

Project

Clonminch Residential Development

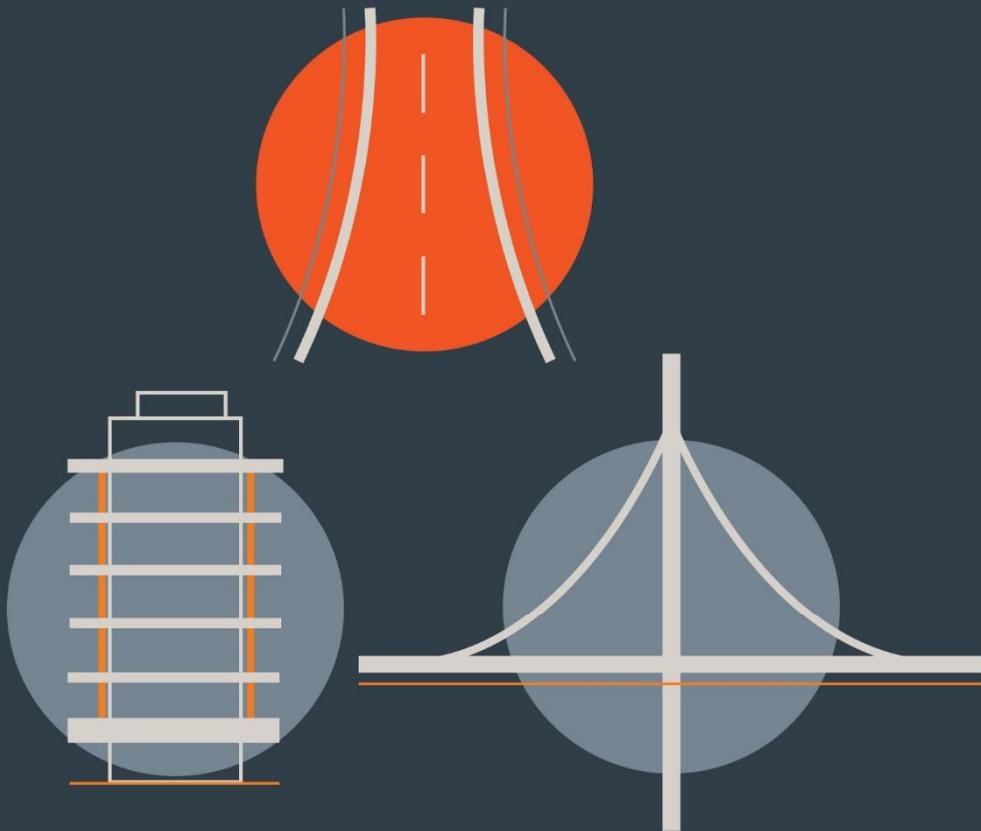
Report Title

TRAFFIC AND TRANSPORT ASSESSMENT REPORT

Client

Steinfort Investments Fund

# TRANSPORTATION



DBFL CONSULTING ENGINEERS

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## 1.0 INTRODUCTION

### 1.1 BACKGROUND

- 1.1.1 DBFL Consulting Engineers has been commissioned by Steinfert Investments Fund to compile a Traffic and Transport Assessment (TTA) for a proposed residential development on a greenfield site situated in Tullamore, Co. Offaly.
- 1.1.2 The subject site is located in Clonminch, Tullamore and the proposed development within the subject lands will incorporate 349 no. residential units comprising 196 no. detached / semi-detached / terrace houses and 153 no. apartments. The development also proposes crèche facility (GFA of 1,299 sqm.), two neighbourhood centres (GFA of 3,007 sqm.) and a shop (56 sqm) in Block F.
- 1.1.3 This report has been produced to address any potential concerns that the local planning authority may have pertaining to the level of influence of the proposed development upon the local transportation system.
- 1.1.4 During the development of this report, traffic turning count surveys have been commissioned specifically for this assessment, with the objective of providing background information relating to existing traffic movement patterns across the local road network.
- 1.1.5 This information has been supplemented with data obtained from site audits of the local road network, subsequently enabling the identification of existing local travel characteristics and an appreciation of the local receiving environment from a transportation perspective.

### 1.2 SCOPE

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

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

## 1.3 METHODOLOGY

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

- *'Traffic and Transport Assessment Guidelines'* (May 2014) National Road Authority;
- *'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;
- *'National Cycle Manual'* National Transport Authority;
- Offaly County Development Plan 2014-2020;
- Offaly County Development Plan 2021-2027: Draft Stage and the
- Tullamore Town & Environs Development Plan 2010-2016 (extended to 2020).

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

- **Site Audit:** A site audit was undertaken to quantify existing road network issues and identify local infrastructure characteristics, in addition to establishing the level of accessibility to the site in terms of walking, cycling and public transport. An inventory of the local road network was also developed during this stage of the assessment.
- **Traffic Counts:** Junction Turning Count in addition to Automatic Traffic Count surveys were undertaken and analysed with the objective of establishing local

traffic characteristics in the immediate area of the proposed residential development.

- **Trip Generation:** A trip generation exercise has been carried out to establish the potential level of vehicle trips generated by the proposed residential development.
- **Trip Distribution:** Based upon both the existing and future network characteristics, a distribution exercise has been undertaken to assign site generated vehicle trips across the local road network.
- **Network Analysis:** Further to quantifying the predicted impact of vehicle movements across the local road network for the adopted site access strategy more detailed computer simulations have been undertaken to assess the operational performance of key junctions in the post development 2023, 2028 and 2038 development scenarios.

## 1.4 REPORT STRUCTURE

- 1.4.1 As introduced above, this TTA seeks to clarify the potential level of influence generated by the proposed development upon the local road network and subsequently ascertain the existing and future operational performance of the local transport system. The structure of the report responds to the various stages of this exercise including the key tasks summarised below.
- 1.4.2 Chapter 2 of this report describes the existing conditions at the proposed development location and surrounding area, whilst Chapter 3 provides a summary of the relevant transport policies that influence the design and appraisal of the subject residential proposals.
- 1.4.3 A description of the proposed development scheme is described in Chapter 4 whilst Chapter 5 outlines the trip generation exercise carried out and the adopted methodology for applying growth factors to establish design year network traffic flows and the predicted scale of impact upon the local road network.
- 1.4.4 The operational performance of key local junctions are assessed for the 2023 Opening Year and the 2028 (Opening Year +5 years) and the 2038 (Opening Year +15 years) Future Design Years are summarised within Chapter 6.

- 1.4.5 A sensitivity assessment is included in Chapter 7 which considers the scenario where the entire masterplan lands are developed by the 2038 Future Design Year.
- 1.4.6 The main conclusions and recommendations derived from the analysis are summarised in Chapter 8.

## 2.0 RECEIVING ENVIRONMENT

### 2.1 LAND USE

2.1.1 The subject site predominantly comprises greenfield site zoned “Residential” with an approximate 1Ha portion zoned “Neighbourhood Centre” within the Tullamore Town and Environs Development Plan 2010-2016 (as varied and extended to 2020). Other land use zoning objectives outside of the subject application site boundary but within the applicant’s ownership boundary include “Public / Community / Educational” and “Neighbourhood Centre”.

2.1.2 The surrounding areas predominantly comprise residential settlements along Clonminch Road.

### 2.2 LOCATION

2.2.1 The subject site is located approximately 2.2km south east of Tullamore Town Centre and is situated on the Clonminch Road in the Gayfield area of Tullamore. 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 illustrates the extent of the subject site boundary.



Figure 2.1: Site Location (Source: Google Maps)

2.2.2 A short section of the northern boundary of the subject site is formed by the recently approved Part 8 residential development lands, whilst the remaining sections are formed by the Clonminch Wood residential settlement and greenfield lands. The subject site is bounded to the south and east predominantly by greenfield lands both of which are zoned 'Residential' in the Tullamore Town and Environs Development Plan 2010-2016 (extended). The western boundary is formed by the R443 Clonminch Road corridor.



Figure 2.2: Indicative Site Boundary (Source: Google Maps)

## 2.3 EXISTING TRANSPORTATION INFRASTRUCTURE

### *Road Network*

- 2.3.1 The R443 operates in a north-south direction along the western boundary of the subject site. Travelling in a northerly direction from the proposed site access provides access to Tullamore Town Centre located approximately 2.2km away. Travelling in a southerly direction along the R443 leads to the N52 national road corridor via the N52 / R443 / N80 roundabout junction.
- 2.3.2 The N52 forms an outer ring around Tullamore and provides connections with the N80 (Portlaoise – 31km), R421 (Roscrea – 44km), R420 (Portarlington / Monasterevin / strategic M7 network – 26km / 38km / 44km, and L2025. The N52 continues north of Tullamore providing access to the strategic M6 corridor which subsequently provides access to Dublin to the east (88km – via M4) and Athlone (53km) and Galway (138km) to the west.

2.3.3 The speed regulations along the R443 Clonminch Road corridor is 50kph and begins immediately north of the N52 / Clonminch Road roundabout junction.

