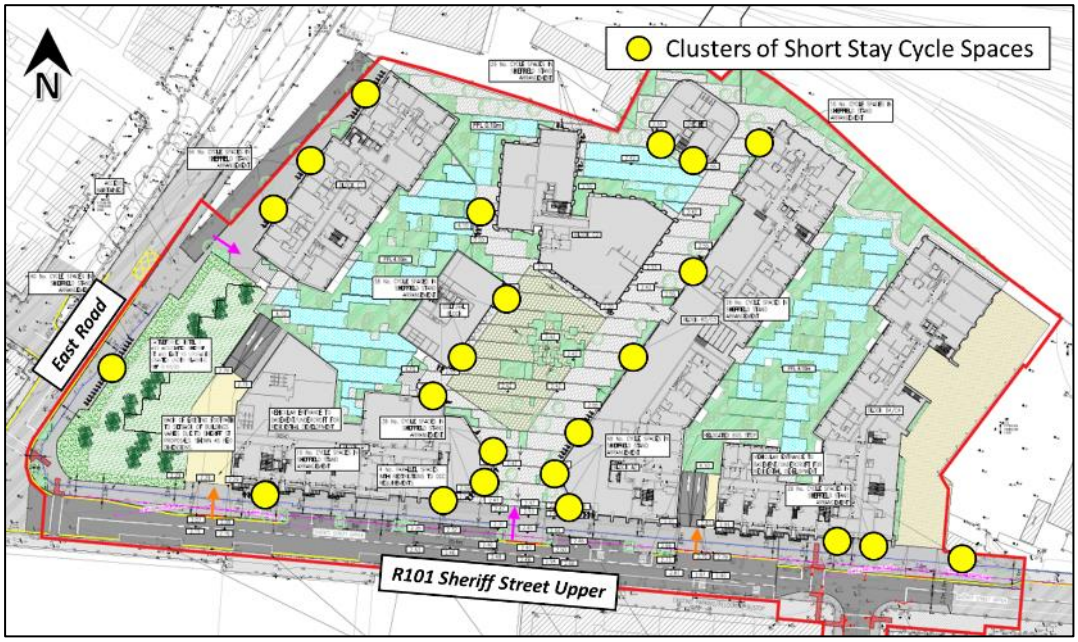


Figure 4.10: Surface Level Short Term Bicycle Parking

Comparison with Development Standards

4.7.4 **Table 4.5** below compares the *Dublin City Development Plan 2016-2022* standards and the DHPLG requirements with the bicycle parking provision at the proposed

development. The DCC bicycle parking standards (2018) are considered to be 'minimum' standards, whereas the DHPLG requirements are considered to be the preferred level of provision in situations where on-site car parking has been substantially or completely removed as permitted in certain situations by the corresponding DHPLG car parking guidance.

4.7.5 The level of bicycle parking proposed on-site for the apartment units has been provided in the context that the development car parking proposals are 75% below that required by the DCC Development Plan standards (e.g. 179 spaces opposed to 718 spaces). Accordingly, the design approach in regard to the provision of bicycle parking on-site has been developed with consideration of the site's accessibility characteristics (including the significantly reduced car parking provision), to provide what is considered to be an appropriate number of bicycle parking opportunities on-site which is above both the DCC cycle parking standards and the '*maximum*' DHPLG requirements.

4.7.6 Consequently, the proposed on-site bicycle parking provision of 1,392 spaces (including short and long-term parking spaces) is approximately 90% more than the 730 bicycle parking spaces required by the DCC development management standards.

Land Use		Units / GFA	DCC Standards		DHPLG Standards		Proposed Bicycle Parking	
			Short Term	Long Term	Short Term	Long Term	Short Term	Long Term
Residential	Apartments	698	-	698	351	911	352	1040
	Live/Work Units	4	-	4				
Commercial	Retail	1154m²	-	8	-	-		
	Creche	469.6m²	-	20				
Sub Total			**-**	**730**	**351**	**911**	**352**	**1040**
Total			**730**		**1,262**		**1,392**	

Table 4.5: Comparison of Bicycle Parking Requirements & Provision

5.0 TRIP GENERATION AND DISTRIBUTION

5.1 TRAFFIC SURVEYS

Junction Surveys

5.1.1 With the objective of quantifying the existing baseline traffic movements travelling across the local road network vehicle counts were undertaken at a number of local junctions in 2018 and 2019.

5.1.2 A vehicle turning count survey (Junction Turning Count - JTC) was conducted over a 6-hour period from 07:00 to 10:00 and from 16:00 to 19:00 on Thursday 28th February 2019 at the surrounding key off-site junctions (Junctions 2, 6, 7, 8 and 9). The surveys undertaken by specialist survey firm ITS Ltd. established that the local networks weekday AM and PM peak hours occur between 08:00 – 09:00 and 17:15 – 18:15 respectively.

5.1.3 Vehicle turning count surveys were also conducted over a 4-hour period from 07:30 to 09:30 and from 16:30 to 18:30 on Wednesday 25th April 2018 at Junctions 1 and 5.

5.1.4 In order to analyse and assess the impact of the proposed development on the surrounding road network, a traffic generation and distribution model (excel based) of the following key junctions was created (illustrated in **Figure 5.1**):

- **Junction 1**: Signalised Junction – R131 East Wall Road / East Road;
- **Junction 2**: Signalised Junction – Sheriff Street Upper / Seville Place / Guild Street;
- **Junction 3**: Signalised Junction – R101 Sheriff Street Upper / East Road / New Wapping Street;
- **Junction 4**: Priority Control - R101 Sheriff Street Upper / Proposed Western Site Access;
- **Junction 5**: Priority Control - R101 Sheriff Street Upper / Proposed Eastern Site Access;
- **Junction 6**: Priority Control – R101 Sheriff Street Upper / Castleforbes Road;
- **Junction 7**: Signalised Junction – R101 Sheriff Street Upper / R131 East Wall Road;
- **Junction 8**: Signalised Junction – New Wapping Street / R801 North Wall Quay; and

- **Junction 9**: Priority Control – Castleforbes Road / R801 North Wall Quay.

Figure 5.1: Junctions Included Within the Network Analysis

Figure 5.2: ATC Location Surveyed (Source: Google Maps)

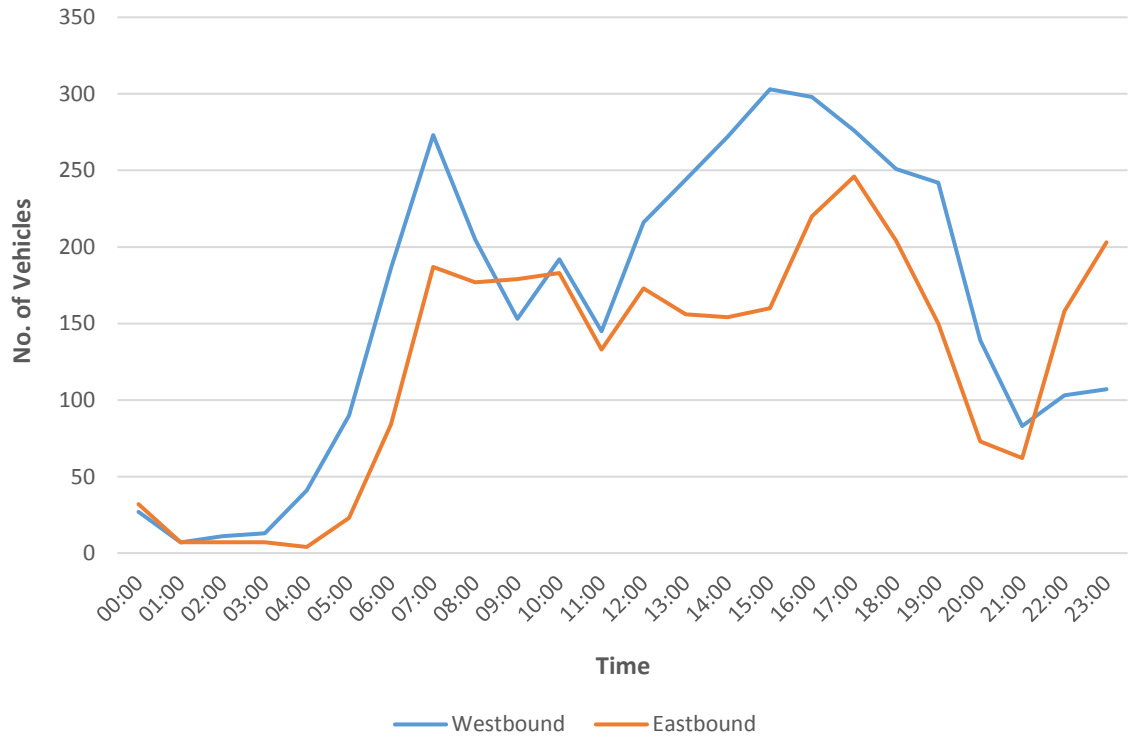
ATC Survey

5.1.5 An Automatic Traffic Count (ATC) was also commissioned at the location illustrated in **Figure 5.2**. This ATC survey was undertaken over a three-day period between 20:00 on Wednesday 27th February and 23:00 on Friday 1st March 2019.

5.1.6 With the objective of quantifying the existing traffic movements across the local road network vehicle link counts were undertaken at the R101 Sheriff Street Upper, at the location of the sites proposed western site accesses.

5.1.7 **Graph 5.1** below presents the recorded daily profile of two-way vehicle movements for both the westbound and eastbound directions along the R101 Sheriff Street Upper in February 2019.

5.1.8 According to the ATC speed survey conducted, the westbound 85th percentile speed recorded on the Sheriff Street Upper was 46kph. The recorded 85th percentile speed for the eastbound direction was 41kph.



Graph 5.1: Sheriff Street Upper Traffic Profile - Thursday 28th February 24hr

5.1.9 With reference to **Graph 5.1** above it can be seen that on a Thursday (weekday) the AM peak occurs at 07:00 for both directions of traffic, whilst the PM peak occurs from 15:00 to 17:00 in the westbound direction and at 17:00 in the eastbound direction. During most hours of the day, more vehicles are recorded to be travelling

in a westbound direction than an eastbound direction; approximately 23% less vehicles are travelling eastbound than westbound.

5.2 TRIP GENERATION – PROPOSED DEVELOPMENT

5.2.1 A review of trip generation factors contained within the TRICS database was carried out. TRICS data is primarily UK based, although a number of Irish sites have recently been included and the number of Irish sites continues to expand. Nevertheless, we consider that TRICS will provide a reasonable indication of traffic generation from the proposed development should on-site car parking be unrestrained e.g. as per development standards.

5.2.2 Data supplied for inclusion in TRICS undergoes a procedure of validation testing, and there is no evidence from this procedure suggesting that data from Ireland bears any significant fundamental differences to that from the other countries included. Consequently, we consider that TRICS will provide a reasonable indication of unrestrained traffic generation from the proposed development.

5.2.3 **Table 5.1** below includes the predicted vehicle trip rates of the potential unrestrained traffic flows in and out of the proposed development during the morning and evening peak hour periods using data from TRICS. As these trip rates have not been discounted to reflect the 'low car allocation' characteristics of the proposed development, the utilisation of these rates represent a worst case analysis of the development's traffic generation with the actual level of site generated traffic predicted to be less than the corresponding vehicle trip levels detailed in **Table 5.2**.

Land Use	Units / GFA	AM Peak Hour			PM Peak Hour		
		Arr	Dep	Total	Arr	Dep	Total
Apartments	Per Unit	0.043	0.108	0.151	0.113	0.068	0.181
Retail	Per 100 m^2	1.533	1.022	2.555	1.515	1.935	3.450

Table 5.1: Proposed Development Trip Rates (TRICS)

5.2.4 Based on the above trip rates, potential peak hour traffic generation is calculated based on 702 No. apartments and 1154.2m^2 of retail (3 units). The community and cultural uses within the development are not anticipated to generate notable external vehicle trips as they will be predominately catering towards the residents of the Castleforbes site and the local catchment within the community.

5.2.5 **Table 5.2** summarises the predicted worst case peak hour AM and PM vehicle trips generated by the proposed development. The TRICS output files are included in **Appendix B** of this report.

Land Use	Units / GFA	AM Peak Hour			PM Peak Hour		
		Arr	Dep	Total	Arr	Dep	Total
Apartments	702	30	76	106	80	47	127
Retail	1154.2 m^2	18	12	29	17	22	40
Total		**48**	**88**	**135**	**97**	**70**	**167**

Table 5.2: Potential Worst Case Development Vehicle Trips

5.3 TRIP GENERATION – COMMITTED DEVELOPMENTS

Introduction

5.3.1 Following a review of DCC online planning portal, DBFL have established the extent of existing third party developments, as located within the area of influence of the subject Castleforbes Business Park site, which currently benefit from a planning permission but have yet to be constructed/occupied. DBFL have subsequently included the following third-party development proposals as 'committed developments' within the network assessment.

Committed Development – Spencer Place Residential Block 2 (Ref: DSDZ 4111/19)

5.3.2 On New Wapping Street, off of the R101 Sheriff Street Upper, a residential development is proposed comprising 326 No. residential apartment units and 78 No. car parking spaces to serve the development.

5.3.3 The vehicle trips associated with the committed development were retrieved from the Traffic and Transport Assessment submitted as part of the development's planning application. These vehicle trips were included in the subject development's Traffic Model in order to assess the impact of the Spencer Place residential development on the surrounding road network in addition to the subject development's impact.

Committed Development – Spencer Place Commercial Development (Ref: DSDZ 4184/18)

5.3.4 Also on New Wapping Street, with frontage onto the R801 North Wall Quay is a proposed commercial development. The development comprises 48,436m^2 of office space, as well as a 204-room hotel and retail units.

5.3.5 DBFL consider that the permitted commercial development on New Wapping Street may generate an impact on the local road network and as such it is included as a committed development.

5.3.6 In order to determine the level of traffic generated by this third-party commercial development, DBFL utilised the same trip rates as those utilised for the proposed subject development for the retail land uses. Trip rates for the committed development's hotel and offices were generated as shown in **Table 5.3** below.

Land Use	Units / GFA	AM Peak Hour			PM Peak Hour		
		Arr	Dep	Total	Arr	Dep	Total
Hotel	Per 100 m^2	0.185	0.358	0.543	0.243	0.132	0.374
Office	Per 100 m^2	1.072	0.106	1.178	0.057	0.743	0.800

Table 5.3: Committed Development (Ref: DSDZ 4184/18) Trip Rates

5.3.7 **Table 5.4** below summarises the predicted peak hour AM and PM traffic generated by the committed residential development. The TRICS output files are included in **Appendix B** of this report.

Land Use	GFA	AM Peak Hour			PM Peak Hour		
		Arr	Dep	Total	Arr	Dep	Total
Offices	48,436 m^2	52	5	57	3	36	39
Hotel	8,926 m^2	17	32	48	22	12	33
Retail/Restaurant	1,138 m^2	17	12	29	17	22	39
Total		86	49	135	42	70	111

Table 5.4: Committed Development (Ref: DSDZ 4184/18) Traffic Generation

5.3.8 As this development is currently being constructed, in order to provide a robust assessment, DBFL have assumed that the entire development will be occupied by the adopted Opening Year of 2022.

Committed Development – City Block 9 Developments (Refs: DSDZ 3779/17, DSDZ 3780/17)

5.3.9 To the south of the proposed development, on Castleforbes Road, two committed developments have been permitted on City Block 9 of the Dublin docklands. The residential development (Ref: DSDZ 3779/17) comprises of 420 No. residential apartment units and an adjoining creche as well as retail and café uses. The commercial development (Ref: DSDZ 3780/17) comprises 4 no. offices with a total area of 35,883m^2. The developments have a car parking provision of 288 No. spaces for the residential development and 90 No. spaces for the commercial development.

5.3.10 The vehicle trips associated with both the committed developments were retrieved from the TTAs submitted as part of the developments' planning applications. These vehicle trips were included in the subject development's Traffic Model in order to assess the impact of the City Block 9 committed developments on the surrounding road network in addition to the subject development's impact.

Committed Development – City Block 3 Residential Development (Ref: DSDZ 4112/19)

5.3.11 On New Wapping Street at City Block 3, a residential scheme is proposed comprising 449 No. residential apartment units across 6 No. blocks. A café and creche are also proposed as part of the development as well as 100 No. car parking spaces to serve the site.

5.3.12 The vehicle trips associated with the committed development were retrieved from the Engineering Assessment Report submitted as part of the development's planning application. These vehicle trips were included in the subject development's Traffic Model in order to assess the impact of the City Block 3 residential development on the surrounding road network in addition to the subject development's impact.

Committed Development – City Block 3 Commercial Development (Ref: DSDZ 4087/19)

5.3.13 A development has been permitted at Coopers Cross, City Block 3 for 2 No. commercial blocks over 2 No. basement levels. The total gross floor area for the commercial development is 45,328 m^2 of predominantly office space, with 2 No. retail/café/restaurant units as well as provision for 91 No. car parking spaces to serve the site. The proposed site access/egress will be provided on the Castleforbes Road.

5.3.14 The vehicle trips associated with the committed development were retrieved from the Traffic Assessment and Mobility Management Plan submitted as part of the development's planning application. These vehicle trips were included in the subject development's Traffic Model in order to assess the impact of the City Block 3 residential development on the surrounding road network in addition to the subject development's impact.

Committed Development – City Block 8, Project Wave Development (Refs: DSDZ 4558/18, DSDZ 3452/19, DSDZ 4157/17, DSDZ 2489/18)

5.3.15 Project Wave is a commercial office and residential development originally permitted under Ref. DSDZ 3550/15 and currently under construction at City Block 8 of North Wall Quay. The development consists of 63,697 m^2 of office space, 283 No. residential apartments, 965m^2 gym, 280m^2 café and 275m^2 of retail. A total of 431 No. car parking spaces are proposed as part of the development which will be accessible via a basement car park with access/egress on the Castleforbes Road.

5.3.16 The site is divided into four character blocks, each with their associated planning permissions, but the transportation assessment considers the entire masterplan for the site. The vehicle trips associated with the Project Wave development were retrieved from the Traffic Impact Assessment submitted as part of the development's planning application.

Committed Development – The EXO Building Commercial Development (Ref: DSDZ 3754/18)

5.3.17 The EXO commercial building at City Block 10 has been permitted under Ref. DSDZ 3632/15 and has been subsequently amended by other planning permissions. The development will be served by 42 No. car parking spaces, which will be provided within The Point Village Car Park. A pedestrian link will be provided for employees of the EXO building between the underground car park and the commercial building located on the R131 East Wall Road.

5.3.18 In order to determine the level of traffic generated by this third-party commercial development, DBFL utilised the same trip rates as those utilised for the proposed subject development for the restaurant land uses. The same office trip rates were used as those utilised for the previous committed development (Ref. DSDZ 4184/18) as shown in **Table 5.3** above. **Table 5.5** below summarises the predicted peak hour AM and PM traffic generated by the committed commercial development.

Land Use	GFA	AM Peak Hour			PM Peak Hour		
		Arr	Dep	Total	Arr	Dep	Total
Offices	19,263 m^2	21	2	23	1	14	15
Restaurant	519.4 m^2	0	0	0	9	4	13
Total		**21**	**2**	**23**	**10**	**19**	**29**

Table 5.5: Committed Development (Ref: DSDZ 3754/18) Traffic Generation

5.3.19 As this development is currently being constructed, in order to provide a robust assessment, DBFL have assumed that the entire development will be occupied by the adopted Opening Year of 2022.

Committed Development – East Road Development (Ref: ABP-304710-19)

5.3.20 The proposed East Road site will consist of 560 No. residential apartment units, café, retail, enterprise space, creche and various other mixed uses. A car parking provision of 241 No. car parking spaces is proposed to serve the entire development.

5.3.21 The vehicle trips associated with the committed development were retrieved from the Traffic Model previously completed by DBFL as part of the development's planning application. These vehicle trips were included in the subject development's Traffic Model in order to assess the impact of the East Road mixed-use development on the surrounding road network in addition to the subject development's impact.

Committed Development – Student Accommodation Development (Ref: DSDZ 4332/18)

5.3.22 Two student accommodation blocks are proposed on the site at Upper Mayor Street, City Block 5, providing 970 No. bed spaces. The development was originally permitted under Ref. DSDZ 3689/15 and has been subsequently amended by others.

5.3.23 It is not anticipated that the development will generate a material impact on the surrounding road network as other than 2 No. mobility impaired car parking spaces there is no private car parking provision associated with the development. As such, the student accommodation development has not been included in the subject development's Traffic Model.

Committed Development – Castleforbes Office & Hotel Commercial Development (Ref: 3433/19)

5.3.24 As the initial phase to the development of the Castleforbes Business Park, directly adjoining the subject site to the east is the permitted commercial development for a 270 No. bed hotel and 10,265m^2 of office space. As above, the development has no private car parking provision and as such it is not included within the subject development's Traffic Model as the development will not generate a material impact on the surrounding road network.

Committed Development – Castleforbes Hotel Development (Ref: 2143/20)

5.3.25 Also part of the of the Castleforbes Business Park is a permitted hotel development on the western extent of the subject site boundary. As the 219 No. bed hotel development does not include any car parking proposals it is not included within the subject development's Traffic Model as the development will not generate a material impact on the surrounding road network. The location of the aforementioned committed developments relative to the subject site is shown on **Figure 5.3** below.

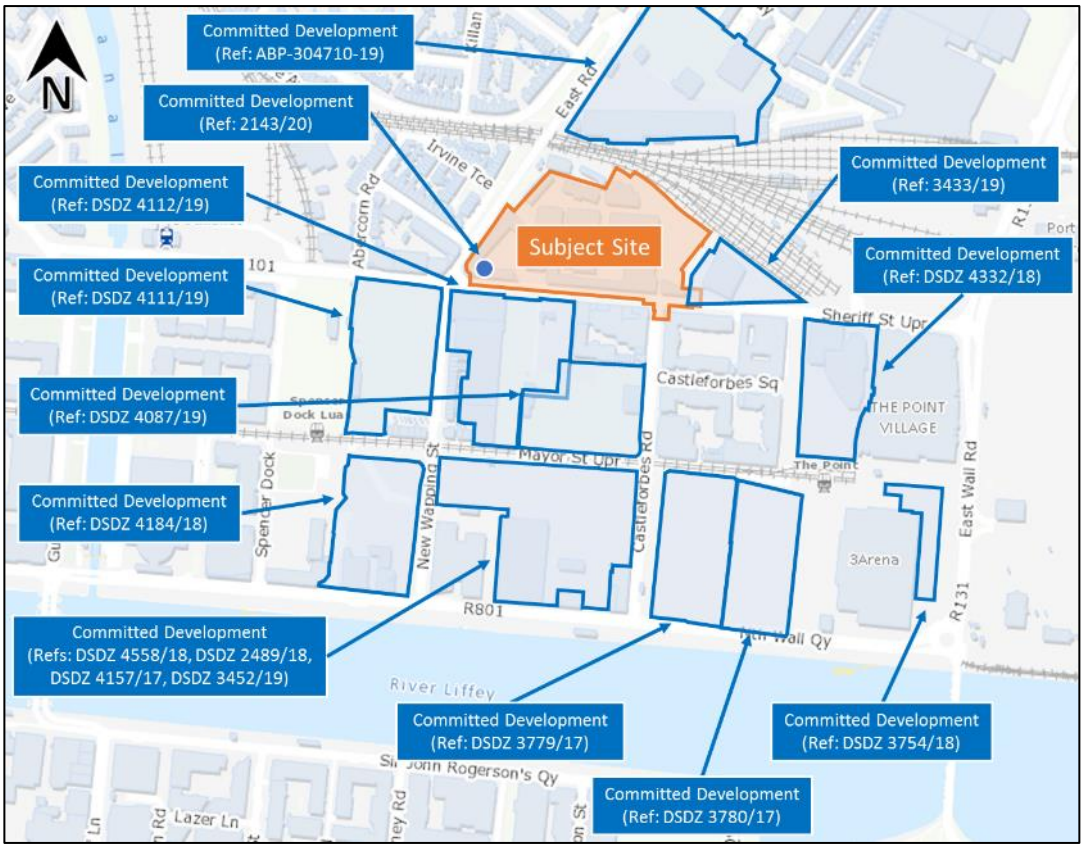


Figure 5.3: Location of Committed Developments (Source: GeoHive)

5.4 TRIP DISTRIBUTION & ASSIGNMENT

Proposed Development Trip Distribution

5.4.1 The distribution of the proposed Castleforbes residential development's generated vehicle movements as predicted by DBFL is presented in **Appendix A** of this report. The associated vehicle trips have been assigned to the surrounding road network based on the surveyed traffic movements passing the site.

5.4.2 In the Opening Year 2022, we have assumed that all 702 no. residential apartments will be complete and occupied as well as the retail components. Accordingly, the following distribution profiles have been adopted in this 2022 scenario based on the distribution of the baseline traffic flows:

- 25% of all New Trips will travel to/from the subject site via the Western Site Access, travelling west on the R101 Sheriff Street Upper;
- 25% of all New Trips will travel to/from the subject site via the Western Site Access, travelling east on the R101 Sheriff Street Upper;
- 25% of all New Trips will travel to/from the subject site via the Eastern Site Access, travelling east on the R101 Sheriff Street Upper; and
- 25% of all New Trips will travel to/from the subject site via the Eastern Site Access, travelling west on the R101 Sheriff Street Upper.

Committed Development Trip Distribution

5.4.3 The distribution of the nine committed developments' site generated vehicle movements have been assigned to the local road network as per the information submitted as part of the respective development's planning application documentation and influenced by the distribution of the baseline traffic flows.

5.5 TRAFFIC GROWTH

Design Years

5.5.1 In response to the applicant's proposed construction schedule, this TTA adopts an Opening Design Year of 2022, an Interim Future Design Year of 2027 (+5 years) and a long term Future Design Year of 2037 (+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) "Travel Demand Projections".

5.5.2 Table 6.1 within the TII Project Appraisal Guidelines Units 5.3 provides Link-Based Annual Traffic Growth Factors for the different metropolitan areas within Ireland. The subject site lies within 'Dublin' with the growth factors as outlined within **Table 5.5** below:

Metropolitan Area	Low Sensitivity Growth				Central Growth				High Sensitivity Growth			
	2016-2040		2030-2040		2016-2040		2030-2040		2016-2040		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 5.5: Link-Based Growth Rates: Annual Growth Factors (Extract from Table 6.1 PAG Unit 5.3)

5.5.3 Applying the annual factors (central growth) as outlined in **Table 5.5** above for the adopted Opening Year of 2022, the Interim Year of 2027 and Future Design Year of 2037 (+15 years), the following growth rates have been adopted to establish corresponding 2022, 2027 and 2037 baseline network flows: -

- 2019 to 2022 – 1.0493 (or 4.94%);
- 2019 to 2027 – 1.1371 (or 13.72%); and
- 2019 to 2037 – 1.2231 (or 22.31%).

5.5.4 Additionally, the following growth rate has been adopted to establish the 2019 baseline network to growth the 2018 survey results for the two signalised junctions on the East Road to reflect a 2019 traffic network: -

- 2018 to 2019 – 1.0162 (or 1.62%).

6.0 NETWORK IMPACT

6.1 ASSESSMENT SCOPE

Assessment Scenarios

6.1.1 Two different traffic scenarios have been assessed, namely (a) the 'Base' (Do Minimum) traffic characteristics and (b) the 'Post Development' (Do Something) traffic characteristics.

6.1.2 The 'Base' traffic scenario takes into account the potential level of traffic that could be generated by the committed developments, in addition to the existing flows travelling across the network.

6.1.3 The proposed development traffic is then added to the network's 'Base' (Base + Committed Developments) traffic flows to establish the 'Post Development' traffic flows.

6.1.4 In summary, the following network modelling scenarios are considered: -

Do Minimum

- A1 – 2022 Opening Year Traffic Flows + Committed Developments
- A2 – 2027 Interim Year Traffic Flows + Committed Developments
- A3 – 2037 Future Design Year Traffic Flows + Committed Developments

Do Something

- B1 – 2022 Do Minimum (A1) + Proposed Residential Development (702 No. residential units and 1154.2m^2)
- B2 – 2027 Do Minimum (A2) + Proposed Residential Development (702 No. residential units and 1154.2m^2)
- B3 – 2037 Do Minimum (A3) + Proposed Residential Development (702 No. residential units and 1154.2m^2)

Assessment Periods

6.1.5 The local road network's area wide AM and PM peak hour flows have been identified as occurring between 08:00 to 09:00 and 17:15 to 18:15 respectively.

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

- Figure 20 – 2022 Do Minimum (A1)
- Figure 22 – 2027 Do Minimum (A2)

- Figure 24 – 2037 Do Minimum (A3)
- Figure 21 – 2022 Do Something (B1)
- Figure 23 – 2027 Do Something (B2)
- Figure 25 – 2037 Do Something (B3)

Key Local Junctions

6.1.7 These same thresholds are reproduced in the NRA/TII document entitled *Traffic and Transport Assessment Guidelines* (2014) provides thresholds in relation to the impact of a proposed development on the local road network. It 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.

6.1.8 For the key local junctions, it can be seen in **Table 6.1**, that the proposed development upon full completion would have a significant effect on the following three junctions in the adopted worst case scenario:

- **Junction 4** – Priority Control – R101 Sheriff Street Upper / Proposed Western Site Access;
- **Junction 5** – Priority Control – R101 Sheriff Street Upper / Proposed Eastern Site Access; and
- **Junction 6** – Priority Control – R101 Sheriff Street Upper / Castleforbes Road.

ID	Junction Location	2022		2027		2037	
		AM Peak	PM Peak	AM Peak	PM Peak	AM Peak	PM Peak
1	R131 East Wall Road / East Road	0.40%	0.47%	0.37%	0.44%	0.35%	0.41%
2	R101 Sheriff Street Upper / Seville Place / Guild Street	2.19%	2.62%	2.03%	2.42%	1.89%	2.26%
3	R101 Sheriff Street Upper / East Road / New Wapping Street	3.82%	5.09%	3.57%	4.75%	3.35%	4.45%
4	R101 Sheriff Street Upper / Proposed Western Site Access	13.74%	17.18%	12.90%	16.10%	12.16%	15.17%
5	R101 Sheriff Street Upper / Proposed Eastern Site Access	13.70%	16.00%	12.86%	14.98%	12.12%	14.10%
6	R101 Sheriff Street Upper / Castleforbes Road	2.54%	6.14%	2.00%	5.53%	1.52%	4.99%
7	R101 Sheriff Street Upper / R131 East Wall Road	1.61%	2.05%	1.49%	1.90%	1.39%	1.77%

8	New Wapping Street / R801 North Wall Quay	1.64%	2.25%	1.53%	2.09%	1.43%	1.96%
9	Castleforbes Road / R801 North Wall Quay	2.03%	2.66%	1.90%	2.48%	1.79%	2.34%

Table 6.1: Network Impact Through Key Junctions (2022 DS, 2027 DS and 2037 DS)

6.1.9 Based on the scale of impact generated in the adopted worst case scenario, more detailed assessments in regards to the nodes operational performance have been undertaken at Junction 4 and Junction 5, the site access junctions. Furthermore, due to the proximity of the subject development to Junction 6, more detailed assessments have also been undertaken on this key node of the local transport network.

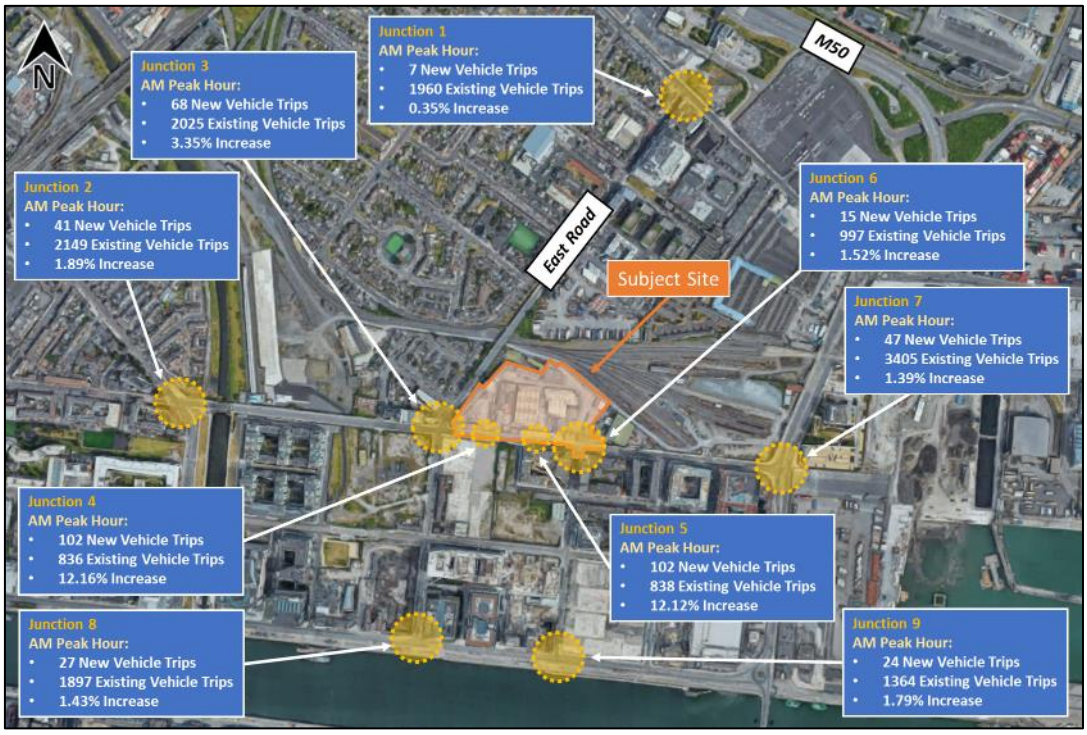


Figure 6.1: Increase in Vehicle Trips Generated Through Key Off Site Junctions 2037 Do Something AM Peak Hour

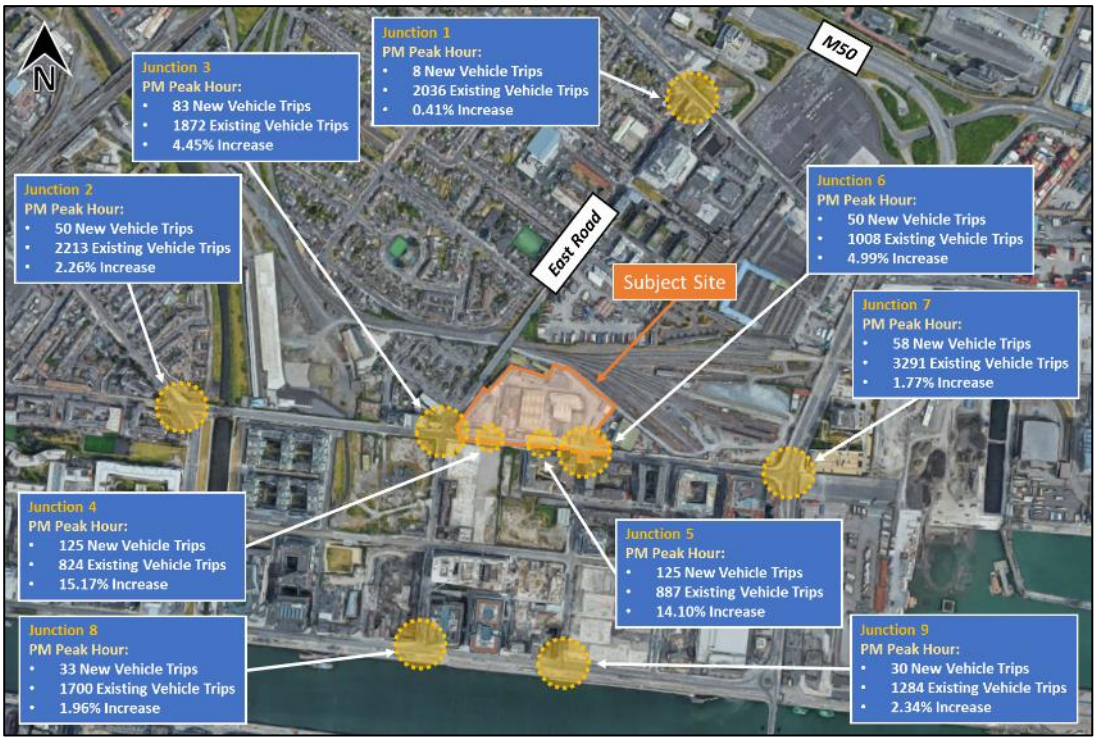


Figure 6.2: Increase in Vehicle Trips Generated Through Key Off Site Junctions 2037 Do Something PM Peak Hour

7.0 NETWORK ANALYSIS

7.1 INTRODUCTION

7.1.1 The operational assessment of the local road network has been undertaken using the Transport Research Laboratory (TRL) computer package PICADY for three priority junctions and TRANSYT for one signal-controlled junction.

7.1.2 When considering signalised junctions, a Degree of Saturation (DoS) of greater than 90% (0.90) would indicate a junction to be approaching capacity, as operation above this DoS value is poor and deteriorates quickly.

7.1.3 For the PICADY analyses a 90-minute AM and PM period has been simulated, from 07:45 to 9:15 and 17:00 to 18:30, respectively. Additionally, for the TRANSYT analysis a one-hour AM and PM period has been simulated, from 08:00 to 09:00 and 17:15 to 18:15 respectively. For the PICADY and TRANSYT analyses traffic flows were entered using an Origin-Destination table for the peak hours.

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

- 2022 – Opening Year;
- 2027 – Interim Design Year (Opening Year + 5 year); and
- 2037 – Future Design Year (Opening Year + 15 years).

7.1.5 The following three key junctions as illustrated in **Figure 7.1** below have been analysed:

- **Junction 4** – Priority Control – R101 Sheriff Street Upper / Proposed Western Site Access;
- **Junction 5** – Priority Control – R101 Sheriff Street Upper / Proposed Eastern Site Access; and
- **Junction 6** – Priority Control (Do Nothing) / Signalised Junction (Do Something) – R101 Sheriff Street Upper / Castleforbes Road.

Figure 7.1: Junctions Included Within the Network Analysis

7.2 JUNCTION 4: R101 SHERIFF STREET UPPER / PROPOSED WESTERN SITE ACCESS PRIORITY CONTROLLED JUNCTION

7.2.1 The new junction layout (Ref. DBFL drawing 180159-9003) has been adopted for the Do Something scenarios of the three-arm priority-controlled junction. The junction has been modelled using the PICADY software package. The results of the operational assessment of this junction during the weekday morning and evening peaks for the Do Something scenarios are summarised in **Table 7.1** below.

7.2.2 In the "Do Something" scenarios the three arms were labelled as follows within the PICADY model:

Arm A: R101 Sheriff Street Upper West

Arm B: Proposed Western Site Access

Arm C: R101 Sheriff Street Upper East

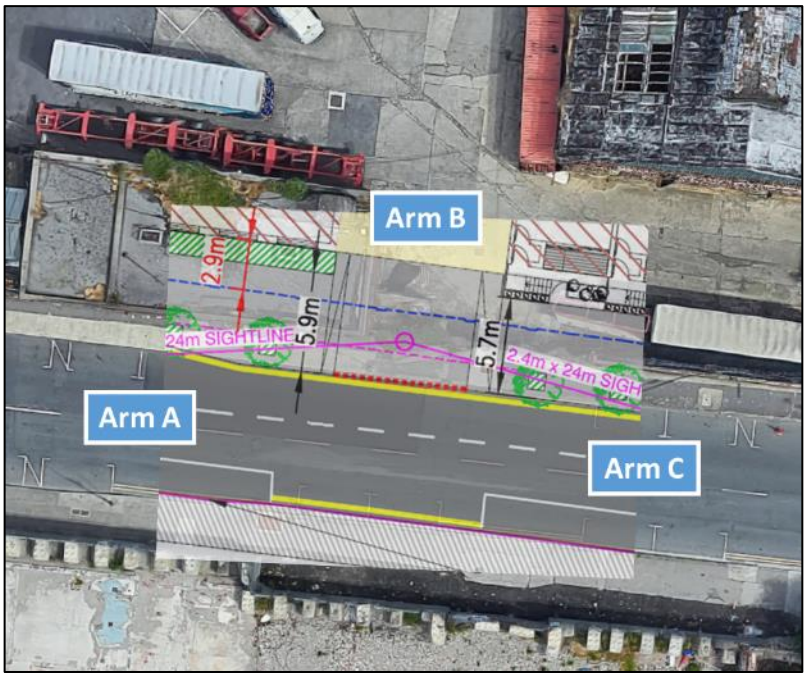


Figure 7.2: Junction 4 Priority Controlled Junction

Do Minimum Scenario

7.2.3 As there is no existing site access from the R101 Sheriff Street Upper onto the proposed development site at this location at present, PICADY analysis for the "Do Minimum" Scenario are omitted for the R101 Sheriff Street Upper / Proposed Western Site Access three-arm priority-controlled junction.

Do Something Scenario

7.2.4 The PICADY results (**Table 7.1**) indicate that the R101 Sheriff Street Upper / Proposed Western Site Access three-arm priority-controlled junction will operate within capacity for the 2022 "Do Something" AM peak hour with a maximum RFC value of 0.10 and a corresponding queue of 0.1 pcus being recorded on the minor arm, the Proposed Western Site Access. For the corresponding PM peak hour a maximum RFC value of 0.07 occurs on the minor arm, with a corresponding queue of 0.1 pcus.

Year Scenario	Period	Arm	Description	Queue (pcu)	Delay (s)	RFC
2022 DS	AM Peak	A	R101 Sheriff Street Upper West	-	-	-
		B	Proposed Western Site Access	0.1	9.54	0.10
		C	R101 Sheriff Street Upper East	0.0	5.81	0.03
	PM Peak	A	R101 Sheriff Street Upper West	-	-	-
		B	Proposed Western Site Access	0.1	9.06	0.07
		C	R101 Sheriff Street Upper East	0.1	5.48	0.06
2027 DS	AM Peak	A	R101 Sheriff Street Upper West	-	-	-
		B	Proposed Western Site Access	0.1	9.75	0.10
		C	R101 Sheriff Street Upper East	0.0	5.78	0.03
	PM Peak	A	R101 Sheriff Street Upper West	-	-	-
		B	Proposed Western Site Access	0.1	9.25	0.07
		C	R101 Sheriff Street Upper East	0.1	5.44	0.06
2037 DS	AM Peak	A	R101 Sheriff Street Upper West	-	-	-
		B	Proposed Western Site Access	0.1	9.95	0.10
		C	R101 Sheriff Street Upper East	0.0	5.76	0.03
	PM Peak	A	R101 Sheriff Street Upper West	-	-	-
		B	Proposed Western Site Access	0.1	9.42	0.07
		C	R101 Sheriff Street Upper East	0.1	5.41	0.06

Table 7.1: 2022, 2027 and 2037 Do Something Analysis for Junction 4

7.2.5 For the 2037 Future Design Year "Do Something" scenario the PICADY results (**Table 7.1**) also indicate that the R101 Sheriff Street Upper / Proposed Western Site Access priority-controlled junction will operate within capacity for the 2037 "Do Something" AM peak hour with a maximum RFC value of 0.10 and a corresponding queue of 0.1 pcus being recorded on the Proposed Western Site Access minor arm. For the 2037 "Do Something" PM peak hour a maximum RFC value of 0.07 occurs along the Proposed Western Site Access minor arm, with a corresponding queue of 0.1 pcus.

7.2.6 A copy of the PICADY output file can be found in **Appendix D**.

7.3 JUNCTION 5: R101 SHERIFF STREET UPPER / PROPOSED EASTERN SITE ACCESS PRIORITY CONTROLLED JUNCTION

7.3.1 The new junction layout (Ref. DBFL drawing 180159-9003) has been adopted for the Do Something scenarios of the three-arm priority-controlled junction. The junction has been modelled using the PICADY software package. The results of the operational assessment of this junction during the weekday morning and evening peaks for the Do Something scenarios are summarised in **Table 7.2** below.