*Existing Pedestrian and Cycling Facilities*

2.3.4 In the immediate vicinity of the subject site pedestrians benefit from existing footways on both sides of the R443 Clonminch Road corridor commencing approximately 120m south of the proposed site access location and continue to Tullamore Town Centre to the north. Currently on the Clonminch Road corridor, cyclists must share the road with vehicular traffic. Nevertheless, the Clonminch Road corridor between the subject site and Tullamore Town Centre benefits from sufficient width to accommodate cycle dedicate cycle infrastructure as proposed as part of the subject application and discussed in more detail within Chapter 4 of this TTA report.



Figure 2.3: Existing Pedestrian Facilities on the R443 Clonminch Road

2.3.5 Generally street lighting is provided on both sides of the R443 road corridor between the subject site and Tullamore Town Centre.

2.3.6 Figure 2.4 below presents the walking and cycling catchments from the subject Clonminch Road site. It illustrates that the site is well located being within an acceptable cycling catchment (15minutes) of the employment opportunities in Central Business Park, Spollanstown Industrial Estate, Cloncollig Industrial Estate and Riverview Business Park. Tullamore Town Centre is located within a 15 minute cycle and 30 minute walk from the subject site.

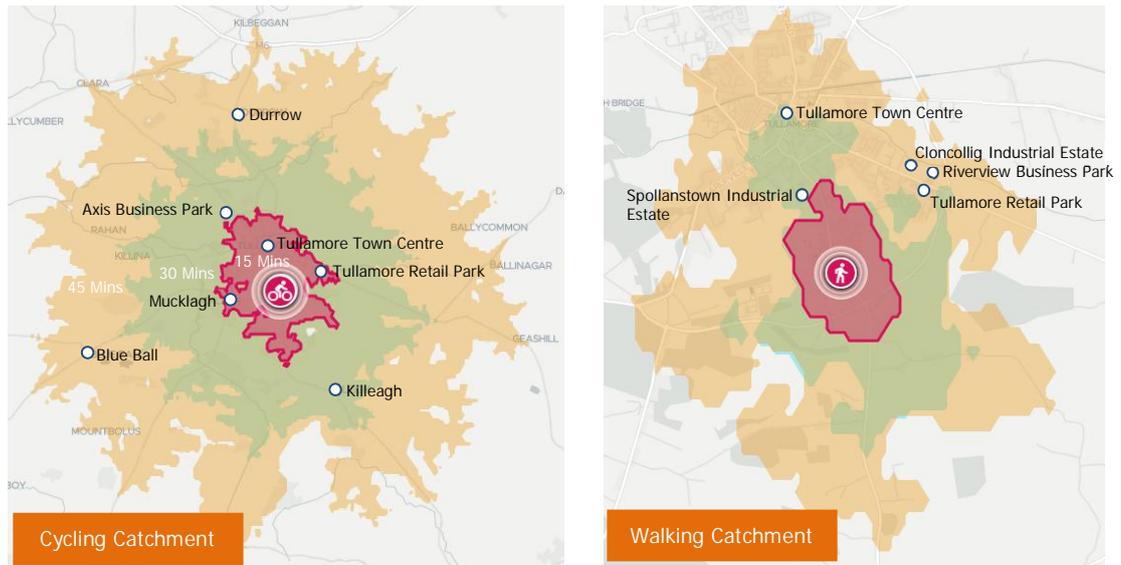


Figure 2.4: Walking & Cycle Catchments

### *Public Transport – Bus*

- 2.3.7 Currently the nearest bus interchange to the subject development site is located at the entrance of Clonminch Wood which is approximately 300m north of the proposed site access. This interchange is served by Buggy Coaches which provides a local service within Tullamore.
- 2.3.8 Bus Eireann services currently connect Tullamore to and from Dublin and are accessible at interchanges at O'Carroll Street (2.6km) and at Tullamore Retail Park (2.5km).
- 2.3.9 Slieve Bloom Coach Tours also provides services between Tullamore Town and destinations including Mullingar, Mountmellick and Portlaoise via Portarlington. These services are accessible at a number of locations, the nearest of which to the subject site is Tullamore Post Office located approximately 2.1km away.
- 2.3.10 Bus operator Kearns Transport also operates services between Tullamore and Dublin / Birr. These services are accessible at Tullamore Hospital and the Eye Cinema for services to Birr, William St and Tullamore Hospital for services to Dublin City Centre.
- 2.3.11 A summary of the aforementioned bus services is presented in Table 2.1 below and illustrated in Figure 2.5.

| Bus Operator        | Route No. | Route                    | Weekdays       |                  | Sat            |                  | Sun & Bank Hol. |                  |
|---------------------|-----------|--------------------------|----------------|------------------|----------------|------------------|-----------------|------------------|
|                     |           |                          | To Town Centre | From Town Centre | To Town Centre | From Town Centre | To Town Centre  | From Town Centre |
| Bus Éireann         | 120       | Tullamore - Dublin       | 30             | 30               | -              | -                | 1               | 1                |
|                     | 121       | Tullamore - Dublin       | -              | -                | 2              | 2                | -               | -                |
| Slieve Bloom Coach  | 837       | Tullamore - Mullingar    | 20             | 20               | 3              | 3                | -               | -                |
|                     | 829       | Tullamore - Portlaoise   | 15             | 15               | -              | -                | -               | -                |
|                     | 830       | Tullamore - Mountmellick | 35             | 35               | 30             | 30               | -               | -                |
| K Buggy Coaches Ltd | 835       | Tullamore Town           | 15             | 15               | -              | -                | -               | -                |
| Kearns Transport    | 843       | Tullamore - Birr         | 5              | 10               | -              | -                | -               | -                |
|                     | 845       | Tullamore - Dublin       | 35             | 35               | -              | -                | -               | -                |
|                     | 847       | Tullamore - Dublin       | 10             | 10               | 10             | 10               | 4*              | 3                |

\*Additional bus from Tullamore Hospital operates during college term only and does not operate on the Sunday of a Bank Holiday weekend - operates on a Bank Holiday Monday instead.

**Table 2.1: Bus Service Frequency from Tullamore Town (No. of services per day)**



**Figure 2.5: Existing Bus Service Accessibility**

### Public Transport – Rail

2.3.12 The subject development site is located approximately 2.2km south of Tullamore train station. Tullamore has an established rail infrastructure that provides linkages to Dublin City to the east, and Galway City / Mayo to the west including other intermediate destinations. Table 2.2 below presents a summary of rail services available at Tullamore Train Station.

| Routes                    | Monday – Friday | Saturday | Sunday |
|---------------------------|-----------------|----------|--------|
| Tullamore to Dublin       | 15              | 13       | 10     |
| Dublin to Tullamore       | 12              | 10       | 9      |
| Tullamore to Galway       | 8               | 7        | 6      |
| Galway to Tullamore       | 9               | 8        | 6      |
| Tullamore to Athlone      | 12              | 10       | 9      |
| Athlone to Tullamore      | 15              | 13       | 10     |
| Tullamore to Kildare      | 5               | 3        | 5      |
| Kildare to Tullamore      | 3               | 1        | 5      |
| Tullamore to Newbridge    | 5               | 3        | 1      |
| Newbridge to Tullamore    | 3               | 2        | 3      |
| Tullamore to Naas         | 3               | 1        | 0      |
| Naas to Tullamore         | 1               | 1        | 0      |
| Tullamore to Athenry      | 7               | 7        | 6      |
| Athenry to Tullamore      | 9               | 8        | 6      |
| Tullamore to Portarlinton | 14              | 12       | 10     |
| Portarlinton to Tullamore | 11              | 8        | 8      |
| Tullamore to Clara        | 7               | 7        | 8      |
| Clara to Tullamore        | 12              | 10       | 8      |

Table 2.2: Rail Services - No. of services (Source: [www.irishrail.ie](http://www.irishrail.ie))

## 2.4 PROPOSED TRANSPORT INFRASTRUCTURE

### Road Infrastructure Proposals

2.4.1 The TII expenditure programme provides a list of TII’s road scheme projects and network improvements. The proposed upgrade to the link road between Tullamore and Kilbeggan is included and the project status is currently specified as being at “Option Selection” phase. The scheme is described on the TII road scheme activity tracker as follows;

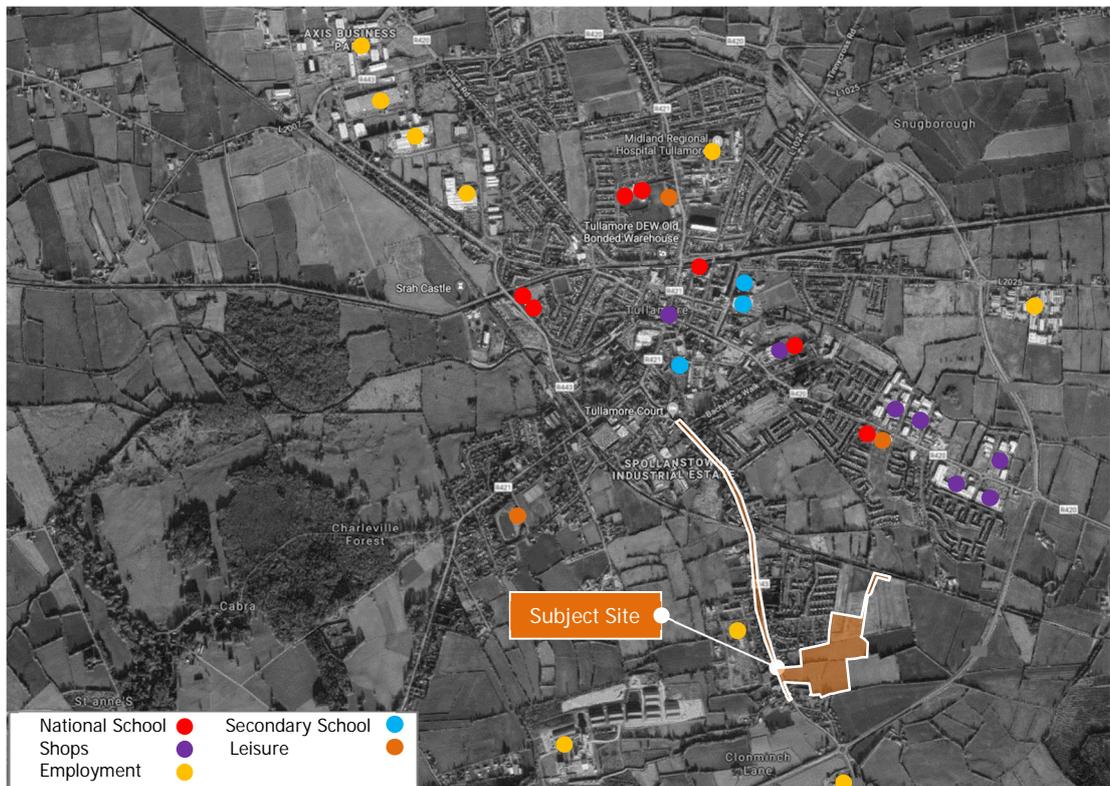
*“The Project Appraisal Plan process is complete. The scheme which comprises 4.6km of standard single carriageway will*



*provide a link from the recently constructed N52 Tullamore Bypass to the recently constructed N6 Kinnegad to Kilbeggan scheme. A route has been selected and preliminary design, EIS and CPO have been completed.”.*

## 2.5 LOCAL AMENITIES

2.5.1 As illustrated in Figure 2.7, the subject development site is well placed in terms of the availability of and access to local amenities. There are seven primary schools and three post primary schools within 3km of the subject site. The subject site benefits from good access to local retail and leisure facilities including Tullamore Retail Park and Aura Tullamore Leisure Centre both located approximately 2.7km to the east along the R420.



**Figure 2.7: Subject Site Local Amenities**

2.5.2 Furthermore, the subject development site is well placed to benefit from local employment opportunities at Central Business Park located just 450m north of the proposed site access, Spollanstown Industrial estate to the north and Riverview Business Park / Cloncollig Industrial Estate located to the east via the N52.

## 2.6 ROAD SAFETY REVIEW

- 2.6.1 With the objective of ascertaining the road safety record of the immediate routes leading to and from the subject site, the collision statistics as detailed on the Road Safety Authority's (RSA) website ([www.rsa.ie](http://www.rsa.ie)) have been examined. The RSA website includes basic information relating to reported collisions over the most recent twelve-year period, from 2005 to 2016 inclusive.
- 2.6.2 The RSA database records details where collision events had been officially recorded such as the when the Garda were present to formally record details of the incident.
- 2.6.3 In reference to Figure 2.8 and Table 2.3 below, 1 no. serious incident and 3 no. minor incidents were recorded within the vicinity of the subject site.
- 2.6.4 Incident number 1 whose circumstances were recorded as 'Other' occurred at the N52 / R443 roundabout junction and involved a car, with 3 no. reported serious injuries arising from this incident.
- 2.6.5 Incident number 2 occurred on the R443 Clonminch Road approximately 300m south of the proposed development site access whose circumstances were recorded as 'Single Vehicle Only' and involved a car, with one number reported minor injury arising from this incident.
- 2.6.6 Incident number's 3 and 4 both occurred in the vicinity of a cul-de-sac access / R443 Road junction located approximately 110m south of the proposed development site access. Incident number three's circumstances were recorded as 'Other' and involved a car, with one number reported minor injury arising from this incident whilst incident number four's circumstances were recorded as 'Angle, both straight' and involved a car, with one number reported minor injury arising from this incident.
- 2.6.7 The review of the RSA data available reveals that there are no apparent trends in collisions which have occurred in the vicinity of the subject site. The analysis demonstrates that there are currently no road safety issues across in the immediate vicinity of the proposed subject site access.

| Ref | Severity | Year | Vehicle | Circumstances        | Day | Time      | Speed limit | Casualty |
|-----|----------|------|---------|----------------------|-----|-----------|-------------|----------|
| 1   | Serious  | 2010 | Car     | Other                | Sun | 1000-1600 | 50 KPH      | 3        |
| 2   | Minor    | 2009 | Car     | Single vehicle only  | Sun | 0700-1000 | 60 KPH      | 1        |
| 3   | Minor    | 2009 | Car     | Other                | Fri | 1000-1600 | 100 KPH     | 1        |
| 4   | Minor    | 2009 | Car     | Angle, both straight | Mon | 1600-1900 | 50 KPH      | 1        |

Table 2.3: Collision Records - (source [www.rsa.ie](http://www.rsa.ie))



Figure 2.8: Collision Locations (source [www.rsa.ie](http://www.rsa.ie))

## 3.0 POLICY FRAMEWORK

### 3.1 SMARTERTRAVEL, A SUSTAINABLE TRANSPORT FUTURE 2009-2020

3.1.1 Smarter Travel was published in 2009 by the Department of Transport and 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.

3.1.2 The Government have five key goals which form the basis of the policy. They aim to:

- *“Improve quality of life and accessibility to transport for all and, in particular, for people with reduced mobility and those who may experience isolation due to lack of transport”*
- *“Improve economic competitiveness through maximising the efficiency of the transport system and alleviating congestion and infrastructural bottlenecks”*
- *“Minimise the negative impacts of transport on the local and global environment through reducing localised air pollutants and greenhouse gas emissions”*
- *“Reduce overall travel demand and commuting distances travelled by the private car”*
- *“Improve security of energy supply by reducing dependency on imported fossil fuels”*

3.1.3 In order to address the unsustainable nature of current travel behaviour, Smarter Travel sets down a number of key goals and targets for 2020 – these include:

- 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.

### 3.2 OFFALY COUNTY DEVELOPMENT PLAN 2014-2020

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

### *Sustainable Transport and Accessibility*

*“STAP-01: It is Council policy to support sustainable transport and accessibility in County Offaly and to be consistent with the goals of Smarter Travel – A sustainable Transport Future, A new transport policy for Ireland 2009- 2020”*

### *Trip Generation*

*“STAP-04: It is Council policy to promote more compact development forms that reduce overall demand for transport and transport infrastructure and support proposals that encourage modal shift towards sustainable travel modes.”*

### *Walking/Cycling*

*“STAP-06: It is Council policy to promote walking and cycling, subject to appropriate environmental assessments, including Habitats Directive Assessment, as an alternative mode of transport for travelling to work and for recreational purposes, to require the provision of cycle ways and walkways and associated facilities as part of new development and to support safer walking and cycling routes to schools under the Green Schools Initiative where feasible.”*

*“STAP-09: It is Council policy to support the pedestrianisation in town and village centres where appropriate.”*

*“STAP-10: It is Council policy to support the provision of secure cycle parking facilities in towns and at all public service destinations.”*

## 3.3 TULLAMORE TOWN & ENVIRONS DEVELOPMENT PLAN 2010-2016

3.3.1 The Tullamore Town and Environs Development Plan 2010-2016 (Extended) was adopted by the elected members of both Tullamore Town Council and Offaly County Council and outlines an overall strategy for the proper planning and sustainable development of Tullamore town and its environs.

3.3.2 The subject site is located to the south of Tullamore Town and as such is governed by the specific policies and objectives outlined in the Tullamore Town and Environs Development Plan. In the context of the subject proposals, the following are the relevant transport and development objectives set out in the plan:

*“TTEP 08-01: It is the Councils’ policy to locate land-uses, such as residential, schools, work and leisure areas closer together, without negatively impacting on the residential/public amenity of Tullamore. The purpose of this policy is to:*

- *Reduce the need to travel.*
- *Create more sustainable short distance travelling i.e. walking and cycling.”*

*“TTEP 08-13: It is the Councils’ policy to promote Tullamore as a “green cycle/transport town”. Having regard to short distance trips within Tullamore town and environs, it is the Councils’ policy to encourage and facilitate the shift from private car to different modes of transport, such as walking, cycling and environmentally friendly methods of travel. The integration of environmentally friendly/smart methods for short-distance travel, along with the car-user, will make Tullamore a safer, pleasant and efficient town to live, work, do business and visit.”*

*“TTEP 08-14: It is the Councils’ policy to continue the programme of improvement of footpaths/cycle paths throughout the town and to further develop/extend the network of interlinked pedestrian/cycle routes throughout the town and environs.”*

*“TTEP 08-15: It is the Councils’ policy to assist and support the further improvement of public transport services for Tullamore and in particular facilitate in the provision and promotion of privately-run transportation systems.”*

*“TTEP 08-24: As part of the promotion Tullamore’s image as a “green cycle/transport town”, it is the Councils’ policy, where feasible, to require the provision of cycleways and walkways as part of new development.”*