7.3.2 In the "Do Something" scenarios the three arms were labelled as follows within the PICADY model:

Arm A: R101 Sheriff Street Upper West

Arm B: Proposed Eastern Site Access

Arm C: R101 Sheriff Street Upper East

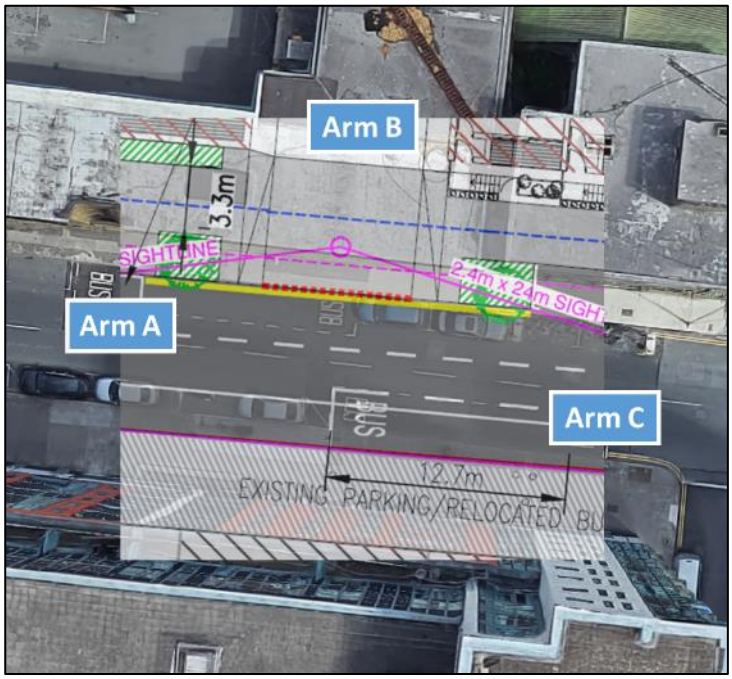


Figure 7.3: Junction 5 Priority Controlled Junction

Do Minimum Scenario

7.3.3 As there is no existing site access from the R101 Sheriff Street Upper onto the proposed development site at this location at present, PICADY analysis for the "Do Minimum" Scenario are omitted for the R101 Sheriff Street Upper / Proposed Eastern Site Access three-arm priority-controlled junction.

Do Something Scenario

7.3.4 The PICADY results (**Table 7.2**) indicate that the R101 Sheriff Street Upper / Proposed Eastern Site Access three-arm priority-controlled junction will operate within capacity for the 2022 "Do Something" AM peak hour with a maximum RFC value of 0.09 and a corresponding queue of 0.1 pcus being recorded on the Proposed Eastern Site Access minor arm. For the corresponding PM peak hour, a maximum RFC value of 0.07 will occur on the Proposed Eastern Site Access minor arm with a corresponding queue of 0.1 pcus.

Year Scenario	Period	Arm	Description	Queue (pcu)	Delay (s)	RFC
2022 DS	AM Peak	A	R101 Sheriff Street Upper West	-	-	-
		B	Proposed Eastern Site Access	0.1	9.42	0.09
		C	R101 Sheriff Street Upper East	0.0	5.80	0.03
	PM Peak	A	R101 Sheriff Street Upper West	-	-	-
		B	Proposed Eastern Site Access	0.1	9.12	0.07
		C	R101 Sheriff Street Upper East	0.1	5.34	0.06
2027 DS	AM Peak	A	R101 Sheriff Street Upper West	-	-	-
		B	Proposed Eastern Site Access	0.1	9.62	0.10
		C	R101 Sheriff Street Upper East	0.0	5.77	0.03
	PM Peak	A	R101 Sheriff Street Upper West	-	-	-
		B	Proposed Eastern Site Access	0.1	9.31	0.07
		C	R101 Sheriff Street Upper East	0.1	5.29	0.07
2037 DS	AM Peak	A	R101 Sheriff Street Upper West	-	-	-
		B	Proposed Eastern Site Access	0.1	9.80	0.10
		C	R101 Sheriff Street Upper East	0.0	5.74	0.03
	PM Peak	A	R101 Sheriff Street Upper West	-	-	-
		B	Proposed Eastern Site Access	0.1	9.49	0.07
		C	R101 Sheriff Street Upper East	0.1	5.25	0.07

Table 7.2: 2022, 2027 and 2037 Do Something Analysis for Junction 5

7.3.5 For the 2037 Future Design Year "Do Something" scenario the PICADY results (**Table 7.2**) also indicate that the R101 Sheriff Street Upper / Proposed Eastern Site Access priority-controlled junction will operate within capacity for the 2037 "Do Something" AM peak hour with a maximum RFC value of 0.10 and a corresponding

queue of 0.1 pcus being recorded on the Proposed Eastern Site Access minor arm. For the 2037 "Do Something" PM peak hour a maximum RFC value of 0.07 occurs along both the Proposed Eastern Site Access minor arm and the R101 Sheriff Street Upper major arm, with corresponding queues of 0.1 pcus each.

7.3.6 A copy of the PICADY output file can be found in **Appendix D**.

7.4 JUNCTION 6: R101 SHERIFF STREET UPPER / CASTLEFORBES ROAD

7.4.1 The new signalised junction layout (Ref. DBFL drawing 180159-9003) has been adopted for the Do Something scenarios of the existing four-arm priority-controlled junction. The junction has been modelled using the PICADY software package for the Do Nothing scenarios and the TRANSYT software package for the Do Something scenarios. The results of the operational assessment of this junction during the weekday morning and evening peaks for the Do Nothing and Do Something scenarios are summarised in **Table 7.3** and **Table 7.4** below respectively.

Do Minimum Scenario

7.4.2 In the "Do Nothing" scenarios the four arms were labelled as follows within the PICADY model:

Arm A: R101 Sheriff Street Upper East

Arm B: Castleforbes Road

Arm C: R101 Sheriff Street Upper West

Arm D: Existing Site Access

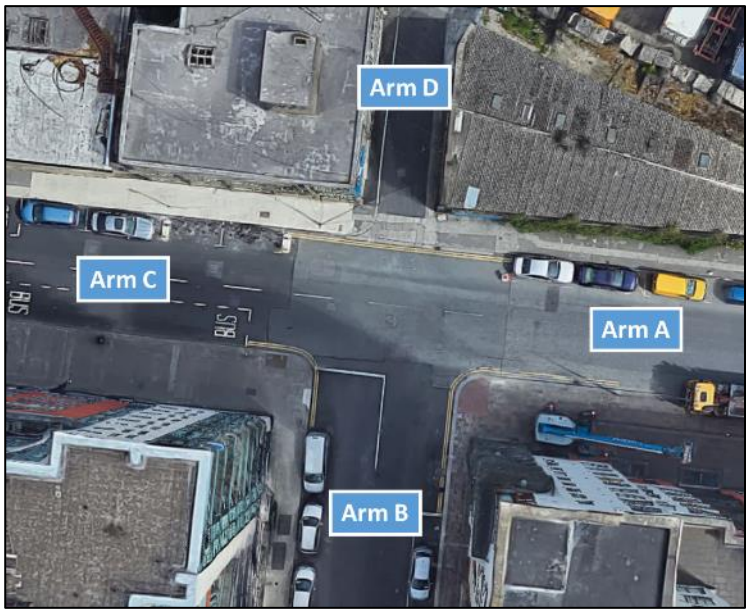


Figure 7.4: Junction 6 Existing Priority Controlled Junction Layout

7.4.3 The PICADY results (**Table 7.3**) indicate that the R101 Sheriff Street Upper / Castleforbes Road / Existing Site Access four-arm priority-controlled junction will operate within capacity for the 2022 "Do Nothing" AM peak hour with a maximum RFC value of 0.32 and a corresponding queue of 0.8 pcus being recorded on the R101 Sheriff Street Upper West. For the corresponding PM peak hour, a maximum RFC value of 0.32 will occur on the Castleforbes Road with a corresponding maximum queue of 0.5 pcus.

Year Scenario	Period	Arm	Description	Queue (pcu)	Delay (s)	RFC
2022 DN	AM Peak	A	R101 Sheriff Street Upper East	0.0	5.52	0.02
		B	Castleforbes Road	0.3	8.10	0.23
		C	R101 Sheriff Street Upper West	0.8	6.97	0.32
		D	Existing Site Access	0.0	8.20	0.01
	PM Peak	A	R101 Sheriff Street Upper East	0.0	5.35	0.01
		B	Castleforbes Road	0.5	8.65	0.32
		C	R101 Sheriff Street Upper West	0.3	5.76	0.16
		D	Existing Site Access	0.0	8.76	0.04
2027 DN	AM Peak	A	R101 Sheriff Street Upper East	0.0	5.49	0.02
		B	Castleforbes Road	0.4	8.26	0.24
		C	R101 Sheriff Street Upper West	0.8	7.02	0.34

		D	Existing Site Access	0.0	8.25	0.01
	PM Peak	A	R101 Sheriff Street Upper East	0.0	5.30	0.01
		B	Castleforbes Road	0.5	8.81	0.33
		C	R101 Sheriff Street Upper West	0.4	5.73	0.17
		D	Existing Site Access	0.1	8.88	0.04
2037 DN	AM Peak	A	R101 Sheriff Street Upper East	0.0	5.46	0.03
		B	Castleforbes Road	0.4	8.40	0.25
		C	R101 Sheriff Street Upper West	0.9	7.09	0.35
		D	Existing Site Access	0.0	8.31	0.01
	PM Peak	A	R101 Sheriff Street Upper East	0.0	5.27	0.01
		B	Castleforbes Road	0.6	8.99	0.34
		C	R101 Sheriff Street Upper West	0.4	5.70	0.18
		D	Existing Site Access	0.1	8.92	0.05

Table 7.3: 2022, 2027 and 2037 Do Nothing Analysis for Junction 6

7.4.4 For the 2037 Future Design Year "Do Something" scenario the PICADY results (**Table 7.3**) also indicate that the R101 Sheriff Street Upper / Castleforbes Road / Existing Site Access priority-controlled junction will operate within capacity for the 2037 "Do Nothing" AM peak hour with a maximum RFC value of 0.35 being recorded on the R101 Sheriff Street Upper West arm. The maximum queue of 0.9 pcus was recorded on the R101 Sheriff Street Upper West. For the 2037 "Do Nothing" PM peak hour a maximum RFC value of 0.34 occurs along the Castleforbes Road, with a corresponding queue of 0.6 pcus.

7.4.5 A copy of the PICADY output file can be found in **Appendix C**.

Do Something Scenario

7.4.6 In the "Do Something" scenarios the three arms were labelled as follows within the TRANSYT model:

Arm A: R101 Sheriff Street Upper West

Arm B: R101 Sheriff Street Upper East

Arm C: Castleforbes Road

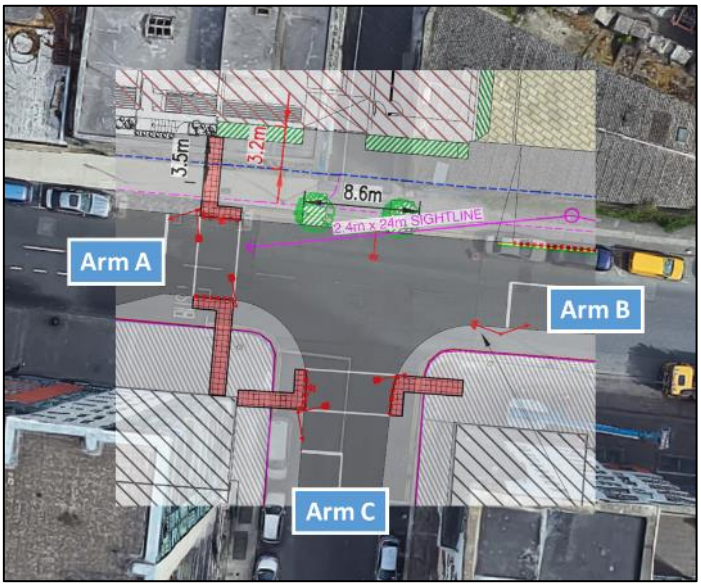


Figure 7.5: Junction 6 Do Something Signalised Junction Layout

7.4.7 The TRANSYT results (**Table 7.4**) indicate that the R101 Sheriff Street Upper / Castleforbes Road three arm signalised junction will operate within capacity for the 2022 "Do Something" AM peak hour with a maximum Degree of Saturation (DoS) value of 44% being recorded on the western arm of the R101 Sheriff Street Upper, with a corresponding maximum queue of 7.30 pcus. For the corresponding PM peak hour, a maximum Degree of Saturation (DoS) of 56% was recorded on the Castleforbes Road. The maximum queue recorded of 5.91 pcus occurred on the western arm of the R101 Sheriff Street Upper.

Year Scenario	Period	Arm	Stream	Description	Degree of Saturation (%)	Mean Max Queue (pcu)
2022 DS	AM Peak	A	1	R101 Sheriff Street Upper West	44	7.30
		B	1	R101 Sheriff Street Upper East	26	3.63
		C	1	Castleforbes Road	35	3.26
	PM Peak	A	1	R101 Sheriff Street Upper West	38	5.91
		B	1	R101 Sheriff Street Upper East	29	4.30
		C	1	Castleforbes Road	56	5.54
2027 DS	AM Peak	A	1	R101 Sheriff Street Upper West	46	7.79
		B	1	R101 Sheriff Street Upper East	27	3.82
		C	1	Castleforbes Road	37	3.36
	PM Peak	A	1	R101 Sheriff Street Upper West	40	6.36

		B	1	R101 Sheriff Street Upper East	31	4.63
		C	1	Castleforbes Road	57	5.75
2037 DS	**AM Peak**	A	1	R101 Sheriff Street Upper West	49	8.43
		B	1	R101 Sheriff Street Upper East	28	4.15
		C	1	Castleforbes Road	38	3.49
	PM Peak	A	1	R101 Sheriff Street Upper West	41	6.67
		B	1	R101 Sheriff Street Upper East	32	4.73
		C	1	Castleforbes Road	59	5.96

Table 7.4: 2022, 2027 and 2037 Do Something Analysis for Junction 6

7.4.8 For the 2037 Future Design Year "Do Something" scenario the TRANSYT results (**Table 7.4**) also indicate that the R101 Sheriff Street Upper / Castleforbes Road three arm signalised junction will operate within capacity for the 2037 "Do Something" PM peak hour with a maximum Degree of Saturation (DoS) value of 49% being recorded on the western arm of the R101 Sheriff Street Upper, with a corresponding maximum queue of 8.43 pcus. For the corresponding PM peak hour, a maximum Degree of Saturation (DoS) of 59% was recorded on the Castleforbes Road. The maximum queue recorded of 6.67 pcus occurred on the western arm of the R101 Sheriff Street Upper.

7.4.9 A copy of the TRANSYT output file can be found in **Appendix D**.

8.0 SUMMARY AND CONCLUSION

8.1 OVERVIEW

8.1.1 DBFL Consulting Engineers (DBFL) has been commissioned by Glenveagh Living Limited to prepare a Traffic and Transport Assessment (TTA) for a proposed residential development on a brownfield site located at the Castleforbes Business Park, R101 Sheriff Street Upper, Dublin 1.

8.1.2 The development proposals include the demolition of the existing on-site Castleforbes Business Park development and its replacement with a residential BTR development across c. 9 no. buildings (8 residential and 1 cultural) comprising residential apartments, community, retail uses plus ancillary car / bicycle parking areas at basement level.

8.1.3 The purpose of this TTA was 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 upon the local receiving environment.

8.1.4 Our methodology for undertaking the TTA incorporated a number of key inter related stages, including;

- Site audit,
- Planning review of local committed / permitted developments,
- Commissioning and analysis of traffic survey data,
- Trip generation, distribution and network assignment exercise,
- Quantification of predicted Network Impact, and
- Assessment of the local network's operational performance in the predicted Opening and future Design Years

8.1.5 The analysis of the existing receiving environment has found the Castleforbes Business Park site is located in one of the most accessible areas in Dublin. Its unique characteristics include the following;

- In addition to Dublin city centre a significant number of strategic employment sites are located within an easy walk / cycle distance of the subject site at Sheriff Street Upper.

- The site is ideally located to benefit from the existing and emerging Cycle Network Plan proposals including the NTA's recently published Liffey Cycle Route Project.

- A comprehensive range of local bus services, operated by both *Dublin Bus* and *Go Ahead*, have interchanges located within a convenient walking distance of the subject Castleforbes site.

- The Castleforbes Business Park site also benefits from good connections with regional coach based public transport services. These accessibility levels are achievable through proximity to the Busáras central coach station and private operators' terminal interchanges in the core city centre and Docklands areas. The availability of such regional services further enhances the sustainable accessibility criteria of the site.

- The development site is situated in close proximity to the LUAS Red Line, with the closest interchange (The Point) being only 400m walking distance to the southeast. The Luas Red Line provides excellent connectivity to the southwest of the city including the areas of Saggart and Tallaght. In addition to serving the city centre the service continues eastwards providing access to (i) Heuston Railway Station, (ii) interchange opportunities with the LUAS Green Line, (iii) Busáras central coach station and (iv) Connolly Railway Station.

- The closest existing railway station to the development site is the Docklands Station, located approximately only 450m (5-minutes walking distance) west of the subject site. In addition to Regional rail (Commuter) services along the Kildare mainline (accessing destination such as Parkwest, Adamstown and Sallins) Intercity train services are available from Heuston including destinations of Galway, Cork, Waterford Ballina, Westport, Limerick and Tralee as well as intermediate stations. In addition, both the LUAS Red Line services and a number of local bus services provide convenient connections between the subject site and Connelly Station were further strategic (intercity – Rosslare, Belfast and Sligo) and regional (Drogheda, Howth and Greystones) rails services can be accessed.

8.1.6 The analysis has also established that the site's existing accessibility credentials will be further enhanced through the delivery of the following planned infrastructure and associated services;

- The Castleforbes Business Park site will benefit significantly from the NTA's *Bus Connects* proposals and will be accessible to one of the proposed Core Bus Corridors which will also deliver improvements to cycling facilities in the area.

- The proposed GDA cycling network plan, including the recently published Liffey Cycle Corridor proposals will also encourage a greater uptake in walking and cycling amongst residents, commuters and visitors.

- The DART+ Programme will see the DART system expanded, providing fast, high-frequency electrified services to Drogheda on the Northern Line, Hazelhatch on the Kildare Line, Maynooth and M3 Parkway on the Maynooth/Sligo Line, while continuing to provide DART services on the Coastal Line as far south as Greystones. The Castleforbes site is ideally located to access these DART services via the proposed new DART+ West Spencer Dock station (5-minutes walking distance).

8.1.7 It is acknowledged that some elements of the overall BTR development scheme are not currently well established in Dublin but are likely to become more familiar in coming years. The development's characteristics including the level of on-site car parking (e.g. the scheme represents a 'car lite' development in reference to best practice) have not to date been extensively delivered in Dublin. Nevertheless, the concept is well tried and tested in other countries in addition to An Bord Pleanála (ABP) recently permitting a number of comparable (Strategic Housing Developments) schemes in less accessible locations across Dublin area compared to the subject Castleforbes site's accessibility levels and advantageous characteristics.

8.1.8 The design of the subject redevelopment scheme has been undertaken in direct reference to the recommendations outlined within the DHPLG documentation entitled '*Sustainable Urban Housing: Design Standards For New Apartments (March 2018)'*. This national guidance actively facilitates the type of development being proposed at the Castleforbes Business Park site particularly the 'car lite' nature of the scheme. In reference to local authority development management standards the DHPLG requires that;

"the default policy is for car parking provision to be minimised, substantially reduced or wholly eliminated in certain circumstances."

8.1.9 Furthermore, the retail opportunities located at the development accommodate all the amenities and services required to provide for a sustainable community thereby further reducing the need to travel, particularly by private motor car. Accordingly, for residents of the proposed development the need to even own a private motor car is reduced.

8.1.10 In response to the reduced car parking provision, a generous cycle parking provision has been provided on-site which is above both the DCC cycle parking standards and the 'maximum' DHPLG requirements.

8.1.11 In response to the proposed construction phasing of the subject development proposals the TTA has carried out a range of assessments for an adopted Opening Year of 2022, an Interim Design Year of 2027 and a Future Design Year assessment of 2037 as per TII best practice requirements. In each of these design years it has been assumed that the identified third party committed developments located across the local receiving environment will be delivered and fully occupied.

8.1.12 Accordingly, the following six different assessment scenarios have been investigated by this TTA;

Do Minimum Scenario

- A1 – 2022 Opening Year Traffic Flows + Committed Developments
- A2 – 2027 Interim Year Traffic Flows + Committed Developments
- A3 – 2037 Future Design Year Traffic Flows + Committed Developments

Do Something

- B1 – 2022 Do Minimum (A1) + Proposed Residential Development (702 No. residential units and 1154.2m^2)
- B2 – 2027 Do Minimum (A2) + Proposed Residential Development (702 No. residential units and 1154.2m^2)
- B3 – 2037 Do Minimum (A3) + Proposed Residential Development (702 No. residential units and 1154.2m^2)

8.1.13 Based upon the information and analysis detailed within this TTA it has been demonstrated that the scale of impact generated by the redevelopment proposal

at the local key junctions, as part of the adopted worst case methodology, have been found to be as follows:

- **Junction 1** (R131 East Wall Road / East Road): an increase of 0.35% (7 New Two-Way Vehicle Trips) in the AM peak period and 0.41% (8 New Two-Way Vehicle Trips) in the PM peak period;
- **Junction 2** (R101 Sheriff Street Upper / Seville Place / Guild Street): an increase of 1.89% (41 New Two-Way Vehicle Trips) in the AM peak period and 2.26% (50 New Two-Way Vehicle Trips) in the PM peak period;
- **Junction 3** (R101 Sheriff Street Upper / East Road / New Wapping Street): an increase of 3.35% (68 New Two-Way Vehicle Trips) in the AM peak period and 4.45% (83 New Two-Way Vehicle Trips) in the PM peak period;
- **Junction 4** (R101 Sheriff Street Upper / Proposed Western Site Access): an increase of 12.16% (102 New Two-Way Vehicle Trips) in the AM peak period and 15.17% (125 New Two-Way Vehicle Trips) in the PM peak period;
- **Junction 5** (R101 Sheriff Street Upper / Proposed Eastern Site Access): an increase of 12.12% (102 New Two-Way Vehicle Trips) in the AM peak period and 14.10% (125 New Two-Way Vehicle Trips) in the PM peak period;
- **Junction 6** (R101 Sheriff Street Upper / Castleforbes Road): an increase of 1.52% (15 New Two-Way Vehicle Trips) in the AM peak period and 4.99% (50 New Two-Way Vehicle Trips) in the PM peak period;
- **Junction 7** (R101 Sheriff Street Upper / R131 East Wall Road): an increase of 1.39% (47 New Two-Way Vehicle Trips) in the AM peak period and 1.77% (58 New Two-Way Vehicle Trips) in the PM peak period;
- **Junction 8** (New Wapping Street / R801 North Wall Quay): an increase of 1.43% (27 New Two-Way Vehicle Trips) in the AM peak period and 1.96% (33 New Two-Way Vehicle Trips) in the PM peak period; and
- **Junction 9** (Castleforbes Road / R801 North Wall Quay): an increase of 1.79% (24 New Two-Way Vehicle Trips) in the AM peak period and 2.34% (30 New Two-Way Vehicle Trips) in the PM peak period.

8.1.14 The evaluation of the operational performance of the key junctions across the local road network both prior to and following the implementation of the proposed residential development are summarised below in **Table 8.1** based upon the findings of the PICADY and TRANSYT based junction assessments outlined in Section 7 of this report.

Scenario		Junction 4			Junction 5			Junction 6		
		2022	2027	2037	2022	2027	2037	2022	2027	2037
Do Nothing	AM	-	-	-	-	-	-	32%	34%	35%
	PM	-	-	-	-	-	-	32%	33%	34%
Do Something	AM	10%	10%	10%	9%	10%	10%	44%	46%	49%
	PM	7%	7%	7%	7%	7%	7%	56%	57%	59%

*Green denotes junctions operating within capacity

Table 8.1: Junctions Weekday Operational Summary Performance
(Maximum Recorded RFC/DoS Value)

8.1.15 In reference to **Table 8.1** above the principal results of the junction simulation exercise can be summarised as follows: -

- **Junction 4** (R101 Sheriff Street Upper / Proposed Western Site Access): In all future design year assessments this new site access junction is predicted to be operating well within capacity with a maximum RFC value of only 10% being recorded during the AM peak hour period;

- **Junction 5** (R101 Sheriff Street Upper / Proposed Eastern Site Access). In all future design year assessments this new site access junction is predicted to be operating well within capacity with a maximum RFC value of only 10% being recorded during the AM peak hour period; and

- **Junction 6** (R101 Sheriff Street Upper / Castleforbes Road). In the Do Nothing scenarios, the existing site access junction is predicted to be operating within capacity with a maximum RFC value of 35% being recorded during the 2037 AM peak hour period. In the Do Something scenario, the new three-arm signalised junction is predicted to be operating well within capacity with a maximum DoS value of only 59% being recorded during the 2037 PM peak hour period.

8.2 CONCLUSIONS

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

- The proposals represent a valuable contribution to addressing the shortfall in residential accommodation in Dublin City. The redevelopment of the Castleforbes Business Park incorporates a range of land uses, facilities and amenities that have the potential to create a sustainable community.

- The subject site is highly accessible to pedestrians and cyclists who benefit from existing pedestrian infrastructure on the R101 Sheriff Street Upper and neighbouring streets, which in turn provide permeable connections to the immediate and surrounding urban areas.

- The subject site already benefits from excellent sustainable accessibility levels as a result of the range of LUAS, bus and coach based public transport connections available.

- The Castleforbes Business Park site will also benefit from several proposed infrastructure improvements, including new cycle routes, Core Bus Corridors, and DART services (DART Underground accessible via Docklands Station) as part of the NTA's 2016-2035 Transport Strategy.

- An appropriate number of on-site car parking provision is being provided considering the profile of residents of BTR schemes and its city centre context.

- The implementation of the Mobility Management Plan will actively promote the use of sustainable modes of travel and reduce travel by private motor car for all journeys to / from the proposed development.

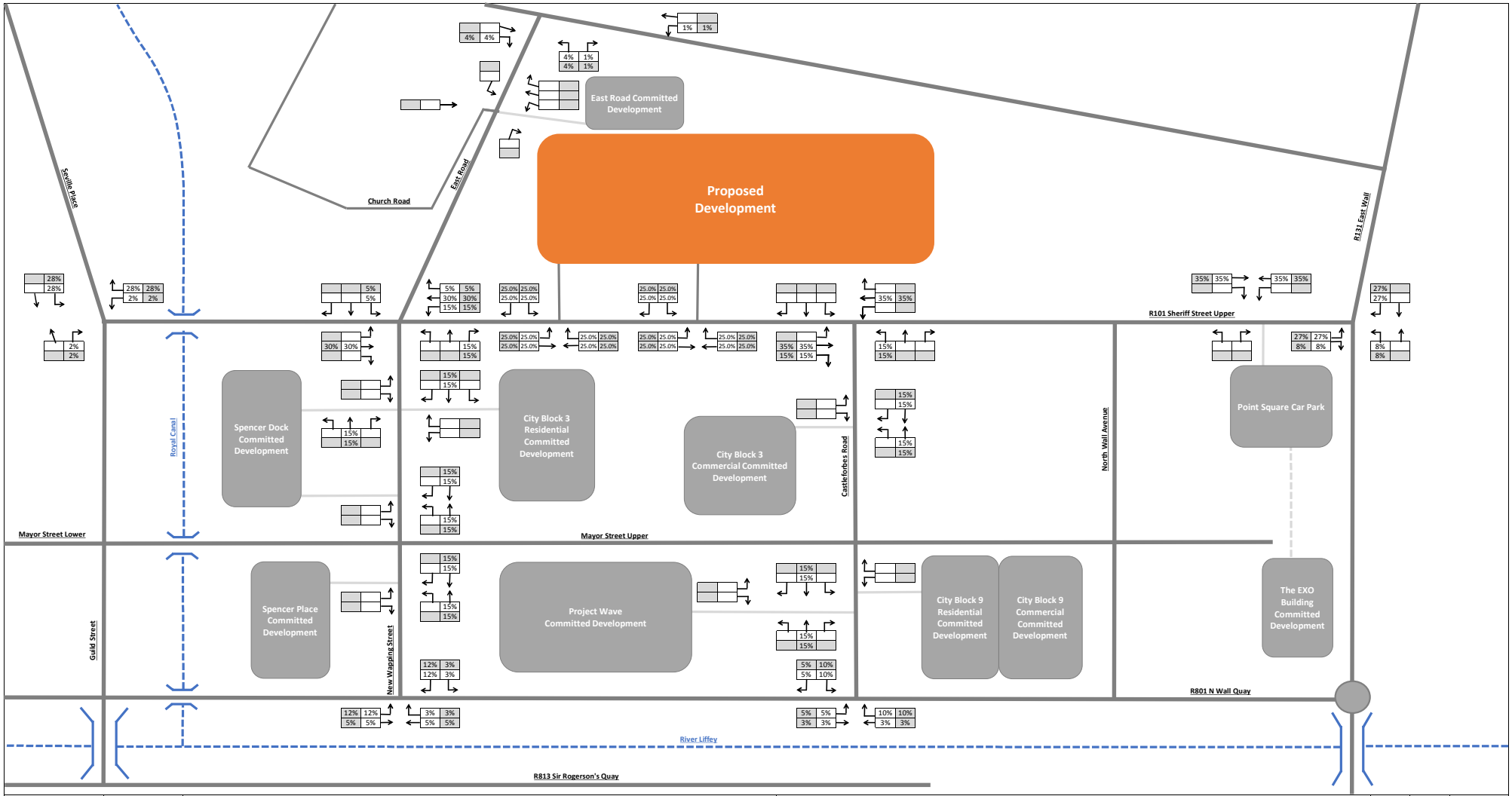
8.2.2 It has been demonstrated that the proposals will not result in a material deterioration of local road conditions. Accordingly, DBFL believe that the opportunity is available, in terms of transport and traffic, for the local roads authority to consider favourably the proposed residential development on the subject Castleforbes Business Park site.

8.2.3 As a result, there are no significant traffic, transportation or road safety related reasons that should prevent the granting of planning permission for the proposed development.

APPENDICES

APPENDIX A

Traffic Flow Diagrams



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Project : Proposed Mixed Use Development
Castleforbes Business Park, Sheriff Street Upper, Dublin 1

DRG. Title : Network Traffic Flows - Vehicles
Proposed Development Trip Distribution

Key:
AM Peak Hour (0800 to 0900)
PM Peak Hour (1715 to 1815)

Drwn:	Chd:	Date:
HG	AD	12/11/2019

Ref: p180159\calcs\excel\Traffic\180159-DBFL-Calc-O-001 Traffic Model

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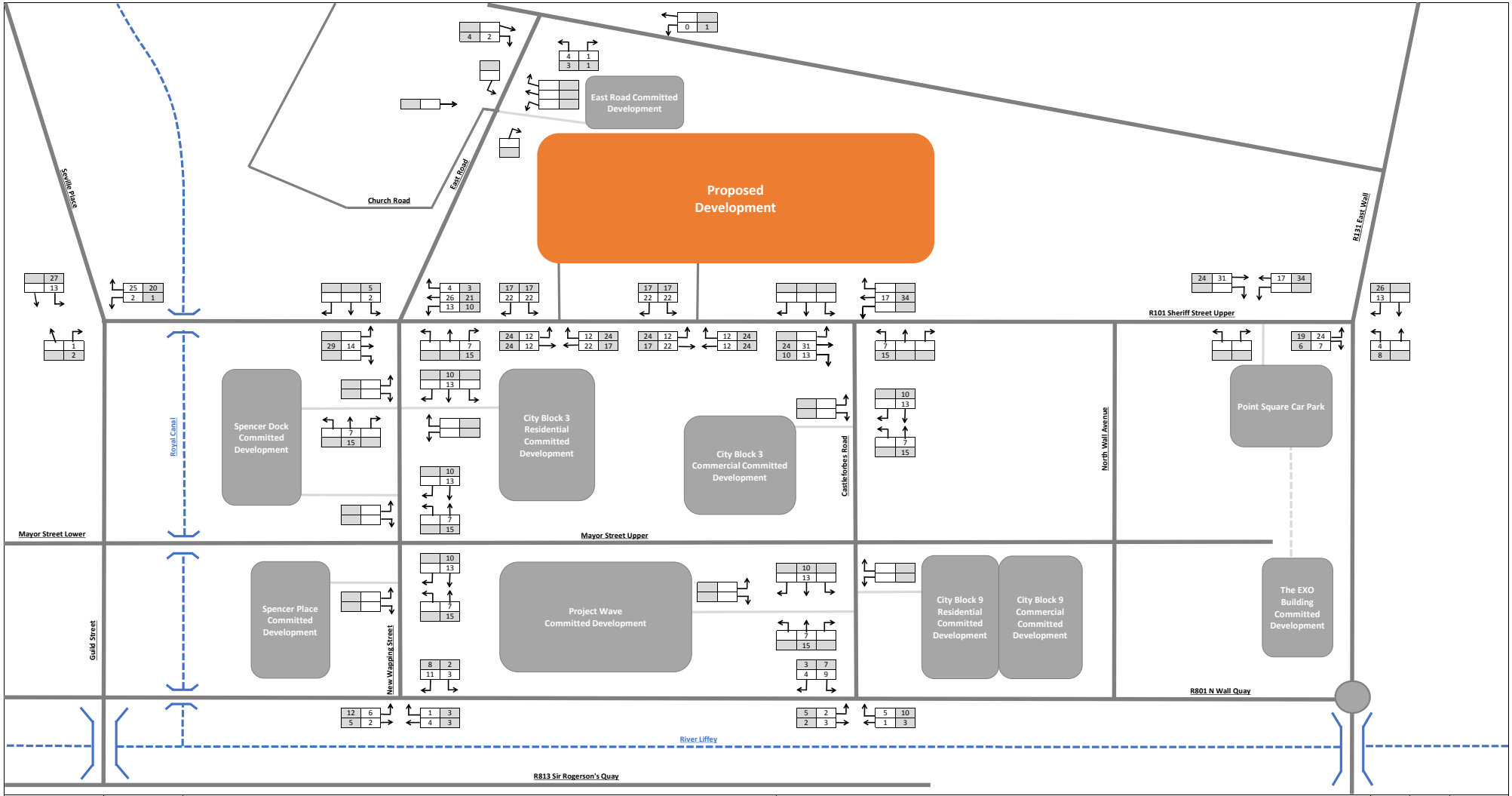

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Project :
Proposed Mixed Use Development
Castleforbes Business Park, Sheriff Street Upper, Dublin 1

DRG. Title :
Proposed Mixed Use Development
2022 New Trips

Key:
AM Peak Hour (0800 to 0900)
PM Peak Hour (1715 to 1815)

AM Peak		PM Peak	
Arr	Dep	Arr	Dep
48	88	97	70

Dwn:	Chd:	Date:
HG	AD	12/11/2019

Ref: p180159\calcs\excel\Traffic\180159-DBFL-Calc-O-001 Traffic Model

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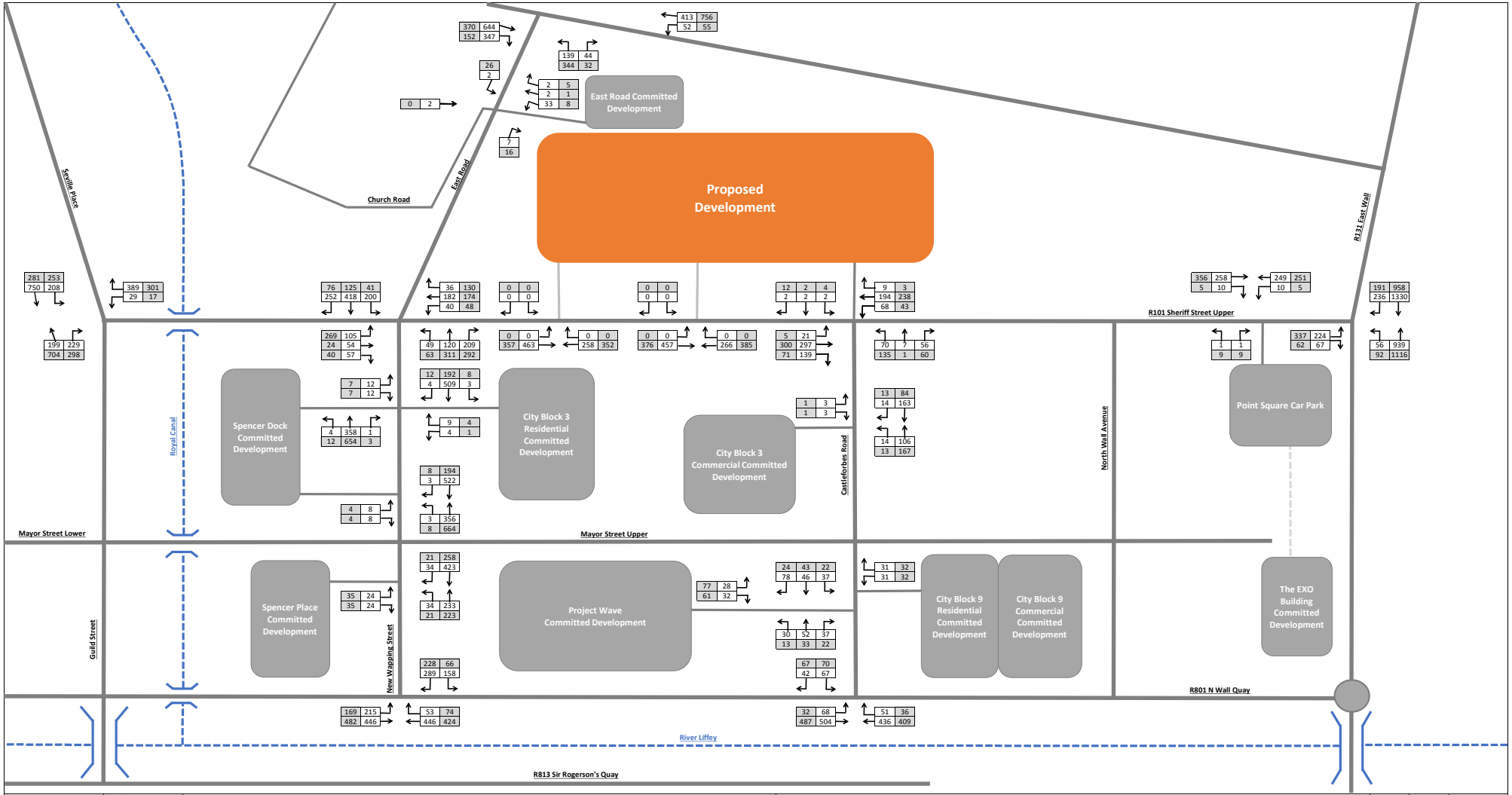
Rev: -



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website: www.dbfl.ie

Project : Proposed Mixed Use Development
Castleforbes Business Park, Sheriff Street Upper, Dublin 1

DRG. Title : Network Traffic Flows - Vehicles
2020 Do Nothing

Key:
AM Peak Hour (0800 to 0900)
PM Peak Hour (1715 to 1815)

2016-2030 Medium Growth
2020 1.0162 1.0162

Drwn:	Chd:	Date:
HG	AD	12/11/2019

Ref: p180159\calcs\excel\Traffic\180159-DBFL-Calc-O-001 Traffic Model

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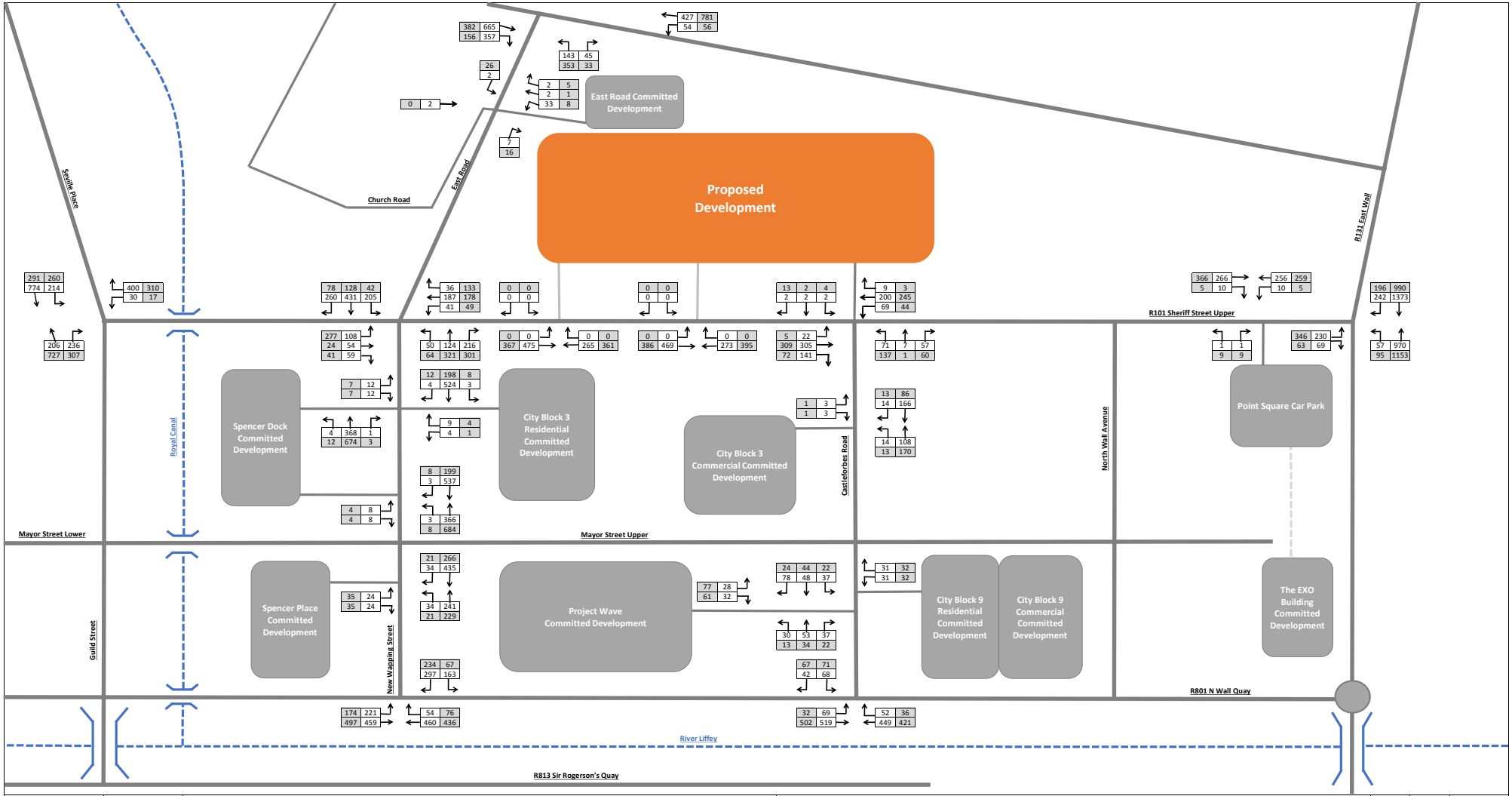

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DRG. Title :
Network Traffic Flows - Vehicles
2022 Do Nothing

Key:
AM Peak Hour (0800 to 0900)
PM Peak Hour (1715 to 1815)