### *Land Use Zoning*

- 3.3.3 As introduced previously, the subject lands are zoned as ‘residential’ including ‘Neighbourhood Centre’ within the Tullamore Town and Environs Development Plan (Figure 3.1). A ‘residential’ zone must *“include the use of land for domestic dwellings (including meeting housing needs of members of the travelling community), religious and civic residences. It may also provide for a range of other uses particularly those that have the potential to foster, enhance and supplement the development of new residential communities for example, schools, crèches, local convenience store, doctor/dental surgeries, open space (formal and informal) etc.”*

### *Zoning Policy*

*“TTEP 15-02: It is the Councils policy to facilitate the development of the Tullamore town and environs area and ensure that any development proposed is in the interests*

*of proper planning and sustainable development. In particular, it is the Councils' policy in the case of town centre zoning, to prohibit a proliferation of any individual use which in the opinion of the Planning Authorities, does not contribute to the vitality and viability of the town centre."*

*"TTEP 15-03: It is the Councils policy to encourage the natural growth of Tullamore town and environs area. In the case of the development of zoned greenfield sites, a mix of uses may be required as opposed to excessive homogenous developments. This will ensure the proper planning and sustainable development of these areas, providing necessary services and adding vitality and viability to their future use."*

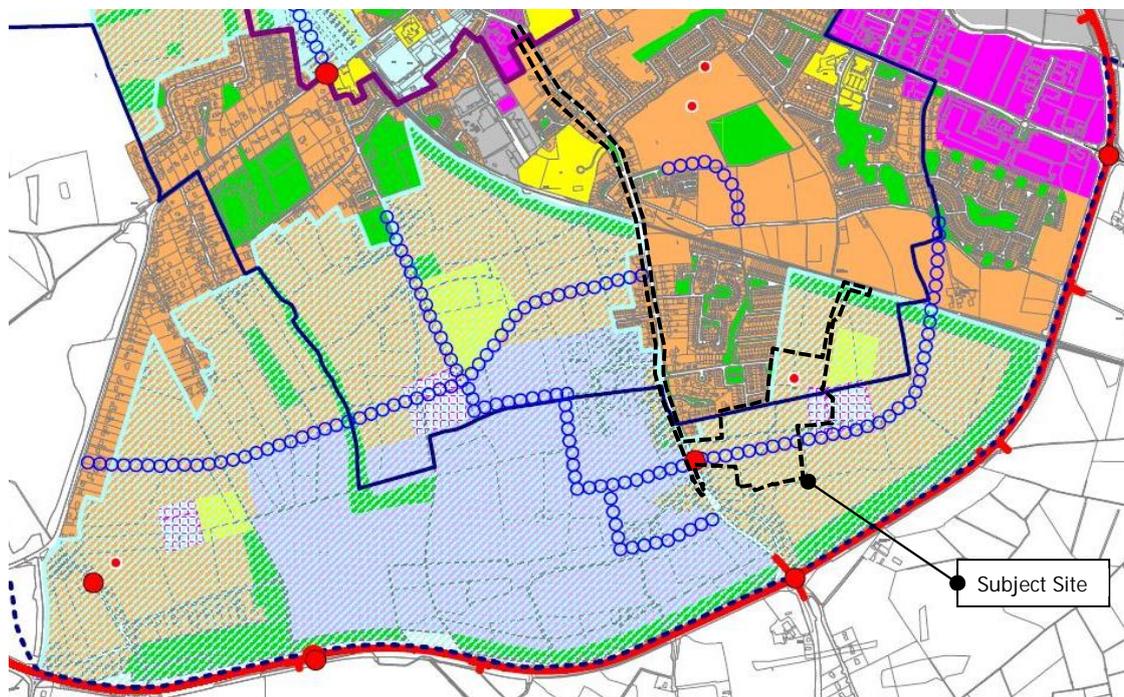


Figure 3.1: Land Use Zoning (Extract of Fig 3.1 Tullamore Land Use Zoning Map 2010-2016 extended to 2020)

### *Roads Objectives*

3.3.4 A total of 17 no. enhancements to the road network are proposed within the development plan which will;

- a) *"Ensure the local area strategies can move forward.*
- b) *Allow alternative local routes around and through the urban fabric.*
- c) *Enable public transport to penetrate the built up area and therefore bring 'bus routes nearer to the people'".*

3.3.5 The proposed enhancements are indicatively presented in Figure 3.2 below. Variation No. 1 proposes alternative indicative alignments for the future strategic

distributor network in the vicinity of the subject development site. The variation includes for the future distributor road that passes through the subject lands to continue westwards via a new 4-arm junction on Clonminch Road. Accordingly, the proposed site access junction will be designed to accommodate this future 4<sup>th</sup> junction arm with carriageway spaces reserved on the northern approach to accommodate a dedicated right turn facility into this future distributor road objective.

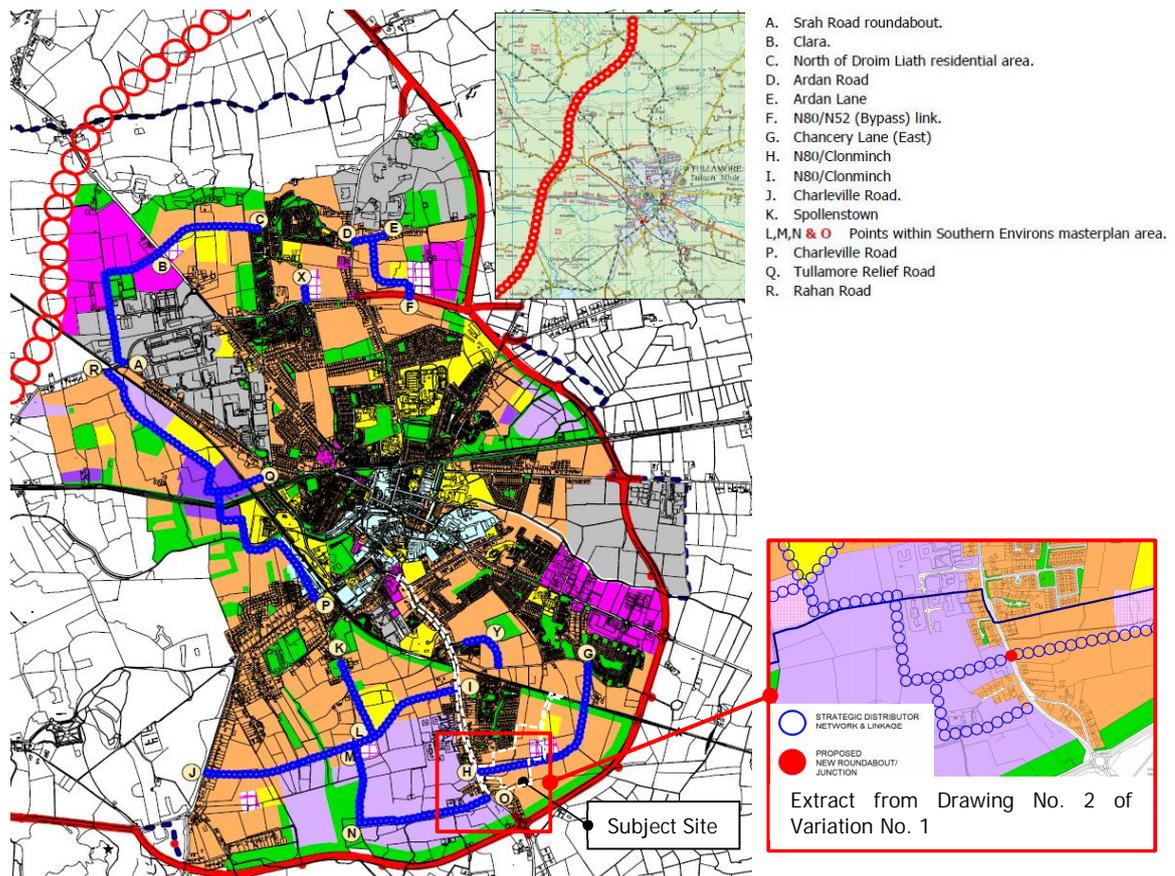


Figure 3.2: Local Roads Objectives (Extract of Map 8.1)

3.3.6 The proposed link street through the subject development site forms part of the local roads objective G-H. The proposed street layout safeguards the future extension of this street through to Chancery Lane (East) as the adjacent zoned lands to the east of the subject site are developed. Once complete, this road objective would provide an alternative to the N52 for vehicles travelling between Clonminch Road and the R420 to the east. For the purposes of this TTA, it has been assumed that this ‘through’ route will not be complete by the adopted 2038 Future Design Year thereby ensuring a ‘worst case’ assessment at the proposed signal controlled junction on Clonminch Road and existing Clonminch Road / N52 roundabout junction.

### 3.4 DRAFT OFFALY COUNTY DEVELOPMENT PLAN 2021-2027

- 3.4.1 Offaly County Council has begun the review of the existing Offaly County Development Plan 2014-2020 by preparing the draft Offaly County Development Plan 2021-2027. The statutory document has been prepared by the Planning Authority in accordance with the requirements of the Planning & Development Act 2000 (as amended) and the Planning & Development Regulations 2001 (as amended).
- 3.4.2 The Plan completed stage two public consultation in autumn of 2020. Submissions / observations were received by July 2021 for the Material Alterations with the final Plan expected to be adopted by Autumn of 2021. In the context of the subject proposals, the following are the relevant transport and development objectives set out within the 2021-2027 Draft Plan:

#### *Sustainable Mobility and Accessibility*

*“SMAP-01: It is Council policy to support sustainable mobility, enhanced regional accessibility and connectivity within County Offaly in accordance with the National Policy Outcomes of the National Planning Framework 2040 and the National Development Plan.”*

*“SMAP-02: It is Council policy to support the growth in the use of electric vehicles, autonomous vehicles and fuel cell vehicles; prioritise car parking spaces for these vehicles; and facilitate the provision of battery charging infrastructure and refuelling infrastructure for these vehicles where considered appropriate.”*

*“SMAP-03: It is Council policy to promote the transition to a low carbon integrated transport system by firstly reducing the need for travel through the use of design solutions and innovative approaches with regards to the Design Manual for Urban Roads and Streets, and subsequently to shift to environmentally sustainable modes of transport.”*

*“SMAO-01: It is an objective of the Council to facilitate the provision of transport infrastructure in County Offaly in line with national policy as outlined in the National Development Plan, Government policy and also in line with the Councils own programme of works.”*

*“SMAO-02: It is an objective of the Council to prepare a Local Transport Plan for the Key Town of Tullamore in conjunction with the National Transport Authority.”*

### *Land Use and Transportation Integration*

*“SMAP-04: It is Council policy to promote the integration of land use and transport planning to:*

- (i) Ensure a sustainable, safe, coherent, efficient, and effective approach to transport provision for development in County Offaly;*
- (ii) “Support permeability and connectivity in settlements (both in terms of new development and retrofitting into existing built-up areas);”*

### *Modal Shift*

*“SMAP-07: It is Council policy to encourage better integration of transport services with the aim of reducing car trips by encouraging and fostering improved consultation and co-operation between both public and private providers of transport services operating in the county and in the midland region, including all providers of bus and rail services.”*

### *Walking/Cycling*

*“SMAP-08: It is Council policy to prioritise the need for people to be physically active in their daily lives; to improve permeability and to promote walking and cycling in the design of streets and public spaces as an alternative and sustainable mode of transport; and to support safer walking and cycling routes to schools under the Green Schools Initiative subject to appropriate environmental assessments, including Habitats Directive Assessment.”*

*“SMAP-09: It is Council policy to support the pedestrianisation and permeability of town and village centres where appropriate, in order to create accessible, attractive, vibrant and safe places. In doing this the Council will strive to support the;*

- (i) Provision of ‘cycle friendly’ towns and villages;*
- (ii) Provision of key cycling routes through larger towns;*
- (iii) Potential for a walking and cycling route around Tullamore incorporating the Grand Canal, the banks of the Tullamore river and inside the barriers of the Tullamore bypass.”*

*“SMAP-11: It is Council policy to support the provision of secure cycle parking facilities in the public realm of towns and villages, at all public service destinations and in other developments”*

*“SMAO-04: It is an objective of the Council to implement Connecting People Connecting Places: A Strategy for Walking and Cycling in Offaly September 2015.”*

*“SMAO-05: It is an objective of the Council that cycle lanes are designed and maintained in accordance with the National Cycle Manual by the National Transport Authority 2011.”*

### *Public Transport*

*“SMAP-15: It is Council policy to support and facilitate the operation of existing bus services and to facilitate the provisions of improved facilities and services for bus users in towns and villages including the provision of set down areas for coaches and bus shelters at all bus stops where feasible.”*

*“SMAP-17: It is Council policy to be supportive of exploring opportunities for the provision of cycle lanes along the N80, preferably off road cycle tracks separated from vehicular traffic where feasible, subject to meeting Transport Infrastructure Ireland's Guidelines and the undertaking of a safety audit.”*

### *Roads*

*“SMAP-20: It is Council policy to maintain and protect the safety, strategic transport function, capacity and efficiency of national roads and associated junctions.”*

*“SMAP-24: It is Council policy to ensure that developments which have the potential to generate significant traffic movement are subject to a Traffic and Transportation Assessment, Quality Audit and Road Safety Audit as appropriate.”*

*“SMAO-08: It is an objective of the Council to improve poor road alignment and junctions where incidents of collision are recorded, and funding is available.”*

## 3.5 DEVELOPMENT CONTROL

### *Car Parking Standards*

3.5.1 In order to determine the appropriate quantum of vehicle parking for the proposed residential development, reference was made to the following:-

- Table 8.2 of the Offaly County Development Plan (and Table 14.2 of the Tullamore Town and Environs Development Plan 2010-2016 (extended until 2020); and

- Chapter 4 of Sustainable Urban Housing: Design Standards for New Apartments Guidelines For Planning Authorities, as published by the Department of Housing, Planning and Local Government (DHPLG), 2020.

3.5.2 Within the DHPLG standards, the location of the subject site can be described as 'Peripheral and / or Less Accessible Urban Locations'. The DHPLG document states that:

*'As a benchmark guideline for apartments in relatively peripheral or less accessible urban locations, one car parking space per unit, together with an element of visitor parking, such as one space for every 3-4 apartments, should generally be required.'*

3.5.3 With regard to the proposed development schedule, the associated car parking requirements are outlined in Table 3.1 below.

| Unit Type                          |                             | No. of Units / Staff / Children / GFA (SQM) | OCC Standards                                | DHPLG Guidelines                                | OCC Requirement        | DHPLG Requirements |
|------------------------------------|-----------------------------|---|--|---|------------------------|--------------------|
| Apartments                         |                             | 153   | 2 spaces per unit                            | 1 space / unit plus 1 visitor space / 3-4 units | 306                    | 191-204            |
| Houses                             |                             | 196   | 2 spaces per unit                            | As OCC  | 392                    | As OCC             |
| Crèche                             |                             | 20 staff / 100 children                     | 1 space / employee plus 1 space / 4 children |   | 20 staff / 25 set down |                    |
| Block F Retail                     |                             | 56sqm                                       | 1/23sqm                                      |   | 3                      |                    |
| N.C. 1                             | Business Hub <sup>1</sup>   | 712.12 sqm                                  | 1/100sqm <sup>1</sup>                        |   | 7                      |                    |
|                                    | Retail                      | 275.97 sqm                                  | 1/23sqm                                      |   | 12                     |                    |
| N.C. 2                             | Medical Centre <sup>2</sup> | 186.7 sqm                                   | 1/staff                                      |   | 2                      |                    |
|                                    | Retail                      | 255.14 sqm                                  | 1/23sqm                                      |   | 11                     |                    |
|                                    | Gym                         | 442.6 sqm                                   | 1/25sqm                                      |   | 18                     |                    |
|                                    | Consulting /Treatment Rooms | 4 staff / 4 consulting rooms                | 1/staff and 3/ consulting room               |   | 16                     |                    |
| Total Car Parking Spaces Permitted |                             |   | -  |   | -                      |                    |

<sup>1</sup> No applicable standard – assumed 1/100 sqm

<sup>2</sup> Assumed 2 no. reception staff in medical centre reception area

<sup>3</sup> Incl. OCC's Non-Residential and House Requirement

**Table 3.1: Car Parking Standards**

3.5.4 In response to the above local development management standards the scheme is permitted to provide up to a maximum of 812 no. on-site resident car parking spaces comprising 306 spaces for the apartments units, 392 no. parking spaces for the

houses, 45 no. for the creche (inclusive of 25 no. set down spaces), 3 no. spaces for the shop in Block F, 19 no. for Neighbourhood Centre 1 and 47 no. for Neighbourhood Centre 2. The DHPLG guidelines recommend the provision of between 191 – 204 no. car parking spaces for the apartment units.

#### *Mobility Impaired Car Parking*

- 3.5.5 The Offaly County Development Plan does not specify the number of disabled parking spaces to be provided as part of new developments. However, the development plan does state that *“Provision of car parking spaces to meet the needs of persons with disabilities should be made.”*. Accordingly, reference is made to Section 1.4.4 of *“Buildings for Everyone”* recommends;

*“For shops, leisure and recreational facilities and other buildings to which the public has access: 6% of the total capacity plus one space for each employee with a disability who is a motorist.”*

*“For buildings not normally visited by the public, such as offices and other places of work: 5% of the total car parking capacity.”*

#### *Electric Vehicle Parking*

- 3.5.6 Section 8.16.4 of the County Development Plan requires that developments *“non-residential developments shall provide facilities for battery operated cars to be recharged at a rate of 10% of the total car parking spaces (metered fast-charging 220-240V, 32A three phase). The remainder of the parking spaces, as for all residential parking spaces including parking spaces for the disabled, shall be constructed to be capable of accommodating future charging points as required – residential space facilities to be coded/metered, slow charging 220-240V, 13A single phase”*.

#### *Cycle Parking Standards*

- 3.5.7 Reference has been made to Section 8.16.3 of the Offaly County Development Plan and Section 4.17 of the Department of Housing, planning and Local Government (DHPLG) *“Sustainable Urban Housing: Design Standards for New Apartments”*. With regard to the proposed development schedule, the associated cycle parking requirements are outlined in Table 3.2 below.