2016-2030 Medium Growth
2022 1.0162 1.0494

Drwn:	Chkd:	Date:
HG	AD	12/11/2019

Ref: p180159\calcs\excel\Traffic\180159-DBFL-Calc-O-001 Traffic Model

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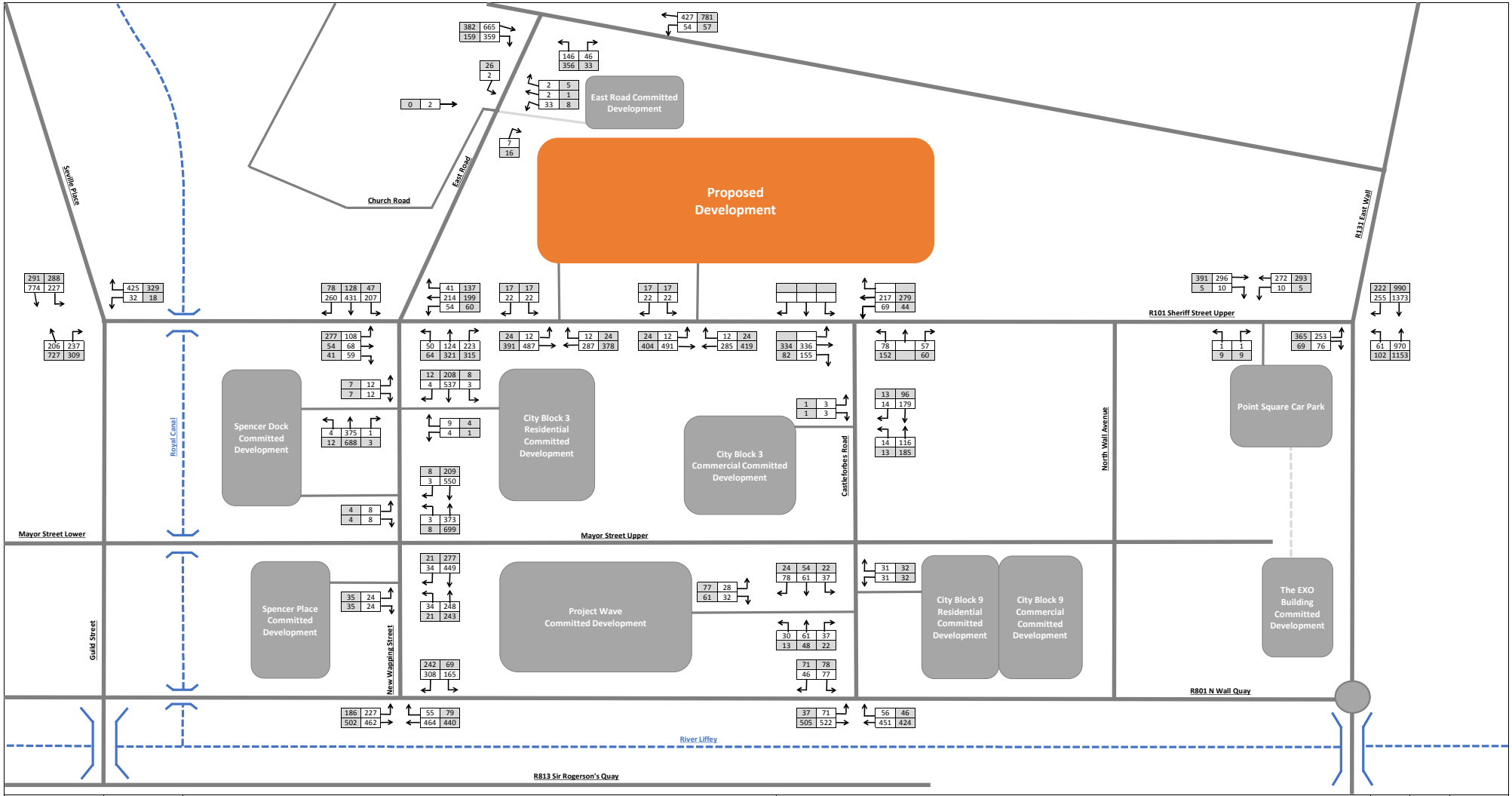

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DRG. Title :

Network Traffic Flows - Vehicles
2022 Do Something

Key:

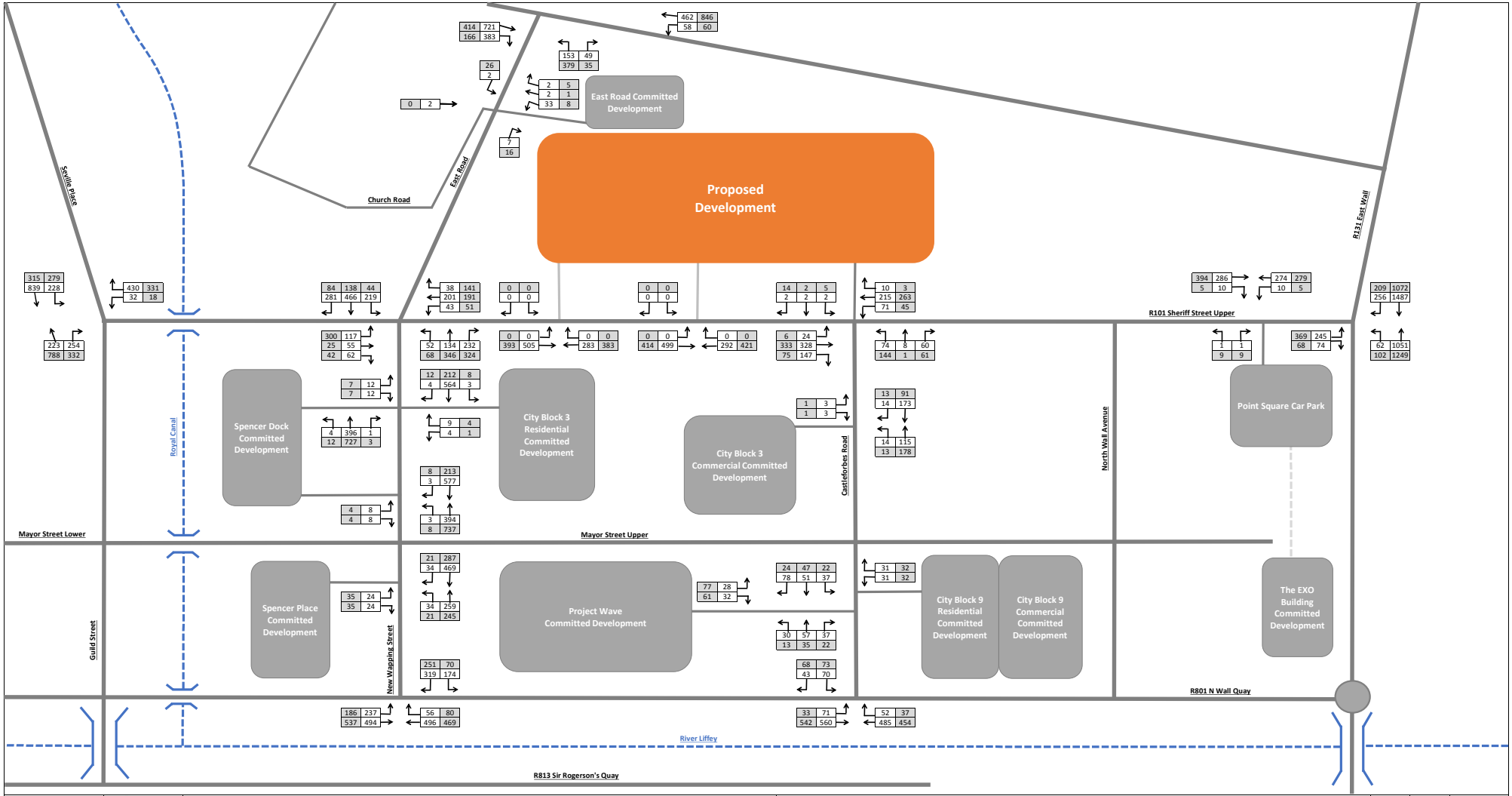
AM Peak Hour (0800 to 0900)
PM Peak Hour (1715 to 1815)

Drwn:	Chkd:	Date:
HG	AD	12/11/2019

Ref: p180159\calcs\excel\Traffic\180159-DBFL-Calc-O-001 Traffic Model

Figure: 21

Rev: -



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	DRG. Title : Network Traffic Flows - Vehicles 2027 Do Nothing	2016-2030 Medium Growth 2027 1.0162 1.1372	Ref: p180159\calcs\excel\Traffic\180159-DBFL-Calc-D-001 Traffic Model
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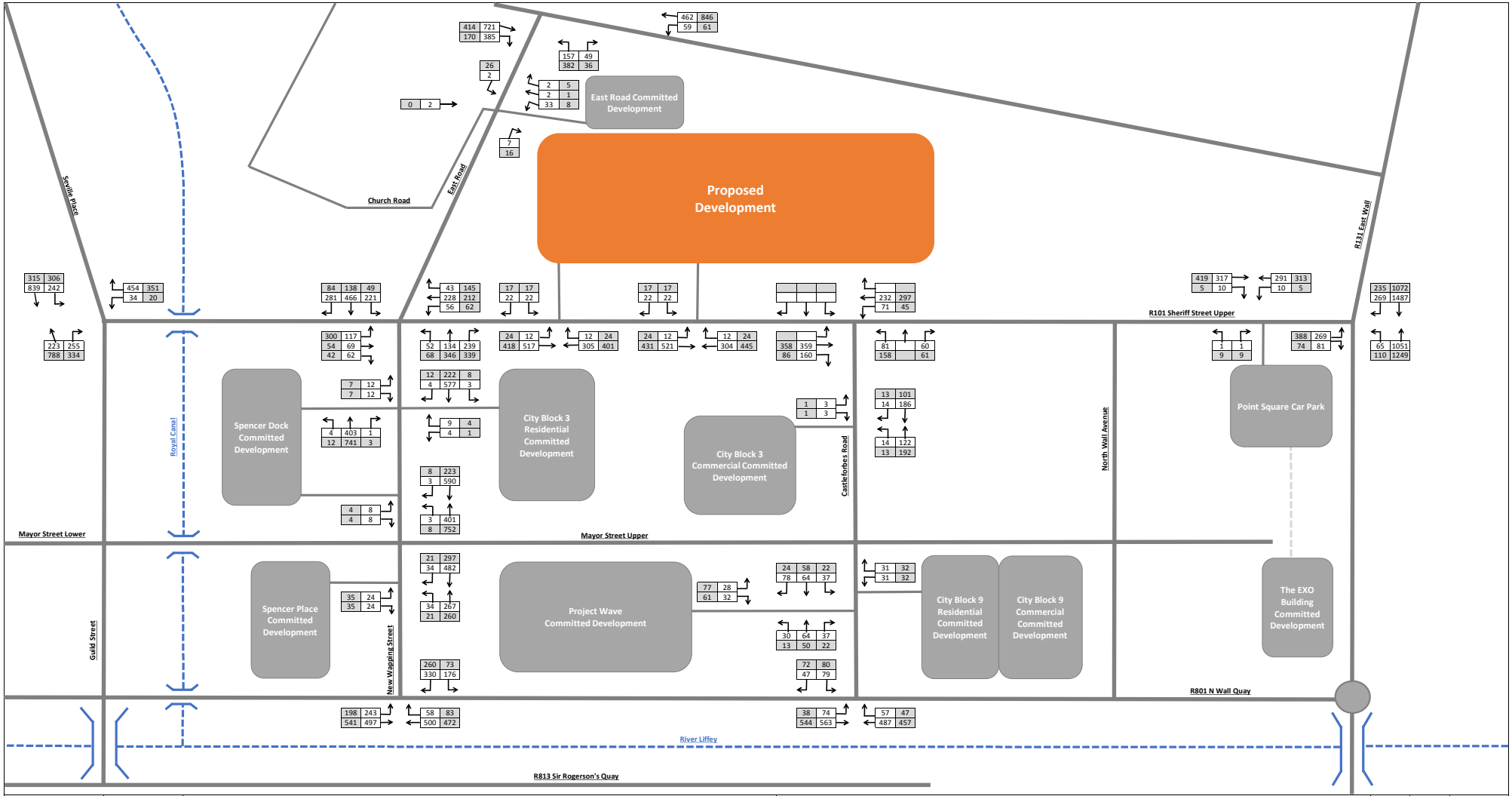

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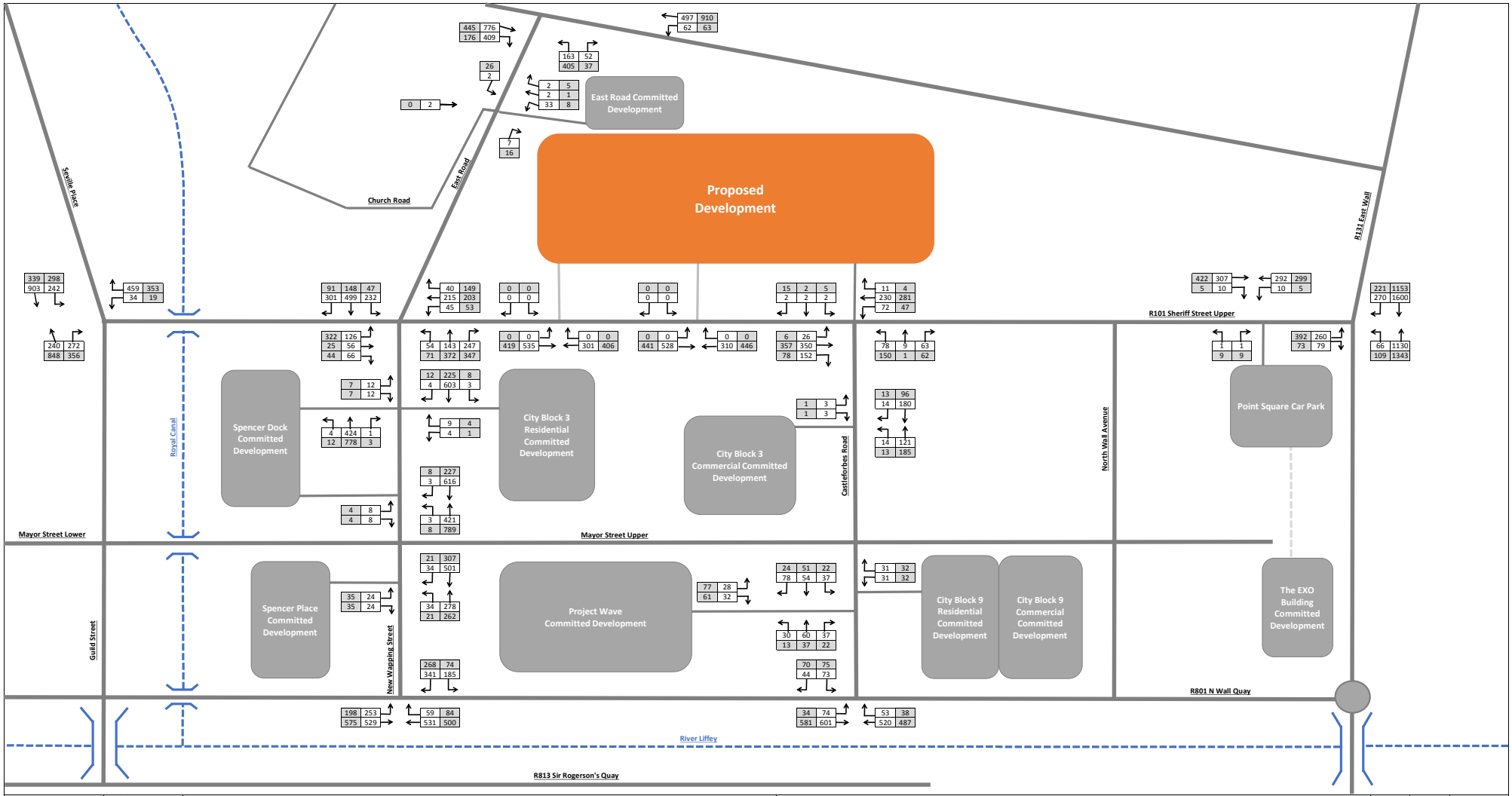
	DRG. Title : Network Traffic Flows - Vehicles 2027 Do Something		Ref: p180159\calcs\excel\Traffic\180159-DBFL-Calc-O-001 Traffic Model Figure: 23 · Rev: -



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Castleforbes Business Park, Sheriff Street Upper, Dublin 1

DRG. Title :
Network Traffic Flows - Vehicles
2037 Do Nothing

Key:
AM Peak Hour (0800 to 0900)
PM Peak Hour (1715 to 1815)

2016-2040 Medium Growth
2037 1.0051 1.2231

Drwn:	Chkd:	Date:
HG	AD	12/11/2019

Ref:
p180159\calcs\excel\Traffic\180159-DBFL-Calc-D-001 Traffic Model

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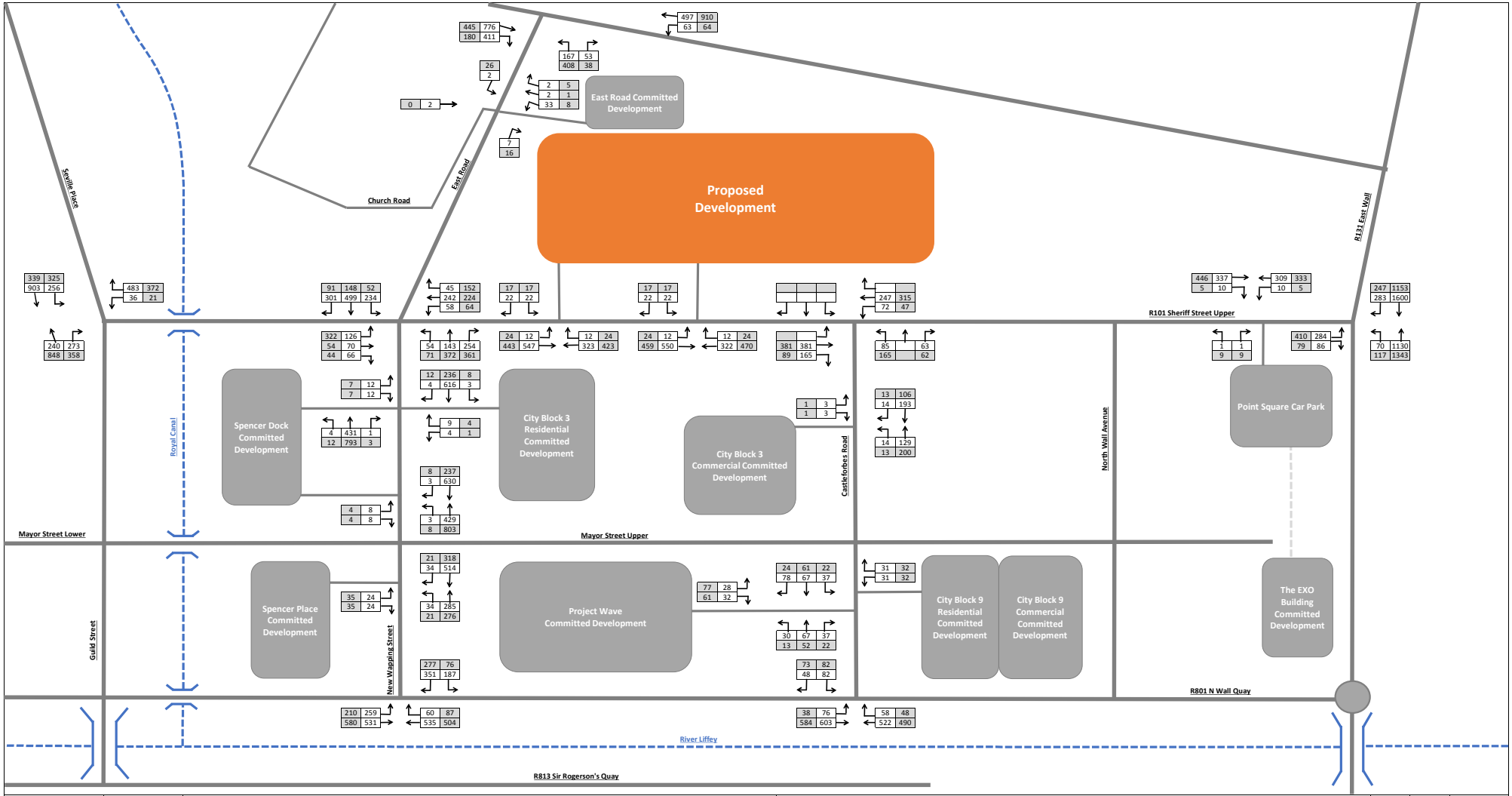
Rev: -



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Castleforbes Business Park, Sheriff Street Upper, Dublin 1

DRG. Title :

Network Traffic Flows - Vehicles
2037 Do Something

Key:

AM Peak Hour (0800 to 0900)
PM Peak Hour (1715 to 1815)

Drwn:	Chkd:	Date:
HG	AD	12/11/2019

Ref: p180159\calcs\excel\Traffic\180159-DBFL-Calc-O-001 Traffic Model

Figure: 25

Rev: -

APPENDIX B

TRICS Database Outputs

Calculation Reference: AUDIT-638801-191030-1023

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 03 - RESIDENTIAL
Category : C - FLATS PRIVATELY OWNED

VEHICLES

Selected regions and areas:

01	**GREATER LONDON**		
	BE	BEXLEY	1 days
	BM	BROMLEY	1 days
	HO	HOUNSLOW	2 days
	KI	KINGSTON	1 days
02	**SOUTH EAST**		
	BD	BEDFORDSHIRE	1 days
	EX	ESSEX	2 days
	HC	HAMPSHIRE	1 days
03	**SOUTH WEST**		
	DV	DEVON	1 days
06	**WEST MIDLANDS**		
	WM	WEST MIDLANDS	1 days
08	**NORTH WEST**		
	GM	GREATER MANCHESTER	2 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: Number of dwellings
Actual Range: 6 to 160 (units:)
Range Selected by User: 6 to 493 (units:)

Parking Spaces Range: All Surveys Included

Percentage of dwellings privately owned: All Surveys Included

Public Transport Provision:
Selection by: Include all surveys

Date Range: 01/01/11 to 21/06/19

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	4 days
Wednesday	2 days
Thursday	1 days
Friday	3 days

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

Selected survey types:

Manual count	13 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:

Town Centre	4
Edge of Town Centre	9

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	6
Built-Up Zone	5
No Sub Category	1

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

Secondary Filtering selection:

Use Class:

C3	13 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:

25,001 to 50,000	13 days

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

Population within 5 miles:

125,001 to 250,000	4 days
250,001 to 500,000	2 days
500,001 or More	7 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	8 days
1.1 to 1.5	5 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	3 days
No	10 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	8 days
2 Poor	2 days
3 Moderate	2 days
6a Excellent	1 days

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

LIST OF SITES relevant to selection parameters

1 **BD-03-C-03** **BLOCKS OF FLATS** **BEDFORDSHIRE**
COURT DRIVE
DUNSTABLE

Edge of Town Centre
No Sub Category
Total Number of dwellings: 146
Survey date: TUESDAY *15/05/18* *Survey Type: MANUAL*

2 **BE-03-C-01** **BLOCKS OF FLATS** **BEXLEY**
CROOK LOG
BEXLEYHEATH

Edge of Town Centre
Residential Zone
Total Number of dwellings: 79
Survey date: WEDNESDAY *19/09/18* *Survey Type: MANUAL*

3 **BM-03-C-01** **BLOCKS OF FLATS** **BROMLEY**
RINGER'S ROAD
BROMLEY

Town Centre
Built-Up Zone
Total Number of dwellings: 160
Survey date: MONDAY *12/11/18* *Survey Type: MANUAL*

4 **DV-03-C-01** **BLOCK OF FLATS** **DEVON**
BONHAY ROAD
EXETER

Edge of Town Centre
Residential Zone
Total Number of dwellings: 27
Survey date: MONDAY *10/07/17* *Survey Type: MANUAL*

5 **EX-03-C-01** **FLATS** **ESSEX**
WESTCLIFF PARADE
SOUTHEND-ON-SEA
WESTCLIFF
Edge of Town Centre
Residential Zone
Total Number of dwellings: 6
Survey date: TUESDAY *22/10/13* *Survey Type: MANUAL*

6 **EX-03-C-02** **BLOCK OF FLATS** **ESSEX**
WESTCLIFF PARADE
SOUTHEND-ON-SEA
WESTCLIFF
Edge of Town Centre
Residential Zone
Total Number of dwellings: 94
Survey date: TUESDAY *22/10/13* *Survey Type: MANUAL*

7 **GM-03-C-02** **BLOCK OF FLATS** **GREATER MANCHESTER**
WHITWORTH STREET W.
MANCHESTER

Town Centre
Built-Up Zone
Total Number of dwellings: 154
Survey date: THURSDAY *13/10/11* *Survey Type: MANUAL*

8 **GM-03-C-03** **BLOCK OF FLATS** **GREATER MANCHESTER**
FAIRFIELD STREET
MANCHESTER

Town Centre
Built-Up Zone
Total Number of dwellings: 20
Survey date: FRIDAY *14/10/11* *Survey Type: MANUAL*

LIST OF SITES relevant to selection parameters (Cont.)

9 **HC-03-C-01** **BLOCKS OF FLATS** **HAMPSHIRE**
CROSS STREET
PORTSMOUTH

Edge of Town Centre
Built-Up Zone
Total Number of dwellings: 90
Survey date: TUESDAY *05/06/18* *Survey Type: MANUAL*

10 **HO-03-C-02** **BLOCK OF FLATS** **HOUNSLOW**
HIGH STREET
BRENTFORD

Town Centre
Built-Up Zone
Total Number of dwellings: 86
Survey date: WEDNESDAY *03/09/14* *Survey Type: MANUAL*

11 **HO-03-C-03** **BLOCKS OF FLATS** **HOUNSLOW**
COMMERCE ROAD
BRENTFORD

Edge of Town Centre
Development Zone
Total Number of dwellings: 150
Survey date: FRIDAY *18/11/16* *Survey Type: MANUAL*

12 **KI-03-C-03** **BLOCK OF FLATS** **KINGSTON**
PORTSMOUTH ROAD
SURBITON

Edge of Town Centre
Residential Zone
Total Number of dwellings: 20
Survey date: MONDAY *11/07/16* *Survey Type: MANUAL*

13 **WM-03-C-04** **BLOCKS OF FLATS** **WEST MIDLANDS**
GILLQUART WAY
COVENTRY
PARKSIDE
Edge of Town Centre
Residential Zone
Total Number of dwellings: 55
Survey date: FRIDAY *11/11/16* *Survey Type: MANUAL*

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

TRIP RATE for Land Use 03 - RESIDENTIAL/C - FLATS PRIVATELY OWNED

VEHICLES

Calculation factor: 1 DWELLS

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS No. Days	ARRIVALS Ave. DWELLS	ARRIVALS Trip Rate	DEPARTURES No. Days	DEPARTURES Ave. DWELLS	DEPARTURES Trip Rate	TOTALS No. Days	TOTALS Ave. DWELLS	TOTALS 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	13	84	0.031	13	84	0.091	13	84	0.122
08:00 - 09:00	13	84	0.043	**13**	**84**	**0.108**	13	84	0.151
09:00 - 10:00	13	84	0.043	13	84	0.058	13	84	0.101
10:00 - 11:00	13	84	0.053	13	84	0.063	13	84	0.116
11:00 - 12:00	13	84	0.053	13	84	0.065	13	84	0.118
12:00 - 13:00	13	84	0.068	13	84	0.073	13	84	0.141
13:00 - 14:00	13	84	0.063	13	84	0.077	13	84	0.140
14:00 - 15:00	13	84	0.045	13	84	0.049	13	84	0.094
15:00 - 16:00	13	84	0.075	13	84	0.059	13	84	0.134
16:00 - 17:00	13	84	0.096	13	84	0.056	13	84	0.152
17:00 - 18:00	**13**	**84**	**0.116**	13	84	0.072	**13**	**84**	**0.188**
18:00 - 19:00	13	84	0.105	13	84	0.054	13	84	0.159
19:00 - 20:00	4	102	0.083	4	102	0.068	4	102	0.151
20:00 - 21:00	4	102	0.051	4	102	0.049	4	102	0.100
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.925			0.942			1.867

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:	6 - 160 (units:)
Survey date date range:	01/01/11 - 21/06/19
Number of weekdays (Monday-Friday):	13
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.

Calculation Reference: AUDIT-638801-191031-1024

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 06 - HOTEL, FOOD & DRINK
Category : A - HOTELS

VEHICLES

Selected regions and areas:

02	**SOUTH EAST**		
	EX	ESSEX	1 days
05	**EAST MIDLANDS**		
	DS	DERBYSHIRE	1 days
	NT	NOTTINGHAMSHIRE	1 days
08	**NORTH WEST**		
	GM	GREATER MANCHESTER	1 days
09	**NORTH**		
	TV	TEES VALLEY	1 days
	TW	TYNE & WEAR	1 days
10	**WALES**		
	CF	CARDIFF	2 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:	1200 to 9850 (units: sqm)
Range Selected by User:	320 to 20000 (units: sqm)

Parking Spaces Range: All Surveys Included

Public Transport Provision:
Selection by: Include all surveys

Date Range: 01/01/11 to 13/03/19

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	4 days
Tuesday	2 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	8 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:

Town Centre	6
Edge of Town Centre	2

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

Selected Location Sub Categories:

Commercial Zone	2
Residential Zone	1
Built-Up Zone	5

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:

C1	7 days

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

Population within 1 mile:

15,001 to 20,000	2 days
25,001 to 50,000	6 days

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

Population within 5 miles:

125,001 to 250,000	1 days
250,001 to 500,000	4 days
500,001 or More	3 days

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

Car ownership within 5 miles:

0.6 to 1.0	5 days
1.1 to 1.5	3 days

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

Travel Plan:

No	8 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	8 days

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

LIST OF SITES relevant to selection parameters

1 **CF-06-A-03** **HOLIDAY INN EXPRESS** **CARDIFF**
LONGUEIL CLOSE
CARDIFF

Edge of Town Centre
Residential Zone
Total Gross floor area: 2725 sqm
Survey date: MONDAY *16/07/12* *Survey Type: MANUAL*

2 **CF-06-A-04** **TRAVELODGE** **CARDIFF**
THE FRIARY
CARDIFF

Town Centre
Built-Up Zone
Total Gross floor area: 3500 sqm
Survey date: MONDAY *16/07/12* *Survey Type: MANUAL*

3 **DS-06-A-02** **JURY'S INN** **DERBYSHIRE**
KING STREET
DERBY

Town Centre
Commercial Zone
Total Gross floor area: 1200 sqm
Survey date: TUESDAY *19/07/11* *Survey Type: MANUAL*

4 **EX-06-A-01** **TRAVELODGE** **ESSEX**
CHICHESTER ROAD
SOUTHEND-ON-SEA

Town Centre
Built-Up Zone
Total Gross floor area: 3000 sqm
Survey date: WEDNESDAY *23/10/13* *Survey Type: MANUAL*

5 **GM-06-A-08** **IBIS** **GREATER MANCHESTER**
PORTLAND STREET
MANCHESTER

Town Centre
Built-Up Zone
Total Gross floor area: 3600 sqm
Survey date: MONDAY *26/09/16* *Survey Type: MANUAL*

6 **NT-06-A-02** **PREMIER INN** **NOTTINGHAMSHIRE**
LONDON ROAD
NOTTINGHAM

Edge of Town Centre
Built-Up Zone
Total Gross floor area: 6000 sqm
Survey date: MONDAY *24/06/13* *Survey Type: MANUAL*

7 **TV-06-A-04** **THISTLE** **TEES VALLEY**
FRY STREET
MIDDLESBROUGH

Town Centre
Commercial Zone
Total Gross floor area: 9850 sqm
Survey date: THURSDAY *03/10/13* *Survey Type: MANUAL*

8 **TW-06-A-03** **HOTEL** **TYNE & WEAR**
SANDHILL
NEWCASTLE UPON TYNE
QUAYSIDE
Town Centre
Built-Up Zone
Total Gross floor area: 1450 sqm
Survey date: TUESDAY *14/06/16* *Survey Type: MANUAL*

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

TRIP RATE for Land Use 06 - HOTEL, FOOD & DRINK/A - HOTELS

VEHICLES

Calculation factor: 100 sqm

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS No. Days	ARRIVALS Ave. GFA	ARRIVALS Trip Rate	DEPARTURES No. Days	DEPARTURES Ave. GFA	DEPARTURES Trip Rate	TOTALS No. Days	TOTALS Ave. GFA	TOTALS 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	8	3916	0.115	8	3916	0.223	8	3916	0.338
08:00 - 09:00	8	3916	0.185	**8**	**3916**	**0.358**	**8**	**3916**	**0.543**
09:00 - 10:00	8	3916	0.188	8	3916	0.262	8	3916	0.450
10:00 - 11:00	8	3916	0.163	8	3916	0.188	8	3916	0.351
11:00 - 12:00	8	3916	0.112	8	3916	0.182	8	3916	0.294
12:00 - 13:00	8	3916	0.115	8	3916	0.089	8	3916	0.204
13:00 - 14:00	8	3916	0.115	8	3916	0.093	8	3916	0.208
14:00 - 15:00	8	3916	0.083	8	3916	0.128	8	3916	0.211
15:00 - 16:00	8	3916	0.118	8	3916	0.121	8	3916	0.239
16:00 - 17:00	8	3916	0.188	8	3916	0.115	8	3916	0.303
17:00 - 18:00	**8**	**3916**	**0.262**	8	3916	0.137	8	3916	0.399
18:00 - 19:00	8	3916	0.185	8	3916	0.115	8	3916	0.300
19:00 - 20:00	8	3916	0.144	8	3916	0.099	8	3916	0.243
20:00 - 21:00	8	3916	0.080	8	3916	0.064	8	3916	0.144
21:00 - 22:00	8	3916	0.089	8	3916	0.045	8	3916	0.134
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			2.142			2.219			4.361

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:	1200 - 9850 (units: sqm)
Survey date date range:	01/01/11 - 13/03/19
Number of weekdays (Monday-Friday):	8
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-638801-191030-1033

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 07 - LEISURE
Category : Q - COMMUNITY CENTRE

VEHICLES

Selected regions and areas:

05	**EAST MIDLANDS**		
	NT	NOTTINGHAMSHIRE	1 days
06	**WEST MIDLANDS**		
	ST	STAFFORDSHIRE	1 days
10	**WALES**		
	SW	SWANSEA	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:	Site area
Actual Range:	0.13 to 0.20 (units: hect)
Range Selected by User:	0.04 to 2.50 (units: hect)

Parking Spaces Range: All Surveys Included

Public Transport Provision:
Selection by: Include all surveys

Date Range: 01/01/11 to 24/05/19

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

Selected survey days:

Tuesday	1 days
Thursday	1 days
Friday	1 days

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

Selected survey types:

Manual count	3 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:

Edge of Town Centre	3

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

Selected Location Sub Categories:

Residential Zone	1
Built-Up Zone	1
High Street	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:

D2	3 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®.

Secondary Filtering selection (Cont.):

Population within 1 mile:

25,001 to 50,000	2 days
50,001 to 100,000	1 days

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

Population within 5 miles:

125,001 to 250,000	1 days
250,001 to 500,000	1 days
500,001 or More	1 days

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

Car ownership within 5 miles:

0.6 to 1.0	2 days
1.1 to 1.5	1 days

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

Travel Plan:

No	3 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	3 days

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

TRICS 7.6.3 131019 B19.24 Database right of TRICS Consortium Limited, 2019. All rights reserved **Wednesday 30/10/19**
180159 Community Centre Trip Rates **Page 3**
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LIST OF SITES relevant to selection parameters

1 **NT-07-Q-01** **COMMUNITY CENTRE** **NOTTINGHAMSHIRE**
61B MANSFIELD ROAD
NOTTINGHAM

Edge of Town Centre
Residential Zone
Total Site area: 0.13 hect
Survey date: THURSDAY *13/06/13* *Survey Type: MANUAL*

2 **ST-07-Q-01** **COMMUNITY CENTRE** **STAFFORDSHIRE**
DUDLEY ROAD
WOLVERHAMPTON

Edge of Town Centre
Built-Up Zone
Total Site area: 0.20 hect
Survey date: FRIDAY *09/05/14* *Survey Type: MANUAL*

3 **SW-07-Q-01** **COMMUNITY CENTRE** **SWANSEA**
HIGH STREET
SWANSEA

Edge of Town Centre
High Street
Total Site area: 0.19 hect
Survey date: TUESDAY *22/10/13* *Survey Type: MANUAL*

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

TRIP RATE for Land Use 07 - LEISURE/Q - COMMUNITY CENTRE

VEHICLES

Calculation factor: 1 hect

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. AREA	Trip Rate	No. Days	Ave. AREA	Trip Rate	No. Days	Ave. AREA	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	1	0.19	0.000	1	0.19	0.000	1	0.19	0.000
08:00 - 09:00	**3**	**0.17**	**38.462**	3	0.17	5.769	3	0.17	44.231
09:00 - 10:00	3	0.17	30.769	3	0.17	19.231	3	0.17	50.000
10:00 - 11:00	3	0.17	32.692	3	0.17	34.615	3	0.17	67.307
11:00 - 12:00	3	0.17	32.692	3	0.17	36.538	3	0.17	69.230
12:00 - 13:00	3	0.17	32.692	3	0.17	30.769	3	0.17	63.461
13:00 - 14:00	3	0.17	28.846	3	0.17	30.769	3	0.17	59.615
14:00 - 15:00	3	0.17	30.769	**3**	**0.17**	**48.077**	**3**	**0.17**	**78.846**
15:00 - 16:00	3	0.17	23.077	3	0.17	25.000	3	0.17	48.077
16:00 - 17:00	3	0.17	21.154	3	0.17	28.846	3	0.17	50.000
17:00 - 18:00	3	0.17	19.231	3	0.17	19.231	3	0.17	38.462
18:00 - 19:00	3	0.17	19.231	3	0.17	5.769	3	0.17	25.000
19:00 - 20:00	3	0.17	9.615	3	0.17	3.846	3	0.17	13.461
20:00 - 21:00	3	0.17	0.000	3	0.17	7.692	3	0.17	7.692
21:00 - 22:00	2	0.17	0.000	2	0.17	24.242	2	0.17	24.242
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			319.230			320.394			639.624

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:	0.13 to 0.20 (units: hect)
Survey date date range:	01/01/11 - 24/05/19
Number of weekdays (Monday-Friday):	3
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	0
Surveys manually removed from selection:	0

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

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 02 - EMPLOYMENT
Category : A - OFFICE

VEHICLES

Selected regions and areas:

01	**GREATER LONDON**		
	CI	CITY OF LONDON	2 days
	HD	HILLINGDON	1 days
	HM	HAMMERSMITH AND FULHAM	1 days
02	**SOUTH EAST**		
	BD	BEDFORDSHIRE	1 days
	ES	EAST SUSSEX	1 days
	EX	ESSEX	1 days
	HF	HERTFORDSHIRE	2 days
	KC	KENT	3 days
	SO	SLOUGH	2 days
03	**SOUTH WEST**		
	BR	BRISTOL CITY	1 days
04	**EAST ANGLIA**		
	CA	CAMBRIDGESHIRE	1 days
06	**WEST MIDLANDS**		
	WO	WORCESTERSHIRE	1 days
08	**NORTH WEST**		
	GM	GREATER MANCHESTER	3 days
09	**NORTH**		
	TV	TEES VALLEY	1 days
	TW	TYNE & WEAR	1 days
10	**WALES**		
	SW	SWANSEA	2 days
11	**SCOTLAND**		
	DU	DUNDEE CITY	1 days
	EB	CITY OF EDINBURGH	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:	280 to 45000 (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: 01/01/11 to 17/06/19

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	7 days
Tuesday	3 days
Wednesday	7 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	26 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:

Town Centre	12
Edge of Town Centre	14

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.

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:

A1	1 days
B1	25 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:

15,001 to 20,000	2 days
20,001 to 25,000	1 days
25,001 to 50,000	18 days
50,001 to 100,000	5 days

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

Population within 5 miles:

125,001 to 250,000	14 days
250,001 to 500,000	4 days
500,001 or More	8 days

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

Car ownership within 5 miles:

0.5 or Less	2 days
0.6 to 1.0	12 days
1.1 to 1.5	10 days
1.6 to 2.0	2 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	9 days
No	17 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	22 days
4 Good	2 days
6b (High) Excellent	2 days

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

LIST OF SITES relevant to selection parameters

1 **BD-02-A-03** **OFFICES** **BEDFORDSHIRE**
BROMHAM ROAD
BEDFORD

Edge of Town Centre
No Sub Category
Total Gross floor area: 1469 sqm
Survey date: MONDAY *14/10/13* *Survey Type: MANUAL*

2 **BR-02-A-02** **PLANNING & ENGINEERING** **BRISTOL CITY**
ST THOMAS STREET
BRISTOL

Town Centre
Built-Up Zone
Total Gross floor area: 5736 sqm
Survey date: FRIDAY *29/11/13* *Survey Type: MANUAL*

3 **CA-02-A-05** **OFFICES** **CAMBRIDGESHIRE**
NEW ROAD
PETERBOROUGH

Town Centre
Built-Up Zone
Total Gross floor area: 8793 sqm
Survey date: TUESDAY *16/12/14* *Survey Type: MANUAL*

4 **CI-02-A-02** **OFFICES** **CITY OF LONDON**
GRACECHURCH STREET
CITY OF LONDON
MONUMENT
Town Centre
Commercial Zone
Total Gross floor area: 9803 sqm
Survey date: FRIDAY *29/11/13* *Survey Type: MANUAL*

5 **CI-02-A-03** **OFFICES** **CITY OF LONDON**
MONUMENT STREET
CITY OF LONDON
MONUMENT
Town Centre
Commercial Zone
Total Gross floor area: 1951 sqm
Survey date: FRIDAY *29/11/13* *Survey Type: MANUAL*

6 **DU-02-A-01** **OFFICES** **DUNDEE CITY**
GREENMARKET
DUNDEE

Edge of Town Centre
Development Zone
Total Gross floor area: 3200 sqm
Survey date: THURSDAY *27/04/17* *Survey Type: MANUAL*

7 **EB-02-A-06** **REGUS OFFICES** **CITY OF EDINBURGH**
ST ANDREW SQUARE
EDINBURGH

Town Centre
Built-Up Zone
Total Gross floor area: 4500 sqm
Survey date: WEDNESDAY *16/03/16* *Survey Type: MANUAL*

8 **ES-02-A-13** **OFFICES** **EAST SUSSEX**
ROMAN ROAD
HOVE

Edge of Town Centre
Residential Zone
Total Gross floor area: 280 sqm
Survey date: WEDNESDAY *04/07/18* *Survey Type: MANUAL*

LIST OF SITES relevant to selection parameters (Cont.)

9 **EX-02-A-03** **HMRC** **ESSEX**
VICTORIA AVENUE
SOUTHEND-ON-SEA

Town Centre
Built-Up Zone
Total Gross floor area: 45000 sqm
Survey date: WEDNESDAY *23/10/13* *Survey Type: MANUAL*

10 **GM-02-A-07** **LAW OFFICES** **GREATER MANCHESTER**
MOSELEY STREET
MANCHESTER

Town Centre
Built-Up Zone
Total Gross floor area: 4200 sqm
Survey date: WEDNESDAY *19/10/11* *Survey Type: MANUAL*

11 **GM-02-A-08** **REGUS** **GREATER MANCHESTER**
FOUNTAIN STREET
MANCHESTER

Town Centre
Built-Up Zone
Total Gross floor area: 3960 sqm
Survey date: MONDAY *26/09/16* *Survey Type: MANUAL*

12 **GM-02-A-09** **LEASED OFFICES** **GREATER MANCHESTER**
NEW MOUNT STREET
MANCHESTER

Edge of Town Centre
Built-Up Zone
Total Gross floor area: 2500 sqm
Survey date: MONDAY *26/09/16* *Survey Type: MANUAL*

13 **HD-02-A-09** **DATA CENTRE** **HILLINGDON**
MILLINGTON ROAD
HAYES

Edge of Town Centre
Commercial Zone
Total Gross floor area: 12100 sqm
Survey date: TUESDAY *26/06/18* *Survey Type: MANUAL*

14 **HF-02-A-03** **OFFICE** **HERTFORDSHIRE**
60 VICTORIA STREET
ST ALBANS

Edge of Town Centre
Built-Up Zone
Total Gross floor area: 610 sqm
Survey date: WEDNESDAY *16/10/13* *Survey Type: MANUAL*

15 **HF-02-A-04** **OFFICES** **HERTFORDSHIRE**
STATION WAY
ST ALBANS

Edge of Town Centre
Residential Zone
Total Gross floor area: 5000 sqm
Survey date: THURSDAY *02/10/14* *Survey Type: MANUAL*

16 **HM-02-A-01** **REGUS OFFICES** **HAMMERSMITH AND FULHAM**
QUEEN CAROLINE STREET
HAMMERSMITH

Town Centre
Built-Up Zone
Total Gross floor area: 2036 sqm
Survey date: MONDAY *13/11/17* *Survey Type: MANUAL*

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LIST OF SITES relevant to selection parameters (Cont.)

17 **KC-02-A-09** **COUNCIL OFFICES** **KENT**
SANDLING ROAD
MAIDSTONE

Edge of Town Centre
Built-Up Zone
Total Gross floor area: 1500 sqm
Survey date: WEDNESDAY *19/10/11* *Survey Type: MANUAL*

18 **KC-02-A-10** **COUNCIL OFFICES** **KENT**
SANDLING ROAD
MAIDSTONE

Edge of Town Centre
Built-Up Zone
Total Gross floor area: 2900 sqm
Survey date: WEDNESDAY *19/10/11* *Survey Type: MANUAL*

19 **KC-02-A-11** **COUNTY HALL** **KENT**
SANDLING ROAD
MAIDSTONE

Edge of Town Centre
Built-Up Zone
Total Gross floor area: 32793 sqm
Survey date: MONDAY *17/10/11* *Survey Type: MANUAL*

20 **SO-02-A-01** **COUNCIL OFFICES** **SLOUGH**
HIGH STREET
SLOUGH

Town Centre
High Street
Total Gross floor area: 1800 sqm
Survey date: THURSDAY *27/02/14* *Survey Type: MANUAL*

21 **SO-02-A-02** **COUNCIL OFFICES** **SLOUGH**
BATH ROAD
SLOUGH

Edge of Town Centre
Built-Up Zone
Total Gross floor area: 5050 sqm
Survey date: THURSDAY *27/02/14* *Survey Type: MANUAL*

22 **SW-02-A-01** **OFFICES** **SWANSEA**
LANGDON ROAD
SWANSEA

Edge of Town Centre
Development Zone
Total Gross floor area: 6630 sqm
Survey date: FRIDAY *25/10/13* *Survey Type: MANUAL*

23 **SW-02-A-02** **OFFICE** **SWANSEA**
KINGS ROAD
SWANSEA

Edge of Town Centre
Development Zone
Total Gross floor area: 2225 sqm
Survey date: THURSDAY *24/10/13* *Survey Type: MANUAL*

24 **TV-02-A-04** **COUNCIL OFFICES** **TEES VALLEY**
CORPORATION ROAD
MIDDLESBROUGH

Town Centre
Commercial Zone
Total Gross floor area: 3950 sqm
Survey date: TUESDAY *08/10/13* *Survey Type: MANUAL*

LIST OF SITES relevant to selection parameters (Cont.)

25 TW-02-A-07 OFFICES TYNE & WEAR
MULGRAVE TERRACE
GATESHEAD

Town Centre
Built-Up Zone
Total Gross floor area: 2090 sqm
Survey date: MONDAY 13/06/16 Survey Type: MANUAL

26 WO-02-A-02 OFFICE WORCESTERSHIRE
MOOR STREET
WORCESTER

Edge of Town Centre
Built-Up Zone
Total Gross floor area: 2000 sqm
Survey date: MONDAY 14/11/16 Survey Type: MANUAL

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

TRIP RATE for Land Use 02 - EMPLOYMENT/A - OFFICE
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	26	6618	0.163	26	6618	0.013	26	6618	0.176
07:30 - 08:00	26	6618	0.432	26	6618	0.048	26	6618	0.480
08:00 - 08:30	26	6618	0.487	26	6618	0.038	26	6618	0.525
08:30 - 09:00	**26**	**6618**	**0.585**	26	6618	0.068	26	6618	0.653
09:00 - 09:30	26	6618	0.435	26	6618	0.059	26	6618	0.494
09:30 - 10:00	26	6618	0.248	26	6618	0.073	26	6618	0.321
10:00 - 10:30	26	6618	0.148	26	6618	0.072	26	6618	0.220
10:30 - 11:00	26	6618	0.108	26	6618	0.085	26	6618	0.193
11:00 - 11:30	26	6618	0.084	26	6618	0.073	26	6618	0.157
11:30 - 12:00	26	6618	0.103	26	6618	0.069	26	6618	0.172
12:00 - 12:30	26	6618	0.084	26	6618	0.092	26	6618	0.176
12:30 - 13:00	26	6618	0.084	26	6618	0.093	26	6618	0.177
13:00 - 13:30	26	6618	0.092	26	6618	0.082	26	6618	0.174
13:30 - 14:00	26	6618	0.092	26	6618	0.083	26	6618	0.175
14:00 - 14:30	26	6618	0.074	26	6618	0.082	26	6618	0.156
14:30 - 15:00	26	6618	0.066	26	6618	0.114	26	6618	0.180
15:00 - 15:30	26	6618	0.058	26	6618	0.139	26	6618	0.197
15:30 - 16:00	26	6618	0.062	26	6618	0.182	26	6618	0.244
16:00 - 16:30	26	6618	0.060	26	6618	0.357	26	6618	0.417
16:30 - 17:00	26	6618	0.060	26	6618	0.406	26	6618	0.466
17:00 - 17:30	26	6618	0.045	**26**	**6618**	**0.617**	**26**	**6618**	**0.662**
17:30 - 18:00	26	6618	0.027	26	6618	0.325	26	6618	0.352
18:00 - 18:30	26	6618	0.015	26	6618	0.219	26	6618	0.234
18:30 - 19:00	26	6618	0.018	26	6618	0.091	26	6618	0.109
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:			3.630			3.480			7.110

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:	280 - 45000 (units: sqm)
Survey date date range:	01/01/11 - 17/06/19
Number of weekdays (Monday-Friday):	26
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	3
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-638801-191101-1146

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 06 - HOTEL, FOOD & DRINK
Category : B - RESTAURANTS

VEHICLES

Selected regions and areas:

01	**GREATER LONDON**		
	LB	LAMBETH	1 days
04	**EAST ANGLIA**		
	NF	NORFOLK	1 days
05	**EAST MIDLANDS**		
	LN	LINCOLNSHIRE	1 days
06	**WEST MIDLANDS**		
	WM	WEST MIDLANDS	1 days
08	**NORTH WEST**		
	CH	CHESHIRE	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:	160 to 1136 (units: sqm)
Range Selected by User:	75 to 2400 (units: sqm)

Parking Spaces Range: All Surveys Included

Public Transport Provision:
Selection by: Include all surveys

Date Range: 01/01/11 to 24/06/19

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	1 days
Tuesday	2 days
Thursday	2 days

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

Selected survey types:

Manual count	5 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:

Town Centre	1
Edge of Town Centre	4

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
Built-Up Zone	2
High Street	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:

A3	5 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:

15,001 to 20,000	1 days
20,001 to 25,000	1 days
25,001 to 50,000	2 days
100,001 or More	1 days

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

Population within 5 miles:

75,001 to 100,000	1 days
100,001 to 125,000	1 days
125,001 to 250,000	1 days
250,001 to 500,000	1 days
500,001 or More	1 days

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

Car ownership within 5 miles:

0.5 or Less	1 days
0.6 to 1.0	3 days
1.1 to 1.5	1 days

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

Travel Plan:

No	5 days

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

PTAL Rating:

No PTAL Present	4 days
6b (High) Excellent	1 days

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

LIST OF SITES relevant to selection parameters

1 **CH-06-B-01** **BBQ RESTAURANT** **CHESHIRE**
SOUTERS LANE
CHESTER

Edge of Town Centre
Built-Up Zone
Total Gross floor area: 500 sqm
Survey date: TUESDAY *11/11/14* *Survey Type: MANUAL*

2 **LB-06-B-01** **PORTUGUESE RESTAURANT** **LAMBETH**
STOCKWELL ROAD
STOCKWELL

Edge of Town Centre
No Sub Category
Total Gross floor area: 194 sqm
Survey date: MONDAY *24/06/19* *Survey Type: MANUAL*

3 **LN-06-B-01** **PREZZO** **LINCOLNSHIRE**
BRAYFORD WHARF NORTH
LINCOLN
BRAYFORD WHARF
Edge of Town Centre
Development Zone
Total Gross floor area: 1136 sqm
Survey date: TUESDAY *10/10/17* *Survey Type: MANUAL*

4 **NF-06-B-01** **INDIAN RESTAURANT** **NORFOLK**
KING STREET
GREAT YARMOUTH

Town Centre
High Street
Total Gross floor area: 160 sqm
Survey date: THURSDAY *14/09/17* *Survey Type: MANUAL*

5 **WM-06-B-05** **AKBARS** **WEST MIDLANDS**
THE BUTTS
COVENTRY

Edge of Town Centre
Built-Up Zone
Total Gross floor area: 600 sqm
Survey date: THURSDAY *17/11/16* *Survey Type: MANUAL*

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

TRIP RATE for Land Use 06 - HOTEL, FOOD & DRINK/B - RESTAURANTS

VEHICLES

Calculation factor: 100 sqm

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS No. Days	ARRIVALS Ave. GFA	ARRIVALS Trip Rate	DEPARTURES No. Days	DEPARTURES Ave. GFA	DEPARTURES Trip Rate	TOTALS No. Days	TOTALS Ave. GFA	TOTALS 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	1	194	0.000	1	194	0.000	1	194	0.000
08:00 - 09:00	1	194	0.000	1	194	0.000	1	194	0.000
09:00 - 10:00	1	194	0.515	1	194	0.000	1	194	0.515
10:00 - 11:00	3	285	1.522	3	285	1.288	3	285	2.810
11:00 - 12:00	4	498	1.055	4	498	0.653	4	498	1.708
12:00 - 13:00	4	498	1.608	4	498	0.302	4	498	1.910
13:00 - 14:00	4	498	1.809	4	498	1.558	4	498	3.367
14:00 - 15:00	4	498	0.955	4	498	1.960	4	498	2.915
15:00 - 16:00	4	498	0.402	4	498	0.704	4	498	1.106
16:00 - 17:00	5	518	0.656	5	518	0.270	5	518	0.926
17:00 - 18:00	5	518	1.506	5	518	0.541	5	518	2.047
18:00 - 19:00	5	518	2.432	5	518	1.737	5	518	4.169
19:00 - 20:00	**5**	**518**	**2.703**	5	518	2.085	**5**	**518**	**4.788**
20:00 - 21:00	5	518	1.081	**5**	**518**	**2.471**	5	518	3.552
21:00 - 22:00	5	518	0.386	5	518	1.429	5	518	1.815
22:00 - 23:00	5	518	0.270	5	518	1.158	5	518	1.428
23:00 - 24:00	4	608	0.082	4	608	0.494	4	608	0.576
Total Rates:			16.982			16.650			33.632

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:	160 - 1136 (units: sqm)
Survey date date range:	01/01/11 - 24/06/19
Number of weekdays (Monday-Friday):	5
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.

Calculation Reference: AUDIT-638801-191101-1130

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 01 - RETAIL
Category : O - CONVENIENCE STORE

VEHICLES

Selected regions and areas:

01	**GREATER LONDON**		
	HK	HACKNEY	1 days
	WE	WESTMINSTER	1 days
07	**YORKSHIRE & NORTH LINCOLNSHIRE**		
	SY	SOUTH YORKSHIRE	1 days
11	**SCOTLAND**		
	EB	CITY OF EDINBURGH	2 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:	120 to 1500 (units: sqm)
Range Selected by User:	70 to 1500 (units: sqm)

Parking Spaces Range: All Surveys Included

Public Transport Provision:
Selection by: Include all surveys

Date Range: 01/01/11 to 14/03/19

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:

Tuesday	2 days
Wednesday	1 days
Thursday	2 days

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

Selected survey types:

Manual count	5 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:

Town Centre	4
Edge of Town Centre	1

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

Selected Location Sub Categories:

Built-Up Zone	5

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:

A1	5 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®.

Secondary Filtering selection (Cont.):

Population within 1 mile:

25,001 to 50,000	1 days
50,001 to 100,000	4 days

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

Population within 5 miles:

125,001 to 250,000	1 days
250,001 to 500,000	2 days
500,001 or More	2 days

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

Car ownership within 5 miles:

0.5 or Less	1 days
0.6 to 1.0	4 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	5 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	4 days

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

PTAL Rating:

No PTAL Present	3 days
6a Excellent	1 days
6b (High) Excellent	1 days

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

LIST OF SITES relevant to selection parameters

1 **EB-01-O-01** **SAINSBURY'S LOCAL** **CITY OF EDINBURGH**
EARL GREY STREET
EDINBURGH

Town Centre
Built-Up Zone
Total Gross floor area: 350 sqm
Survey date: THURSDAY *28/05/15* *Survey Type: MANUAL*

2 **EB-01-O-02** **SAINSBURY'S LOCAL** **CITY OF EDINBURGH**
ST ANDREW SQUARE
EDINBURGH

Town Centre
Built-Up Zone
Total Gross floor area: 1500 sqm
Survey date: THURSDAY *17/03/16* *Survey Type: MANUAL*

3 **HK-01-O-01** **SAINSBURY'S LOCAL** **HACKNEY**
MARE STREET
SOUTH HACKNEY

Edge of Town Centre
Built-Up Zone
Total Gross floor area: 120 sqm
Survey date: TUESDAY *11/12/12* *Survey Type: MANUAL*

4 **SY-01-O-01** **SAINSBURY'S LOCAL** **SOUTH YORKSHIRE**
DIVISION STREET
SHEFFIELD

Town Centre
Built-Up Zone
Total Gross floor area: 219 sqm
Survey date: WEDNESDAY *12/12/12* *Survey Type: MANUAL*

5 **WE-01-O-01** **SAINSBURY'S LOCAL** **WESTMINSTER**
MORTIMER STREET
FITZROVIA

Town Centre
Built-Up Zone
Total Gross floor area: 550 sqm
Survey date: TUESDAY *23/06/15* *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/O - CONVENIENCE STORE

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	5	548	1.095	5	548	0.694	5	548	1.789
08:00 - 09:00	5	548	1.533	5	548	1.022	5	548	2.555
09:00 - 10:00	5	548	1.022	5	548	1.095	5	548	2.117
10:00 - 11:00	5	548	0.949	5	548	0.694	5	548	1.643
11:00 - 12:00	**5**	**548**	**1.570**	5	548	1.205	5	548	2.775
12:00 - 13:00	5	548	0.913	5	548	0.876	5	548	1.789
13:00 - 14:00	5	548	0.694	5	548	0.803	5	548	1.497
14:00 - 15:00	5	548	0.913	5	548	1.095	5	548	2.008
15:00 - 16:00	5	548	1.278	5	548	1.095	5	548	2.373
16:00 - 17:00	5	548	1.387	5	548	1.278	5	548	2.665
17:00 - 18:00	5	548	1.570	5	548	1.752	5	548	3.322
18:00 - 19:00	5	548	1.351	**5**	**548**	**2.483**	**5**	**548**	**3.834**
19:00 - 20:00	5	548	0.949	5	548	0.913	5	548	1.862
20:00 - 21:00	5	548	1.168	5	548	1.205	5	548	2.373
21:00 - 22:00	5	548	0.621	5	548	0.803	5	548	1.424
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			17.013			17.013			34.026

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:	120 - 1500 (units: sqm)
Survey date date range:	01/01/11 - 14/03/19
Number of weekdays (Monday-Friday):	5
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 C

PICADY Output Files

Junctions 9

PICADY 9 - Priority Intersection Module

Version: 9.0.0.4211 []

Filename: Proposed Western Site Access - R101 Sheriff Street Upper - Copy.j9
Path: G:\2018\p180159\Calcs\picady
Report generation date: 26/11/2019 12:42:42

Summary of junction performance

	AM				PM			
	Queue (PCU)	Delay (s)	RFC	LOS	Queue (PCU)	Delay (s)	RFC	LOS
Do Something - DS2022								
Stream B-AC	0.1	9.54	0.10	A	0.1	9.06	0.07	A
Stream C-AB	0.0	5.81	0.03	A	0.1	5.48	0.06	A
Stream C-A								
Stream A-B								
Stream A-C								
Do Something - DS2027								
Stream B-AC	0.1	9.75	0.10	A	0.1	9.25	0.07	A
Stream C-AB	0.0	5.78	0.03	A	0.1	5.44	0.06	A
Stream C-A								
Stream A-B								
Stream A-C								
Do Something - DS2037								
Stream B-AC	0.1	9.95	0.10	A	0.1	9.42	0.07	A
Stream C-AB	0.0	5.76	0.03	A	0.1	5.41	0.06	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.

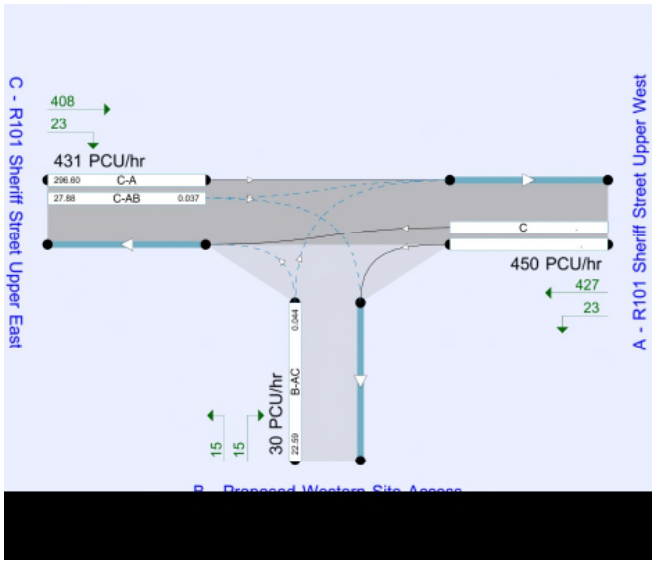
File summary

File Description

Title	(untitled)
Location	
Site number	
Date	04/11/2019
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	HEADOFFICE\gendyh
Description	

Units

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



The junction diagram reflects the last run of Junctions.

Analysis Options

Vehicle length (m)	Calculate Queue Percentiles	Calculate detailed queueing delay	Calculate residual capacity	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)
5.75				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
DS2022	AM	ONE HOUR	07:45	09:15	15	✓
DS2022	PM	ONE HOUR	17:00	18:30	15	✓
DS2027	AM	ONE HOUR	07:45	09:15	15	✓
DS2027	PM	ONE HOUR	17:00	18:30	15	✓
DS2037	AM	ONE HOUR	07:45	09:15	15	✓
DS2037	PM	ONE HOUR	17:00	18:30	15	✓

Do Something - DS2022, 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 Something	✓	✓	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	untitled	T-Junction	Two-way	0.57	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description	Arm type
A	R101 Sheriff Street Upper West		Major
B	Proposed Western Site Access		Minor
C	R101 Sheriff Street Upper East		Major

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Has right turn bay	Visibility for right turn (m)	Blocks?	Blocking queue (PCU)
C - R101 Sheriff Street Upper East	7.10			100.0	✓	0.00

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

Minor Arm Geometry

Arm	Minor arm type	Lane width (m)	Visibility to left (m)	Visibility to right (m)
B - Proposed Western Site Access	One lane	3.95	49	49

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	566.734	0.098	0.248	0.156	0.355
1	B-C	716.832	0.105	0.264	-	-
1	C-B	631.874	0.233	0.233	-	-

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	DS2022	AM	ONE HOUR	07:45	09:15	15	✓

Default vehicle mix	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 - R101 Sheriff Street Upper West		ONE HOUR	✓	491.00	100.000
B - Proposed Western Site Access		ONE HOUR	✓	40.00	100.000
C - R101 Sheriff Street Upper East		ONE HOUR	✓	292.00	100.000

Origin-Destination Data

Demand (PCU/hr)

From \ To	A - R101 Sheriff Street Upper West	B - Proposed Western Site Access	C - R101 Sheriff Street Upper East
A - R101 Sheriff Street Upper West	0.000	10.000	481.000
B - Proposed Western Site Access	20.000	0.000	20.000
C - R101 Sheriff Street Upper East	282.000	10.000	0.000

Proportions

From \ To	A - R101 Sheriff Street Upper West	B - Proposed Western Site Access	C - R101 Sheriff Street Upper East
A - R101 Sheriff Street Upper West	0.00	0.02	0.98
B - Proposed Western Site Access	0.50	0.00	0.50
C - R101 Sheriff Street Upper East	0.97	0.03	0.00

Vehicle Mix

Heavy Vehicle proportion

From \ To	A - R101 Sheriff Street Upper West	B - Proposed Western Site Access	C - R101 Sheriff Street Upper East
A - R101 Sheriff Street Upper West	10	10	10
B - Proposed Western Site Access	10	10	10
C - R101 Sheriff Street Upper East	10	10	10

Average PCU Per Veh

From \ To	A - R101 Sheriff Street Upper West	B - Proposed Western Site Access	C - R101 Sheriff Street Upper East
A - R101 Sheriff Street Upper West	1.100	1.100	1.100
B - Proposed Western Site Access	1.100	1.100	1.100
C - R101 Sheriff Street Upper East	1.100	1.100	1.100

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	0.10	9.54	0.1	A	36.70	55.06
C-AB	0.03	5.81	0.0	A	14.30	21.45
C-A					253.64	380.46
A-B					9.18	13.76
A-C					441.37	662.06

Main Results for each time segment

Main results: (07:45-08:00)

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	30.11	30.11	7.53	0.00	514.96	0.058	29.84	0.0	0.1	8.159	A
C-AB	10.67	10.67	2.67	0.00	691.84	0.015	10.59	0.0	0.0	5.812	A
C-A	209.16	209.16	52.29	0.00			209.16				
A-B	7.53	7.53	1.88	0.00			7.53				
A-C	362.12	362.12	90.53	0.00			362.12				

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	35.96	35.96	8.99	0.00	491.59	0.073	35.89	0.1	0.1	8.689	A
C-AB	13.70	13.70	3.42	0.00	704.96	0.019	13.67	0.0	0.0	5.728	A
C-A	248.81	248.81	62.20	0.00			248.81				
A-B	8.99	8.99	2.25	0.00			8.99				
A-C	432.41	432.41	108.10	0.00			432.41				

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	44.04	44.04	11.01	0.00	459.00	0.096	43.92	0.1	0.1	9.539	A
C-AB	18.51	18.51	4.63	0.00	723.60	0.026	18.47	0.0	0.0	5.615	A
C-A	302.99	302.99	75.75	0.00			302.99				
A-B	11.01	11.01	2.75	0.00			11.01				
A-C	529.59	529.59	132.40	0.00			529.59				

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	44.04	44.04	11.01	0.00	458.99	0.096	44.04	0.1	0.1	9.542	A
C-AB	18.52	18.52	4.63	0.00	723.62	0.026	18.52	0.0	0.0	5.618	A
C-A	302.98	302.98	75.74	0.00			302.98				
A-B	11.01	11.01	2.75	0.00			11.01				
A-C	529.59	529.59	132.40	0.00			529.59				

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	35.96	35.96	8.99	0.00	491.58	0.073	36.07	0.1	0.1	8.695	A
C-AB	13.71	13.71	3.43	0.00	704.98	0.019	13.75	0.0	0.0	5.728	A
C-A	248.79	248.79	62.20	0.00			248.79				
A-B	8.99	8.99	2.25	0.00			8.99				
A-C	432.41	432.41	108.10	0.00			432.41				

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	30.11	30.11	7.53	0.00	514.94	0.058	30.19	0.1	0.1	8.170	A
C-AB	10.70	10.70	2.67	0.00	691.86	0.015	10.72	0.0	0.0	5.813	A
C-A	209.13	209.13	52.28	0.00			209.13				
A-B	7.53	7.53	1.88	0.00			7.53				
A-C	362.12	362.12	90.53	0.00			362.12				

Do Something - DS2022, 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 Something	✓	✓	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	untitled	T-Junction	Two-way	0.59	A

Junction Network Options

[same as above]

Arms

Arms

[same as above]

Major Arm Geometry

[same as above]

Minor Arm Geometry

[same as above]

Slope / Intercept / Capacity

[same as above]

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	DS2022	PM	ONE HOUR	17:00	18:30	15	✓

Default vehicle mix	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 - R101 Sheriff Street Upper West		ONE HOUR	✓	409.00	100.000
B - Proposed Western Site Access		ONE HOUR	✓	30.00	100.000
C - R101 Sheriff Street Upper East		ONE HOUR	✓	396.00	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A - R101 Sheriff Street Upper West	B - Proposed Western Site Access	C - R101 Sheriff Street Upper East
From	A - R101 Sheriff Street Upper West	0.000	23.000	386.000
	B - Proposed Western Site Access	15.000	0.000	15.000
	C - R101 Sheriff Street Upper East	373.000	23.000	0.000

Proportions

		To		
		A - R101 Sheriff Street Upper West	B - Proposed Western Site Access	C - R101 Sheriff Street Upper East
From	A - R101 Sheriff Street Upper West	0.00	0.06	0.94
	B - Proposed Western Site Access	0.50	0.00	0.50
	C - R101 Sheriff Street Upper East	0.94	0.06	0.00

Vehicle Mix

Heavy Vehicle proportion

		To		
		A - R101 Sheriff Street Upper West	B - Proposed Western Site Access	C - R101 Sheriff Street Upper East
From	A - R101 Sheriff Street Upper West	10	10	10
	B - Proposed Western Site Access	10	10	10
	C - R101 Sheriff Street Upper East	10	10	10

Average PCU Per Veh

		To		
		A - R101 Sheriff Street Upper West	B - Proposed Western Site Access	C - R101 Sheriff Street Upper East
From	A - R101 Sheriff Street Upper West	1.100	1.100	1.100
	B - Proposed Western Site Access	1.100	1.100	1.100
	C - R101 Sheriff Street Upper East	1.100	1.100	1.100

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	9.06	0.1	A	27.53	41.29
C-AB	0.06	5.48	0.1	A	37.33	56.00
C-A					326.04	489.06
A-B					21.11	31.66
A-C					354.20	531.30

Main Results for each time segment

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	22.59	22.59	5.65	0.00	522.85	0.043	22.39	0.0	0.0	7.913	A
C-AB	26.79	26.79	6.70	0.00	749.55	0.036	26.57	0.0	0.1	5.476	A
C-A	271.34	271.34	67.84	0.00			271.34				
A-B	17.32	17.32	4.33	0.00			17.32				
A-C	290.60	290.60	72.65	0.00			290.60				

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	26.97	26.97	6.74	0.00	500.80	0.054	26.92	0.0	0.1	8.355	A
C-AB	34.81	34.81	8.70	0.00	773.16	0.045	34.74	0.1	0.1	5.362	A
C-A	321.18	321.18	80.30	0.00			321.18				
A-B	20.68	20.68	5.17	0.00			20.68				
A-C	347.01	347.01	86.75	0.00			347.01				

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	33.03	33.03	8.26	0.00	469.92	0.070	32.95	0.1	0.1	9.062	A
C-AB	50.30	50.30	12.57	0.00	814.79	0.062	50.14	0.1	0.1	5.179	A
C-A	385.71	385.71	96.43	0.00			385.71				
A-B	25.32	25.32	6.33	0.00			25.32				
A-C	424.99	424.99	106.25	0.00			424.99				

Main results: (17:45-18:00)

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	33.03	33.03	8.26	0.00	469.89	0.070	33.03	0.1	0.1	9.064	A
C-AB	50.35	50.35	12.59	0.00	814.86	0.062	50.34	0.1	0.1	5.181	A
C-A	385.66	385.66	96.41	0.00			385.66				
A-B	25.32	25.32	6.33	0.00			25.32				
A-C	424.99	424.99	106.25	0.00			424.99				

Main results: (18:00-18:15)

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	26.97	26.97	6.74	0.00	500.76	0.054	27.05	0.1	0.1	8.362	A
C-AB	34.87	34.87	8.72	0.00	773.25	0.045	35.03	0.1	0.1	5.368	A
C-A	321.12	321.12	80.28	0.00			321.12				
A-B	20.68	20.68	5.17	0.00			20.68				
A-C	347.01	347.01	86.75	0.00			347.01				

Main results: (18:15-18:30)

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	22.59	22.59	5.65	0.00	522.79	0.043	22.64	0.1	0.1	7.919	A
C-AB	26.88	26.88	6.72	0.00	749.63	0.036	26.96	0.1	0.1	5.482	A
C-A	271.25	271.25	67.81	0.00			271.25				
A-B	17.32	17.32	4.33	0.00			17.32				
A-C	290.60	290.60	72.65	0.00			290.60				

Do Something - DS2027, 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 Something	✓	✓	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	untitled	T-Junction	Two-way	0.56	A

Junction Network Options

[same as above]

Arms

Arms

[same as above]

Major Arm Geometry

[same as above]

Minor Arm Geometry

[same as above]

Slope / Intercept / Capacity

[same as above]

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	DS2027	AM	ONE HOUR	07:45	09:15	15	✓

Default vehicle mix	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 - R101 Sheriff Street Upper West		ONE HOUR	✓	515.00	100.000
B - Proposed Western Site Access		ONE HOUR	✓	40.00	100.000
C - R101 Sheriff Street Upper East		ONE HOUR	✓	307.00	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A - R101 Sheriff Street Upper West	B - Proposed Western Site Access	C - R101 Sheriff Street Upper East
From	A - R101 Sheriff Street Upper West	0.000	10.000	505.000
	B - Proposed Western Site Access	20.000	0.000	20.000
	C - R101 Sheriff Street Upper East	297.000	10.000	0.000

Proportions

		To		
		A - R101 Sheriff Street Upper West	B - Proposed Western Site Access	C - R101 Sheriff Street Upper East
From	A - R101 Sheriff Street Upper West	0.00	0.02	0.98
	B - Proposed Western Site Access	0.50	0.00	0.50
	C - R101 Sheriff Street Upper East	0.97	0.03	0.00

Vehicle Mix

Heavy Vehicle proportion

		To		
		A - R101 Sheriff Street Upper West	B - Proposed Western Site Access	C - R101 Sheriff Street Upper East
From	A - R101 Sheriff Street Upper West	10	10	10
	B - Proposed Western Site Access	10	10	10
	C - R101 Sheriff Street Upper East	10	10	10

Average PCU Per Veh

		To		
		A - R101 Sheriff Street Upper West	B - Proposed Western Site Access	C - R101 Sheriff Street Upper East
From	A - R101 Sheriff Street Upper West	1.100	1.100	1.100
	B - Proposed Western Site Access	1.100	1.100	1.100
	C - R101 Sheriff Street Upper East	1.100	1.100	1.100

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	0.10	9.75	0.1	A	36.70	55.06
C-AB	0.03	5.78	0.0	A	14.65	21.98
C-A					267.06	400.58
A-B					9.18	13.76
A-C					463.40	695.10

Main Results for each time segment

Main results: (07:45-08:00)

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	30.11	30.11	7.53	0.00	509.03	0.059	29.84	0.0	0.1	8.260	A
C-AB	10.87	10.87	2.72	0.00	695.72	0.016	10.80	0.0	0.0	5.781	A
C-A	220.25	220.25	55.06	0.00			220.25				
A-B	7.53	7.53	1.88	0.00			7.53				
A-C	380.19	380.19	95.05	0.00			380.19				

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	35.96	35.96	8.99	0.00	484.46	0.074	35.88	0.1	0.1	8.827	A
C-AB	14.01	14.01	3.50	0.00	709.70	0.020	13.99	0.0	0.0	5.691	A
C-A	261.97	261.97	65.49	0.00			261.97				
A-B	8.99	8.99	2.25	0.00			8.99				
A-C	453.98	453.98	113.50	0.00			453.98				

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	44.04	44.04	11.01	0.00	450.15	0.098	43.92	0.1	0.1	9.745	A
C-AB	19.04	19.04	4.76	0.00	729.54	0.026	19.00	0.0	0.0	5.572	A
C-A	318.97	318.97	79.74	0.00			318.97				
A-B	11.01	11.01	2.75	0.00			11.01				
A-C	556.02	556.02	139.00	0.00			556.02				

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	44.04	44.04	11.01	0.00	450.14	0.098	44.04	0.1	0.1	9.750	A
C-AB	19.05	19.05	4.76	0.00	729.56	0.026	19.05	0.0	0.0	5.573	A
C-A	318.96	318.96	79.74	0.00			318.96				
A-B	11.01	11.01	2.75	0.00			11.01				
A-C	556.02	556.02	139.00	0.00			556.02				

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	35.96	35.96	8.99	0.00	484.44	0.074	36.08	0.1	0.1	8.835	A
C-AB	14.03	14.03	3.51	0.00	709.73	0.020	14.07	0.0	0.0	5.694	A
C-A	261.96	261.96	65.49	0.00			261.96				
A-B	8.99	8.99	2.25	0.00			8.99				
A-C	453.98	453.98	113.50	0.00			453.98				

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	30.11	30.11	7.53	0.00	509.01	0.059	30.19	0.1	0.1	8.273	A
C-AB	10.90	10.90	2.73	0.00	695.75	0.016	10.93	0.0	0.0	5.784	A
C-A	220.22	220.22	55.06	0.00			220.22				
A-B	7.53	7.53	1.88	0.00			7.53				
A-C	380.19	380.19	95.05	0.00			380.19				

Do Something - DS2027, 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 Something	✓	✓	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	untitled	T-Junction	Two-way	0.58	A

Junction Network Options

[same as above]

Arms

Arms

[same as above]

Major Arm Geometry

[same as above]

Minor Arm Geometry

[same as above]

Slope / Intercept / Capacity

[same as above]

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	DS2027	PM	ONE HOUR	17:00	18:30	15	✓

Default vehicle mix	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 - R101 Sheriff Street Upper West		ONE HOUR	✓	431.00	100.000
B - Proposed Western Site Access		ONE HOUR	✓	30.00	100.000
C - R101 Sheriff Street Upper East		ONE HOUR	✓	414.00	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A - R101 Sheriff Street Upper West	B - Proposed Western Site Access	C - R101 Sheriff Street Upper East
From	A - R101 Sheriff Street Upper West	0.000	23.000	408.000
	B - Proposed Western Site Access	15.000	0.000	15.000
	C - R101 Sheriff Street Upper East	391.000	23.000	0.000

Proportions

		To		
		A - R101 Sheriff Street Upper West	B - Proposed Western Site Access	C - R101 Sheriff Street Upper East
From	A - R101 Sheriff Street Upper West	0.00	0.05	0.95
	B - Proposed Western Site Access	0.50	0.00	0.50
	C - R101 Sheriff Street Upper East	0.94	0.06	0.00

Vehicle Mix

Heavy Vehicle proportion

		To		
		A - R101 Sheriff Street Upper West	B - Proposed Western Site Access	C - R101 Sheriff Street Upper East
From	A - R101 Sheriff Street Upper West	10	10	10
	B - Proposed Western Site Access	10	10	10
	C - R101 Sheriff Street Upper East	10	10	10

Average PCU Per Veh

		To		
		A - R101 Sheriff Street Upper West	B - Proposed Western Site Access	C - R101 Sheriff Street Upper East
From	A - R101 Sheriff Street Upper West	1.100	1.100	1.100
	B - Proposed Western Site Access	1.100	1.100	1.100
	C - R101 Sheriff Street Upper East	1.100	1.100	1.100

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	9.25	0.1	A	27.53	41.29
C-AB	0.06	5.44	0.1	A	38.40	57.60
C-A					341.49	512.24
A-B					21.11	31.66
A-C					374.39	561.58

Main Results for each time segment

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	22.59	22.59	5.65	0.00	517.03	0.044	22.39	0.0	0.0	8.000	A
C-AB	27.35	27.35	6.84	0.00	755.08	0.036	27.13	0.0	0.1	5.438	A
C-A	284.33	284.33	71.08	0.00			284.33				
A-B	17.32	17.32	4.33	0.00			17.32				
A-C	307.16	307.16	76.79	0.00			307.16				

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	26.97	26.97	6.74	0.00	493.78	0.055	26.92	0.0	0.1	8.481	A
C-AB	35.68	35.68	8.92	0.00	779.77	0.046	35.60	0.1	0.1	5.321	A
C-A	336.50	336.50	84.12	0.00			336.50				
A-B	20.68	20.68	5.17	0.00			20.68				
A-C	366.78	366.78	91.70	0.00			366.78				

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	33.03	33.03	8.26	0.00	461.17	0.072	32.95	0.1	0.1	9.244	A
C-AB	52.07	52.07	13.02	0.00	823.99	0.063	51.90	0.1	0.1	5.129	A
C-A	403.75	403.75	100.94	0.00			403.75				
A-B	25.32	25.32	6.33	0.00			25.32				
A-C	449.22	449.22	112.30	0.00			449.22				

Main results: (17:45-18:00)

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	33.03	33.03	8.26	0.00	461.14	0.072	33.03	0.1	0.1	9.249	A
C-AB	52.13	52.13	13.03	0.00	824.07	0.063	52.12	0.1	0.1	5.131	A
C-A	403.70	403.70	100.92	0.00			403.70				
A-B	25.32	25.32	6.33	0.00			25.32				
A-C	449.22	449.22	112.30	0.00			449.22				

Main results: (18:00-18:15)

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	26.97	26.97	6.74	0.00	493.74	0.055	27.05	0.1	0.1	8.488	A
C-AB	35.74	35.74	8.94	0.00	779.87	0.046	35.91	0.1	0.1	5.326	A
C-A	336.43	336.43	84.11	0.00			336.43				
A-B	20.68	20.68	5.17	0.00			20.68				
A-C	366.78	366.78	91.70	0.00			366.78				

Main results: (18:15-18:30)

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	22.59	22.59	5.65	0.00	516.97	0.044	22.64	0.1	0.1	8.012	A
C-AB	27.45	27.45	6.86	0.00	755.16	0.036	27.53	0.1	0.1	5.443	A
C-A	284.23	284.23	71.06	0.00			284.23				
A-B	17.32	17.32	4.33	0.00			17.32				
A-C	307.16	307.16	76.79	0.00			307.16				

Do Something - DS2037, 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 Something	✓	✓	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	untitled	T-Junction	Two-way	0.55	A

Junction Network Options

[same as above]

Arms

Arms

[same as above]

Major Arm Geometry

[same as above]

Minor Arm Geometry

[same as above]

Slope / Intercept / Capacity

[same as above]

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	DS2037	AM	ONE HOUR	07:45	09:15	15	✓

Default vehicle mix	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 - R101 Sheriff Street Upper West		ONE HOUR	✓	538.00	100.000
B - Proposed Western Site Access		ONE HOUR	✓	40.00	100.000
C - R101 Sheriff Street Upper East		ONE HOUR	✓	320.00	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A - R101 Sheriff Street Upper West	B - Proposed Western Site Access	C - R101 Sheriff Street Upper East
From	A - R101 Sheriff Street Upper West	0.000	10.000	528.000
	B - Proposed Western Site Access	20.000	0.000	20.000
	C - R101 Sheriff Street Upper East	310.000	10.000	0.000

Proportions

		To		
		A - R101 Sheriff Street Upper West	B - Proposed Western Site Access	C - R101 Sheriff Street Upper East
From	A - R101 Sheriff Street Upper West	0.00	0.02	0.98
	B - Proposed Western Site Access	0.50	0.00	0.50
	C - R101 Sheriff Street Upper East	0.97	0.03	0.00

Vehicle Mix

Heavy Vehicle proportion

		To		
		A - R101 Sheriff Street Upper West	B - Proposed Western Site Access	C - R101 Sheriff Street Upper East
From	A - R101 Sheriff Street Upper West	10	10	10
	B - Proposed Western Site Access	10	10	10
	C - R101 Sheriff Street Upper East	10	10	10

Average PCU Per Veh

		To		
		A - R101 Sheriff Street Upper West	B - Proposed Western Site Access	C - R101 Sheriff Street Upper East
From	A - R101 Sheriff Street Upper West	1.100	1.100	1.100
	B - Proposed Western Site Access	1.100	1.100	1.100
	C - R101 Sheriff Street Upper East	1.100	1.100	1.100

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	0.10	9.95	0.1	A	36.70	55.06
C-AB	0.03	5.76	0.0	A	14.97	22.46
C-A					278.67	418.00
A-B					9.18	13.76
A-C					484.50	726.75

Main Results for each time segment

Main results: (07:45-08:00)

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	30.11	30.11	7.53	0.00	503.44	0.060	29.84	0.0	0.1	8.358	A
C-AB	11.06	11.06	2.76	0.00	698.77	0.016	10.98	0.0	0.0	5.757	A
C-A	229.86	229.86	57.46	0.00			229.86				
A-B	7.53	7.53	1.88	0.00			7.53				
A-C	397.51	397.51	99.38	0.00			397.51				

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	35.96	35.96	8.99	0.00	477.74	0.075	35.88	0.1	0.1	8.961	A
C-AB	14.30	14.30	3.57	0.00	713.44	0.020	14.27	0.0	0.0	5.663	A
C-A	273.37	273.37	68.34	0.00			273.37				
A-B	8.99	8.99	2.25	0.00			8.99				
A-C	474.66	474.66	118.67	0.00			474.66				

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	44.04	44.04	11.01	0.00	441.81	0.100	43.91	0.1	0.1	9.949	A
C-AB	19.53	19.53	4.88	0.00	734.25	0.027	19.48	0.0	0.0	5.539	A
C-A	332.80	332.80	83.20	0.00			332.80				
A-B	11.01	11.01	2.75	0.00			11.01				
A-C	581.34	581.34	145.33	0.00			581.34				

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	44.04	44.04	11.01	0.00	441.80	0.100	44.04	0.1	0.1	9.955	A
C-AB	19.54	19.54	4.88	0.00	734.27	0.027	19.54	0.0	0.0	5.542	A
C-A	332.79	332.79	83.20	0.00			332.79				
A-B	11.01	11.01	2.75	0.00			11.01				
A-C	581.34	581.34	145.33	0.00			581.34				

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	35.96	35.96	8.99	0.00	477.73	0.075	36.08	0.1	0.1	8.970	A
C-AB	14.32	14.32	3.58	0.00	713.47	0.020	14.36	0.0	0.0	5.664	A
C-A	273.36	273.36	68.34	0.00			273.36				
A-B	8.99	8.99	2.25	0.00			8.99				
A-C	474.66	474.66	118.67	0.00			474.66				

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	30.11	30.11	7.53	0.00	503.42	0.060	30.19	0.1	0.1	8.370	A
C-AB	11.09	11.09	2.77	0.00	698.79	0.016	11.11	0.0	0.0	5.758	A
C-A	229.82	229.82	57.46	0.00			229.82				
A-B	7.53	7.53	1.88	0.00			7.53				
A-C	397.51	397.51	99.38	0.00			397.51				

Do Something - DS2037, 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 Something	✓	✓	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	untitled	T-Junction	Two-way	0.57	A

Junction Network Options

[same as above]

Arms

Arms

[same as above]

Major Arm Geometry

[same as above]

Minor Arm Geometry

[same as above]

Slope / Intercept / Capacity

[same as above]

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	DS2037	PM	ONE HOUR	17:00	18:30	15	✓

Default vehicle mix	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 - R101 Sheriff Street Upper West		ONE HOUR	✓	450.00	100.000
B - Proposed Western Site Access		ONE HOUR	✓	30.00	100.000
C - R101 Sheriff Street Upper East		ONE HOUR	✓	431.00	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A - R101 Sheriff Street Upper West	B - Proposed Western Site Access	C - R101 Sheriff Street Upper East
From	A - R101 Sheriff Street Upper West	0.000	23.000	427.000
	B - Proposed Western Site Access	15.000	0.000	15.000
	C - R101 Sheriff Street Upper East	408.000	23.000	0.000

Proportions

		To		
		A - R101 Sheriff Street Upper West	B - Proposed Western Site Access	C - R101 Sheriff Street Upper East
From	A - R101 Sheriff Street Upper West	0.00	0.05	0.95
	B - Proposed Western Site Access	0.50	0.00	0.50
	C - R101 Sheriff Street Upper East	0.95	0.05	0.00

Vehicle Mix

Heavy Vehicle proportion

		To		
		A - R101 Sheriff Street Upper West	B - Proposed Western Site Access	C - R101 Sheriff Street Upper East
From	A - R101 Sheriff Street Upper West	10	10	10
	B - Proposed Western Site Access	10	10	10
	C - R101 Sheriff Street Upper East	10	10	10

Average PCU Per Veh

		To		
		A - R101 Sheriff Street Upper West	B - Proposed Western Site Access	C - R101 Sheriff Street Upper East
From	A - R101 Sheriff Street Upper West	1.100	1.100	1.100
	B - Proposed Western Site Access	1.100	1.100	1.100
	C - R101 Sheriff Street Upper East	1.100	1.100	1.100

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	9.42	0.1	A	27.53	41.29
C-AB	0.06	5.41	0.1	A	39.43	59.14
C-A					356.06	534.10
A-B					21.11	31.66
A-C					391.82	587.73

Main Results for each time segment

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	22.59	22.59	5.65	0.00	511.87	0.044	22.38	0.0	0.1	8.086	A
C-AB	27.88	27.88	6.97	0.00	760.56	0.037	27.66	0.0	0.1	5.402	A
C-A	296.60	296.60	74.15	0.00			296.60				
A-B	17.32	17.32	4.33	0.00			17.32				
A-C	321.47	321.47	80.37	0.00			321.47				

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	26.97	26.97	6.74	0.00	487.54	0.055	26.92	0.1	0.1	8.595	A
C-AB	36.51	36.51	9.13	0.00	786.30	0.046	36.43	0.1	0.1	5.283	A
C-A	350.95	350.95	87.74	0.00			350.95				
A-B	20.68	20.68	5.17	0.00			20.68				
A-C	383.86	383.86	95.97	0.00			383.86				

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	33.03	33.03	8.26	0.00	453.40	0.073	32.94	0.1	0.1	9.416	A
C-AB	53.78	53.78	13.44	0.00	833.08	0.065	53.60	0.1	0.1	5.081	A
C-A	420.76	420.76	105.19	0.00			420.76				
A-B	25.32	25.32	6.33	0.00			25.32				
A-C	470.14	470.14	117.53	0.00			470.14				

Main results: (17:45-18:00)

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	33.03	33.03	8.26	0.00	453.37	0.073	33.03	0.1	0.1	9.420	A
C-AB	53.84	53.84	13.46	0.00	833.16	0.065	53.84	0.1	0.1	5.085	A
C-A	420.70	420.70	105.17	0.00			420.70				
A-B	25.32	25.32	6.33	0.00			25.32				
A-C	470.14	470.14	117.53	0.00			470.14				

Main results: (18:00-18:15)

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	26.97	26.97	6.74	0.00	487.50	0.055	27.05	0.1	0.1	8.603	A
C-AB	36.57	36.57	9.14	0.00	786.41	0.047	36.74	0.1	0.1	5.286	A
C-A	350.89	350.89	87.72	0.00			350.89				
A-B	20.68	20.68	5.17	0.00			20.68				
A-C	383.86	383.86	95.97	0.00			383.86				

Main results: (18:15-18:30)

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	22.59	22.59	5.65	0.00	511.81	0.044	22.64	0.1	0.1	8.097	A
C-AB	27.99	27.99	7.00	0.00	760.65	0.037	28.07	0.1	0.1	5.406	A
C-A	296.49	296.49	74.12	0.00			296.49				
A-B	17.32	17.32	4.33	0.00			17.32				
A-C	321.47	321.47	80.37	0.00			321.47				

Junctions 9

PICADY 9 - Priority Intersection Module

Version: 9.0.0.4211 []

Filename: Proposed Eastern Site Access - R101 Sheriff Street Upper.j9
Path: G:\2018\p180159\Calcs\picady
Report generation date: 26/11/2019 12:27:36

Summary of junction performance

	AM				PM			
	Queue (PCU)	Delay (s)	RFC	LOS	Queue (PCU)	Delay (s)	RFC	LOS
Do Something - DS2022								
Stream B-AC	0.1	9.42	0.09	A	0.1	9.12	0.07	A
Stream C-AB	0.0	5.80	0.03	A	0.1	5.34	0.06	A
Stream C-A								
Stream A-B								
Stream A-C								
Do Something - DS2027								
Stream B-AC	0.1	9.62	0.10	A	0.1	9.31	0.07	A
Stream C-AB	0.0	5.77	0.03	A	0.1	5.29	0.07	A
Stream C-A								
Stream A-B								
Stream A-C								
Do Something - DS2037								
Stream B-AC	0.1	9.80	0.10	A	0.1	9.49	0.07	A
Stream C-AB	0.0	5.74	0.03	A	0.1	5.25	0.07	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.