- 3.5.8 In response to the local Development Plan requirements, the scheme is required to provide at least 121 no. on-site cycle parking spaces bicycle parking spaces as part

of the proposed development. With reference to the DHPLG requirements, the subject scheme is required to provide a minimum of 355 no. cycle parking spaces for the apartment units (278 no. long stay and 77 no. short stay). When combined with OCC's requirement for the non-residential land uses, this equates to an overall development cycle parking requirement of 384 no. spaces.

| Dwelling Type                              | No. of Units/GFA | OCC Standards              | DHPLG Guidelines |               | OCC Requirement | DHPLG Requirements |              |
|--|------------------|----------------------------|------------------|---------------|-----------------|--------------------|--------------|
|  |                  |                            | Long Stay        | Short Stay    |                 | Long Stay          | Short Stay   |
| Apartments                                 | 1 bed - 41       | 1/3 of Car spaces required | 1 per bedroom    | 1 per 2 units | 92              | 278                | 77           |
|  | 2 bed - 99       |                            |                  |               |                 |                    |              |
|  | 3 bed - 13       |                            |                  |               |                 |                    |              |
| Retail                                     | 587.11 sqm       |                            | -                | -             | 8               | As OCC             |              |
| Crèche                                     | 1,299 sqm        |                            | -                | -             | 14              |                    |              |
| Business Hub                               | 712.12 sqm       |                            | -                | -             | 2               |                    |              |
| Medical Centre                             | 458.43 sqm       |                            | -                | -             | 5               |                    |              |
| Retail (Block F)                           | 56 sqm           |                            | -                | -             | 1               |                    |              |
| <b>Total Cycle Parking Spaces Required</b> |                  |                            |                  |               | <b>121</b>      |                    | <b>385 *</b> |

\* Incl. OCC's Non-Residential Requirement

Table 3.2: Cycle Parking Standards

## 4.0 CHARACTERISTICS OF PROPOSALS

### 4.1 OVERVIEW

- 4.1.1 The subject proposals seek permission for the provision of 349 no. residential units comprising 153 no. apartments, 196 no. houses in addition to a 100 child crèche facility (GFA of 1,299 sqm.), a 56 sqm shop in Block F and two neighbourhood centres with a combined GFA of 3,007sqm. As outlined further in Section 4.3 the scheme proposals also include the implementation of off-site infrastructure enhancements in the forms of new cycle lanes, bus stop and signal controlled junction works along a section of the R443 Clonminch Road corridor.
- 4.1.2 The scheme has a total developable area of 11.45 Ha and will provide 1.62 Ha of public open spaces. A summary of the proposed development is presented in Figure 4.1 and Table 4.1. Further details of the subject development proposals are illustrated in the architects' drawings as submitted with this planning application.



**Figure 4.1: Proposed Development Site Layout**

| Unit Type                | 1-Bed  | 2-Bed      | 3-Bed      | 4-Bed     | Total      |
|--------------------------|--|------------|------------|-----------|------------|
| Apartments               | 41   | 99         | 13         | -         | 153        |
| Houses                   | -  | 4          | 142        | 50        | 196        |
| <b>Total Residential</b> | <b>41</b>  | <b>103</b> | <b>155</b> | <b>50</b> | <b>349</b> |
| Crèche                   | 1,299 sq.m (20 staff / 100 children)   |            |            |           |            |
| Neighbourhood Centres    | Total GFA of 3,007 sq.m - Incl. Business Hub (712 sq.m), Medical Centre (458.43 sq.m), Retail Units ( combined GFA of 531 sq.m) and a Gym (442.6 sq.m) |            |            |           |            |
| Block F Shop             | 56 sqm   |            |            |           |            |

Table 4.1: Development Schedule Summary

## 4.2 SITE ACCESS STRATEGY

### *Vehicle Access*

- 4.2.1 The subject development site is proposed to be accessed via a new signal controlled junction on the R443 Clonminch Road corridor which to be implemented as part of the subject development. Initially, the junction will operate as a three-arm signal controlled junction but reserves the capacity for a fourth arm that could be implemented at a future date to facilitate the local authority's road objective for a future new road link (O-N-M Figure 3.2).
- 4.2.2 As introduced previously in Section 3.3 of this TTA, Variation No. 1 includes for the future distributor road that passes through the subject lands to continue westwards via a new 4-arm junction on Clonminch Road in the vicinity of the subject site access. Accordingly, the proposed site access junction will be designed to accommodate this future 4<sup>th</sup> junction arm with carriageway space reserved on the northern approach to the junction to accommodate a dedicated right turn facility into this future distributor road objective.

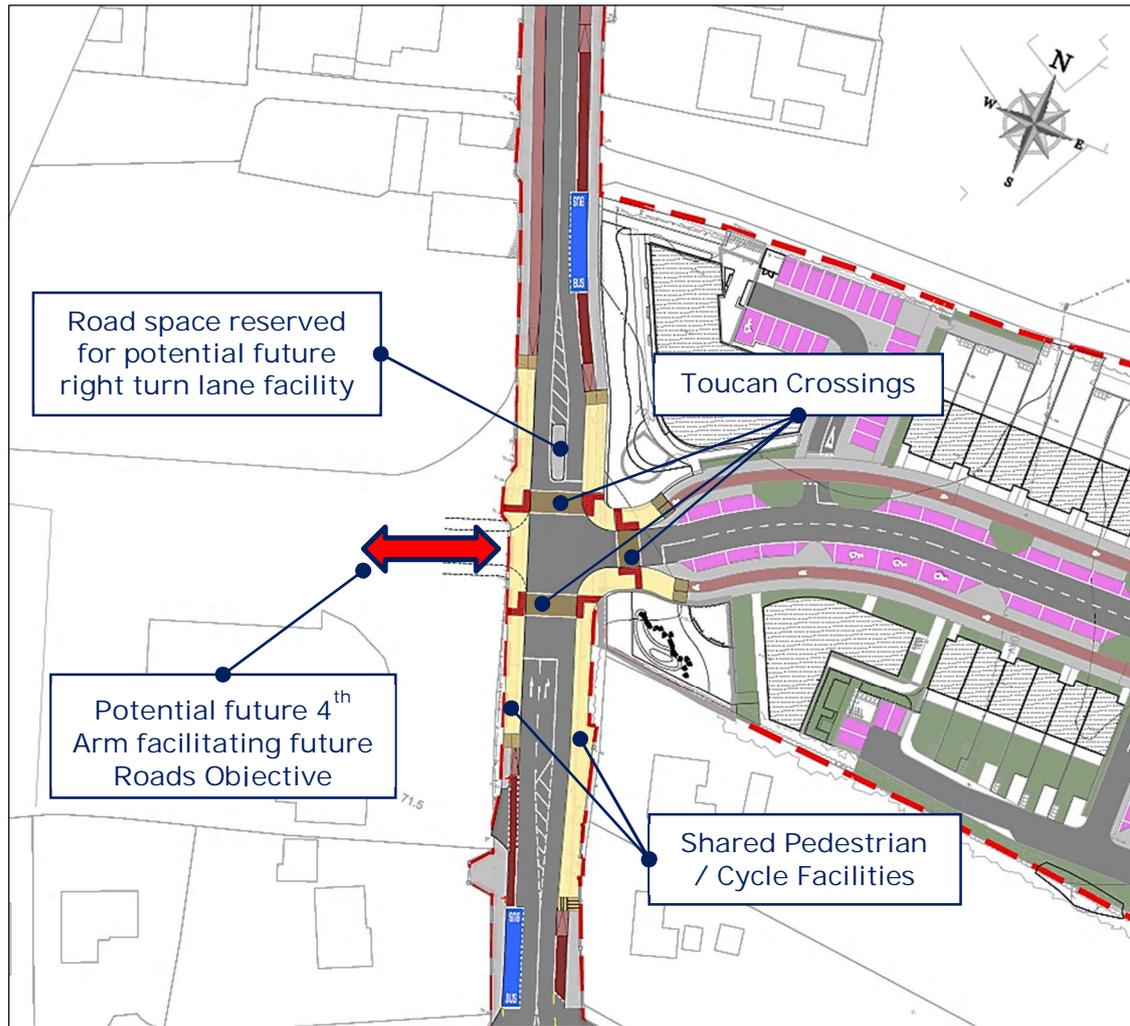


Figure 4.2: Proposed Site Access on R443 Clonminch Rd

### *Pedestrians and Cyclist Accessibility*

- 4.2.3 Pedestrians and cyclists will access the the subject site via the aforementioned vehicle access junction. Shared cycle / pedestrian facilities are proposed on all approaches to this new junction thereby ensuring segregation between vehicles and pedestrians / cyclists. Toucan crossings are proposed on all arms of the signal controlled junction.
- 4.2.4 In addition, potential future filtered permeable connections (subject to future agreement with adjoining housing bodies) have been facilitated with adjoining lands allowing for future onward connections to both existing adjoint residential settlements and future development within the Eastern Node. Vehicle connections have been designed up to the eastern site boundary to facilitate connectivity with future development on lands which fall within the Eastern Node of the Southern Environs of Tullamore to the east and south of the site.