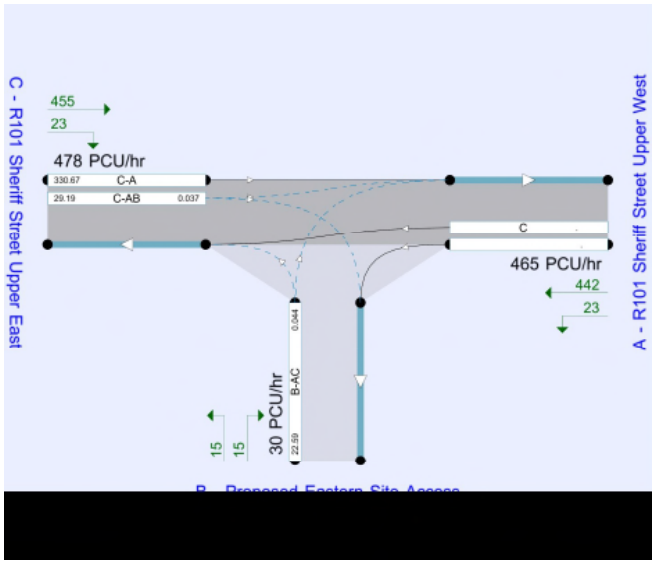
File summary

File Description

Title	(untitled)
Location	
Site number	
Date	04/11/2019
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	HEADOFFICE'gendyh
Description	

Units

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



The junction diagram reflects the last run of Junctions.

Analysis Options

Vehicle length (m)	Calculate Queue Percentiles	Calculate detailed queueing delay	Calculate residual capacity	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)
5.75				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
DS2022	AM	ONE HOUR	07:45	09:15	15	✓
DS2022	PM	ONE HOUR	17:00	18:30	15	✓
DS2027	AM	ONE HOUR	07:45	09:15	15	✓
DS2027	PM	ONE HOUR	17:00	18:30	15	✓
DS2037	AM	ONE HOUR	07:45	09:15	15	✓
DS2037	PM	ONE HOUR	17:00	18:30	15	✓

Do Something - DS2022, 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 Something	✓	✓	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	untitled	T-Junction	Two-way	0.56	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description	Arm type
A	R101 Sheriff Street Upper West		Major
B	Proposed Eastern Site Access		Minor
C	R101 Sheriff Street Upper East		Major

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Has right turn bay	Visibility for right turn (m)	Blocks?	Blocking queue (PCU)
C - R101 Sheriff Street Upper East	7.84			100.0	✓	0.00

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

Minor Arm Geometry

Arm	Minor arm type	Lane width (m)	Visibility to left (m)	Visibility to right (m)
B - Proposed Eastern Site Access	One lane	3.96	49	49

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	567.563	0.095	0.240	0.151	0.343
1	B-C	717.880	0.101	0.256	-	-
1	C-B	631.874	0.225	0.225	-	-

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	DS2022	AM	ONE HOUR	07:45	09:15	15	✓

Default vehicle mix	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 - R101 Sheriff Street Upper West		ONE HOUR	✓	496.00	100.000
B - Proposed Eastern Site Access		ONE HOUR	✓	40.00	100.000
C - R101 Sheriff Street Upper East		ONE HOUR	✓	291.00	100.000

Origin-Destination Data

Demand (PCU/hr)

From \ To	A - R101 Sheriff Street Upper West	B - Proposed Eastern Site Access	C - R101 Sheriff Street Upper East
A - R101 Sheriff Street Upper West	0.000	10.000	486.000
B - Proposed Eastern Site Access	20.000	0.000	20.000
C - R101 Sheriff Street Upper East	281.000	10.000	0.000

Proportions

From \ To	A - R101 Sheriff Street Upper West	B - Proposed Eastern Site Access	C - R101 Sheriff Street Upper East
A - R101 Sheriff Street Upper West	0.00	0.02	0.98
B - Proposed Eastern Site Access	0.50	0.00	0.50
C - R101 Sheriff Street Upper East	0.97	0.03	0.00

Vehicle Mix

Heavy Vehicle proportion

From \ To	A - R101 Sheriff Street Upper West	B - Proposed Eastern Site Access	C - R101 Sheriff Street Upper East
A - R101 Sheriff Street Upper West	10	10	10
B - Proposed Eastern Site Access	10	10	10
C - R101 Sheriff Street Upper East	10	10	10

Average PCU Per Veh

From \ To	A - R101 Sheriff Street Upper West	B - Proposed Eastern Site Access	C - R101 Sheriff Street Upper East
A - R101 Sheriff Street Upper West	1.100	1.100	1.100
B - Proposed Eastern Site Access	1.100	1.100	1.100
C - R101 Sheriff Street Upper East	1.100	1.100	1.100

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	9.42	0.1	A	36.70	55.06
C-AB	0.03	5.80	0.0	A	14.25	21.38
C-A					252.77	379.16
A-B					9.18	13.76
A-C					445.96	668.94

Main Results for each time segment

Main results: (07:45-08:00)

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	30.11	30.11	7.53	0.00	518.86	0.058	29.85	0.0	0.1	8.094	A
C-AB	10.65	10.65	2.66	0.00	693.14	0.015	10.57	0.0	0.0	5.801	A
C-A	208.43	208.43	52.11	0.00			208.43				
A-B	7.53	7.53	1.88	0.00			7.53				
A-C	365.89	365.89	91.47	0.00			365.89				

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	35.96	35.96	8.99	0.00	496.11	0.072	35.89	0.1	0.1	8.603	A
C-AB	13.66	13.66	3.41	0.00	706.46	0.019	13.63	0.0	0.0	5.715	A
C-A	247.95	247.95	61.99	0.00			247.95				
A-B	8.99	8.99	2.25	0.00			8.99				
A-C	436.90	436.90	109.23	0.00			436.90				

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	44.04	44.04	11.01	0.00	464.38	0.095	43.92	0.1	0.1	9.416	A
C-AB	18.44	18.44	4.61	0.00	725.35	0.025	18.40	0.0	0.0	5.601	A
C-A	301.96	301.96	75.49	0.00			301.96				
A-B	11.01	11.01	2.75	0.00			11.01				
A-C	535.10	535.10	133.77	0.00			535.10				

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	44.04	44.04	11.01	0.00	464.37	0.095	44.04	0.1	0.1	9.420	A
C-AB	18.45	18.45	4.61	0.00	725.36	0.025	18.45	0.0	0.0	5.603	A
C-A	301.95	301.95	75.49	0.00			301.95				
A-B	11.01	11.01	2.75	0.00			11.01				
A-C	535.10	535.10	133.77	0.00			535.10				

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	35.96	35.96	8.99	0.00	496.10	0.072	36.07	0.1	0.1	8.611	A
C-AB	13.67	13.67	3.42	0.00	706.48	0.019	13.71	0.0	0.0	5.716	A
C-A	247.93	247.93	61.98	0.00			247.93				
A-B	8.99	8.99	2.25	0.00			8.99				
A-C	436.90	436.90	109.23	0.00			436.90				

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	30.11	30.11	7.53	0.00	518.84	0.058	30.19	0.1	0.1	8.104	A
C-AB	10.67	10.67	2.67	0.00	693.16	0.015	10.70	0.0	0.0	5.804	A
C-A	208.41	208.41	52.10	0.00			208.41				
A-B	7.53	7.53	1.88	0.00			7.53				
A-C	365.89	365.89	91.47	0.00			365.89				

Do Something - DS2022, 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 Something	✓	✓	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	untitled	T-Junction	Two-way	0.57	A

Junction Network Options

[same as above]

Arms

Arms

[same as above]

Major Arm Geometry

[same as above]

Minor Arm Geometry

[same as above]

Slope / Intercept / Capacity

[same as above]

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	DS2022	PM	ONE HOUR	17:00	18:30	15	✓

Default vehicle mix	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 - R101 Sheriff Street Upper West		ONE HOUR	✓	422.00	100.000
B - Proposed Eastern Site Access		ONE HOUR	✓	30.00	100.000
C - R101 Sheriff Street Upper East		ONE HOUR	✓	438.00	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A - R101 Sheriff Street Upper West	B - Proposed Eastern Site Access	C - R101 Sheriff Street Upper East
From	A - R101 Sheriff Street Upper West	0.000	23.000	399.000
	B - Proposed Eastern Site Access	15.000	0.000	15.000
	C - R101 Sheriff Street Upper East	415.000	23.000	0.000

Proportions

		To		
		A - R101 Sheriff Street Upper West	B - Proposed Eastern Site Access	C - R101 Sheriff Street Upper East
From	A - R101 Sheriff Street Upper West	0.00	0.05	0.95
	B - Proposed Eastern Site Access	0.50	0.00	0.50
	C - R101 Sheriff Street Upper East	0.95	0.05	0.00

Vehicle Mix

Heavy Vehicle proportion

		To		
		A - R101 Sheriff Street Upper West	B - Proposed Eastern Site Access	C - R101 Sheriff Street Upper East
From	A - R101 Sheriff Street Upper West	10	10	10
	B - Proposed Eastern Site Access	10	10	10
	C - R101 Sheriff Street Upper East	10	10	10

Average PCU Per Veh

		To		
		A - R101 Sheriff Street Upper West	B - Proposed Eastern Site Access	C - R101 Sheriff Street Upper East
From	A - R101 Sheriff Street Upper West	1.100	1.100	1.100
	B - Proposed Eastern Site Access	1.100	1.100	1.100
	C - R101 Sheriff Street Upper East	1.100	1.100	1.100

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	9.12	0.1	A	27.53	41.29
C-AB	0.06	5.34	0.1	A	39.45	59.18
C-A					362.47	543.70
A-B					21.11	31.66
A-C					366.13	549.19

Main Results for each time segment

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	22.59	22.59	5.65	0.00	521.58	0.043	22.39	0.0	0.0	7.927	A
C-AB	27.93	27.93	6.98	0.00	770.10	0.036	27.71	0.0	0.1	5.333	A
C-A	301.82	301.82	75.45	0.00			301.82				
A-B	17.32	17.32	4.33	0.00			17.32				
A-C	300.39	300.39	75.10	0.00			300.39				

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	26.97	26.97	6.74	0.00	499.04	0.054	26.92	0.0	0.1	8.386	A
C-AB	36.53	36.53	9.13	0.00	797.37	0.046	36.45	0.1	0.1	5.206	A
C-A	357.23	357.23	89.31	0.00			357.23				
A-B	20.68	20.68	5.17	0.00			20.68				
A-C	358.69	358.69	89.67	0.00			358.69				

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	33.03	33.03	8.26	0.00	467.42	0.071	32.95	0.1	0.1	9.114	A
C-AB	53.78	53.78	13.44	0.00	846.43	0.064	53.61	0.1	0.1	4.995	A
C-A	428.47	428.47	107.12	0.00			428.47				
A-B	25.32	25.32	6.33	0.00			25.32				
A-C	439.31	439.31	109.83	0.00			439.31				

Main results: (17:45-18:00)

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	33.03	33.03	8.26	0.00	467.39	0.071	33.03	0.1	0.1	9.116	A
C-AB	53.84	53.84	13.46	0.00	846.51	0.064	53.83	0.1	0.1	4.999	A
C-A	428.41	428.41	107.10	0.00			428.41				
A-B	25.32	25.32	6.33	0.00			25.32				
A-C	439.31	439.31	109.83	0.00			439.31				

Main results: (18:00-18:15)

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	26.97	26.97	6.74	0.00	499.00	0.054	27.05	0.1	0.1	8.391	A
C-AB	36.59	36.59	9.15	0.00	797.47	0.046	36.76	0.1	0.1	5.207	A
C-A	357.16	357.16	89.29	0.00			357.16				
A-B	20.68	20.68	5.17	0.00			20.68				
A-C	358.69	358.69	89.67	0.00			358.69				

Main results: (18:15-18:30)

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	22.59	22.59	5.65	0.00	521.53	0.043	22.64	0.1	0.1	7.938	A
C-AB	28.03	28.03	7.01	0.00	770.19	0.036	28.11	0.1	0.1	5.339	A
C-A	301.71	301.71	75.43	0.00			301.71				
A-B	17.32	17.32	4.33	0.00			17.32				
A-C	300.39	300.39	75.10	0.00			300.39				

Do Something - DS2027, 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 Something	✓	✓	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	untitled	T-Junction	Two-way	0.55	A

Junction Network Options

[same as above]

Arms

Arms

[same as above]

Major Arm Geometry

[same as above]

Minor Arm Geometry

[same as above]

Slope / Intercept / Capacity

[same as above]

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	DS2027	AM	ONE HOUR	07:45	09:15	15	✓

Default vehicle mix	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 - R101 Sheriff Street Upper West		ONE HOUR	✓	520.00	100.000
B - Proposed Eastern Site Access		ONE HOUR	✓	40.00	100.000
C - R101 Sheriff Street Upper East		ONE HOUR	✓	306.00	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A - R101 Sheriff Street Upper West	B - Proposed Eastern Site Access	C - R101 Sheriff Street Upper East
From	A - R101 Sheriff Street Upper West	0.000	10.000	510.000
	B - Proposed Eastern Site Access	20.000	0.000	20.000
	C - R101 Sheriff Street Upper East	296.000	10.000	0.000

Proportions

		To		
		A - R101 Sheriff Street Upper West	B - Proposed Eastern Site Access	C - R101 Sheriff Street Upper East
From	A - R101 Sheriff Street Upper West	0.00	0.02	0.98
	B - Proposed Eastern Site Access	0.50	0.00	0.50
	C - R101 Sheriff Street Upper East	0.97	0.03	0.00

Vehicle Mix

Heavy Vehicle proportion

		To		
		A - R101 Sheriff Street Upper West	B - Proposed Eastern Site Access	C - R101 Sheriff Street Upper East
From	A - R101 Sheriff Street Upper West	10	10	10
	B - Proposed Eastern Site Access	10	10	10
	C - R101 Sheriff Street Upper East	10	10	10

Average PCU Per Veh

		To		
		A - R101 Sheriff Street Upper West	B - Proposed Eastern Site Access	C - R101 Sheriff Street Upper East
From	A - R101 Sheriff Street Upper West	1.100	1.100	1.100
	B - Proposed Eastern Site Access	1.100	1.100	1.100
	C - R101 Sheriff Street Upper East	1.100	1.100	1.100

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	0.10	9.62	0.1	A	36.70	55.06
C-AB	0.03	5.77	0.0	A	14.60	21.90
C-A					266.19	399.28
A-B					9.18	13.76
A-C					467.98	701.98

Main Results for each time segment

Main results: (07:45-08:00)

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	30.11	30.11	7.53	0.00	513.13	0.059	29.84	0.0	0.1	8.190	A
C-AB	10.85	10.85	2.71	0.00	697.13	0.016	10.77	0.0	0.0	5.769	A
C-A	219.52	219.52	54.88	0.00			219.52				
A-B	7.53	7.53	1.88	0.00			7.53				
A-C	383.95	383.95	95.99	0.00			383.95				

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	35.96	35.96	8.99	0.00	489.21	0.074	35.88	0.1	0.1	8.734	A
C-AB	13.97	13.97	3.49	0.00	711.33	0.020	13.94	0.0	0.0	5.677	A
C-A	261.12	261.12	65.28	0.00			261.12				
A-B	8.99	8.99	2.25	0.00			8.99				
A-C	458.48	458.48	114.62	0.00			458.48				

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	44.04	44.04	11.01	0.00	455.83	0.097	43.92	0.1	0.1	9.610	A
C-AB	18.96	18.96	4.74	0.00	731.44	0.026	18.92	0.0	0.0	5.557	A
C-A	317.95	317.95	79.49	0.00			317.95				
A-B	11.01	11.01	2.75	0.00			11.01				
A-C	561.52	561.52	140.38	0.00			561.52				

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	44.04	44.04	11.01	0.00	455.83	0.097	44.04	0.1	0.1	9.616	A
C-AB	18.97	18.97	4.74	0.00	731.45	0.026	18.97	0.0	0.0	5.560	A
C-A	317.94	317.94	79.49	0.00			317.94				
A-B	11.01	11.01	2.75	0.00			11.01				
A-C	561.52	561.52	140.38	0.00			561.52				

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	35.96	35.96	8.99	0.00	489.20	0.074	36.07	0.1	0.1	8.742	A
C-AB	13.98	13.98	3.50	0.00	711.35	0.020	14.02	0.0	0.0	5.681	A
C-A	261.10	261.10	65.28	0.00			261.10				
A-B	8.99	8.99	2.25	0.00			8.99				
A-C	458.48	458.48	114.62	0.00			458.48				

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	30.11	30.11	7.53	0.00	513.11	0.059	30.19	0.1	0.1	8.202	A
C-AB	10.88	10.88	2.72	0.00	697.16	0.016	10.90	0.0	0.0	5.772	A
C-A	219.49	219.49	54.87	0.00			219.49				
A-B	7.53	7.53	1.88	0.00			7.53				
A-C	383.95	383.95	95.99	0.00			383.95				

Do Something - DS2027, 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 Something	✓	✓	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	untitled	T-Junction	Two-way	0.55	A

Junction Network Options

[same as above]

Arms

Arms

[same as above]

Major Arm Geometry

[same as above]

Minor Arm Geometry

[same as above]

Slope / Intercept / Capacity

[same as above]

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	DS2027	PM	ONE HOUR	17:00	18:30	15	✓

Default vehicle mix	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 - R101 Sheriff Street Upper West		ONE HOUR	✓	444.00	100.000
B - Proposed Eastern Site Access		ONE HOUR	✓	30.00	100.000
C - R101 Sheriff Street Upper East		ONE HOUR	✓	459.00	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A - R101 Sheriff Street Upper West	B - Proposed Eastern Site Access	C - R101 Sheriff Street Upper East
From	A - R101 Sheriff Street Upper West	0.000	23.000	421.000
	B - Proposed Eastern Site Access	15.000	0.000	15.000
	C - R101 Sheriff Street Upper East	436.000	23.000	0.000

Proportions

		To		
		A - R101 Sheriff Street Upper West	B - Proposed Eastern Site Access	C - R101 Sheriff Street Upper East
From	A - R101 Sheriff Street Upper West	0.00	0.05	0.95
	B - Proposed Eastern Site Access	0.50	0.00	0.50
	C - R101 Sheriff Street Upper East	0.95	0.05	0.00

Vehicle Mix

Heavy Vehicle proportion

		To		
		A - R101 Sheriff Street Upper West	B - Proposed Eastern Site Access	C - R101 Sheriff Street Upper East
From	A - R101 Sheriff Street Upper West	10	10	10
	B - Proposed Eastern Site Access	10	10	10
	C - R101 Sheriff Street Upper East	10	10	10

Average PCU Per Veh

		To		
		A - R101 Sheriff Street Upper West	B - Proposed Eastern Site Access	C - R101 Sheriff Street Upper East
From	A - R101 Sheriff Street Upper West	1.100	1.100	1.100
	B - Proposed Eastern Site Access	1.100	1.100	1.100
	C - R101 Sheriff Street Upper East	1.100	1.100	1.100

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	9.31	0.1	A	27.53	41.29
C-AB	0.07	5.29	0.1	A	40.72	61.08
C-A					380.47	570.70
A-B					21.11	31.66
A-C					386.32	579.48

Main Results for each time segment

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	22.59	22.59	5.65	0.00	515.70	0.044	22.39	0.0	0.0	8.021	A
C-AB	28.59	28.59	7.15	0.00	777.12	0.037	28.36	0.0	0.1	5.287	A
C-A	316.97	316.97	79.24	0.00			316.97				
A-B	17.32	17.32	4.33	0.00			17.32				
A-C	316.95	316.95	79.24	0.00			316.95				

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	26.97	26.97	6.74	0.00	491.93	0.055	26.92	0.0	0.1	8.514	A
C-AB	37.54	37.54	9.38	0.00	805.69	0.047	37.46	0.1	0.1	5.154	A
C-A	375.09	375.09	93.77	0.00			375.09				
A-B	20.68	20.68	5.17	0.00			20.68				
A-C	378.47	378.47	94.62	0.00			378.47				

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	33.03	33.03	8.26	0.00	458.54	0.072	32.95	0.1	0.1	9.301	A
C-AB	55.90	55.90	13.98	0.00	857.98	0.065	55.73	0.1	0.1	4.936	A
C-A	449.46	449.46	112.37	0.00			449.46				
A-B	25.32	25.32	6.33	0.00			25.32				
A-C	463.53	463.53	115.88	0.00			463.53				

Main results: (17:45-18:00)

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	33.03	33.03	8.26	0.00	458.52	0.072	33.03	0.1	0.1	9.306	A
C-AB	55.97	55.97	13.99	0.00	858.07	0.065	55.96	0.1	0.1	4.938	A
C-A	449.40	449.40	112.35	0.00			449.40				
A-B	25.32	25.32	6.33	0.00			25.32				
A-C	463.53	463.53	115.88	0.00			463.53				

Main results: (18:00-18:15)

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	26.97	26.97	6.74	0.00	491.88	0.055	27.05	0.1	0.1	8.520	A
C-AB	37.61	37.61	9.40	0.00	805.80	0.047	37.78	0.1	0.1	5.159	A
C-A	375.02	375.02	93.76	0.00			375.02				
A-B	20.68	20.68	5.17	0.00			20.68				
A-C	378.47	378.47	94.62	0.00			378.47				

Main results: (18:15-18:30)

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	22.59	22.59	5.65	0.00	515.64	0.044	22.64	0.1	0.1	8.033	A
C-AB	28.70	28.70	7.17	0.00	777.21	0.037	28.78	0.1	0.1	5.293	A
C-A	316.86	316.86	79.22	0.00			316.86				
A-B	17.32	17.32	4.33	0.00			17.32				
A-C	316.95	316.95	79.24	0.00			316.95				

Do Something - DS2037, 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 Something	✓	✓	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	untitled	T-Junction	Two-way	0.54	A

Junction Network Options

[same as above]

Arms

Arms

[same as above]

Major Arm Geometry

[same as above]

Minor Arm Geometry

[same as above]

Slope / Intercept / Capacity

[same as above]

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	DS2037	AM	ONE HOUR	07:45	09:15	15	✓

Default vehicle mix	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 - R101 Sheriff Street Upper West		ONE HOUR	✓	542.00	100.000
B - Proposed Eastern Site Access		ONE HOUR	✓	40.00	100.000
C - R101 Sheriff Street Upper East		ONE HOUR	✓	320.00	100.000

Origin-Destination Data

Demand (PCU/hr)

From \ To	A - R101 Sheriff Street Upper West	B - Proposed Eastern Site Access	C - R101 Sheriff Street Upper East
A - R101 Sheriff Street Upper West	0.000	10.000	532.000
B - Proposed Eastern Site Access	20.000	0.000	20.000
C - R101 Sheriff Street Upper East	310.000	10.000	0.000

Proportions

From \ To	A - R101 Sheriff Street Upper West	B - Proposed Eastern Site Access	C - R101 Sheriff Street Upper East
A - R101 Sheriff Street Upper West	0.00	0.02	0.98
B - Proposed Eastern Site Access	0.50	0.00	0.50
C - R101 Sheriff Street Upper East	0.97	0.03	0.00

Vehicle Mix

Heavy Vehicle proportion

From \ To	A - R101 Sheriff Street Upper West	B - Proposed Eastern Site Access	C - R101 Sheriff Street Upper East
A - R101 Sheriff Street Upper West	10	10	10
B - Proposed Eastern Site Access	10	10	10
C - R101 Sheriff Street Upper East	10	10	10

Average PCU Per Veh

From \ To	A - R101 Sheriff Street Upper West	B - Proposed Eastern Site Access	C - R101 Sheriff Street Upper East
A - R101 Sheriff Street Upper West	1.100	1.100	1.100
B - Proposed Eastern Site Access	1.100	1.100	1.100
C - R101 Sheriff Street Upper East	1.100	1.100	1.100

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	0.10	9.80	0.1	A	36.70	55.06
C-AB	0.03	5.74	0.0	A	14.93	22.40
C-A					278.70	418.06
A-B					9.18	13.76
A-C					488.17	732.26

Main Results for each time segment

Main results: (07:45-08:00)

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	30.11	30.11	7.53	0.00	507.84	0.059	29.84	0.0	0.1	8.280	A
C-AB	11.04	11.04	2.76	0.00	700.94	0.016	10.96	0.0	0.0	5.739	A
C-A	229.87	229.87	57.47	0.00			229.87				
A-B	7.53	7.53	1.88	0.00			7.53				
A-C	400.52	400.52	100.13	0.00			400.52				

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	35.96	35.96	8.99	0.00	482.85	0.074	35.88	0.1	0.1	8.859	A
C-AB	14.27	14.27	3.57	0.00	715.96	0.020	14.24	0.0	0.0	5.642	A
C-A	273.41	273.41	68.35	0.00			273.41				
A-B	8.99	8.99	2.25	0.00			8.99				
A-C	478.26	478.26	119.56	0.00			478.26				

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	44.04	44.04	11.01	0.00	447.94	0.098	43.92	0.1	0.1	9.798	A
C-AB	19.46	19.46	4.87	0.00	737.22	0.026	19.42	0.0	0.0	5.516	A
C-A	332.87	332.87	83.22	0.00			332.87				
A-B	11.01	11.01	2.75	0.00			11.01				
A-C	585.74	585.74	146.44	0.00			585.74				

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	44.04	44.04	11.01	0.00	447.94	0.098	44.04	0.1	0.1	9.804	A
C-AB	19.47	19.47	4.87	0.00	737.24	0.026	19.47	0.0	0.0	5.519	A
C-A	332.85	332.85	83.21	0.00			332.85				
A-B	11.01	11.01	2.75	0.00			11.01				
A-C	585.74	585.74	146.44	0.00			585.74				

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	35.96	35.96	8.99	0.00	482.84	0.074	36.08	0.1	0.1	8.867	A
C-AB	14.28	14.28	3.57	0.00	715.99	0.020	14.32	0.0	0.0	5.645	A
C-A	273.39	273.39	68.35	0.00			273.39				
A-B	8.99	8.99	2.25	0.00			8.99				
A-C	478.26	478.26	119.56	0.00			478.26				

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	30.11	30.11	7.53	0.00	507.82	0.059	30.19	0.1	0.1	8.291	A
C-AB	11.07	11.07	2.77	0.00	700.96	0.016	11.10	0.0	0.0	5.739	A
C-A	229.84	229.84	57.46	0.00			229.84				
A-B	7.53	7.53	1.88	0.00			7.53				
A-C	400.52	400.52	100.13	0.00			400.52				

Do Something - DS2037, 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 Something	✓	✓	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	untitled	T-Junction	Two-way	0.54	A

Junction Network Options

[same as above]

Arms

Arms

[same as above]

Major Arm Geometry

[same as above]

Minor Arm Geometry

[same as above]

Slope / Intercept / Capacity

[same as above]

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	DS2037	PM	ONE HOUR	17:00	18:30	15	✓

Default vehicle mix	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 - R101 Sheriff Street Upper West		ONE HOUR	✓	465.00	100.000
B - Proposed Eastern Site Access		ONE HOUR	✓	30.00	100.000
C - R101 Sheriff Street Upper East		ONE HOUR	✓	478.00	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A - R101 Sheriff Street Upper West	B - Proposed Eastern Site Access	C - R101 Sheriff Street Upper East
From	A - R101 Sheriff Street Upper West	0.000	23.000	442.000
	B - Proposed Eastern Site Access	15.000	0.000	15.000
	C - R101 Sheriff Street Upper East	455.000	23.000	0.000

Proportions

		To		
		A - R101 Sheriff Street Upper West	B - Proposed Eastern Site Access	C - R101 Sheriff Street Upper East
From	A - R101 Sheriff Street Upper West	0.00	0.05	0.95
	B - Proposed Eastern Site Access	0.50	0.00	0.50
	C - R101 Sheriff Street Upper East	0.95	0.05	0.00

Vehicle Mix

Heavy Vehicle proportion

		To		
		A - R101 Sheriff Street Upper West	B - Proposed Eastern Site Access	C - R101 Sheriff Street Upper East
From	A - R101 Sheriff Street Upper West	10	10	10
	B - Proposed Eastern Site Access	10	10	10
	C - R101 Sheriff Street Upper East	10	10	10

Average PCU Per Veh

		To		
		A - R101 Sheriff Street Upper West	B - Proposed Eastern Site Access	C - R101 Sheriff Street Upper East
From	A - R101 Sheriff Street Upper West	1.100	1.100	1.100
	B - Proposed Eastern Site Access	1.100	1.100	1.100
	C - R101 Sheriff Street Upper East	1.100	1.100	1.100

Generated on 26/11/2019 12:29:04 using Junctions 9 (9.0.0.4211)

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	9.49	0.1	A	27.53	41.29
C-AB	0.07	5.25	0.1	A	41.91	62.86
C-A					396.71	595.07
A-B					21.11	31.66
A-C					405.59	608.38

Main Results for each time segment

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	22.59	22.59	5.65	0.00	510.15	0.044	22.38	0.0	0.1	8.115	A
C-AB	29.19	29.19	7.30	0.00	783.32	0.037	28.97	0.0	0.1	5.248	A
C-A	330.67	330.67	82.67	0.00			330.67				
A-B	17.32	17.32	4.33	0.00			17.32				
A-C	332.76	332.76	83.19	0.00			332.76				

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	26.97	26.97	6.74	0.00	485.22	0.056	26.91	0.1	0.1	8.639	A
C-AB	38.48	38.48	9.62	0.00	813.03	0.047	38.40	0.1	0.1	5.114	A
C-A	391.23	391.23	97.81	0.00			391.23				
A-B	20.68	20.68	5.17	0.00			20.68				
A-C	397.35	397.35	99.34	0.00			397.35				

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	33.03	33.03	8.26	0.00	450.16	0.073	32.94	0.1	0.1	9.489	A
C-AB	57.92	57.92	14.48	0.00	868.26	0.067	57.73	0.1	0.1	4.886	A
C-A	468.37	468.37	117.09	0.00			468.37				
A-B	25.32	25.32	6.33	0.00			25.32				
A-C	486.65	486.65	121.66	0.00			486.65				

Generated on 26/11/2019 12:29:04 using Junctions 9 (9.0.0.4211)

Main results: (17:45-18:00)

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	33.03	33.03	8.26	0.00	450.13	0.073	33.03	0.1	0.1	9.493	A
C-AB	57.99	57.99	14.50	0.00	868.35	0.067	57.98	0.1	0.1	4.888	A
C-A	468.30	468.30	117.08	0.00			468.30				
A-B	25.32	25.32	6.33	0.00			25.32				
A-C	486.65	486.65	121.66	0.00			486.65				

Main results: (18:00-18:15)

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	26.97	26.97	6.74	0.00	485.17	0.056	27.05	0.1	0.1	8.645	A
C-AB	38.55	38.55	9.64	0.00	813.15	0.047	38.74	0.1	0.1	5.115	A
C-A	391.16	391.16	97.79	0.00			391.16				
A-B	20.68	20.68	5.17	0.00			20.68				
A-C	397.35	397.35	99.34	0.00			397.35				

Main results: (18:15-18:30)

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	22.59	22.59	5.65	0.00	510.09	0.044	22.64	0.1	0.1	8.124	A
C-AB	29.31	29.31	7.33	0.00	783.41	0.037	29.39	0.1	0.1	5.254	A
C-A	330.55	330.55	82.64	0.00			330.55				
A-B	17.32	17.32	4.33	0.00			17.32				
A-C	332.76	332.76	83.19	0.00			332.76				

Junctions 9

PICADY 9 - Priority Intersection Module

Version: 9.0.0.4211 []

Filename: R101 Sheriff Street Upper - Castleforbes Road - Existing Site Access.j9
Path: G:\2018\p180159\Calcs\picady
Report generation date: 26/11/2019 12:52:30

Summary of junction performance

	AM				PM			
	Queue (PCU)	Delay (s)	RFC	LOS	Queue (PCU)	Delay (s)	RFC	LOS
Do Nothing - DN2022								
Stream B-ACD	0.3	8.10	0.23	A	0.5	8.65	0.32	A
Stream A-BCD	0.0	5.52	0.02	A	0.0	5.35	0.01	A
Stream A-B								
Stream A-C								
Stream D-ABC	0.0	8.20	0.01	A	0.0	8.76	0.04	A
Stream C-ABD	0.8	6.97	0.32	A	0.3	5.76	0.16	A
Stream C-D								
Stream C-A								
Do Nothing - DN2027								
Stream B-ACD	0.4	8.26	0.24	A	0.5	8.81	0.33	A
Stream A-BCD	0.0	5.49	0.02	A	0.0	5.30	0.01	A
Stream A-B								
Stream A-C								
Stream D-ABC	0.0	8.25	0.01	A	0.1	8.88	0.04	A
Stream C-ABD	0.8	7.02	0.34	A	0.4	5.73	0.17	A
Stream C-D								
Stream C-A								
Do Nothing - DN2037								
Stream B-ACD	0.4	8.40	0.25	A	0.6	8.99	0.34	A
Stream A-BCD	0.0	5.46	0.03	A	0.0	5.27	0.01	A
Stream A-B								
Stream A-C								
Stream D-ABC	0.0	8.31	0.01	A	0.1	8.92	0.05	A
Stream C-ABD	0.9	7.09	0.35	A	0.4	5.70	0.18	A
Stream C-D								
Stream C-A								

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

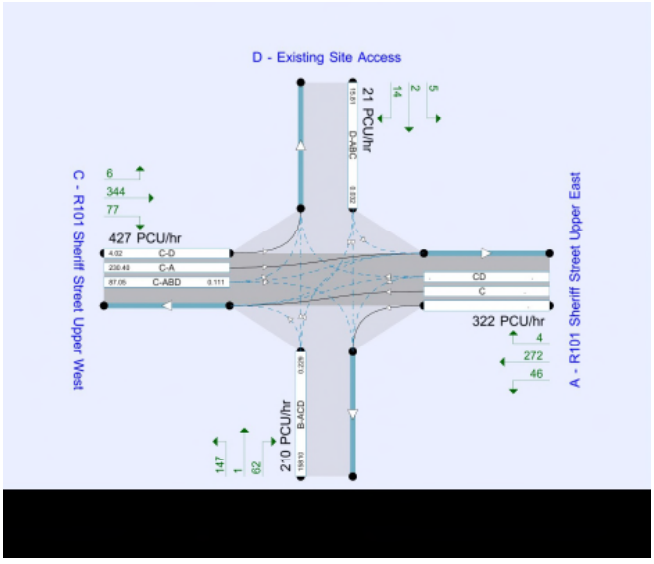
File summary

File Description

Title	(untitled)
Location	
Site number	
Date	13/11/2019
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	HEADOFFICE"gendyh
Description	

Units

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



The junction diagram reflects the last run of Junctions.

Analysis Options

Vehicle length (m)	Calculate Queue Percentiles	Calculate detailed queueing delay	Calculate residual capacity	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)
5.75				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
DN2022	AM	ONE HOUR	07:45	09:15	15	✓
DN2022	PM	ONE HOUR	17:00	18:30	15	✓
DN2027	AM	ONE HOUR	07:45	09:15	15	✓
DN2027	PM	ONE HOUR	17:00	18:30	15	✓
DN2037	AM	ONE HOUR	07:45	09:15	15	✓
DN2037	PM	ONE HOUR	17:00	18:30	15	✓

Do Nothing - DN2022, 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	untitled	Crossroads	Two-way	3.17	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description	Arm type
A	R101 Sheriff Street Upper East		Major
B	Castleforbes Road		Minor
C	R101 Sheriff Street Upper West		Major
D	Existing Site Access		Minor

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Has right turn bay	Visibility for right turn (m)	Blocks?	Blocking queue (PCU)
A - R101 Sheriff Street Upper East	20.00			100.0	✓	0.00
C - R101 Sheriff Street Upper West	20.00			100.0	✓	0.00

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

Minor Arm Geometry

Arm	Minor arm type	Lane width (m)	Visibility to left (m)	Visibility to right (m)
B - Castleforbes Road	One lane	5.00	49	49
D - Existing Site Access	One lane	2.90	49	49

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Junction	Stream	Intercept (PCU/hr)	Slope for A-B	Slope for A-C	Slope for A-D	Slope for B-A	Slope for B-C	Slope for B-D	Slope for C-A	Slope for C-B	Slope for C-D	Slope for D-A	Slope for D-B	Slope for D-C
1	A-D	631.874	-	-	-	-	-	-	0.096	0.137	0.096	-	-	-
1	B-A	621.335	0.044	0.112	0.112	-	-	-	0.070	0.160	-	0.112	0.112	0.056
1	B-C	785.894	0.047	0.119	-	-	-	-	-	-	-	-	-	-
1	B-D, nearside lane	621.335	0.044	0.112	0.112	-	-	-	0.070	0.160	0.070	-	-	-
1	B-D, offside lane	621.335	0.044	0.112	0.112	-	-	-	0.070	0.160	0.070	-	-	-
1	C-B	631.874	0.096	0.096	0.137	-	-	-	-	-	-	-	-	-
1	D-A	648.228	-	-	-	-	-	-	0.098	-	0.039	-	-	-
1	D-B, nearside lane	512.495	0.058	0.058	0.132	-	-	-	0.092	0.092	0.036	-	-	-
1	D-B, offside lane	512.495	0.058	0.058	0.132	-	-	-	0.092	0.092	0.036	-	-	-
1	D-C	512.495	-	0.058	0.132	0.046	0.092	0.092	0.092	0.092	0.036	-	-	-

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	DN2022	AM	ONE HOUR	07:45	09:15	15	✓

Default vehicle mix	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 - R101 Sheriff Street Upper East		ONE HOUR	✓	276.00	100.000
B - Castleforbes Road		ONE HOUR	✓	135.00	100.000
C - R101 Sheriff Street Upper West		ONE HOUR	✓	466.00	100.000
D - Existing Site Access		ONE HOUR	✓	6.00	100.000

Origin-Destination Data

Demand (PCU/hr)

From \ To	A - R101 Sheriff Street Upper East	B - Castleforbes Road	C - R101 Sheriff Street Upper West	D - Existing Site Access
A - R101 Sheriff Street Upper East	0.000	69.000	198.000	9.000
B - Castleforbes Road	57.000	0.000	71.000	7.000
C - R101 Sheriff Street Upper West	303.000	141.000	0.000	22.000
D - Existing Site Access	2.000	2.000	2.000	0.000

Proportions

From \ To	A - R101 Sheriff Street Upper East	B - Castleforbes Road	C - R101 Sheriff Street Upper West	D - Existi Site Acces
A - R101 Sheriff Street Upper East	0.00	0.25	0.72	0.03
B - Castleforbes Road	0.42	0.00	0.53	0.05
C - R101 Sheriff Street Upper West	0.65	0.30	0.00	0.05
D - Existing Site Access	0.33	0.33	0.33	0.00

Vehicle Mix

Heavy Vehicle proportion

From \ To	A - R101 Sheriff Street Upper East	B - Castleforbes Road	C - R101 Sheriff Street Upper West	D - Existing Site Access
A - R101 Sheriff Street Upper East	10	10	10	10
B - Castleforbes Road	10	10	10	10
C - R101 Sheriff Street Upper West	10	10	10	10
D - Existing Site Access	10	10	10	10

Average PCU Per Veh

From \ To	A - R101 Sheriff Street Upper East	B - Castleforbes Road	C - R101 Sheriff Street Upper West	D - Existin Site Acces
A - R101 Sheriff Street Upper East	1.100	1.100	1.100	1.100
B - Castleforbes Road	1.100	1.100	1.100	1.100
C - R101 Sheriff Street Upper West	1.100	1.100	1.100	1.100
D - Existing Site Access	1.100	1.100	1.100	1.100

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-ACD	0.23	8.10	0.3	A	123.88	185.82
A-BCD	0.02	5.52	0.0	A	12.13	18.20
A-B					62.32	93.47
A-C					178.82	268.23
D-ABC	0.01	8.20	0.0	A	5.51	8.26
C-ABD	0.32	6.97	0.8	A	208.49	312.74
C-D					14.83	22.25
C-A					204.29	306.43

Main Results for each time segment

Main results: (07:45-08:00)

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-ACD	101.64	101.64	25.41	0.00	657.32	0.155	100.84	0.0	0.2	7.106	A
A-BCD	9.22	9.22	2.31	0.00	727.13	0.013	9.16	0.0	0.0	5.515	A
A-B	51.31	51.31	12.83	0.00			51.31				
A-C	147.25	147.25	36.81	0.00			147.25				
D-ABC	4.52	4.52	1.13	0.00	509.46	0.009	4.48	0.0	0.0	7.842	A
C-ABD	154.83	154.83	38.71	0.00	772.89	0.200	153.33	0.0	0.4	6.386	A
C-D	13.27	13.27	3.32	0.00			13.27				
C-A	182.73	182.73	45.68	0.00			182.73				

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-ACD	121.36	121.36	30.34	0.00	649.08	0.187	121.16	0.2	0.3	7.495	A
A-BCD	11.68	11.68	2.92	0.00	745.74	0.016	11.66	0.0	0.0	5.394	A
A-B	61.10	61.10	15.28	0.00			61.10				
A-C	175.34	175.34	43.83	0.00			175.34				
D-ABC	5.39	5.39	1.35	0.00	501.17	0.011	5.39	0.0	0.0	7.987	A
C-ABD	199.07	199.07	49.77	0.00	800.92	0.249	198.53	0.4	0.5	6.580	A
C-D	14.88	14.88	3.72	0.00			14.88				
C-A	204.97	204.97	51.24	0.00			204.97				

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-ACD	148.64	148.64	37.16	0.00	637.73	0.233	148.32	0.3	0.3	8.086	A
A-BCD	15.47	15.47	3.87	0.00	771.57	0.020	15.44	0.0	0.0	5.236	A
A-B	74.53	74.53	18.63	0.00			74.53				
A-C	213.88	213.88	53.47	0.00			213.88				
D-ABC	6.61	6.61	1.65	0.00	489.81	0.013	6.59	0.0	0.0	8.195	A
C-ABD	270.84	270.84	67.71	0.00	840.65	0.322	269.85	0.5	0.8	6.948	A
C-D	16.40	16.40	4.10	0.00			16.40				
C-A	225.83	225.83	56.46	0.00			225.83				

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-ACD	148.64	148.64	37.16	0.00	637.66	0.233	148.63	0.3	0.3	8.097	A
A-BCD	15.48	15.48	3.87	0.00	771.48	0.020	15.48	0.0	0.0	5.237	A
A-B	74.53	74.53	18.63	0.00			74.53				
A-C	213.87	213.87	53.47	0.00			213.87				
D-ABC	6.61	6.61	1.65	0.00	489.71	0.013	6.61	0.0	0.0	8.196	A
C-ABD	271.21	271.21	67.80	0.00	841.01	0.322	271.18	0.8	0.8	6.974	A
C-D	16.37	16.37	4.09	0.00			16.37				
C-A	225.49	225.49	56.37	0.00			225.49				

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-ACD	121.36	121.36	30.34	0.00	648.96	0.187	121.67	0.3	0.3	7.516	A
A-BCD	11.69	11.69	2.92	0.00	745.60	0.016	11.72	0.0	0.0	5.395	A
A-B	61.10	61.10	15.27	0.00			61.10				
A-C	175.33	175.33	43.83	0.00			175.33				
D-ABC	5.39	5.39	1.35	0.00	501.02	0.011	5.41	0.0	0.0	7.989	A
C-ABD	199.52	199.52	49.88	0.00	801.46	0.249	200.47	0.8	0.5	6.612	A
C-D	14.85	14.85	3.71	0.00			14.85				
C-A	204.56	204.56	51.14	0.00			204.56				

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-ACD	101.64	101.64	25.41	0.00	657.14	0.155	101.84	0.3	0.2	7.133	A
A-BCD	9.24	9.24	2.31	0.00	726.92	0.013	9.26	0.0	0.0	5.519	A
A-B	51.31	51.31	12.83	0.00			51.31				
A-C	147.24	147.24	36.81	0.00			147.24				
D-ABC	4.52	4.52	1.13	0.00	509.26	0.009	4.53	0.0	0.0	7.845	A
C-ABD	155.47	155.47	38.87	0.00	773.38	0.201	156.03	0.5	0.4	6.428	A
C-D	13.22	13.22	3.31	0.00			13.22				
C-A	182.14	182.14	45.53	0.00			182.14				

Do Nothing - DN2022, 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	untitled	Crossroads	Two-way	2.86	A

Junction Network Options

[same as above]

Arms

Arms

[same as above]

Major Arm Geometry

[same as above]

Minor Arm Geometry

[same as above]

Slope / Intercept / Capacity

[same as above]

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	DN2022	PM	ONE HOUR	17:00	18:30	15	✓

Default vehicle mix	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 - R101 Sheriff Street Upper East		ONE HOUR	✓	289.00	100.000
B - Castleforbes Road		ONE HOUR	✓	198.00	100.000
C - R101 Sheriff Street Upper West		ONE HOUR	✓	383.00	100.000
D - Existing Site Access		ONE HOUR	✓	18.00	100.000

Origin-Destination Data

Demand (PCU/hr)

From \ To	A - R101 Sheriff Street Upper East	B - Castleforbes Road	C - R101 Sheriff Street Upper West	D - Existing Site Access
A - R101 Sheriff Street Upper East	0.000	43.000	243.000	3.000
B - Castleforbes Road	60.000	0.000	137.000	1.000
C - R101 Sheriff Street Upper West	307.000	71.000	0.000	5.000
D - Existing Site Access	4.000	2.000	12.000	0.000

Proportions

From \ To	A - R101 Sheriff Street Upper East	B - Castleforbes Road	C - R101 Sheriff Street Upper West	D - Existi Site Acces
A - R101 Sheriff Street Upper East	0.00	0.15	0.84	0.01
B - Castleforbes Road	0.30	0.00	0.69	0.01
C - R101 Sheriff Street Upper West	0.80	0.19	0.00	0.01
D - Existing Site Access	0.22	0.11	0.67	0.00

Vehicle Mix

Heavy Vehicle proportion

From \ To	A - R101 Sheriff Street Upper East	B - Castleforbes Road	C - R101 Sheriff Street Upper West	D - Existing Site Access
A - R101 Sheriff Street Upper East	10	10	10	10
B - Castleforbes Road	10	10	10	10
C - R101 Sheriff Street Upper West	10	10	10	10
D - Existing Site Access	10	10	10	10

Average PCU Per Veh

From \ To	A - R101 Sheriff Street Upper East	B - Castleforbes Road	C - R101 Sheriff Street Upper West	D - Existin Site Acces
A - R101 Sheriff Street Upper East	1.100	1.100	1.100	1.100
B - Castleforbes Road	1.100	1.100	1.100	1.100
C - R101 Sheriff Street Upper West	1.100	1.100	1.100	1.100
D - Existing Site Access	1.100	1.100	1.100	1.100

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-ACD	0.32	8.65	0.5	A	181.69	272.53
A-BCD	0.01	5.35	0.0	A	4.11	6.17
A-B					39.25	58.88
A-C					221.82	332.74
D-ABC	0.04	8.76	0.0	A	16.52	24.78
C-ABD	0.16	5.76	0.3	A	102.81	154.22
C-D					3.98	5.98
C-A					244.65	366.98

Main Results for each time segment

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-ACD	149.06	149.06	37.27	0.00	692.23	0.215	147.87	0.0	0.3	7.258	A
A-BCD	3.12	3.12	0.78	0.00	743.57	0.004	3.10	0.0	0.0	5.347	A
A-B	32.24	32.24	8.06	0.00			32.24				
A-C	182.21	182.21	45.55	0.00			182.21				
D-ABC	13.55	13.55	3.39	0.00	493.02	0.027	13.43	0.0	0.0	8.255	A
C-ABD	76.89	76.89	19.22	0.00	765.82	0.100	76.16	0.0	0.2	5.740	A
C-D	3.39	3.39	0.85	0.00			3.39				
C-A	208.07	208.07	52.02	0.00			208.07				

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-ACD	178.00	178.00	44.50	0.00	685.40	0.260	177.67	0.3	0.4	7.795	A
A-BCD	3.96	3.96	0.99	0.00	765.15	0.005	3.96	0.0	0.0	5.201	A
A-B	38.47	38.47	9.62	0.00			38.47				
A-C	217.38	217.38	54.34	0.00			217.38				
D-ABC	16.18	16.18	4.05	0.00	484.18	0.033	16.15	0.0	0.0	8.461	A
C-ABD	98.60	98.60	24.65	0.00	792.36	0.124	98.37	0.2	0.2	5.711	A
C-D	3.94	3.94	0.98	0.00			3.94				
C-A	241.77	241.77	60.44	0.00			241.77				

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-ACD	218.00	218.00	54.50	0.00	675.97	0.323	217.46	0.4	0.5	8.626	A
A-BCD	5.25	5.25	1.31	0.00	794.81	0.007	5.25	0.0	0.0	5.015	A
A-B	47.05	47.05	11.76	0.00			47.05				
A-C	265.89	265.89	66.47	0.00			265.89				
D-ABC	19.82	19.82	4.95	0.00	472.05	0.042	19.78	0.0	0.0	8.756	A
C-ABD	132.67	132.67	33.17	0.00	828.98	0.160	132.29	0.2	0.3	5.690	A
C-D	4.63	4.63	1.16	0.00			4.63				
C-A	284.39	284.39	71.10	0.00			284.39				

Main results: (17:45-18:00)

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-ACD	218.00	218.00	54.50	0.00	675.94	0.323	217.99	0.5	0.5	8.647	A
A-BCD	5.26	5.26	1.31	0.00	794.78	0.007	5.26	0.0	0.0	5.017	A
A-B	47.05	47.05	11.76	0.00			47.05				
A-C	265.89	265.89	66.47	0.00			265.89				
D-ABC	19.82	19.82	4.95	0.00	471.98	0.042	19.82	0.0	0.0	8.757	A
C-ABD	132.79	132.79	33.20	0.00	829.12	0.160	132.78	0.3	0.3	5.696	A
C-D	4.63	4.63	1.16	0.00			4.63				
C-A	284.27	284.27	71.07	0.00			284.27				

Main results: (18:00-18:15)

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-ACD	178.00	178.00	44.50	0.00	685.37	0.260	178.52	0.5	0.4	7.822	A
A-BCD	3.96	3.96	0.99	0.00	765.09	0.005	3.97	0.0	0.0	5.202	A
A-B	38.47	38.47	9.62	0.00			38.47				
A-C	217.37	217.37	54.34	0.00			217.37				
D-ABC	16.18	16.18	4.05	0.00	484.07	0.033	16.22	0.0	0.0	8.464	A
C-ABD	98.76	98.76	24.69	0.00	792.58	0.125	99.13	0.3	0.2	5.720	A
C-D	3.94	3.94	0.98	0.00			3.94				
C-A	241.61	241.61	60.40	0.00			241.61				

Main results: (18:15-18:30)

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-ACD	149.06	149.06	37.27	0.00	692.16	0.215	149.41	0.4	0.3	7.302	A
A-BCD	3.13	3.13	0.78	0.00	743.47	0.004	3.13	0.0	0.0	5.348	A
A-B	32.24	32.24	8.06	0.00			32.24				
A-C	182.20	182.20	45.55	0.00			182.20				
D-ABC	13.55	13.55	3.39	0.00	492.84	0.028	13.58	0.0	0.0	8.264	A
C-ABD	77.17	77.17	19.29	0.00	766.05	0.101	77.40	0.2	0.2	5.755	A
C-D	3.38	3.38	0.85	0.00			3.38				
C-A	207.79	207.79	51.95	0.00			207.79				

Do Nothing - DN2027, 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	untitled	Crossroads	Two-way	3.21	A

Junction Network Options

[same as above]

Arms

Arms

[same as above]

Major Arm Geometry

[same as above]

Minor Arm Geometry

[same as above]

Slope / Intercept / Capacity

[same as above]

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	DN2027	AM	ONE HOUR	07:45	09:15	15	✓

Default vehicle mix	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 - R101 Sheriff Street Upper East		ONE HOUR	✓	291.00	100.000
B - Castleforbes Road		ONE HOUR	✓	140.00	100.000
C - R101 Sheriff Street Upper West		ONE HOUR	✓	490.00	100.000
D - Existing Site Access		ONE HOUR	✓	6.00	100.000

Origin-Destination Data

Demand (PCU/hr)

From \ To	A - R101 Sheriff Street Upper East	B - Castleforbes Road	C - R101 Sheriff Street Upper West	D - Existing Site Access
A - R101 Sheriff Street Upper East	0.000	70.000	211.000	10.000
B - Castleforbes Road	59.000	0.000	73.000	8.000
C - R101 Sheriff Street Upper West	322.000	145.000	0.000	23.000
D - Existing Site Access	2.000	2.000	2.000	0.000

Proportions

From \ To	A - R101 Sheriff Street Upper East	B - Castleforbes Road	C - R101 Sheriff Street Upper West	D - Existi Site Acces
A - R101 Sheriff Street Upper East	0.00	0.24	0.73	0.03
B - Castleforbes Road	0.42	0.00	0.52	0.06
C - R101 Sheriff Street Upper West	0.66	0.30	0.00	0.05
D - Existing Site Access	0.33	0.33	0.33	0.00

Vehicle Mix

Heavy Vehicle proportion

		To			
		A - R101 Sheriff Street Upper East	B - Castleforbes Road	C - R101 Sheriff Street Upper West	D - Existing Site Access
From	A - R101 Sheriff Street Upper East	10	10	10	10
	B - Castleforbes Road	10	10	10	10
	C - R101 Sheriff Street Upper West	10	10	10	10
	D - Existing Site Access	10	10	10	10

Average PCU Per Veh

		To			
		A - R101 Sheriff Street Upper East	B - Castleforbes Road	C - R101 Sheriff Street Upper West	D - Existin Site Acces
From	A - R101 Sheriff Street Upper East	1.100	1.100	1.100	1.100
	B - Castleforbes Road	1.100	1.100	1.100	1.100
	C - R101 Sheriff Street Upper West	1.100	1.100	1.100	1.100
	D - Existing Site Access	1.100	1.100	1.100	1.100

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-ACD	0.24	8.26	0.4	A	128.47	192.70
A-BCD	0.02	5.49	0.0	A	13.74	20.61
A-B					63.10	94.65
A-C					190.19	285.29
D-ABC	0.01	8.25	0.0	A	5.51	8.26
C-ABD	0.34	7.02	0.8	A	220.66	330.99
C-D					15.26	22.90
C-A					213.71	320.56

Main Results for each time segment

Main results: (07:45-08:00)

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-ACD	105.40	105.40	26.35	0.00	654.24	0.161	104.56	0.0	0.2	7.194	A
A-BCD	10.41	10.41	2.60	0.00	732.32	0.014	10.33	0.0	0.0	5.484	A
A-B	51.98	51.98	13.00	0.00			51.98				
A-C	156.69	156.69	39.17	0.00			156.69				
D-ABC	4.52	4.52	1.13	0.00	507.19	0.009	4.48	0.0	0.0	7.877	A
C-ABD	162.85	162.85	40.71	0.00	781.78	0.208	161.25	0.0	0.4	6.374	A
C-D	13.74	13.74	3.43	0.00			13.74				
C-A	192.31	192.31	48.08	0.00			192.31				

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-ACD	125.86	125.86	31.46	0.00	645.52	0.195	125.64	0.2	0.3	7.613	A
A-BCD	13.22	13.22	3.30	0.00	751.92	0.018	13.20	0.0	0.0	5.360	A
A-B	61.88	61.88	15.47	0.00			61.88				
A-C	186.51	186.51	46.63	0.00			186.51				
D-ABC	5.39	5.39	1.35	0.00	498.44	0.011	5.39	0.0	0.0	8.031	A
C-ABD	210.26	210.26	52.57	0.00	811.58	0.259	209.68	0.4	0.5	6.586	A
C-D	15.35	15.35	3.84	0.00			15.35				
C-A	214.89	214.89	53.72	0.00			214.89				

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-ACD	154.14	154.14	38.54	0.00	633.51	0.243	153.80	0.3	0.3	8.249	A
A-BCD	17.57	17.57	4.39	0.00	779.09	0.023	17.54	0.0	0.0	5.199	A
A-B	75.44	75.44	18.86	0.00			75.44				
A-C	227.39	227.39	56.85	0.00			227.39				
D-ABC	6.61	6.61	1.65	0.00	486.45	0.014	6.59	0.0	0.0	8.252	A
C-ABD	288.04	288.04	72.01	0.00	853.98	0.337	286.93	0.5	0.8	6.996	A
C-D	16.76	16.76	4.19	0.00			16.76				
C-A	234.69	234.69	58.67	0.00			234.69				

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-ACD	154.14	154.14	38.54	0.00	633.43	0.243	154.13	0.3	0.4	8.261	A
A-BCD	17.58	17.58	4.39	0.00	778.99	0.023	17.58	0.0	0.0	5.200	A
A-B	75.44	75.44	18.86	0.00			75.44				
A-C	227.38	227.38	56.85	0.00			227.38				
D-ABC	6.61	6.61	1.65	0.00	486.34	0.014	6.61	0.0	0.0	8.254	A
C-ABD	288.47	288.47	72.12	0.00	854.40	0.338	288.44	0.8	0.8	7.022	A
C-D	16.74	16.74	4.18	0.00			16.74				
C-A	234.29	234.29	58.57	0.00			234.29				

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-ACD	125.86	125.86	31.46	0.00	645.40	0.195	126.19	0.4	0.3	7.633	A
A-BCD	13.23	13.23	3.31	0.00	751.76	0.018	13.26	0.0	0.0	5.364	A
A-B	61.87	61.87	15.47	0.00			61.87				
A-C	186.50	186.50	46.62	0.00			186.50				
D-ABC	5.39	5.39	1.35	0.00	498.27	0.011	5.41	0.0	0.0	8.036	A
C-ABD	210.78	210.78	52.69	0.00	812.21	0.260	211.84	0.8	0.6	6.624	A
C-D	15.31	15.31	3.83	0.00			15.31				
C-A	214.41	214.41	53.60	0.00			214.41				

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-ACD	105.40	105.40	26.35	0.00	654.05	0.161	105.62	0.3	0.2	7.225	A
A-BCD	10.43	10.43	2.61	0.00	732.10	0.014	10.45	0.0	0.0	5.487	A
A-B	51.98	51.98	12.99	0.00			51.98				
A-C	156.67	156.67	39.17	0.00			156.67				
D-ABC	4.52	4.52	1.13	0.00	506.97	0.009	4.53	0.0	0.0	7.882	A
C-ABD	163.56	163.56	40.89	0.00	782.34	0.209	164.18	0.6	0.4	6.423	A
C-D	13.69	13.69	3.42	0.00			13.69				
C-A	191.65	191.65	47.91	0.00			191.65				

Do Nothing - DN2027, 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	untitled	Crossroads	Two-way	2.87	A

Junction Network Options

[same as above]

Arms

Arms

[same as above]

Major Arm Geometry

[same as above]

Minor Arm Geometry

[same as above]

Slope / Intercept / Capacity

[same as above]

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	DN2027	PM	ONE HOUR	17:00	18:30	15	✓

Default vehicle mix	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 - R101 Sheriff Street Upper East		ONE HOUR	✓	306.00	100.000
B - Castleforbes Road		ONE HOUR	✓	204.00	100.000
C - R101 Sheriff Street Upper West		ONE HOUR	✓	406.00	100.000
D - Existing Site Access		ONE HOUR	✓	19.00	100.000

Origin-Destination Data

Demand (PCU/hr)

From \ To	A - R101 Sheriff Street Upper East	B - Castleforbes Road	C - R101 Sheriff Street Upper West	D - Existing Site Access
A - R101 Sheriff Street Upper East	0.000	45.000	258.000	3.000
B - Castleforbes Road	61.000	0.000	142.000	1.000
C - R101 Sheriff Street Upper West	326.000	74.000	0.000	6.000
D - Existing Site Access	4.000	2.000	13.000	0.000

Proportions

From \ To	A - R101 Sheriff Street Upper East	B - Castleforbes Road	C - R101 Sheriff Street Upper West	D - Existi Site Acces
A - R101 Sheriff Street Upper East	0.00	0.15	0.84	0.01
B - Castleforbes Road	0.30	0.00	0.70	0.00
C - R101 Sheriff Street Upper West	0.80	0.18	0.00	0.01
D - Existing Site Access	0.21	0.11	0.68	0.00

Vehicle Mix

Heavy Vehicle proportion

From \ To	A - R101 Sheriff Street Upper East	B - Castleforbes Road	C - R101 Sheriff Street Upper West	D - Existing Site Access
A - R101 Sheriff Street Upper East	10	10	10	10
B - Castleforbes Road	10	10	10	10
C - R101 Sheriff Street Upper West	10	10	10	10
D - Existing Site Access	10	10	10	10

Average PCU Per Veh

From \ To	A - R101 Sheriff Street Upper East	B - Castleforbes Road	C - R101 Sheriff Street Upper West	D - Existin Site Acces
A - R101 Sheriff Street Upper East	1.100	1.100	1.100	1.100
B - Castleforbes Road	1.100	1.100	1.100	1.100
C - R101 Sheriff Street Upper West	1.100	1.100	1.100	1.100
D - Existing Site Access	1.100	1.100	1.100	1.100

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-ACD	0.33	8.81	0.5	A	187.19	280.79
A-BCD	0.01	5.30	0.0	A	4.21	6.31
A-B					41.08	61.62
A-C					235.51	353.26
D-ABC	0.04	8.88	0.1	A	17.43	26.15
C-ABD	0.17	5.73	0.4	A	110.23	165.35
C-D					4.74	7.11
C-A					257.58	386.37

Main Results for each time segment

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-ACD	153.58	153.58	38.40	0.00	691.06	0.222	152.34	0.0	0.3	7.335	A
A-BCD	3.18	3.18	0.80	0.00	750.23	0.004	3.16	0.0	0.0	5.300	A
A-B	33.74	33.74	8.44	0.00			33.74				
A-C	193.45	193.45	48.36	0.00			193.45				
D-ABC	14.30	14.30	3.58	0.00	488.93	0.029	14.17	0.0	0.0	8.339	A
C-ABD	81.97	81.97	20.49	0.00	774.63	0.106	81.19	0.0	0.2	5.709	A
C-D	4.04	4.04	1.01	0.00			4.04				
C-A	219.64	219.64	54.91	0.00			219.64				

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-ACD	183.39	183.39	45.85	0.00	683.85	0.268	183.04	0.3	0.4	7.901	A
A-BCD	4.05	4.05	1.01	0.00	773.05	0.005	4.04	0.0	0.0	5.149	A
A-B	40.25	40.25	10.06	0.00			40.25				
A-C	230.79	230.79	57.70	0.00			230.79				
D-ABC	17.08	17.08	4.27	0.00	479.55	0.036	17.05	0.0	0.0	8.562	A
C-ABD	105.57	105.57	26.39	0.00	802.92	0.131	105.32	0.2	0.3	5.679	A
C-D	4.69	4.69	1.17	0.00			4.69				
C-A	254.73	254.73	63.68	0.00			254.73				

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-ACD	224.61	224.61	56.15	0.00	673.88	0.333	224.03	0.4	0.5	8.791	A
A-BCD	5.39	5.39	1.35	0.00	804.36	0.007	5.38	0.0	0.0	4.955	A
A-B	49.24	49.24	12.31	0.00			49.24				
A-C	282.29	282.29	70.57	0.00			282.29				
D-ABC	20.92	20.92	5.23	0.00	466.69	0.045	20.88	0.0	0.1	8.881	A
C-ABD	142.83	142.83	35.71	0.00	841.90	0.170	142.41	0.3	0.4	5.666	A
C-D	5.50	5.50	1.37	0.00			5.50				
C-A	298.69	298.69	74.67	0.00			298.69				

Main results: (17:45-18:00)

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-ACD	224.61	224.61	56.15	0.00	673.85	0.333	224.59	0.5	0.5	8.814	A
A-BCD	5.39	5.39	1.35	0.00	804.33	0.007	5.39	0.0	0.0	4.958	A
A-B	49.24	49.24	12.31	0.00			49.24				
A-C	282.29	282.29	70.57	0.00			282.29				
D-ABC	20.92	20.92	5.23	0.00	466.61	0.045	20.92	0.1	0.1	8.884	A
C-ABD	142.97	142.97	35.74	0.00	842.06	0.170	142.96	0.4	0.4	5.674	A
C-D	5.49	5.49	1.37	0.00			5.49				
C-A	298.55	298.55	74.64	0.00			298.55				

Main results: (18:00-18:15)

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-ACD	183.39	183.39	45.85	0.00	683.81	0.268	183.94	0.5	0.4	7.930	A
A-BCD	4.05	4.05	1.01	0.00	772.98	0.005	4.06	0.0	0.0	5.151	A
A-B	40.25	40.25	10.06	0.00			40.25				
A-C	230.78	230.78	57.70	0.00			230.78				
D-ABC	17.08	17.08	4.27	0.00	479.43	0.036	17.12	0.1	0.0	8.566	A
C-ABD	105.76	105.76	26.44	0.00	803.16	0.132	106.16	0.4	0.3	5.692	A
C-D	4.68	4.68	1.17	0.00			4.68				
C-A	254.54	254.54	63.64	0.00			254.54				

Main results: (18:15-18:30)

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-ACD	153.58	153.58	38.40	0.00	690.99	0.222	153.94	0.4	0.3	7.380	A
A-BCD	3.19	3.19	0.80	0.00	750.13	0.004	3.19	0.0	0.0	5.303	A
A-B	33.74	33.74	8.44	0.00			33.74				
A-C	193.45	193.45	48.36	0.00			193.45				
D-ABC	14.30	14.30	3.58	0.00	488.74	0.029	14.33	0.0	0.0	8.347	A
C-ABD	82.29	82.29	20.57	0.00	774.89	0.106	82.55	0.3	0.2	5.727	A
C-D	4.04	4.04	1.01	0.00			4.04				
C-A	219.33	219.33	54.83	0.00			219.33				

Do Nothing - DN2037, 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	untitled	Crossroads	Two-way	3.26	A

Junction Network Options

[same as above]

Arms

Arms

[same as above]

Major Arm Geometry

[same as above]

Minor Arm Geometry

[same as above]

Slope / Intercept / Capacity

[same as above]

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	DN2037	AM	ONE HOUR	07:45	09:15	15	✓

Default vehicle mix	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 - R101 Sheriff Street Upper East		ONE HOUR	✓	304.00	100.000
B - Castleforbes Road		ONE HOUR	✓	145.00	100.000
C - R101 Sheriff Street Upper West		ONE HOUR	✓	513.00	100.000
D - Existing Site Access		ONE HOUR	✓	6.00	100.000

Origin-Destination Data

Demand (PCU/hr)

From \ To	A - R101 Sheriff Street Upper East	B - Castleforbes Road	C - R101 Sheriff Street Upper West	D - Existing Site Access
A - R101 Sheriff Street Upper East	0.000	71.000	222.000	11.000
B - Castleforbes Road	61.000	0.000	76.000	8.000
C - R101 Sheriff Street Upper West	339.000	149.000	0.000	25.000
D - Existing Site Access	2.000	2.000	2.000	0.000

Proportions

From \ To	A - R101 Sheriff Street Upper East	B - Castleforbes Road	C - R101 Sheriff Street Upper West	D - Existi Site Acces
A - R101 Sheriff Street Upper East	0.00	0.23	0.73	0.04
B - Castleforbes Road	0.42	0.00	0.52	0.06
C - R101 Sheriff Street Upper West	0.66	0.29	0.00	0.05
D - Existing Site Access	0.33	0.33	0.33	0.00

Vehicle Mix

Heavy Vehicle proportion

From \ To	A - R101 Sheriff Street Upper East	B - Castleforbes Road	C - R101 Sheriff Street Upper West	D - Existing Site Access
A - R101 Sheriff Street Upper East	10	10	10	10
B - Castleforbes Road	10	10	10	10
C - R101 Sheriff Street Upper West	10	10	10	10
D - Existing Site Access	10	10	10	10

Average PCU Per Veh

From \ To	A - R101 Sheriff Street Upper East	B - Castleforbes Road	C - R101 Sheriff Street Upper West	D - Existin Site Acces
A - R101 Sheriff Street Upper East	1.100	1.100	1.100	1.100
B - Castleforbes Road	1.100	1.100	1.100	1.100
C - R101 Sheriff Street Upper West	1.100	1.100	1.100	1.100
D - Existing Site Access	1.100	1.100	1.100	1.100

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-ACD	0.25	8.40	0.4	A	133.05	199.58
A-BCD	0.03	5.46	0.0	A	15.36	23.05
A-B					63.87	95.81
A-C					199.72	299.58
D-ABC	0.01	8.31	0.0	A	5.51	8.26
C-ABD	0.35	7.09	0.9	A	233.00	349.50
C-D					16.33	24.49
C-A					221.41	332.12

Main Results for each time segment

Main results: (07:45-08:00)

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-ACD	109.16	109.16	27.29	0.00	652.83	0.167	108.29	0.0	0.2	7.260	A
A-BCD	11.60	11.60	2.90	0.00	736.60	0.016	11.52	0.0	0.0	5.461	A
A-B	52.65	52.65	13.16	0.00			52.65				
A-C	164.62	164.62	41.15	0.00			164.62				
D-ABC	4.52	4.52	1.13	0.00	505.10	0.009	4.48	0.0	0.0	7.910	A
C-ABD	170.93	170.93	42.73	0.00	790.31	0.216	169.23	0.0	0.4	6.370	A
C-D	14.79	14.79	3.70	0.00			14.79				
C-A	200.50	200.50	50.12	0.00			200.50				

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-ACD	130.35	130.35	32.59	0.00	643.72	0.203	130.12	0.2	0.3	7.707	A
A-BCD	14.77	14.77	3.69	0.00	757.01	0.020	14.75	0.0	0.0	5.334	A
A-B	62.64	62.64	15.66	0.00			62.64				
A-C	195.87	195.87	48.97	0.00			195.87				
D-ABC	5.39	5.39	1.35	0.00	495.93	0.011	5.39	0.0	0.0	8.072	A
C-ABD	221.58	221.58	55.39	0.00	821.80	0.270	220.94	0.4	0.6	6.598	A
C-D	16.46	16.46	4.11	0.00			16.46				
C-A	223.14	223.14	55.79	0.00			223.14				

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-ACD	159.65	159.65	39.91	0.00	631.18	0.253	159.28	0.3	0.4	8.384	A
A-BCD	19.69	19.69	4.92	0.00	785.28	0.025	19.65	0.0	0.0	5.171	A
A-B	76.34	76.34	19.08	0.00			76.34				
A-C	238.68	238.68	59.67	0.00			238.68				
D-ABC	6.61	6.61	1.65	0.00	483.35	0.014	6.59	0.0	0.0	8.306	A
C-ABD	305.54	305.54	76.39	0.00	866.76	0.353	304.31	0.6	0.9	7.055	A
C-D	17.81	17.81	4.45	0.00			17.81				
C-A	241.47	241.47	60.37	0.00			241.47				

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-ACD	159.65	159.65	39.91	0.00	631.09	0.253	159.64	0.4	0.4	8.399	A
A-BCD	19.70	19.70	4.93	0.00	785.18	0.025	19.70	0.0	0.0	5.173	A
A-B	76.33	76.33	19.08	0.00			76.33				
A-C	238.67	238.67	59.67	0.00			238.67				
D-ABC	6.61	6.61	1.65	0.00	483.23	0.014	6.61	0.0	0.0	8.308	A
C-ABD	306.04	306.04	76.51	0.00	867.24	0.353	306.00	0.9	0.9	7.087	A
C-D	17.77	17.77	4.44	0.00			17.77				
C-A	241.01	241.01	60.25	0.00			241.01				

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-ACD	130.35	130.35	32.59	0.00	643.59	0.203	130.70	0.4	0.3	7.727	A
A-BCD	14.79	14.79	3.70	0.00	756.84	0.020	14.82	0.0	0.0	5.338	A
A-B	62.64	62.64	15.66	0.00			62.64				
A-C	195.86	195.86	48.97	0.00			195.86				
D-ABC	5.39	5.39	1.35	0.00	495.74	0.011	5.41	0.0	0.0	8.077	A
C-ABD	222.16	222.16	55.54	0.00	822.51	0.270	223.35	0.9	0.6	6.641	A
C-D	16.42	16.42	4.10	0.00			16.42				
C-A	222.60	222.60	55.65	0.00			222.60				

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-ACD	109.16	109.16	27.29	0.00	652.62	0.167	109.40	0.3	0.2	7.295	A
A-BCD	11.63	11.63	2.91	0.00	736.36	0.016	11.65	0.0	0.0	5.464	A
A-B	52.64	52.64	13.16	0.00			52.64				
A-C	164.60	164.60	41.15	0.00			164.60				
D-ABC	4.52	4.52	1.13	0.00	504.87	0.009	4.53	0.0	0.0	7.916	A
C-ABD	171.73	171.73	42.93	0.00	790.93	0.217	172.40	0.6	0.4	6.421	A
C-D	14.73	14.73	3.68	0.00			14.73				
C-A	199.75	199.75	49.94	0.00			199.75				

Do Nothing - DN2037, 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	untitled	Crossroads	Two-way	2.90	A

Junction Network Options

[same as above]

Arms

Arms

[same as above]

Major Arm Geometry

[same as above]

Minor Arm Geometry

[same as above]

Slope / Intercept / Capacity

[same as above]

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	DN2037	PM	ONE HOUR	17:00	18:30	15	✓

Default vehicle mix	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 - R101 Sheriff Street Upper East		ONE HOUR	✓	322.00	100.000
B - Castleforbes Road		ONE HOUR	✓	210.00	100.000
C - R101 Sheriff Street Upper West		ONE HOUR	✓	427.00	100.000
D - Existing Site Access		ONE HOUR	✓	21.00	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		A - R101 Sheriff Street Upper East	B - Castleforbes Road	C - R101 Sheriff Street Upper West	D - Existing Site Access
From	A - R101 Sheriff Street Upper East	0.000	46.000	272.000	4.000
	B - Castleforbes Road	62.000	0.000	147.000	1.000
	C - R101 Sheriff Street Upper West	344.000	77.000	0.000	6.000
	D - Existing Site Access	5.000	2.000	14.000	0.000

Proportions

		To			
		A - R101 Sheriff Street Upper East	B - Castleforbes Road	C - R101 Sheriff Street Upper West	D - Existi Site Acces
From	A - R101 Sheriff Street Upper East	0.00	0.14	0.84	0.01
	B - Castleforbes Road	0.30	0.00	0.70	0.00
	C - R101 Sheriff Street Upper West	0.81	0.18	0.00	0.01
	D - Existing Site Access	0.24	0.10	0.67	0.00

Vehicle Mix

Heavy Vehicle proportion

		To			
		A - R101 Sheriff Street Upper East	B - Castleforbes Road	C - R101 Sheriff Street Upper West	D - Existing Site Access
From	A - R101 Sheriff Street Upper East	10	10	10	10
	B - Castleforbes Road	10	10	10	10
	C - R101 Sheriff Street Upper West	10	10	10	10
	D - Existing Site Access	10	10	10	10

Average PCU Per Veh

		To			
		A - R101 Sheriff Street Upper East	B - Castleforbes Road	C - R101 Sheriff Street Upper West	D - Existin Site Acces
From	A - R101 Sheriff Street Upper East	1.100	1.100	1.100	1.100
	B - Castleforbes Road	1.100	1.100	1.100	1.100
	C - R101 Sheriff Street Upper West	1.100	1.100	1.100	1.100
	D - Existing Site Access	1.100	1.100	1.100	1.100

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-ACD	0.34	8.99	0.6	A	192.70	289.05
A-BCD	0.01	5.27	0.0	A	5.72	8.58
A-B					41.91	62.87
A-C					247.84	371.76
D-ABC	0.05	8.92	0.1	A	19.27	28.90
C-ABD	0.18	5.70	0.4	A	117.66	176.48
C-D					4.70	7.05
C-A					269.47	404.20

Main Results for each time segment

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-ACD	158.10	158.10	39.52	0.00	689.93	0.229	156.80	0.0	0.3	7.410	A
A-BCD	4.31	4.31	1.08	0.00	756.05	0.006	4.28	0.0	0.0	5.267	A
A-B	34.44	34.44	8.61	0.00			34.44				
A-C	203.67	203.67	50.92	0.00			203.67				
D-ABC	15.81	15.81	3.95	0.00	490.21	0.032	15.66	0.0	0.0	8.342	A
C-ABD	87.05	87.05	21.76	0.00	782.50	0.111	86.22	0.0	0.2	5.690	A
C-D	4.02	4.02	1.00	0.00			4.02				
C-A	230.40	230.40	57.60	0.00			230.40				

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-ACD	188.79	188.79	47.20	0.00	682.35	0.277	188.42	0.3	0.4	8.012	A
A-BCD	5.50	5.50	1.37	0.00	779.94	0.007	5.49	0.0	0.0	5.112	A
A-B	41.08	41.08	10.27	0.00			41.08				
A-C	242.90	242.90	60.72	0.00			242.90				
D-ABC	18.88	18.88	4.72	0.00	480.42	0.039	18.85	0.0	0.0	8.579	A
C-ABD	112.54	112.54	28.13	0.00	812.34	0.139	112.26	0.2	0.3	5.660	A
C-D	4.65	4.65	1.16	0.00			4.65				
C-A	266.67	266.67	66.67	0.00			266.67				

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-ACD	231.21	231.21	57.80	0.00	671.85	0.344	230.60	0.4	0.6	8.962	A
A-BCD	7.34	7.34	1.84	0.00	812.68	0.009	7.33	0.0	0.0	4.916	A
A-B	50.22	50.22	12.56	0.00			50.22				
A-C	296.96	296.96	74.24	0.00			296.96				
D-ABC	23.12	23.12	5.78	0.00	466.99	0.050	23.07	0.0	0.1	8.919	A
C-ABD	153.01	153.01	38.25	0.00	853.43	0.179	152.54	0.3	0.4	5.655	A
C-D	5.44	5.44	1.36	0.00			5.44				
C-A	311.69	311.69	77.92	0.00			311.69				

Main results: (17:45-18:00)

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-ACD	231.21	231.21	57.80	0.00	671.83	0.344	231.20	0.6	0.6	8.987	A
A-BCD	7.35	7.35	1.84	0.00	812.64	0.009	7.35	0.0	0.0	4.918	A
A-B	50.22	50.22	12.56	0.00			50.22				
A-C	296.96	296.96	74.24	0.00			296.96				
D-ABC	23.12	23.12	5.78	0.00	466.91	0.050	23.12	0.1	0.1	8.922	A
C-ABD	153.17	153.17	38.29	0.00	853.61	0.179	153.16	0.4	0.4	5.665	A
C-D	5.43	5.43	1.36	0.00			5.43				
C-A	311.53	311.53	77.88	0.00			311.53				

Main results: (18:00-18:15)

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-ACD	188.79	188.79	47.20	0.00	682.31	0.277	189.37	0.6	0.4	8.044	A
A-BCD	5.50	5.50	1.38	0.00	779.87	0.007	5.51	0.0	0.0	5.113	A
A-B	41.08	41.08	10.27	0.00			41.08				
A-C	242.89	242.89	60.72	0.00			242.89				
D-ABC	18.88	18.88	4.72	0.00	480.29	0.039	18.92	0.1	0.0	8.583	A
C-ABD	112.75	112.75	28.19	0.00	812.62	0.139	113.20	0.4	0.3	5.673	A
C-D	4.65	4.65	1.16	0.00			4.65				
C-A	266.47	266.47	66.62	0.00			266.47				

Main results: (18:15-18:30)

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-ACD	158.10	158.10	39.52	0.00	689.86	0.229	158.48	0.4	0.3	7.456	A
A-BCD	4.32	4.32	1.08	0.00	755.94	0.006	4.32	0.0	0.0	5.268	A
A-B	34.44	34.44	8.61	0.00			34.44				
A-C	203.66	203.66	50.91	0.00			203.66				
D-ABC	15.81	15.81	3.95	0.00	490.01	0.032	15.84	0.0	0.0	8.351	A
C-ABD	87.41	87.41	21.85	0.00	782.78	0.112	87.69	0.3	0.2	5.703	A
C-D	4.01	4.01	1.00	0.00			4.01				
C-A	230.05	230.05	57.51	0.00			230.05				

APPENDIX D

TRANSYT Output Files

TRANSYT 15

Version: 15.5.2.7994

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

Filename: DS Sheriff Street - Castleforbes Road.t15
Path: G:\2018\p180159\Calcs\transyt
Report generation date: 26/11/2019 13:01:40

File summary

File description

File title	(untitled)
Location	
Site number	
UTCRegion	
Driving side	Left
Date	13/11/2019
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	HEADOFFICE\gendyh
Description	

Model and Results

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

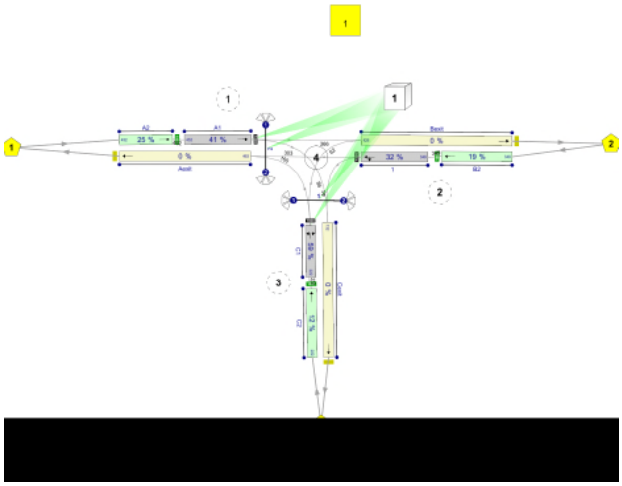
Units

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

Sorting

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

Network Diagrams



A1 - DS 2022 AM
D1 - DS2022 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	26/11/2019 13:01:21	26/11/2019 13:01:21	08:00	100	59.13	3.74	44.08	A1/1	0	0	A1/1	A2/1	A1/

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
DS2022 AM				08:00	

Network Options

Network timings

Network cycle time (s)	Restrict to SCOOT cycle times	Time segment length (min)	Number of time segments	Modelled time period (min)
100		60	1	60

Signals options

Start displacement (s)	End displacement (s)
2	3

Advanced

Phase minimum broken penalty (£)	Phase maximum broken penalty (£)	Intergreen broken penalty (£)	Starting Red-with-Amber (s)
10000.00	10000.00	10000.00	2

Traffic options

Traffic model	Vehicle flow scaling factor (%)	Pedestrian flow scaling factor (%)	Cruise times or speeds
Platoon Dispersion (PDM)	100	100	Cruise Speeds

Advanced

Resolution	DOS Threshold (%)	Cruise scaling factor (%)	Use link stop weightings	Use link delay weightings	Exclude pedestrians from results calculation	Random delay mode	Type of Vehicle-in-Service	Type of random parameter	PCU Length (m)	Calculate results for Path Segments	Generate PDM Profile Data
1	90	100	✓	✓		Complex	Uniform (TRANSYT)	Uniform (TRANSYT)	5.75		✓

Normal Traffic parameters

Dispersion type	Dispersion coefficient	Travel time coefficient
Default	35	80

Normal Traffic Types

Name	PCU Factor
Normal	1.00

Bus parameters

Name	PCU Factor	Dispersion type	Acceleration (ms^[-2])	Stationary time coefficient	Cruise time coefficient
Bus	1.00	Default	0.94	30	85

Tram parameters

Name	PCU Factor	Dispersion type	Acceleration (ms^[-2])	Stationary time coefficient	Cruise time coefficient
Tram	1.00	Default	0.94	100	100

Pedestrian parameters

Dispersion type
Default

Optimisation options

Enable optimisation	Auto redistribute	Optimisation level	Enable OUT Profile accuracy
✓	✓	Offsets And Green Splits	✓

Advanced

Optimisation type	Hill climb increments	OUTProfile accuracy	Use enhanced optimisation	Auto optimisation order	Optimisation order	Master controller	Offsets relative to master controller	Master controller offset after each run
Hill Climb (Fast)	15, 40, -1, 15, 40, 1, -1, 1	50, 50, 5, 5, 0.5, 0.5, 0.05, 0.05		✓	1			Do nothing

Economics

Vehicle Monetary Value Of Delay (£ per PCU-hr)	Vehicle Monetary Value Of Stops (£ per 100 stops)	Pedestrian monetary value of delay (£ per Ped-hr)
14.20	2.60	14.20

Arms and Traffic Streams

Arms

Arm	Name	Description	Traffic node
Aexit			
Bexit			
Cexit			
A1			4
B1			4
C1			4
A2			1
B2			2
C2			3

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				63.64						Normal	
Bexit	1				47.82						Normal	
Cexit	1				9.55						Normal	
A1	1				21.08	✓	Sum of lanes	1800	✓		Normal	
B1	1				10.28	✓	Sum of lanes	1800	✓		Normal	
C1	1				7.79	✓	Sum of lanes	1800	✓		Normal	
A2	1				10.68	✓	Sum of lanes	1800			Normal	
B2	1				1.00	✓	Sum of lanes	1800			Normal	
C2	1				1.77	✓	Sum of lanes	1800			Normal	

Lanes

Arm	Traffic Stream	Lane	Name	Description	Use RR67	Saturation flow (PCU/hr)
Aexit	1	1	(untitled)			
Bexit	1	1	(untitled)			
Cexit	1	1	(untitled)			
A1	1	1	(untitled)			1800
B1	1	1	(untitled)			1800
C1	1	1	(untitled)			1800
A2	1	1	(untitled)			1800
B2	1	1	(untitled)			1800
C2	1	1	(untitled)			1800

Modelling

Arm	Traffic Stream	Traffic model	Stop weighting multiplier (%)	Delay weighting multiplier (%)	Assignment Cost Weighting (%)	Exclude from results calculation	Max queue storage (PCU)	Has queue limit	Has degree of saturation limit
Aexit	1	NetworkDefault	100	100	100		10.00		
Bexit	1	NetworkDefault	100	100	100		8.00		
Cexit	1	NetworkDefault	100	100	100		1.00		
A1	1	NetworkDefault	100	100	100		3.00		
B1	1	NetworkDefault	100	100	100		1.00		
C1	1	NetworkDefault	100	100	100		1.00		
A2	1	NetworkDefault	100	100	100		1.00		
B2	1	NetworkDefault	100	100	100		0.00		
C2	1	NetworkDefault	100	100	100		0.00		

Modelling - Advanced

Arm	Traffic Stream	Initial queue (PCU)	Type of Vehicle-in-Service	Vehicle-in-Service	Type of random parameter	Random parameter	Auto cycle time	Cycle time
(ALL)	1	0.00	NetworkDefault	Not-Included	NetworkDefault	0.50	✓	100

Normal traffic - Modelling

Arm	Traffic Stream	Stop weighting (%)	Delay weighting (%)
(ALL)	1	100	100

Normal traffic - Advanced

Arm	Traffic Stream	Dispersion type for Normal Traffic
(ALL)	1	NetworkDefault

Flows

Arm	Traffic Stream	Total Flow (PCU/hr)	Normal Flow (PCU/hr)
Aexit	1	289	289
Bexit	1	388	388
Cexit	1	222	222
A1	1	484	484
B1	1	281	281
C1	1	134	134
A2	1	484	484
B2	1	281	281
C2	1	134	134

Signals

Arm	Traffic Stream	Controller stream	Phase	Second phase enabled
A1	1	1	A	
B1	1	1	B	
C1	1	1	C	

Pedestrian Crossings

Pedestrian Crossings

Crossing	Name	Description	Traffic node	Allow walk on red	Crossing type	Length (m)	Cruise time (seconds)	Cruise speed (kph)
1	(untitled)				Farside	6.58	4.38	5.40
2	(untitled)				Farside	5.96	3.97	5.40

Pedestrian Crossings - Signals

Crossing	Controller stream	Phase	Second phase enabled
1	1	E	
2	1	D	

Pedestrian Crossings - Sides

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

Pedestrian Crossings - Modelling

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

Local OD Matrix - Local Matrix: 1

Local Matrix Options

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

Normal Input Flows (PCU/hr)

From \ To	1	2	3
1	0	331	153
2	212	0	69
3	77	57	0

Bus Input Flows not shown as they are blank.