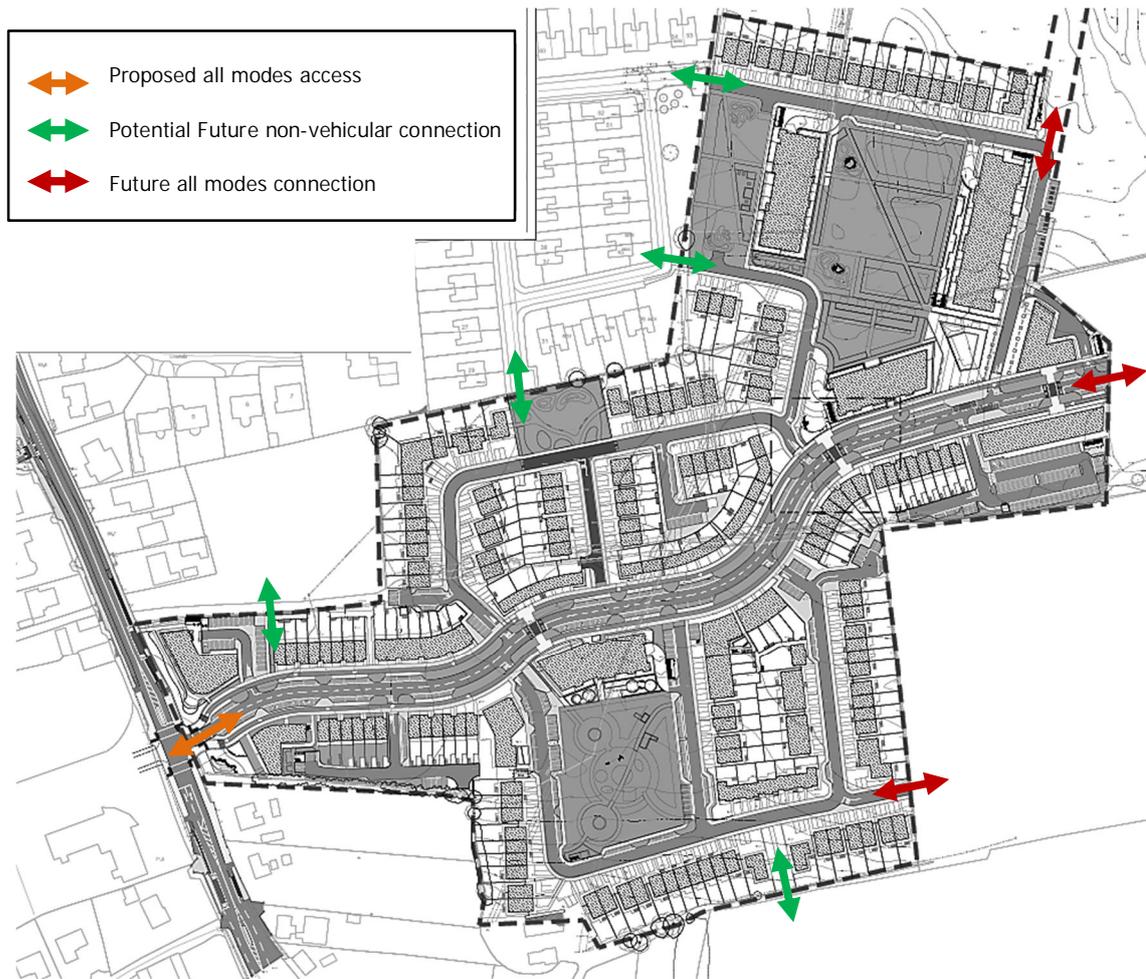


Figure 4.3: Site Access and Permeability

## 4.3 ROAD INFRASTRUCTURE

### *Road Infrastructure*

4.3.1 The proposed main site access road introduced above has been designed to perform the function of a 'Link Street'. Accordingly, should the local authority's road objective for a future new road link (H-G in Figure 3.2) between the R443 Clonminch Road corridor to the west and Chancery Close to the east will be implemented at a future date, the proposed access road is expected to have adequate capacity to perform the function of an inner relief road should the need arise.

4.3.2 Nevertheless, it is predicted that this infrastructure will not be required in the short / medium term due to the N52 relief road currently performing a similar function and accordingly, for the purposes of this TTA, it is assumed not to be in place before the adopted 2038 Future Design Year.

4.3.3 The proposed residential scheme is consistent with both the principles and guidance outlined within the Design Manual for Urban Roads and Streets (DMURS) 2013 (updated 2019). The scheme proposals are the outcome of an integrated design approach that seeks to implement a sustainable community connected by well-designed streets which deliver safe, convenient and attractive networks.

4.3.4 The proposed residential scheme incorporates a hierarchy of streets as noted below:

- A 6.5m wide '*Link*' street between the proposed new signal controlled site access junction and the eastern extents of the subject site. Dedicated cycle tracks / lanes and footways are proposed on both sides of this '*Link*' street.
- 5.5m '*Primary Local Access*' streets,
- 5.5m '*Secondary Local Access*' streets and
- '*Homezone*' parking areas / streets.

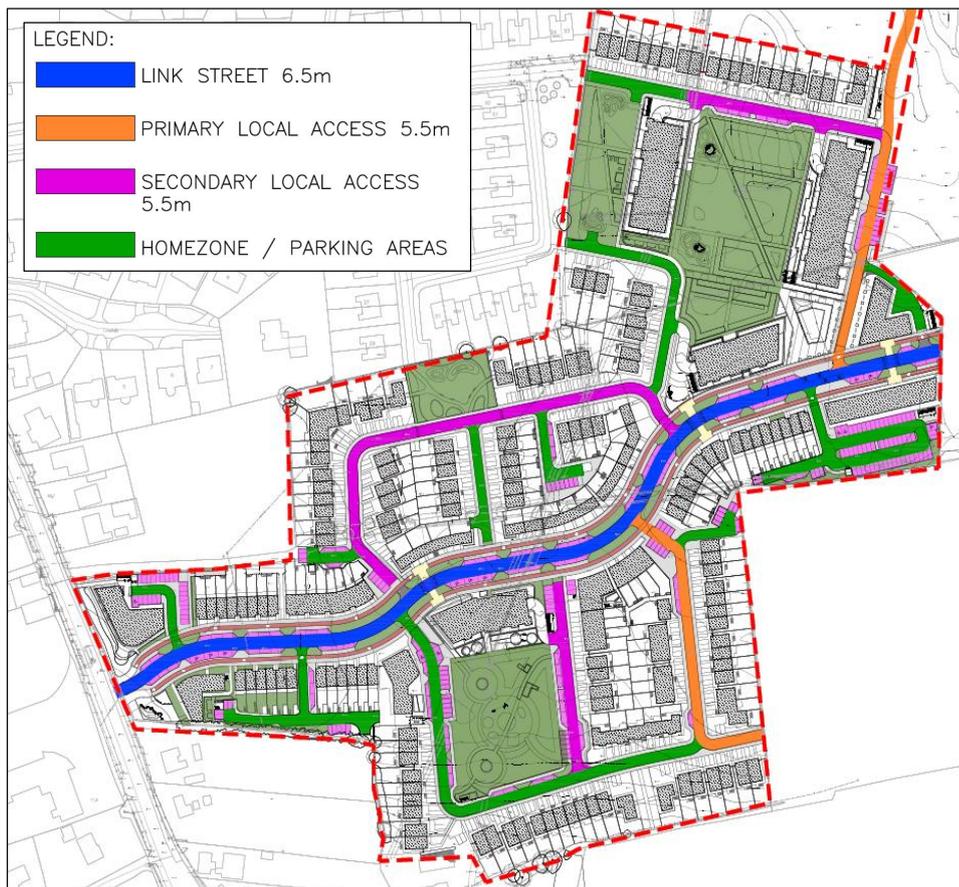


Figure 4.4: Hierarchy of Streets

4.3.5 The implementation of self-regulating streets actively manages movement by offering modal and route choices in a low speed / high quality residential environment. Specific attributes of the schemes design which contribute to achieving this DMURS objective include;

- a) Footpaths (2.0m wide) are provided throughout the scheme and with connections / tie-in to existing external pedestrian networks and constructed up to the subject site boundary facilitation potential future permeability with adjoining residential settlements.
- b) Appropriate clear unobstructed visibility splays, as per DMURS requirements; are provided / safeguarded at all internal nodes.
- c) With the objective of encouraging low vehicle speeds and maximising pedestrian safety and convenience, corner radii at *Local* street nodes have been specified generally as 3.0-4.5m as per DMURS guidance.
- d) Along lightly trafficked internal *Local* streets, cyclists will share the carriageway with other street users as per the NCM guidance for such situations. This *Local* street network connects to the proposed *Link* street which incorporates dedicated cycle tracks on both sides of the corridor.

### *Bus Infrastructure*

4.3.6 The proposals include for the provision of 2 no. new bus stops on Clonminch in the vicinity of the proposed new site access junction as presented in Figure 4.5 below. The provision of bus interchanges adjacent to the subject site maximises accessibility to bus services which will help encourage future residents to travel to work / school / college by bus as opposed to private car.



**Figure 4.5: Proposed new Bus Interchange Locations**

4.3.7 According to the planning documentation for the neighbouring Part 8 development, an agreement has been reached with Slieve Bloom Coaches to serve new bus stop locations in this area. Accordingly, services associated with Slieve Bloom Route 830 which operate 7 no. 2-way weekday services between Tullamore and Mountmellick

along Clonminch Road could be available immediately following implementation of the proposed new bus stops.