Tram Input Flows not shown as they are blank.

Pedestrian Input Flows not shown as they are blank.

Locations

OD Matrix	Location	Name	Entries	Exits	Colour
1	1	(untitled)	A2/1	Aexit/1	#0000FF
	2	(untitled)	B2/1	Bexit/1	#FF0000
	3	(untitled)	C2/1	Cexit/1	#00FF00

Normal Paths and Flows

OD Matrix	Path	Description	From location	To location	Path items	Allocation type	Normal Calculated Flow (PCU/hr)
1	1		1	2	A2/1, A1/1, Bexit/1	Normal	331
	2		1	3	A2/1, A1/1, Cexit/1	Normal	153
	3		3	2	C2/1, C1/1, Bexit/1	Normal	57
	4		3	1	C2/1, C1/1, Aexit/1	Normal	77
	5		2	1	B2/1, B1/1, Aexit/1	Normal	212
	6		2	3	B2/1, B1/1, Cexit/1	Normal	69

Signal Timings

Network Default: 100s cycle time; 100 steps

Phases

Controller stream	Phase	Name	Minimum green (s)	Maximum green (s)	Relative start displacement (s)	Relative end displacement (s)	Type	Blackout Time (s)
1	A	(untitled)	23	300	0	0	Traffic	
	B	(untitled)	23	300	0	0	Traffic	
	C	(untitled)	20	300	0	0	Traffic	
	D	(untitled)	3	300	0	0	Pedestrian	0
	E	(untitled)	3	300	0	0	Pedestrian	0

Library Stages

Controller stream	Library stage	Phases in stage	User stage minimum (s)
1	1	A, B	1
	2	C	1
	3	E, D	1

Losing / Gaining Phase Delays

Controller stream	Delay	Type	Phase	From stage	To stage	Relative delay
1	1	Losing	D	3	1	1

Stage Sequences

Controller stream	Sequence	Name	Multiple cycling	Stage IDs	Stage ends
1	1	(untitled)	Single	1, 2, 3	54, 79, 87

Intergreen Matrix for Controller Stream 1

From \ To	A	B	C	D	E
A			5	5	7
B			5	7	6
C	5	5		6	5
D	6	6	6		
E	7	7	7		

Interstage Matrix for Controller Stream 1

From \ To	1	2	3
1	0	5	7
2	5	0	6
3	7	7	0

Resultant Stages

Controller stream	Resultant Stage	Is base stage	Library Stage ID	Phases in this stage	Stage start (s)	Stage end (s)	Stage duration (s)	User stage minimum (s)	Stage minimum (s)
1	1	✓	1	A,B	94	54	60	1	23
	2	✓	2	C	59	79	20	1	20
	3	✓	3	E,D	85	87	2	1	2

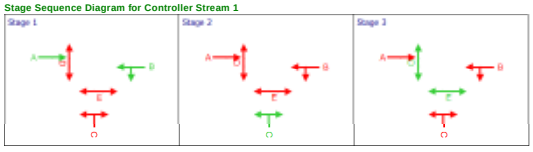
Resultant Phase Green Periods

Controller stream	Phase	Green period	Is base green period	Start time (s)	End time (s)	Duration (s)
1	A	1	✓	94	54	60
	B	1	✓	94	54	60
	C	1	✓	59	79	20
	D	1	✓	85	88	3
	E	1	✓	84	87	3

Traffic Stream Green Times

Arm	Traffic Stream	Traffic Node	Controller Stream	Phase	Green Period 1		
					Start	End	Duration
A1	1	4	1	A	94	54	60
B1	1	4	1	B	94	54	60
C1	1	4	1	C	59	79	20

Stage Sequence Diagram for Controller Stream 1



Resultant penalties

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

Traffic Stream Results

Traffic Stream Results: Vehicle summary

Time Segment	Arm	Traffic Stream	Degree of saturation (%)	Practical reserve capacity	Calculated flow entering (PCU/hr)	Calculated sat flow	Actual green (s (per cycle))	Mean Delay per Veh (s)	Mean max queue (PCU)	Utilised storage (%)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Performance Index (£ per hr)
08:00-09:00	Aexit	1	0	Unrestricted	289	Unrestricted	100	0.00	0.00	0.00	0.00	0.00	0.00
	Bexit	1	0	Unrestricted	388	Unrestricted	100	0.00	0.00	0.00	0.00	0.00	0.00
	Cexit	1	0	Unrestricted	222	Unrestricted	100	0.00	0.00	0.00	0.00	0.00	0.00
	A1	1	44	104	484	1800	60	11.69	7.30	243.30	22.33	3.18	25.51
	B1	1	26	252	281	1800	60	9.58	3.63	363.45	10.62	1.58	12.20
	C1	1	35	154	134	1800	20	36.33	3.26	326.09	19.20	1.27	20.47
	A2	1	27	235	484	1800	100	0.37	0.05	4.94	0.70	0.00	0.70
	B2	1	16	477	281	1800	100	0.18	0.01	8.30	0.20	0.00	0.20
	C2	1	7	1109	134	1800	100	0.08	0.00	0.97	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	Calculated capacity	Degree of saturation (%)	DOS Threshold exceeded	Practical reserve capacity	Mean modulus of error	Actual green (s (per cycle))
08:00-09:00	Aexit	1	289	289	0		Unrestricted	Unrestricted	0		Unrestricted	0.69	100
	Bexit	1	388	388	0		Unrestricted	Unrestricted	0		Unrestricted	0.65	100
	Cexit	1	222	222	0		Unrestricted	Unrestricted	0		Unrestricted	0.77	100
	A1	1	484	484	0		1800	1098	44		104	0.00	60
	B1	1	281	281	0		1800	1098	26		252	0.00	60
	C1	1	134	134	0		1800	378	35		154	0.00	20
	A2	1	484	484	0		1800	1800	27		235	0.00	100
	B2	1	281	281	0		1800	1800	16		477	0.00	100
	C2	1	134	134	0		1800	1800	7		1109	0.00	100

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)
08:00-09:00	Aexit	1	7.64	0.00	0.00	0.00	0.00	0.00	0.00
	Bexit	1	5.74	0.00	0.00	0.00	0.00	0.00	0.00
	Cexit	1	1.15	0.00	0.00	0.00	0.00	0.00	0.00
	A1	1	2.53	11.69	1.57	22.33	52.44	253.81	3.18
	B1	1	1.23	9.58	0.75	10.62	44.93	126.24	1.58
	C1	1	1.00	36.33	1.35	19.20	86.41	115.78	1.27
	A2	1	1.28	0.37	0.05	0.70	0.00	0.00	0.00
	B2	1	1.00	0.18	0.01	0.20	0.00	0.00	0.00
	C2	1	1.00	0.08	0.00	0.04	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
08:00-09:00	Aexit	1	0.00	0.00	10.00	0.00	0.00	15.00	
	Bexit	1	0.00	0.00	8.00	0.00	0.00	19.00	
	Cexit	1	0.00	0.00	1.00	0.00	0.00	39.00	
	A1	1	0.00	7.30	3.00	243.30	0.00	0.00	
	B1	1	0.00	3.63	1.00	363.45	0.00	0.00	
	C1	1	0.00	3.26	1.00	326.09	0.00	0.00	
	A2	1	0.00	0.05	1.00	4.94	0.00	32.00	
	B2	1	0.00	0.01	0.17	8.30	0.00	34.00	
	C2	1	0.00	0.00	0.31	0.97	0.00	61.00	

Network Results

Run Summary

Analysis set used	Run start time	Run finish time	Modelling start time (HH:mm)	Network Cycle Time (s)	Performance Index (£ per hr)	Total network delay (PCU-hr/hr)	Highest DOS (%)	Item with highest DOS	Number of oversaturated items	Percentage of oversaturated items (%)	Item with worst signalised PRC	Item with worst unsignalised PRC	Ite wit wor over PR
1	26/11/2019 13:01:21	26/11/2019 13:01:21	08:00	100	59.13	3.74	44.08	A1/1	0	0	A1/1	A2/1	A1/

Network Results: Vehicle summary

Time Segment	Degree of saturation (%)	Practical reserve capacity (%)	Calculated flow entering (PCU/hr)	Actual green (s (per cycle))	Mean Delay per Veh (s)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Performance Index (£ per hr)
08:00-09:00	44	0	2697	740	4.99	53.10	6.03	59.13

Network Results: Flows and signals

Time Segment	Calculated flow entering (PCU/hr)	Calculated flow out (PCU/hr)	Flow discrepancy (PCU/hr)	Adjusted flow warning	Degree of saturation (%)	DOS Threshold exceeded	Practical reserve capacity (%)	Actual green (s (per cycle))
08:00-09:00	2697	2697	0		44		104	752

Network Results: Stops and delays

Time Segment	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)
08:00-09:00	2.75	4.99	3.74	53.10	18.38	495.84	6.03

Network Results: Queues and blocking

Time Segment	Utilised storage (%)	Excess queue penalty (£ per hr)	Wasted time total (s (per cycle))
08:00-09:00	363.45	0.00	200.00

A2 - DS 2022 PM
D2 - DS2022 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	26/11/2019 13:01:21	26/11/2019 13:01:22	17:15	100	73.04	4.68	55.56	C1/1	0	0	C1/1	A2/1	C1/

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
DS2022 PM				17:15	

Network Options

Network timings

Network cycle time (s)	Restrict to SCOOT cycle times	Time segment length (min)	Number of time segments	Modelled time period (min)
100		60	1	60

Signals options

Start displacement (s)	End displacement (s)
2	3

Advanced

Phase minimum broken penalty (£)	Phase maximum broken penalty (£)	Intergreen broken penalty (£)	Starting Red-with-Amber (s)
10000.00	10000.00	10000.00	2

Traffic options

Traffic model	Vehicle flow scaling factor (%)	Pedestrian flow scaling factor (%)	Cruise times or speeds
Platoon Dispersion (PDM)	100	100	Cruise Speeds

Advanced

Resolution	DOS Threshold (%)	Cruise scaling factor (%)	Use link stop weightings	Use link delay weightings	Exclude pedestrians from results calculation	Random delay mode	Type of Vehicle-in-Service	Type of random parameter	PCU Length (m)	Calculate results for Path Segments	Generate PDM Profile Data
1	90	100	✓	✓		Complex	Uniform (TRANSYT)	Uniform (TRANSYT)	5.75		✓

Normal Traffic parameters

Dispersion type	Dispersion coefficient	Travel time coefficient
Default	35	80

Normal Traffic Types

Name	PCU Factor
Normal	1.00

Bus parameters

Name	PCU Factor	Dispersion type	Acceleration (ms^[-2])	Stationary time coefficient	Cruise time coefficient
Bus	1.00	Default	0.94	30	85

Tram parameters

Name	PCU Factor	Dispersion type	Acceleration (ms^[-2])	Stationary time coefficient	Cruise time coefficient
Tram	1.00	Default	0.94	100	100

Pedestrian parameters

Dispersion type
Default

Optimisation options

Enable optimisation	Auto redistribute	Optimisation level	Enable OUT Profile accuracy
✓	✓	Offsets And Green Splits	✓

Advanced

Optimisation type	Hill climb increments	OUTProfile accuracy	Use enhanced optimisation	Auto optimisation order	Optimisation order	Master controller	Offsets relative to master controller	Master controller offset after each run
Hill Climb (Fast)	15, 40, -1, 15, 40, 1, -1, 1	50, 50, 5, 5, 0.5, 0.5, 0.05, 0.05		✓	1			Do nothing

Economics

Vehicle Monetary Value Of Delay (£ per PCU-hr)	Vehicle Monetary Value Of Stops (£ per 100 stops)	Pedestrian monetary value of delay (£ per Ped-hr)
14.20	2.60	14.20

Arms and Traffic Streams

Arms

Arm	Name	Description	Traffic node
Aexit			
Bexit			
Cexit			
A1			4
B1			4
C1			4
A2			1
B2			2
C2			3

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				63.64						Normal	
Bexit	1				47.82						Normal	
Cexit	1				9.55						Normal	
A1	1				21.08	✓	Sum of lanes	1800	✓		Normal	
B1	1				10.28	✓	Sum of lanes	1800	✓		Normal	
C1	1				7.79	✓	Sum of lanes	1800	✓		Normal	
A2	1				10.68	✓	Sum of lanes	1800			Normal	
B2	1				1.00	✓	Sum of lanes	1800			Normal	
C2	1				1.77	✓	Sum of lanes	1800			Normal	

Lanes

Arm	Traffic Stream	Lane	Name	Description	Use RR67	Saturation flow (PCU/hr)
Aexit	1	1	(untitled)			
Bexit	1	1	(untitled)			
Cexit	1	1	(untitled)			
A1	1	1	(untitled)			1800
B1	1	1	(untitled)			1800
C1	1	1	(untitled)			1800
A2	1	1	(untitled)			1800
B2	1	1	(untitled)			1800
C2	1	1	(untitled)			1800

Modelling

Arm	Traffic Stream	Traffic model	Stop weighting multiplier (%)	Delay weighting multiplier (%)	Assignment Cost Weighting (%)	Exclude from results calculation	Max queue storage (PCU)	Has queue limit	Has degree of saturation limit
Aexit	1	NetworkDefault	100	100	100		10.00		
Bexit	1	NetworkDefault	100	100	100		8.00		
Cexit	1	NetworkDefault	100	100	100		1.00		
A1	1	NetworkDefault	100	100	100		3.00		
B1	1	NetworkDefault	100	100	100		1.00		
C1	1	NetworkDefault	100	100	100		1.00		
A2	1	NetworkDefault	100	100	100		1.00		
B2	1	NetworkDefault	100	100	100		0.00		
C2	1	NetworkDefault	100	100	100		0.00		

Modelling - Advanced

Arm	Traffic Stream	Initial queue (PCU)	Type of Vehicle-in-Service	Vehicle-in-Service	Type of random parameter	Random parameter	Auto cycle time	Cycle time
(ALL)	1	0.00	NetworkDefault	Not-Included	NetworkDefault	0.50	✓	100

Normal traffic - Modelling

Arm	Traffic Stream	Stop weighting (%)	Delay weighting (%)
(ALL)	1	100	100

Normal traffic - Advanced

Arm	Traffic Stream	Dispersion type for Normal Traffic
(ALL)	1	NetworkDefault

Flows

Arm	Traffic Stream	Total Flow (PCU/hr)	Normal Flow (PCU/hr)
Aexit	1	425	425
Bexit	1	388	388
Cexit	1	124	124
A1	1	409	409
B1	1	318	318
C1	1	210	210
A2	1	409	409
B2	1	318	318
C2	1	210	210

Signals

Arm	Traffic Stream	Controller stream	Phase	Second phase enabled
A1	1	1	A	
B1	1	1	B	
C1	1	1	C	

Pedestrian Crossings

Pedestrian Crossings

Crossing	Name	Description	Traffic node	Allow walk on red	Crossing type	Length (m)	Cruise time (seconds)	Cruise speed (kph)
1	(untitled)				Farside	6.58	4.38	5.40
2	(untitled)				Farside	5.96	3.97	5.40

Pedestrian Crossings - Signals

Crossing	Controller stream	Phase	Second phase enabled
1	1	E	
2	1	D	

Pedestrian Crossings - Sides

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

Pedestrian Crossings - Modelling

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

Local OD Matrix - Local Matrix: 1

Local Matrix Options

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

Normal Input Flows (PCU/hr)

From \ To	1	2	3
1	0	328	81
2	275	0	43
3	150	60	0

Bus Input Flows not shown as they are blank.

Tram Input Flows not shown as they are blank.

Pedestrian Input Flows not shown as they are blank.

Locations

OD Matrix	Location	Name	Entries	Exits	Colour
1	1	(untitled)	A2/1	Aexit/1	#0000FF
	2	(untitled)	B2/1	Bexit/1	#FF0000
	3	(untitled)	C2/1	Cexit/1	#00FF00

Normal Paths and Flows

OD Matrix	Path	Description	From location	To location	Path items	Allocation type	Normal Calculated Flow (PCU/hr)
1	1		1	2	A2/1, A1/1, Bexit/1	Normal	328
	2		1	3	A2/1, A1/1, Cexit/1	Normal	81
	3		3	2	C2/1, C1/1, Bexit/1	Normal	60
	4		3	1	C2/1, C1/1, Aexit/1	Normal	150
	5		2	1	B2/1, B1/1, Aexit/1	Normal	275
	6		2	3	B2/1, B1/1, Cexit/1	Normal	43

Signal Timings

Network Default: 100s cycle time; 100 steps

Phases

Controller stream	Phase	Name	Minimum green (s)	Maximum green (s)	Relative start displacement (s)	Relative end displacement (s)	Type	Blackout Time (s)
1	A	(untitled)	23	300	0	0	Traffic	
	B	(untitled)	23	300	0	0	Traffic	
	C	(untitled)	20	300	0	0	Traffic	
	D	(untitled)	3	300	0	0	Pedestrian	0
	E	(untitled)	3	300	0	0	Pedestrian	0

Library Stages

Controller stream	Library stage	Phases in stage	User stage minimum (s)
1	1	A, B	1
	2	C	1
	3	D, E	1

Stage Sequences

Controller stream	Sequence	Name	Multiple cycling	Stage IDs	Stage ends
1	1	(untitled)	Single	1, 2, 3	54, 79, 88

Intergreen Matrix for Controller Stream 1

From \ To	A	B	C	D	E
A			5	5	7
B			5	7	6
C	5	5		6	5
D	6	6	6		
E	7	7	7		

Interstage Matrix for Controller Stream 1

From \ To	1	2	3
1	0	5	7
2	5	0	6
3	7	7	0

Resultant Stages

Controller stream	Resultant Stage	Is base stage	Library Stage ID	Phases in this stage	Stage start (s)	Stage end (s)	Stage duration (s)	User stage minimum (s)	Stage minimum (s)
1	1	✓	1	A,B	95	54	59	1	23
	2	✓	2	C	59	79	20	1	20
	3	✓	3	D,E	85	88	3	1	3

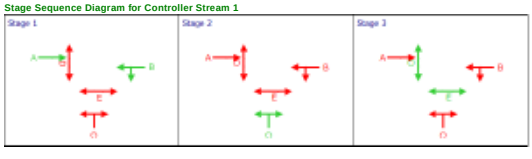
Resultant Phase Green Periods

Controller stream	Phase	Green period	Is base green period	Start time (s)	End time (s)	Duration (s)
1	A	1	✓	95	54	59
	B	1	✓	95	54	59
	C	1	✓	59	79	20
	D	1	✓	85	88	3
	E	1	✓	84	88	4

Traffic Stream Green Times

Arm	Traffic Stream	Traffic Node	Controller Stream	Phase	Green Period 1 Start	Green Period 1 End	Green Period 1 Duration
A1	1	4	1	A	95	54	59
B1	1	4	1	B	95	54	59
C1	1	4	1	C	59	79	20

Stage Sequence Diagram for Controller Stream 1



Resultant penalties

Time Segment	Controller stream	Phase min max penalty (£ per hr)	Intergreen broken penalty (£ per hr)	Stage constraint broken penalty (£ per hr)	Cost of controller stream penalties (£ per hr)
17:15-18:15	1	0.00	0.00	0.00	0.00

Traffic Stream Results

Traffic Stream Results: Vehicle summary

Time Segment	Arm	Traffic Stream	Degree of saturation (%)	Practical reserve capacity	Calculated flow entering (PCU/hr)	Calculated sat flow	Actual green (s (per cycle))	Mean Delay per Veh (s)	Mean max queue (PCU)	Utilised storage (%)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Performance Index (£ per hr)
17:15-18:15	Aexit	1	0	Unrestricted	425	Unrestricted	100	0.00	0.00	0.00	0.00	0.00	0.00
	Bexit	1	0	Unrestricted	388	Unrestricted	100	0.00	0.00	0.00	0.00	0.00	0.00
	Cexit	1	0	Unrestricted	124	Unrestricted	100	0.00	0.00	0.00	0.00	0.00	0.00
	A1	1	38	138	409	1800	59	11.37	5.91	196.98	18.34	2.59	20.94
	B1	1	29	206	318	1800	59	10.42	4.30	430.14	13.07	1.89	14.95
	C1	1	56	62	210	1800	20	41.23	5.54	553.52	34.15	2.15	36.30
	A2	1	23	296	409	1800	100	0.29	0.03	3.34	0.47	0.00	0.47
	B2	1	18	409	318	1800	100	0.21	0.02	10.90	0.27	0.00	0.27
	C2	1	12	671	210	1800	100	0.13	0.01	2.51	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))
17:15-18:15	Aexit	1	425	425	0		Unrestricted	Unrestricted	0		Unrestricted	0.71	100
	Bexit	1	388	388	0		Unrestricted	Unrestricted	0		Unrestricted	0.63	100
	Cexit	1	124	124	0		Unrestricted	Unrestricted	0		Unrestricted	0.79	100
	A1	1	409	409	0		1800	1080	38		138	0.00	59
	B1	1	318	318	0		1800	1080	29		206	0.00	59
	C1	1	210	210	0		1800	378	56		62	0.00	20
	A2	1	409	409	0		1800	1800	23		296	0.00	100
	B2	1	318	318	0		1800	1800	18		409	0.00	100
	C2	1	210	210	0		1800	1800	12		671	0.00	100

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)
17:15-18:15	Aexit	1	7.64	0.00	0.00	0.00	0.00	0.00	0.00
	Bexit	1	5.74	0.00	0.00	0.00	0.00	0.00	0.00
	Cexit	1	1.15	0.00	0.00	0.00	0.00	0.00	0.00
	A1	1	2.53	11.37	1.29	18.34	50.56	206.79	2.59
	B1	1	1.23	10.42	0.92	13.07	47.28	150.36	1.89
	C1	1	1.00	41.23	2.40	34.15	93.55	196.47	2.15
	A2	1	1.28	0.29	0.03	0.47	0.00	0.00	0.00
	B2	1	1.00	0.21	0.02	0.27	0.00	0.00	0.00
	C2	1	1.00	0.13	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
17:15-18:15	Aexit	1	0.00	0.00	10.00	0.00	0.00	14.00	
	Bexit	1	0.00	0.00	8.00	0.00	0.00	16.00	
	Cexit	1	0.00	0.00	1.00	0.00	0.00	40.00	
	A1	1	0.00	5.91	3.00	196.98	0.00	0.00	
	B1	1	0.00	4.30	1.00	430.14	0.00	0.00	
	C1	1	0.00	5.54	1.00	553.52	0.00	0.00	
	A2	1	0.00	0.03	1.00	3.34	0.00	26.00	
	B2	1	0.00	0.02	0.17	10.90	0.00	38.00	
	C2	1	0.00	0.01	0.31	2.51	0.00	78.00	

Network Results

Run Summary

Analysis set used	Run start time	Run finish time	Modelling start time (HH:mm)	Network Cycle Time (s)	Performance Index (£ per hr)	Total network delay (PCU-hr/hr)	Highest DOS (%)	Item with highest DOS	Number of oversaturated items	Percentage of oversaturated items (%)	Item with worst signalised PRC	Item with worst unsignalised PRC	Ite wit wor over PR
2	26/11/2019 13:01:21	26/11/2019 13:01:22	17:15	100	73.04	4.68	55.56	C1/1	0	0	C1/1	A2/1	C1/

Network Results: Vehicle summary

Time Segment	Degree of saturation (%)	Practical reserve capacity (%)	Calculated flow entering (PCU/hr)	Actual green (s (per cycle))	Mean Delay per Veh (s)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Performance Index (£ per hr)
17:15-18:15	56	0	2811	738	5.99	66.41	6.63	73.04

Network Results: Flows and signals

Time Segment	Calculated flow entering (PCU/hr)	Calculated flow out (PCU/hr)	Flow discrepancy (PCU/hr)	Adjusted flow warning	Degree of saturation (%)	DOS Threshold exceeded	Practical reserve capacity (%)	Actual green (s (per cycle))
17:15-18:15	2811	2811	0		56		62	752

Network Results: Stops and delays

Time Segment	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)
17:15-18:15	2.95	5.99	4.68	66.41	19.69	553.61	6.63

Network Results: Queues and blocking

Time Segment	Utilised storage (%)	Excess queue penalty (£ per hr)	Wasted time total (s (per cycle))
17:15-18:15	553.52	0.00	212.00

A3 - DS 2027 AM
D3 - DS2027 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	26/11/2019 13:01:22	26/11/2019 13:01:22	08:00	100	62.51	3.95	46.08	A1/1	0	0	A1/1	A2/1	A1/

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
DS2027 AM				08:00	

Network Options

Network timings

Network cycle time (s)	Restrict to SCOOT cycle times	Time segment length (min)	Number of time segments	Modelled time period (min)
100		60	1	60

Signals options

Start displacement (s)	End displacement (s)
2	3

Advanced

Phase minimum broken penalty (£)	Phase maximum broken penalty (£)	Intergreen broken penalty (£)	Starting Red-with-Amber (s)
10000.00	10000.00	10000.00	2

Traffic options

Traffic model	Vehicle flow scaling factor (%)	Pedestrian flow scaling factor (%)	Cruise times or speeds
Platoon Dispersion (PDM)	100	100	Cruise Speeds

Advanced

Resolution	DOS Threshold (%)	Cruise scaling factor (%)	Use link stop weightings	Use link delay weightings	Exclude pedestrians from results calculation	Random delay mode	Type of Vehicle-in-Service	Type of random parameter	PCU Length (m)	Calculate results for Path Segments	Generate PDM Profile Data
1	90	100	✓	✓		Complex	Uniform (TRANSYT)	Uniform (TRANSYT)	5.75		✓

Normal Traffic parameters

Dispersion type	Dispersion coefficient	Travel time coefficient
Default	35	80

Normal Traffic Types

Name	PCU Factor
Normal	1.00

Bus parameters

Name	PCU Factor	Dispersion type	Acceleration (ms^[-2])	Stationary time coefficient	Cruise time coefficient
Bus	1.00	Default	0.94	30	85

Tram parameters

Name	PCU Factor	Dispersion type	Acceleration (ms^[-2])	Stationary time coefficient	Cruise time coefficient
Tram	1.00	Default	0.94	100	100

Pedestrian parameters

Dispersion type
Default

Optimisation options

Enable optimisation	Auto redistribute	Optimisation level	Enable OUT Profile accuracy
✓	✓	Offsets And Green Splits	✓

Advanced

Optimisation type	Hill climb increments	OUTProfile accuracy	Use enhanced optimisation	Auto optimisation order	Optimisation order	Master controller	Offsets relative to master controller	Master controller offset after each run
Hill Climb (Fast)	15, 40, -1, 15, 40, 1, -1, 1	50, 50, 5, 5, 0.5, 0.5, 0.05, 0.05		✓	1			Do nothing

Economics

Vehicle Monetary Value Of Delay (£ per PCU-hr)	Vehicle Monetary Value Of Stops (£ per 100 stops)	Pedestrian monetary value of delay (£ per Ped-hr)
14.20	2.60	14.20

Arms and Traffic Streams

Arms

Arm	Name	Description	Traffic node
Aexit			
Bexit			
Cexit			
A1			4
B1			4
C1			4
A2			1
B2			2
C2			3

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				63.64						Normal	
Bexit	1				47.82						Normal	
Cexit	1				9.55						Normal	
A1	1				21.08	✓	Sum of lanes	1800	✓		Normal	
B1	1				10.28	✓	Sum of lanes	1800	✓		Normal	
C1	1				7.79	✓	Sum of lanes	1800	✓		Normal	
A2	1				10.68	✓	Sum of lanes	1800			Normal	
B2	1				1.00	✓	Sum of lanes	1800			Normal	
C2	1				1.77	✓	Sum of lanes	1800			Normal	

Lanes

Arm	Traffic Stream	Lane	Name	Description	Use RR67	Saturation flow (PCU/hr)
Aexit	1	1	(untitled)			
Bexit	1	1	(untitled)			
Cexit	1	1	(untitled)			
A1	1	1	(untitled)			1800
B1	1	1	(untitled)			1800
C1	1	1	(untitled)			1800
A2	1	1	(untitled)			1800
B2	1	1	(untitled)			1800
C2	1	1	(untitled)			1800

Modelling

Arm	Traffic Stream	Traffic model	Stop weighting multiplier (%)	Delay weighting multiplier (%)	Assignment Cost Weighting (%)	Exclude from results calculation	Max queue storage (PCU)	Has queue limit	Has degree of saturation limit
Aexit	1	NetworkDefault	100	100	100		10.00		
Bexit	1	NetworkDefault	100	100	100		8.00		
Cexit	1	NetworkDefault	100	100	100		1.00		
A1	1	NetworkDefault	100	100	100		3.00		
B1	1	NetworkDefault	100	100	100		1.00		
C1	1	NetworkDefault	100	100	100		1.00		
A2	1	NetworkDefault	100	100	100		1.00		
B2	1	NetworkDefault	100	100	100		0.00		
C2	1	NetworkDefault	100	100	100		0.00		

Modelling - Advanced

Arm	Traffic Stream	Initial queue (PCU)	Type of Vehicle-in-Service	Vehicle-in-Service	Type of random parameter	Random parameter	Auto cycle time	Cycle time
(ALL)	1	0.00	NetworkDefault	Not-Included	NetworkDefault	0.50	✓	100

Normal traffic - Modelling

Arm	Traffic Stream	Stop weighting (%)	Delay weighting (%)
(ALL)	1	100	100

Normal traffic - Advanced

Arm	Traffic Stream	Dispersion type for Normal Traffic
(ALL)	1	NetworkDefault

Flows

Arm	Traffic Stream	Total Flow (PCU/hr)	Normal Flow (PCU/hr)
Aexit	1	304	304
Bexit	1	408	408
Cexit	1	227	227
A1	1	506	506
B1	1	295	295
C1	1	138	138
A2	1	506	506
B2	1	295	295
C2	1	138	138

Signals

Arm	Traffic Stream	Controller stream	Phase	Second phase enabled
A1	1	1	A	
B1	1	1	B	
C1	1	1	C	

Pedestrian Crossings

Pedestrian Crossings

Crossing	Name	Description	Traffic node	Allow walk on red	Crossing type	Length (m)	Cruise time (seconds)	Cruise speed (kph)
1	(untitled)				Farside	6.58	4.38	5.40
2	(untitled)				Farside	5.96	3.97	5.40

Pedestrian Crossings - Signals

Crossing	Controller stream	Phase	Second phase enabled
1	1	E	
2	1	D	

Pedestrian Crossings - Sides

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

Pedestrian Crossings - Modelling

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

Local OD Matrix - Local Matrix: 1

Local Matrix Options

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

Normal Input Flows (PCU/hr)

From \ To	1	2	3
1	0	349	157
2	225	0	70
3	79	59	0

Bus Input Flows not shown as they are blank.

Tram Input Flows not shown as they are blank.

Pedestrian Input Flows not shown as they are blank.

Locations

OD Matrix	Location	Name	Entries	Exits	Colour
1	1	(untitled)	A2/1	Aexit/1	#0000FF
	2	(untitled)	B2/1	Bexit/1	#FF0000
	3	(untitled)	C2/1	Cexit/1	#00FF00

Normal Paths and Flows

OD Matrix	Path	Description	From location	To location	Path items	Allocation type	Normal Calculated Flow (PCU/hr)
1	1		1	2	A2/1, A1/1, Bexit/1	Normal	349
	2		1	3	A2/1, A1/1, Cexit/1	Normal	157
	3		3	2	C2/1, C1/1, Bexit/1	Normal	59
	4		3	1	C2/1, C1/1, Aexit/1	Normal	79
	5		2	1	B2/1, B1/1, Aexit/1	Normal	225
	6		2	3	B2/1, B1/1, Cexit/1	Normal	70

Signal Timings

Network Default: 100s cycle time; 100 steps

Phases

Controller stream	Phase	Name	Minimum green (s)	Maximum green (s)	Relative start displacement (s)	Relative end displacement (s)	Type	Blackout Time (s)
1	A	(untitled)	23	300	0	0	Traffic	
	B	(untitled)	23	300	0	0	Traffic	
	C	(untitled)	20	300	0	0	Traffic	
	D	(untitled)	3	300	0	0	Pedestrian	0
	E	(untitled)	3	300	0	0	Pedestrian	0

Library Stages

Controller stream	Library stage	Phases in stage	User stage minimum (s)
1	1	A, B	1
	2	C	1
	3	E, D	1

Losing / Gaining Phase Delays

Controller stream	Delay	Type	Phase	From stage	To stage	Relative delay
1	1	Losing	D	3	1	1

Stage Sequences

Controller stream	Sequence	Name	Multiple cycling	Stage IDs	Stage ends
1	1	(untitled)	Single	1, 2, 3	54, 79, 87

Intergreen Matrix for Controller Stream 1

From \ To	A	B	C	D	E
A			5	5	7
B			5	7	6
C	5	5		6	5
D	6	6	6		
E	7	7	7		

Interstage Matrix for Controller Stream 1

From \ To	1	2	3
1	0	5	7
2	5	0	6
3	7	7	0

Resultant Stages

Controller stream	Resultant Stage	Is base stage	Library Stage ID	Phases in this stage	Stage start (s)	Stage end (s)	Stage duration (s)	User stage minimum (s)	Stage minimum (s)
1	1	✓	1	A,B	94	54	60	1	23
	2	✓	2	C	59	79	20	1	20
	3	✓	3	E,D	85	87	2	1	2

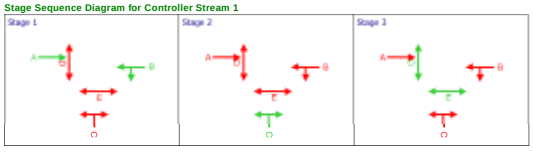
Resultant Phase Green Periods

Controller stream	Phase	Green period	Is base green period	Start time (s)	End time (s)	Duration (s)
1	A	1	✓	94	54	60
	B	1	✓	94	54	60
	C	1	✓	59	79	20
	D	1	✓	85	88	3
	E	1	✓	84	87	3

Traffic Stream Green Times

Arm	Traffic Stream	Traffic Node	Controller Stream	Phase	Green Period 1		
					Start	End	Duration
A1	1	4	1	A	94	54	60
B1	1	4	1	B	94	54	60
C1	1	4	1	C	59	79	20

Stage Sequence Diagram for Controller Stream 1



Resultant penalties

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

Traffic Stream Results

Traffic Stream Results: Vehicle summary

Time Segment	Arm	Traffic Stream	Degree of saturation (%)	Practical reserve capacity	Calculated flow entering (PCU/hr)	Calculated sat flow	Actual green (s (per cycle))	Mean Delay per Veh (s)	Mean max queue (PCU)	Utilised storage (%)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Performance Index (£ per hr)
08:00-09:00	Aexit	1	0	Unrestricted	304	Unrestricted	100	0.00	0.00	0.00	0.00	0.00	0.00
	Bexit	1	0	Unrestricted	408	Unrestricted	100	0.00	0.00	0.00	0.00	0.00	0.00
	Cexit	1	0	Unrestricted	227	Unrestricted	100	0.00	0.00	0.00	0.00	0.00	0.00
	A1	1	46	95	506	1800	60	11.98	7.79	259.55	23.91	3.38	27.29
	B1	1	27	235	295	1800	60	9.70	3.82	381.88	11.29	1.67	12.96
	C1	1	37	147	138	1800	20	36.54	3.36	336.29	19.89	1.31	21.20
	A2	1	28	220	506	1800	100	0.39	0.05	5.49	0.78	0.00	0.78
	B2	1	16	449	295	1800	100	0.20	0.02	9.23	0.23	0.00	0.23
	C2	1	8	1074	138	1800	100	0.08	0.00	1.04	0.05	0.00	0.05

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))
08:00-09:00	Aexit	1	304	304	0		Unrestricted	Unrestricted	0		Unrestricted	0.68	100
	Bexit	1	408	408	0		Unrestricted	Unrestricted	0		Unrestricted	0.64	100
	Cexit	1	227	227	0		Unrestricted	Unrestricted	0		Unrestricted	0.77	100
	A1	1	506	506	0		1800	1098	46		95	0.00	60
	B1	1	295	295	0		1800	1098	27		235	0.00	60
	C1	1	138	138	0		1800	378	37		147	0.00	20
	A2	1	506	506	0		1800	1800	28		220	0.00	100
	B2	1	295	295	0		1800	1800	16		449	0.00	100
	C2	1	138	138	0		1800	1800	8		1074	0.00	100

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)
08:00-09:00	Aexit	1	7.64	0.00	0.00	0.00	0.00	0.00	0.00
	Bexit	1	5.74	0.00	0.00	0.00	0.00	0.00	0.00
	Cexit	1	1.15	0.00	0.00	0.00	0.00	0.00	0.00
	A1	1	2.53	11.98	1.68	23.91	53.34	269.88	3.38
	B1	1	1.23	9.70	0.80	11.29	45.25	133.48	1.67
	C1	1	1.00	36.54	1.40	19.89	86.60	119.50	1.31
	A2	1	1.28	0.39	0.05	0.78	0.00	0.00	0.00
	B2	1	1.00	0.20	0.02	0.23	0.00	0.00	0.00
	C2	1	1.00	0.08	0.00	0.05	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
08:00-09:00	Aexit	1	0.00	0.00	10.00	0.00	0.00	15.00	
	Bexit	1	0.00	0.00	8.00	0.00	0.00	16.00	
	Cexit	1	0.00	0.00	1.00	0.00	0.00	39.00	
	A1	1	0.00	7.79	3.00	259.55	0.00	0.00	
	B1	1	0.00	3.82	1.00	381.88	0.00	0.00	
	C1	1	0.00	3.36	1.00	336.29	0.00	0.00	
	A2	1	0.00	0.05	1.00	5.49	0.00	35.00	
	B2	1	0.00	0.02	0.17	9.23	0.00	35.00	
	C2	1	0.00	0.00	0.31	1.04	0.00	62.00	

Network Results

Run Summary

Analysis set used	Run start time	Run finish time	Modelling start time (HH:mm)	Network Cycle Time (s)	Performance Index (£ per hr)	Total network delay (PCU-hr/hr)	Highest DOS (%)	Item with highest DOS	Number of oversaturated items	Percentage of oversaturated items (%)	Item with worst signalised PRC	Item with worst unsignalised PRC	Ite wit wor over PR
3	26/11/2019 13:01:22	26/11/2019 13:01:22	08:00	100	62.51	3.95	46.08	A1/1	0	0	A1/1	A2/1	A1/

Network Results: Vehicle summary

Time Segment	Degree of saturation (%)	Practical reserve capacity (%)	Calculated flow entering (PCU/hr)	Actual green (s (per cycle))	Mean Delay per Veh (s)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Performance Index (£ per hr)
08:00-09:00	46	0	2817	740	5.05	56.14	6.37	62.51

Network Results: Flows and signals

Time Segment	Calculated flow entering (PCU/hr)	Calculated flow out (PCU/hr)	Flow discrepancy (PCU/hr)	Adjusted flow warning	Degree of saturation (%)	DOS Threshold exceeded	Practical reserve capacity (%)	Actual green (s (per cycle))
08:00-09:00	2817	2817	0		46		95	752

Network Results: Stops and delays

Time Segment	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)
08:00-09:00	2.76	5.05	3.95	56.14	18.56	522.86	6.37

Network Results: Queues and blocking

Time Segment	Utilised storage (%)	Excess queue penalty (£ per hr)	Wasted time total (s (per cycle))
08:00-09:00	381.88	0.00	202.00

A4 - DS 2027 PM
D4 - DS2027 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	26/11/2019 13:01:22	26/11/2019 13:01:22	17:15	100	77.54	4.97	57.41	C1/1	0	0	C1/1	A2/1	C1/

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
DS2027 PM				17:15	

Network Options

Network timings

Network cycle time (s)	Restrict to SCOOT cycle times	Time segment length (min)	Number of time segments	Modelled time period (min)
100		60	1	60

Signals options

Start displacement (s)	End displacement (s)
2	3

Advanced

Phase minimum broken penalty (£)	Phase maximum broken penalty (£)	Intergreen broken penalty (£)	Starting Red-with-Amber (s)
10000.00	10000.00	10000.00	2

Traffic options

Traffic model	Vehicle flow scaling factor (%)	Pedestrian flow scaling factor (%)	Cruise times or speeds
Platoon Dispersion (PDM)	100	100	Cruise Speeds

Advanced

Resolution	DOS Threshold (%)	Cruise scaling factor (%)	Use link stop weightings	Use link delay weightings	Exclude pedestrians from results calculation	Random delay mode	Type of Vehicle-in-Service	Type of random parameter	PCU Length (m)	Calculate results for Path Segments	Generate PDM Profile Data
1	90	100	✓	✓		Complex	Uniform (TRANSYT)	Uniform (TRANSYT)	5.75		✓

Normal Traffic parameters

Dispersion type	Dispersion coefficient	Travel time coefficient
Default	35	80

Normal Traffic Types

Name	PCU Factor
Normal	1.00

Bus parameters

Name	PCU Factor	Dispersion type	Acceleration (ms^[-2])	Stationary time coefficient	Cruise time coefficient
Bus	1.00	Default	0.94	30	85

Tram parameters

Name	PCU Factor	Dispersion type	Acceleration (ms^[-2])	Stationary time coefficient	Cruise time coefficient
Tram	1.00	Default	0.94	100	100

Pedestrian parameters

Dispersion type
Default

Optimisation options

Enable optimisation	Auto redistribute	Optimisation level	Enable OUT Profile accuracy
✓	✓	Offsets And Green Splits	✓

Advanced

Optimisation type	Hill climb increments	OUTProfile accuracy	Use enhanced optimisation	Auto optimisation order	Optimisation order	Master controller	Offsets relative to master controller	Master controller offset after each run
Hill Climb (Fast)	15, 40, -1, 15, 40, 1, -1, 1	50, 50, 5, 5, 0.5, 0.5, 0.05, 0.05		✓	1			Do nothing

Economics

Vehicle Monetary Value Of Delay (£ per PCU-hr)	Vehicle Monetary Value Of Stops (£ per 100 stops)	Pedestrian monetary value of delay (£ per Ped-hr)
14.20	2.60	14.20

Arms and Traffic Streams

Arms

Arm	Name	Description	Traffic node
Aexit			
Bexit			
Cexit			
A1			4
B1			4
C1			4
A2			1
B2			2
C2			3

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				63.64						Normal	
Bexit	1				47.82						Normal	
Cexit	1				9.55						Normal	
A1	1				21.08	✓	Sum of lanes	1800	✓		Normal	
B1	1				10.28	✓	Sum of lanes	1800	✓		Normal	
C1	1				7.79	✓	Sum of lanes	1800	✓		Normal	
A2	1				10.68	✓	Sum of lanes	1800			Normal	
B2	1				1.00	✓	Sum of lanes	1800			Normal	
C2	1				1.77	✓	Sum of lanes	1800			Normal	

Lanes

Arm	Traffic Stream	Lane	Name	Description	Use RR67	Saturation flow (PCU/hr)
Aexit	1	1	(untitled)			
Bexit	1	1	(untitled)			
Cexit	1	1	(untitled)			
A1	1	1	(untitled)			1800
B1	1	1	(untitled)			1800
C1	1	1	(untitled)			1800
A2	1	1	(untitled)			1800
B2	1	1	(untitled)			1800
C2	1	1	(untitled)			1800

Modelling

Arm	Traffic Stream	Traffic model	Stop weighting multiplier (%)	Delay weighting multiplier (%)	Assignment Cost Weighting (%)	Exclude from results calculation	Max queue storage (PCU)	Has queue limit	Has degree of saturation limit
Aexit	1	NetworkDefault	100	100	100		10.00		
Bexit	1	NetworkDefault	100	100	100		8.00		
Cexit	1	NetworkDefault	100	100	100		1.00		
A1	1	NetworkDefault	100	100	100		3.00		
B1	1	NetworkDefault	100	100	100		1.00		
C1	1	NetworkDefault	100	100	100		1.00		
A2	1	NetworkDefault	100	100	100		1.00		
B2	1	NetworkDefault	100	100	100		0.00		
C2	1	NetworkDefault	100	100	100		0.00		

Modelling - Advanced

Arm	Traffic Stream	Initial queue (PCU)	Type of Vehicle-in-Service	Vehicle-in-Service	Type of random parameter	Random parameter	Auto cycle time	Cycle time
(ALL)	1	0.00	NetworkDefault	Not-Included	NetworkDefault	0.50	✓	100

Normal traffic - Modelling

Arm	Traffic Stream	Stop weighting (%)	Delay weighting (%)
(ALL)	1	100	100

Normal traffic - Advanced

Arm	Traffic Stream	Dispersion type for Normal Traffic
(ALL)	1	NetworkDefault

Flows

Arm	Traffic Stream	Total Flow (PCU/hr)	Normal Flow (PCU/hr)
Aexit	1	446	446
Bexit	1	409	409
Cexit	1	128	128
A1	1	431	431
B1	1	335	335
C1	1	217	217
A2	1	431	431
B2	1	335	335
C2	1	217	217

Signals

Arm	Traffic Stream	Controller stream	Phase	Second phase enabled
A1	1	1	A	
B1	1	1	B	
C1	1	1	C	

Pedestrian Crossings

Pedestrian Crossings

Crossing	Name	Description	Traffic node	Allow walk on red	Crossing type	Length (m)	Cruise time (seconds)	Cruise speed (kph)
1	(untitled)				Farside	6.58	4.38	5.40
2	(untitled)				Farside	5.96	3.97	5.40

Pedestrian Crossings - Signals

Crossing	Controller stream	Phase	Second phase enabled
1	1	E	
2	1	D	

Pedestrian Crossings - Sides

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

Pedestrian Crossings - Modelling

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

Local OD Matrix - Local Matrix: 1

Local Matrix Options

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

Normal Input Flows (PCU/hr)

		To		
		1	2	3
From	1	0	348	83
	2	290	0	45
	3	156	61	0

Bus Input Flows not shown as they are blank.

Tram Input Flows not shown as they are blank.

Pedestrian Input Flows not shown as they are blank.

Locations

OD Matrix	Location	Name	Entries	Exits	Colour
1	1	(untitled)	A2/1	Aexit/1	#0000FF
	2	(untitled)	B2/1	Bexit/1	#FF0000
	3	(untitled)	C2/1	Cexit/1	#00FF00

Normal Paths and Flows

OD Matrix	Path	Description	From location	To location	Path items	Allocation type	Normal Calculated Flow (PCU/hr)
1	1		1	2	A2/1, A1/1, Bexit/1	Normal	348
	2		1	3	A2/1, A1/1, Cexit/1	Normal	83
	3		3	2	C2/1, C1/1, Bexit/1	Normal	61
	4		3	1	C2/1, C1/1, Aexit/1	Normal	156
	5		2	1	B2/1, B1/1, Aexit/1	Normal	290
	6		2	3	B2/1, B1/1, Cexit/1	Normal	45

Signal Timings

Network Default: 100s cycle time; 100 steps

Phases

Controller stream	Phase	Name	Minimum green (s)	Maximum green (s)	Relative start displacement (s)	Relative end displacement (s)	Type	Blackout Time (s)
1	A	(untitled)	23	300	0	0	Traffic	
	B	(untitled)	23	300	0	0	Traffic	
	C	(untitled)	20	300	0	0	Traffic	
	D	(untitled)	3	300	0	0	Pedestrian	0
	E	(untitled)	3	300	0	0	Pedestrian	0

Library Stages

Controller stream	Library stage	Phases in stage	User stage minimum (s)
1	1	A, B	1
	2	C	1
	3	D, E	1

Stage Sequences

Controller stream	Sequence	Name	Multiple cycling	Stage IDs	Stage ends
1	1	(untitled)	Single	1, 2, 3	54, 79, 88

Intergreen Matrix for Controller Stream 1

		To				
		A	B	C	D	E
From	A			5	5	7
	B			5	7	6
	C	5	5		6	5
	D	6	6	6		
	E	7	7	7		

Interstage Matrix for Controller Stream 1

		To		
		1	2	3
From	1	0	5	7
	2	5	0	6
	3	7	7	0

Resultant Stages

Controller stream	Resultant Stage	Is base stage	Library Stage ID	Phases in this stage	Stage start (s)	Stage end (s)	Stage duration (s)	User stage minimum (s)	Stage minimum (s)
1	1	✓	1	A,B	95	54	59	1	23
	2	✓	2	C	59	79	20	1	20
	3	✓	3	D,E	85	88	3	1	3

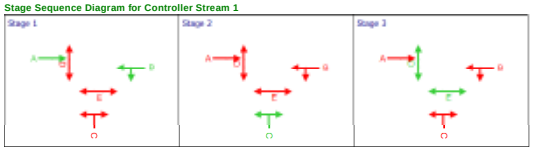
Resultant Phase Green Periods

Controller stream	Phase	Green period	Is base green period	Start time (s)	End time (s)	Duration (s)
1	A	1	✓	95	54	59
	B	1	✓	95	54	59
	C	1	✓	59	79	20
	D	1	✓	85	88	3
	E	1	✓	84	88	4

Traffic Stream Green Times

Arm	Traffic Stream	Traffic Node	Controller Stream	Phase	Green Period 1		
					Start	End	Duration
A1	1	4	1	A	95	54	59
B1	1	4	1	B	95	54	59
C1	1	4	1	C	59	79	20

Stage Sequence Diagram for Controller Stream 1



Resultant penalties

Time Segment	Controller stream	Phase min max penalty (£ per hr)	Intergreen broken penalty (£ per hr)	Stage constraint broken penalty (£ per hr)	Cost of controller stream penalties (£ per hr)
17:15-18:15	1	0.00	0.00	0.00	0.00

Traffic Stream Results

Traffic Stream Results: Vehicle summary

Time Segment	Arm	Traffic Stream	Degree of saturation (%)	Practical reserve capacity	Calculated flow entering (PCU/hr)	Calculated sat flow	Actual green (s (per cycle))	Mean Delay per Veh (s)	Mean max queue (PCU)	Utilised storage (%)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Performance Index (£ per hr)
17:15-18:15	Aexit	1	0	Unrestricted	446	Unrestricted	100	0.00	0.00	0.00	0.00	0.00	0.00
	Bexit	1	0	Unrestricted	409	Unrestricted	100	0.00	0.00	0.00	0.00	0.00	0.00
	Cexit	1	0	Unrestricted	128	Unrestricted	100	0.00	0.00	0.00	0.00	0.00	0.00
	A1	1	40	126	431	1800	59	11.63	6.36	211.93	19.77	2.79	22.55
	B1	1	31	190	335	1800	59	10.58	4.63	462.94	13.98	2.01	15.99
	C1	1	57	57	217	1800	20	41.83	5.75	574.71	35.80	2.23	38.04
	A2	1	24	276	431	1800	100	0.31	0.04	3.77	0.54	0.00	0.54
	B2	1	19	384	335	1800	100	0.23	0.02	12.23	0.30	0.00	0.30
	C2	1	12	647	217	1800	100	0.14	0.01	2.69	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))
17:15-18:15	Aexit	1	446	446	0		Unrestricted	Unrestricted	0		Unrestricted	0.71	100
	Bexit	1	409	409	0		Unrestricted	Unrestricted	0		Unrestricted	0.62	100
	Cexit	1	128	128	0		Unrestricted	Unrestricted	0		Unrestricted	0.79	100
	A1	1	431	431	0		1800	1080	40		126	0.00	59
	B1	1	335	335	0		1800	1080	31		190	0.00	59
	C1	1	217	217	0		1800	378	57		57	0.00	20
	A2	1	431	431	0		1800	1800	24		276	0.00	100
	B2	1	335	335	0		1800	1800	19		384	0.00	100
	C2	1	217	217	0		1800	1800	12		647	0.00	100

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)
17:15-18:15	Aexit	1	7.64	0.00	0.00	0.00	0.00	0.00	0.00
	Bexit	1	5.74	0.00	0.00	0.00	0.00	0.00	0.00
	Cexit	1	1.15	0.00	0.00	0.00	0.00	0.00	0.00
	A1	1	2.53	11.63	1.39	19.77	51.54	222.13	2.79
	B1	1	1.23	10.58	0.98	13.98	47.84	160.28	2.01
	C1	1	1.00	41.83	2.52	35.80	94.12	204.24	2.23
	A2	1	1.28	0.31	0.04	0.54	0.00	0.00	0.00
	B2	1	1.00	0.23	0.02	0.30	0.00	0.00	0.00
	C2	1	1.00	0.14	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
17:15-18:15	Aexit	1	0.00	0.00	10.00	0.00	0.00	13.00	
	Bexit	1	0.00	0.00	8.00	0.00	0.00	16.00	
	Cexit	1	0.00	0.00	1.00	0.00	0.00	40.00	
	A1	1	0.00	6.36	3.00	211.93	0.00	0.00	
	B1	1	0.00	4.63	1.00	462.94	0.00	0.00	
	C1	1	0.00	5.75	1.00	574.71	0.00	0.00	
	A2	1	0.00	0.04	1.00	3.77	0.00	29.00	
	B2	1	0.00	0.02	0.17	12.23	0.00	40.00	
	C2	1	0.00	0.01	0.31	2.69	0.00	79.00	

Network Results

Run Summary

Analysis set used	Run start time	Run finish time	Modelling start time (HH:mm)	Network Cycle Time (s)	Performance Index (£ per hr)	Total network delay (PCU-hr/hr)	Highest DOS (%)	Item with highest DOS	Number of oversaturated items	Percentage of oversaturated items (%)	Item with worst signalised PRC	Item with worst unsignalised PRC	Ite wit wor over PR
4	26/11/2019 13:01:22	26/11/2019 13:01:22	17:15	100	77.54	4.97	57.41	C1/1	0	0	C1/1	A2/1	C1/

Network Results: Vehicle summary

Time Segment	Degree of saturation (%)	Practical reserve capacity (%)	Calculated flow entering (PCU/hr)	Actual green (s (per cycle))	Mean Delay per Veh (s)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Performance Index (£ per hr)
17:15-18:15	57	0	2949	738	6.06	70.51	7.03	77.54

Network Results: Flows and signals

Time Segment	Calculated flow entering (PCU/hr)	Calculated flow out (PCU/hr)	Flow discrepancy (PCU/hr)	Adjusted flow warning	Degree of saturation (%)	DOS Threshold exceeded	Practical reserve capacity (%)	Actual green (s (per cycle))
17:15-18:15	2949	2949	0		57		57	752

Network Results: Stops and delays

Time Segment	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)
17:15-18:15	2.96	6.06	4.97	70.51	19.89	586.64	7.03

Network Results: Queues and blocking

Time Segment	Utilised storage (%)	Excess queue penalty (£ per hr)	Wasted time total (s (per cycle))
17:15-18:15	574.71	0.00	217.00

A5 - DS 2037 AM
D5 - DS2037 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	26/11/2019 13:01:22	26/11/2019 13:01:23	08:00	100	68.07	4.31	48.80	A1/1	0	0	A1/1	A2/1	A1/

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
DS2037 AM				08:00	

Network Options

Network timings

Network cycle time (s)	Restrict to SCOOT cycle times	Time segment length (min)	Number of time segments	Modelled time period (min)
100		60	1	60

Signals options

Start displacement (s)	End displacement (s)
2	3

Advanced

Phase minimum broken penalty (£)	Phase maximum broken penalty (£)	Intergreen broken penalty (£)	Starting Red-with-Amber (s)
10000.00	10000.00	10000.00	2

Traffic options

Traffic model	Vehicle flow scaling factor (%)	Pedestrian flow scaling factor (%)	Cruise times or speeds
Platoon Dispersion (PDM)	100	100	Cruise Speeds

Advanced

Resolution	DOS Threshold (%)	Cruise scaling factor (%)	Use link stop weightings	Use link delay weightings	Exclude pedestrians from results calculation	Random delay mode	Type of Vehicle-in-Service	Type of random parameter	PCU Length (m)	Calculate results for Path Segments	Generate PDM Profile Data
1	90	100	✓	✓		Complex	Uniform (TRANSYT)	Uniform (TRANSYT)	5.75		✓

Normal Traffic parameters

Dispersion type	Dispersion coefficient	Travel time coefficient
Default	35	80

Normal Traffic Types

Name	PCU Factor
Normal	1.00

Bus parameters

Name	PCU Factor	Dispersion type	Acceleration (ms^[-2])	Stationary time coefficient	Cruise time coefficient
Bus	1.00	Default	0.94	30	85

Tram parameters

Name	PCU Factor	Dispersion type	Acceleration (ms^[-2])	Stationary time coefficient	Cruise time coefficient
Tram	1.00	Default	0.94	100	100

Pedestrian parameters

Dispersion type
Default

Optimisation options

Enable optimisation	Auto redistribute	Optimisation level	Enable OUT Profile accuracy
✓	✓	Offsets And Green Splits	✓

Advanced

Optimisation type	Hill climb increments	OUTProfile accuracy	Use enhanced optimisation	Auto optimisation order	Optimisation order	Master controller	Offsets relative to master controller	Master controller offset after each run
Hill Climb (Fast)	15, 40, -1, 15, 40, 1, -1, 1	50, 50, 5, 5, 0.5, 0.5, 0.05, 0.05		✓	1			Do nothing

Economics

Vehicle Monetary Value Of Delay (£ per PCU-hr)	Vehicle Monetary Value Of Stops (£ per 100 stops)	Pedestrian monetary value of delay (£ per Ped-hr)
14.20	2.60	14.20

Arms and Traffic Streams

Arms

Arm	Name	Description	Traffic node
Aexit			
Bexit			
Cexit			
A1			4
B1			4
C1			4
A2			1
B2			2
C2			3

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				63.64						Normal	
Bexit	1				47.82						Normal	
Cexit	1				9.55						Normal	
A1	1				21.08	✓	Sum of lanes	1800	✓		Normal	
B1	1				10.28	✓	Sum of lanes	1800	✓		Normal	
C1	1				7.79	✓	Sum of lanes	1800	✓		Normal	
A2	1				10.68	✓	Sum of lanes	1800			Normal	
B2	1				1.00	✓	Sum of lanes	1800			Normal	
C2	1				1.77	✓	Sum of lanes	1800			Normal	

Lanes

Arm	Traffic Stream	Lane	Name	Description	Use RR67	Saturation flow (PCU/hr)
Aexit	1	1	(untitled)			
Bexit	1	1	(untitled)			
Cexit	1	1	(untitled)			
A1	1	1	(untitled)			1800
B1	1	1	(untitled)			1800
C1	1	1	(untitled)			1800
A2	1	1	(untitled)			1800
B2	1	1	(untitled)			1800
C2	1	1	(untitled)			1800

Modelling

Arm	Traffic Stream	Traffic model	Stop weighting multiplier (%)	Delay weighting multiplier (%)	Assignment Cost Weighting (%)	Exclude from results calculation	Max queue storage (PCU)	Has queue limit	Has degree of saturation limit
Aexit	1	NetworkDefault	100	100	100		10.00		
Bexit	1	NetworkDefault	100	100	100		8.00		
Cexit	1	NetworkDefault	100	100	100		1.00		
A1	1	NetworkDefault	100	100	100		3.00		
B1	1	NetworkDefault	100	100	100		1.00		
C1	1	NetworkDefault	100	100	100		1.00		
A2	1	NetworkDefault	100	100	100		1.00		
B2	1	NetworkDefault	100	100	100		0.00		
C2	1	NetworkDefault	100	100	100		0.00		

Modelling - Advanced

Arm	Traffic Stream	Initial queue (PCU)	Type of Vehicle-in-Service	Vehicle-in-Service	Type of random parameter	Random parameter	Auto cycle time	Cycle time
(ALL)	1	0.00	NetworkDefault	Not-Included	NetworkDefault	0.50	✓	100

Normal traffic - Modelling

Arm	Traffic Stream	Stop weighting (%)	Delay weighting (%)
(ALL)	1	100	100

Normal traffic - Advanced

Arm	Traffic Stream	Dispersion type for Normal Traffic
(ALL)	1	NetworkDefault

Flows

Arm	Traffic Stream	Total Flow (PCU/hr)	Normal Flow (PCU/hr)
Aexit	1	318	318
Bexit	1	427	427
Cexit	1	232	232
A1	1	527	527
B1	1	307	307
C1	1	143	143
A2	1	527	527
B2	1	307	307
C2	1	143	143

Signals

Arm	Traffic Stream	Controller stream	Phase	Second phase enabled
A1	1	1	A	
B1	1	1	B	
C1	1	1	C	

Pedestrian Crossings

Pedestrian Crossings

Crossing	Name	Description	Traffic node	Allow walk on red	Crossing type	Length (m)	Cruise time (seconds)	Cruise speed (kph)
1	(untitled)				Farside	6.58	4.38	5.40
2	(untitled)				Farside	5.96	3.97	5.40

Pedestrian Crossings - Signals

Crossing	Controller stream	Phase	Second phase enabled
2	1	D	

Pedestrian Crossings - Sides

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

Pedestrian Crossings - Modelling

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

Local OD Matrix - Local Matrix: 1

Local Matrix Options

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

Normal Input Flows (PCU/hr)

From \ To	1	2	3
1	0	366	161
2	236	0	71
3	82	61	0

Bus Input Flows not shown as they are blank.

Tram Input Flows not shown as they are blank.

Pedestrian Input Flows not shown as they are blank.

Locations

OD Matrix	Location	Name	Entries	Exits	Colour
1	1	(untitled)	A2/1	Aexit/1	#0000FF
	2	(untitled)	B2/1	Bexit/1	#FF0000
	3	(untitled)	C2/1	Cexit/1	#00FF00

Normal Paths and Flows

OD Matrix	Path	Description	From location	To location	Path items	Allocation type	Normal Calculated Flow (PCU/hr)
1	1		1	2	A2/1, A1/1, Bexit/1	Normal	366
	2		1	3	A2/1, A1/1, Cexit/1	Normal	161
	3		3	2	C2/1, C1/1, Bexit/1	Normal	61
	4		3	1	C2/1, C1/1, Aexit/1	Normal	82
	5		2	1	B2/1, B1/1, Aexit/1	Normal	236
	6		2	3	B2/1, B1/1, Cexit/1	Normal	71

Signal Timings

Network Default: 100s cycle time; 100 steps

Phases

Controller stream	Phase	Name	Minimum green (s)	Maximum green (s)	Relative start displacement (s)	Relative end displacement (s)	Type	Blackout Time (s)
1	A	(untitled)	23	300	0	0	Traffic	
	B	(untitled)	23	300	0	0	Traffic	
	C	(untitled)	20	300	0	0	Traffic	
	D	(untitled)	3	300	0	0	Pedestrian	0
	E	(untitled)	3	300	0	0	Pedestrian	0

Library Stages

Controller stream	Library stage	Phases in stage	User stage minimum (s)
1	1	A, B	1
	2	C	1
	3	D, E	1

Stage Sequences

Controller stream	Sequence	Name	Multiple cycling	Stage IDs	Stage ends
1	1	(untitled)	Single	1, 2, 3	54, 79, 88

Intergreen Matrix for Controller Stream 1

From \ To	A	B	C	D	E
A			5	5	7
B			5	7	6
C	5	5		6	5
D	6	6	6		
E	7	7	7		

Interstage Matrix for Controller Stream 1

From \ To	1	2	3
1	0	5	7
2	5	0	6
3	7	7	0

Resultant Stages

Controller stream	Resultant Stage	Is base stage	Library Stage ID	Phases in this stage	Stage start (s)	Stage end (s)	Stage duration (s)	User stage minimum (s)	Stage minimum (s)
1	1	✓	1	A,B	95	54	59	1	23
	2	✓	2	C	59	79	20	1	20
	3	✓	3	D,E	85	88	3	1	3

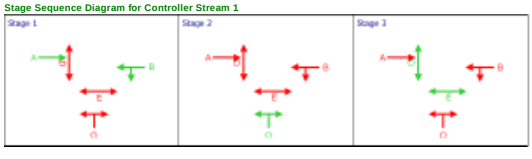
Resultant Phase Green Periods

Controller stream	Phase	Green period	Is base green period	Start time (s)	End time (s)	Duration (s)
1	A	1	✓	95	54	59
	B	1	✓	95	54	59
	C	1	✓	59	79	20
	D	1	✓	85	88	3
	E	1	✓	84	88	4

Traffic Stream Green Times

Arm	Traffic Stream	Traffic Node	Controller Stream	Phase	Green Period 1 Start	Green Period 1 End	Green Period 1 Duration
A1	1	4	1	A	95	54	59
B1	1	4	1	B	95	54	59
C1	1	4	1	C	59	79	20

Stage Sequence Diagram for Controller Stream 1



Resultant penalties

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

Traffic Stream Results

Traffic Stream Results: Vehicle summary

Time Segment	Arm	Traffic Stream	Degree of saturation (%)	Practical reserve capacity	Calculated flow entering (PCU/hr)	Calculated sat flow	Actual green (s (per cycle))	Mean Delay per Veh (s)	Mean max queue (PCU)	Utilised storage (%)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Performance Index (£ per hr)
08:00-09:00	Aexit	1	0	Unrestricted	318	Unrestricted	100	0.00	0.00	0.00	0.00	0.00	0.00
	Bexit	1	0	Unrestricted	427	Unrestricted	100	0.00	0.00	0.00	0.00	0.00	0.00
	Cexit	1	0	Unrestricted	232	Unrestricted	100	0.00	0.00	0.00	0.00	0.00	0.00
	A1	1	49	84	527	1800	59	12.90	8.43	280.99	26.81	3.69	30.50
	B1	1	28	217	307	1800	59	10.31	4.15	414.97	12.49	1.81	14.29
	C1	1	38	138	143	1800	20	36.79	3.49	349.10	20.75	1.36	22.11
	A2	1	29	207	527	1800	100	0.41	0.06	6.06	0.86	0.00	0.86
	B2	1	17	428	307	1800	100	0.21	0.02	10.08	0.25	0.00	0.25
	C2	1	8	1033	143	1800	100	0.09	0.00	1.11	0.05	0.00	0.05

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))
08:00-09:00	Aexit	1	318	318	0		Unrestricted	Unrestricted	0		Unrestricted	0.69	100
	Bexit	1	427	427	0		Unrestricted	Unrestricted	0		Unrestricted	0.65	100
	Cexit	1	232	232	0		Unrestricted	Unrestricted	0		Unrestricted	0.79	100
	A1	1	527	527	0		1800	1080	49		84	0.00	59
	B1	1	307	307	0		1800	1080	28		217	0.00	59
	C1	1	143	143	0		1800	378	38		138	0.00	20
	A2	1	527	527	0		1800	1800	29		207	0.00	100
	B2	1	307	307	0		1800	1800	17		428	0.00	100
	C2	1	143	143	0		1800	1800	8		1033	0.00	100

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)
08:00-09:00	Aexit	1	7.64	0.00	0.00	0.00	0.00	0.00	0.00
	Bexit	1	5.74	0.00	0.00	0.00	0.00	0.00	0.00
	Cexit	1	1.15	0.00	0.00	0.00	0.00	0.00	0.00
	A1	1	2.53	12.90	1.89	26.81	55.83	294.21	3.69
	B1	1	1.23	10.31	0.88	12.49	47.00	144.29	1.81
	C1	1	1.00	36.79	1.46	20.75	86.77	124.08	1.36
	A2	1	1.28	0.41	0.06	0.86	0.00	0.00	0.00
	B2	1	1.00	0.21	0.02	0.25	0.00	0.00	0.00
	C2	1	1.00	0.09	0.00	0.05	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
08:00-09:00	Aexit	1	0.00	0.00	10.00	0.00	0.00	16.00	
	Bexit	1	0.00	0.00	8.00	0.00	0.00	16.00	
	Cexit	1	0.00	0.00	1.00	0.00	0.00	40.00	
	A1	1	0.00	8.43	3.00	280.99	0.00	0.00	
	B1	1	0.00	4.15	1.00	414.97	0.00	0.00	
	C1	1	0.00	3.49	1.00	349.10	0.00	0.00	
	A2	1	0.00	0.06	1.00	6.06	0.00	38.00	
	B2	1	0.00	0.02	0.17	10.08	0.00	37.00	
	C2	1	0.00	0.00	0.31	1.11	0.00	63.00	

Network Results

Run Summary

Analysis set used	Run start time	Run finish time	Modelling start time (HH:mm)	Network Cycle Time (s)	Performance Index (£ per hr)	Total network delay (PCU-hr/hr)	Highest DOS (%)	Item with highest DOS	Number of oversaturated items	Percentage of oversaturated items (%)	Item with worst signalised PRC	Item with worst unsignalised PRC	Ite wit wor over PR
5	26/11/2019 13:01:22	26/11/2019 13:01:23	08:00	100	68.07	4.31	48.80	A1/1	0	0	A1/1	A2/1	A1/

Network Results: Vehicle summary

Time Segment	Degree of saturation (%)	Practical reserve capacity (%)	Calculated flow entering (PCU/hr)	Actual green (s (per cycle))	Mean Delay per Veh (s)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Performance Index (£ per hr)
08:00-09:00	49	0	2931	738	5.29	61.21	6.86	68.07

Network Results: Flows and signals

Time Segment	Calculated flow entering (PCU/hr)	Calculated flow out (PCU/hr)	Flow discrepancy (PCU/hr)	Adjusted flow warning	Degree of saturation (%)	DOS Threshold exceeded	Practical reserve capacity (%)	Actual green (s (per cycle))
08:00-09:00	2931	2931	0		49		84	752

Network Results: Stops and delays

Time Segment	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)
08:00-09:00	2.77	5.29	4.31	61.21	19.19	562.58	6.86

Network Results: Queues and blocking

Time Segment	Utilised storage (%)	Excess queue penalty (£ per hr)	Wasted time total (s (per cycle))
08:00-09:00	414.97	0.00	210.00

A6 - DS 2037 PM
D6 - DS2037 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	26/11/2019 13:01:23	26/11/2019 13:01:23	17:15	100	79.53	5.09	58.73	C1/1	0	0	C1/1	A2/1	C1/

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
DS2037 PM				17:15	

Network Options

Network timings

Network cycle time (s)	Restrict to SCOOT cycle times	Time segment length (min)	Number of time segments	Modelled time period (min)
100		60	1	60

Signals options

Start displacement (s)	End displacement (s)
2	3

Advanced

Phase minimum broken penalty (£)	Phase maximum broken penalty (£)	Intergreen broken penalty (£)	Starting Red-with-Amber (s)
10000.00	10000.00	10000.00	2

Traffic options

Traffic model	Vehicle flow scaling factor (%)	Pedestrian flow scaling factor (%)	Cruise times or speeds
Platoon Dispersion (PDM)	100	100	Cruise Speeds

Advanced

Resolution	DOS Threshold (%)	Cruise scaling factor (%)	Use link stop weightings	Use link delay weightings	Exclude pedestrians from results calculation	Random delay mode	Type of Vehicle-in-Service	Type of random parameter	PCU Length (m)	Calculate results for Path Segments	Generate PDM Profile Data
1	90	100	✓	✓		Complex	Uniform (TRANSYT)	Uniform (TRANSYT)	5.75		✓

Normal Traffic parameters

Dispersion type	Dispersion coefficient	Travel time coefficient
Default	35	80

Normal Traffic Types

Name	PCU Factor
Normal	1.00

Bus parameters

Name	PCU Factor	Dispersion type	Acceleration (ms^[-2])	Stationary time coefficient	Cruise time coefficient
Bus	1.00	Default	0.94	30	85

Tram parameters

Name	PCU Factor	Dispersion type	Acceleration (ms^[-2])	Stationary time coefficient	Cruise time coefficient
Tram	1.00	Default	0.94	100	100

Pedestrian parameters

Dispersion type
Default

Optimisation options

Enable optimisation	Auto redistribute	Optimisation level	Enable OUT Profile accuracy
✓	✓	Offsets And Green Splits	✓

Advanced

Optimisation type	Hill climb increments	OUTProfile accuracy	Use enhanced optimisation	Auto optimisation order	Optimisation order	Master controller	Offsets relative to master controller	Master controller offset after each run
Hill Climb (Fast)	15, 40, -1, 15, 40, 1, -1, 1	50, 50, 5, 5, 0.5, 0.5, 0.05, 0.05		✓	1			Do nothing

Economics

Vehicle Monetary Value Of Delay (£ per PCU-hr)	Vehicle Monetary Value Of Stops (£ per 100 stops)	Pedestrian monetary value of delay (£ per Ped-hr)
14.20	2.60	14.20

Arms and Traffic Streams

Arms

Arm	Name	Description	Traffic node
Aexit			
Bexit			
Cexit			
A1			4
B1			4
C1			4
A2			1
B2			2
C2			3

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				63.64						Normal	
Bexit	1				47.82						Normal	
Cexit	1				9.55						Normal	
A1	1				21.08	✓	Sum of lanes	1800	✓		Normal	
B1	1				10.28	✓	Sum of lanes	1800	✓		Normal	
C1	1				7.79	✓	Sum of lanes	1800	✓		Normal	
A2	1				10.68	✓	Sum of lanes	1800			Normal	
B2	1				1.00	✓	Sum of lanes	1800			Normal	
C2	1				1.77	✓	Sum of lanes	1800			Normal	

Lanes

Arm	Traffic Stream	Lane	Name	Description	Use RR67	Saturation flow (PCU/hr)
Aexit	1	1	(untitled)			
Bexit	1	1	(untitled)			
Cexit	1	1	(untitled)			
A1	1	1	(untitled)			1800
B1	1	1	(untitled)			1800
C1	1	1	(untitled)			1800
A2	1	1	(untitled)			1800
B2	1	1	(untitled)			1800
C2	1	1	(untitled)			1800

Modelling

Arm	Traffic Stream	Traffic model	Stop weighting multiplier (%)	Delay weighting multiplier (%)	Assignment Cost Weighting (%)	Exclude from results calculation	Max queue storage (PCU)	Has queue limit	Has degree of saturation limit
Aexit	1	NetworkDefault	100	100	100		10.00		
Bexit	1	NetworkDefault	100	100	100		8.00		
Cexit	1	NetworkDefault	100	100	100		1.00		
A1	1	NetworkDefault	100	100	100		3.00		
B1	1	NetworkDefault	100	100	100		1.00		
C1	1	NetworkDefault	100	100	100		1.00		
A2	1	NetworkDefault	100	100	100		1.00		
B2	1	NetworkDefault	100	100	100		0.00		
C2	1	NetworkDefault	100	100	100		0.00		

Modelling - Advanced

Arm	Traffic Stream	Initial queue (PCU)	Type of Vehicle-in-Service	Vehicle-in-Service	Type of random parameter	Random parameter	Auto cycle time	Cycle time
(ALL)	1	0.00	NetworkDefault	Not-Included	NetworkDefault	0.50	✓	100

Normal traffic - Modelling

Arm	Traffic Stream	Stop weighting (%)	Delay weighting (%)
(ALL)	1	100	100

Normal traffic - Advanced

Arm	Traffic Stream	Dispersion type for Normal Traffic
(ALL)	1	NetworkDefault

Flows

Arm	Traffic Stream	Total Flow (PCU/hr)	Normal Flow (PCU/hr)
Aexit	1	463	463
Bexit	1	428	428
Cexit	1	132	132
A1	1	452	452
B1	1	349	349
C1	1	222	222
A2	1	452	452
B2	1	349	349
C2	1	222	222

Signals

Arm	Traffic Stream	Controller stream	Phase	Second phase enabled
A1	1	1	A	
B1	1	1	B	
C1	1	1	C	

Pedestrian Crossings

Pedestrian Crossings

Crossing	Name	Description	Traffic node	Allow walk on red	Crossing type	Length (m)	Cruise time (seconds)	Cruise speed (kph)
1	(untitled)				Farside	6.58	4.38	5.40
2	(untitled)				Farside	5.96	3.97	5.40

Pedestrian Crossings - Signals

Crossing	Controller stream	Phase	Second phase enabled
1	1	E	
2	1	D	

Pedestrian Crossings - Sides

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

Pedestrian Crossings - Modelling

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

Local OD Matrix - Local Matrix: 1

Local Matrix Options

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

Normal Input Flows (PCU/hr)

		To		
		1	2	3
From	1	0	366	86
	2	303	0	46
	3	160	62	0

Bus Input Flows not shown as they are blank.

Tram Input Flows not shown as they are blank.

Pedestrian Input Flows not shown as they are blank.

Locations

OD Matrix	Location	Name	Entries	Exits	Colour
1	1	(untitled)	A2/1	Aexit/1	#0000FF
	2	(untitled)	B2/1	Bexit/1	#FF0000
	3	(untitled)	C2/1	Cexit/1	#00FF00

Normal Paths and Flows

OD Matrix	Path	Description	From location	To location	Path items	Allocation type	Normal Calculated Flow (PCU/hr)
1	1		1	2	A2/1, A1/1, Bexit/1	Normal	366
	2		1	3	A2/1, A1/1, Cexit/1	Normal	86
	3		3	2	C2/1, C1/1, Bexit/1	Normal	62
	4		3	1	C2/1, C1/1, Aexit/1	Normal	160
	5		2	1	B2/1, B1/1, Aexit/1	Normal	303
	6		2	3	B2/1, B1/1, Cexit/1	Normal	46

Signal Timings

Network Default: 100s cycle time; 100 steps

Phases

Controller stream	Phase	Name	Minimum green (s)	Maximum green (s)	Relative start displacement (s)	Relative end displacement (s)	Type	Blackout Time (s)
1	A	(untitled)	23	300	0	0	Traffic	
	B	(untitled)	23	300	0	0	Traffic	
	C	(untitled)	20	300	0	0	Traffic	
	D	(untitled)	3	300	0	0	Pedestrian	0
	E	(untitled)	3	300	0	0	Pedestrian	0

Library Stages

Controller stream	Library stage	Phases in stage	User stage minimum (s)
1	1	A, B	1
	2	C	1
	3	E, D	1

Losing / Gaining Phase Delays

Controller stream	Delay	Type	Phase	From stage	To stage	Relative delay
1	1	Losing	D	3	1	1

Stage Sequences

Controller stream	Sequence	Name	Multiple cycling	Stage IDs	Stage ends
1	1	(untitled)	Single	1, 2, 3	54, 79, 87

Intergreen Matrix for Controller Stream 1

		To				
		A	B	C	D	E
From	A			5	5	7
	B			5	7	6
	C	5	5		6	5
	D	6	6	6		
	E	7	7	7		

Interstage Matrix for Controller Stream 1

		To		
		1	2	3
From	1	0	5	7
	2	5	0	6
	3	7	7	0

Resultant Stages

Controller stream	Resultant Stage	Is base stage	Library Stage ID	Phases in this stage	Stage start (s)	Stage end (s)	Stage duration (s)	User stage minimum (s)	Stage minimum (s)
1	1	✓	1	A,B	94	54	60	1	23
	2	✓	2	C	59	79	20	1	20
	3	✓	3	E,D	85	87	2	1	2

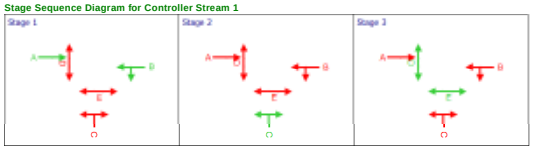
Resultant Phase Green Periods

Controller stream	Phase	Green period	Is base green period	Start time (s)	End time (s)	Duration (s)
1	A	1	✓	94	54	60
	B	1	✓	94	54	60
	C	1	✓	59	79	20
	D	1	✓	85	88	3
	E	1	✓	84	87	3

Traffic Stream Green Times

Arm	Traffic Stream	Traffic Node	Controller Stream	Phase	Green Period 1		
					Start	End	Duration
A1	1	4	1	A	94	54	60
B1	1	4	1	B	94	54	60
C1	1	4	1	C	59	79	20

Stage Sequence Diagram for Controller Stream 1



Resultant penalties

Time Segment	Controller stream	Phase min max penalty (£ per hr)	Intergreen broken penalty (£ per hr)	Stage constraint broken penalty (£ per hr)	Cost of controller stream penalties (£ per hr)
17:15-18:15	1	0.00	0.00	0.00	0.00

Traffic Stream Results

Traffic Stream Results: Vehicle summary

Time Segment	Arm	Traffic Stream	Degree of saturation (%)	Practical reserve capacity	Calculated flow entering (PCU/hr)	Calculated sat flow	Actual green (s (per cycle))	Mean Delay per Veh (s)	Mean max queue (PCU)	Utilised storage (%)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Performance Index (£ per hr)
17:15-18:15	Aexit	1	0	Unrestricted	463	Unrestricted	100	0.00	0.00	0.00	0.00	0.00	0.00
	Bexit	1	0	Unrestricted	428	Unrestricted	100	0.00	0.00	0.00	0.00	0.00	0.00
	Cexit	1	0	Unrestricted	132	Unrestricted	100	0.00	0.00	0.00	0.00	0.00	0.00
	A1	1	41	119	452	1800	60	11.30	6.67	222.42	20.15	2.88	23.03
	B1	1	32	183	349	1800	60	10.20	4.73	472.73	14.04	2.06	16.11
	C1	1	59	53	222	1800	20	42.29	5.96	596.26	37.03	2.31	39.34
	A2	1	25	258	452	1800	100	0.34	0.04	4.21	0.60	0.00	0.60
	B2	1	19	364	349	1800	100	0.24	0.02	13.40	0.33	0.00	0.33
	C2	1	12	630	222	1800	100	0.14	0.01	2.82	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))
17:15-18:15	Aexit	1	463	463	0		Unrestricted	Unrestricted	0		Unrestricted	0.69	100
	Bexit	1	428	428	0		Unrestricted	Unrestricted	0		Unrestricted	0.60	100
	Cexit	1	132	132	0		Unrestricted	Unrestricted	0		Unrestricted	0.77	100
	A1	1	452	452	0		1800	1098	41		119	0.00	60
	B1	1	349	349	0		1800	1098	32		183	0.00	60
	C1	1	222	222	0		1800	378	59		53	0.00	20
	A2	1	452	452	0		1800	1800	25		258	0.00	100
	B2	1	349	349	0		1800	1800	19		364	0.00	100
	C2	1	222	222	0		1800	1800	12		630	0.00	100

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)
17:15-18:15	Aexit	1	7.64	0.00	0.00	0.00	0.00	0.00	0.00
	Bexit	1	5.74	0.00	0.00	0.00	0.00	0.00	0.00
	Cexit	1	1.15	0.00	0.00	0.00	0.00	0.00	0.00
	A1	1	2.53	11.30	1.42	20.15	50.88	229.96	2.88
	B1	1	1.23	10.20	0.99	14.04	47.17	164.64	2.06
	C1	1	1.00	42.29	2.61	37.03	94.94	210.76	2.31
	A2	1	1.28	0.34	0.04	0.60	0.00	0.00	0.00
	B2	1	1.00	0.24	0.02	0.33	0.00	0.00	0.00
	C2	1	1.00	0.14	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
17:15-18:15	Aexit	1	0.00	0.00	10.00	0.00	0.00	12.00	
	Bexit	1	0.00	0.00	8.00	0.00	0.00	15.00	
	Cexit	1	0.00	0.00	1.00	0.00	0.00	39.00	
	A1	1	0.00	6.67	3.00	222.42	0.00	0.00	
	B1	1	0.00	4.73	1.00	472.73	0.00	0.00	
	C1	1	0.00	5.96	1.00	596.26	0.00	0.00	
	A2	1	0.00	0.04	1.00	4.21	0.00	30.00	
	B2	1	0.00	0.02	0.17	13.40	0.00	39.00	
	C2	1	0.00	0.01	0.31	2.82	0.00	81.00	

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Network Results

Run Summary

Analysis set used	Run start time	Run finish time	Modelling start time (HH:mm)	Network Cycle Time (s)	Performance Index (£ per hr)	Total network delay (PCU-hr/hr)	Highest DOS (%)	Item with highest DOS	Number of oversaturated items	Percentage of oversaturated items (%)	Item with worst signalised PRC	Item with worst unsignalised PRC	Ite wit wor over PR
6	26/11/2019 13:01:23	26/11/2019 13:01:23	17:15	100	79.53	5.09	58.73	C1/1	0	0	C1/1	A2/1	C1/

Network Results: Vehicle summary

Time Segment	Degree of saturation (%)	Practical reserve capacity (%)	Calculated flow entering (PCU/hr)	Actual green (s (per cycle))	Mean Delay per Veh (s)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Performance Index (£ per hr)
17:15-18:15	59	0	3069	740	5.97	72.28	7.25	79.53

Network Results: Flows and signals

Time Segment	Calculated flow entering (PCU/hr)	Calculated flow out (PCU/hr)	Flow discrepancy (PCU/hr)	Adjusted flow warning	Degree of saturation (%)	DOS Threshold exceeded	Practical reserve capacity (%)	Actual green (s (per cycle))
17:15-18:15	3069	3069	0		59		53	752

Network Results: Stops and delays

Time Segment	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)
17:15-18:15	2.96	5.97	5.09	72.28	19.73	605.36	7.25

Network Results: Queues and blocking

Time Segment	Utilised storage (%)	Excess queue penalty (£ per hr)	Wasted time total (s (per cycle))
17:15-18:15	596.26	0.00	216.00