- 4.3.8 In addition, the subject Link Street has been designed to accommodate potential future bus services should the existing bus routes be extended to serve the future demand at the subject development and potential future development on zoned lands within the Eastern Node outside of the subject site boundary. Accordingly, bus stops have been incorporated into the subject scheme proposals in each direction along the proposed Link Street located in the vicinity of the Neighbourhood Centres.

#### *Proposed Cycle Infrastructure on Clonminch Road*

- 4.3.9 The proposals include for the provision new dedicated cycle infrastructure along Clonminch Road (R443) including 2 no. new Toucan crossing facilities (Figure 4.6). The Clonminch Road enhancements commence approximately 100m south of the proposed site access junction and continue along Clonminch Road to tie into the existing road carriageway at a location approximately 80m northwest of the Bachelor's Walk junction. The scheme aims to provide a cycle route between the subject site location and Tullamore Town Centre along Clonminch Road.
- 4.3.10 The cycle facilities comprise predominantly segregated cycle tracks however, on approach to the town centre where the available carriageway width narrows, a shared cycle / pedestrian facility is proposed in the northbound direction over a distance of approximately 190m. For a short 90m section south of the Bachelor's Walk junction, the narrow carriageway width at this section results in southbound cyclist sharing the road with vehicular traffic.
- 4.3.11 In order to facilitate the proposed segregated cycle infrastructure proposals, all space facilitating the existing right turn pockets have been reassigned to accommodate the introduction of high quality cycle facilities. It is predicted that the quantum of vehicles availing of these existing right turn facilities is not sufficient to result in a material impact on the capacity of the Clonminch Road corridor once removed. The inclusion of dedicated cycle infrastructure along Clonminch Road will make travel by bicycle a safer option and subsequently increase the likelihood of residents in the local vicinity to consider travel by bicycle as a viable mode of travel and choose cycling over travel by car thereby reducing the number of motorised vehicles on the road network.

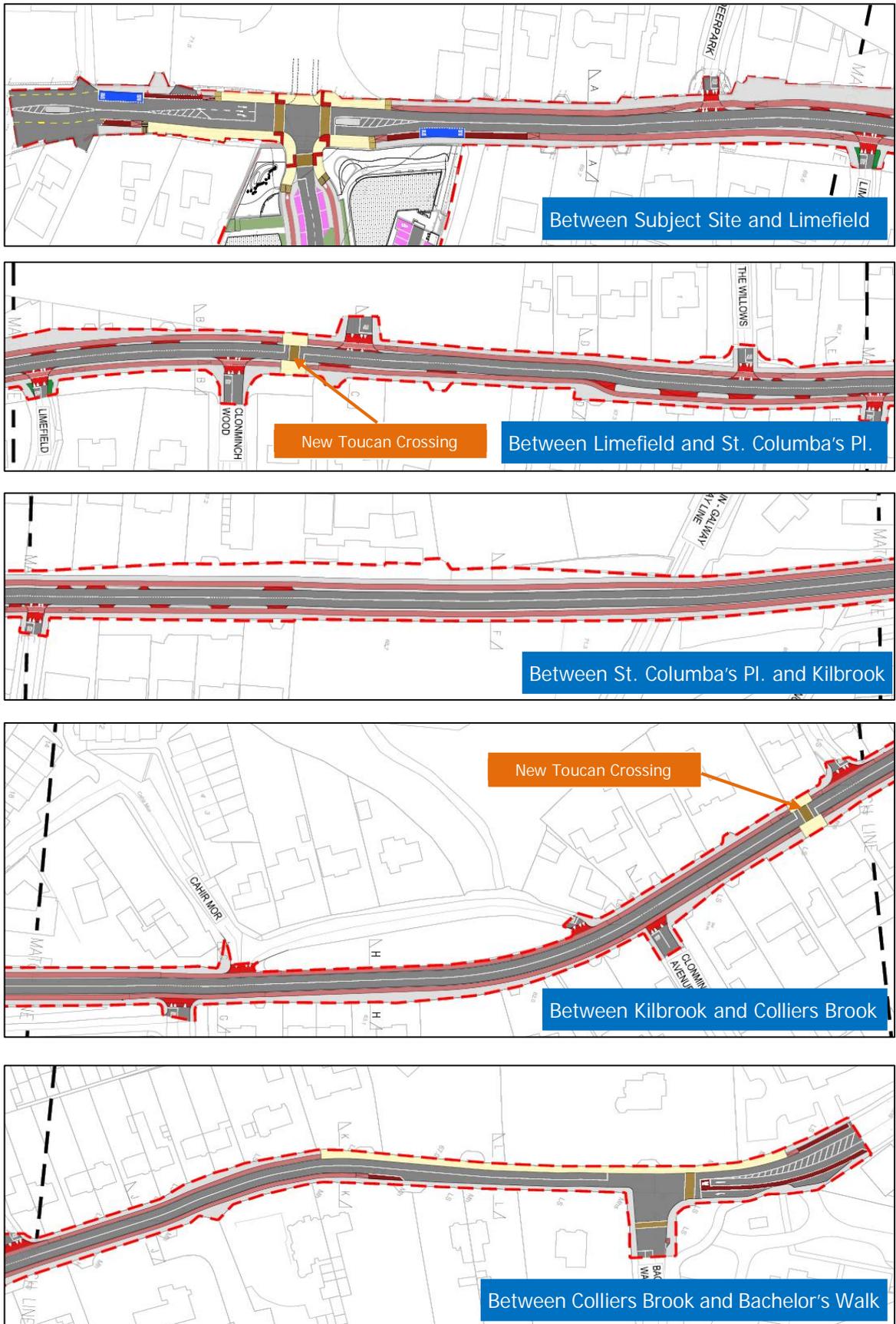


Figure 4.6: Proposed Clonminch Road Cycle Scheme

4.3.12 The guidelines set out in the NTA documents *“Preliminary Design Guidance Booklet for BusConnects Core Bus Corridors”* and *“National Cycle Manual”* have been incorporated into the subject scheme design. Cycle tracks are generally 2m in width (reducing to 1.75m and over a short section 1.5m where available carriageway width is restricted) and segregated vertically and / or horizontally from the vehicular carriageway. Vehicular traffic lanes have been designed to a standard width of 3m in each direction as per the guidelines set out in the Design Manual for Urban Roads and Streets for *“Arterial and Link streets”*.

4.3.13 Further details including cross sections are presented in DBFL Drawing Number 180002-DBFL-RD-SP-DR-C-1009 / 1010 / 1011 / 1012 / 1013 as submitted with this application.

#### 4.4 PARKING

##### *General Car Parking*

4.4.1 The proposed development layout design provides a total of 695 no. car parking spaces comprising 392 no. car parking spaces for the house units (278 in-curtilage spaces, 75 on-street and 19 off-street / courtyard parking), 194 no. car parking spaces for the apartment units (52 no. on-street/courtyards and 142 no. at basement level), 21 no. crèche car parking spaces (inclusive of 8 no. set down spaces), 5 no. spaces assigned to the shop located within Block F, 68 no. spaces at the proposed neighbourhood centres, 6 no visitor spaces and 9 no. spaces at Clonminch Square. Table 4.2 below provides a summary of the proposed vehicle parking provision.

4.4.2 The proposed 194 no. apartment car parking spaces is lower than the local development management standards (306 spaces required). This provision, however, adheres to the DHPLG guidelines of between 191-204 no. spaces for new apartment developments located at sites classified as *“Peripheral and/or Less Accessible Urban Locations”*. The proposed 392 no. car parking spaces for the house units complies with the local development management standards which requires 2 no. spaces per unit. The ratio of car parking spaces per residential unit equates to 2 spaces per house and 1.27 spaces per apartment unit.

4.4.3 The proposed 21 no. creche car parking spaces (inclusive of 8 no. set down spaces) is lower than the development plan requirement (20 parking spaces and 25 set down spaces). Whilst this provision accounts for approximately 47% of the development

plan requirement, it is expected that a significant proportion of children attending the creche will be residents within the subject residential development and surrounding residential settlements and therefore it is expected that walking / cycling trips will form a significant proportion of trips. The provision of 13 no. dedicated staff car parking spaces is again slightly lower than the development plan requirement of 20 no. spaces, however, the quantum is predicted to be appropriate as the introduction of i) the internal cycle infrastructure, ii) the external cycle infrastructure, iii) the potential for carpooling amongst staff, and iv) the provision of new bus interchanges in the vicinity of the subject site access junction, will reduce the demand for car journeys by staff to the creche.

| Land Use              | Surface               |              | Basement   | Total      | Ratio     |
|-----------------------|-----------------------|--------------|------------|------------|-----------|
|                       | On Street / Courtyard | In curtilage |            |            |           |
| Apartments            | 52                    | -            | 142        | 194        | 1.27/unit |
| Houses                | 114                   | 278          | -          | 392        | 2.00/unit |
| Crèche                | 21                    | -            | -          | 21         | N/A       |
| Neighbourhood Centres | 68                    | -            | -          | 68         |           |
| Shop (Block F)        | 5                     | -            | -          | 5          |           |
| Visitor/Clonminch Sq. | 15                    | -            | -          | 15         |           |
| <b>Total</b>          | <b>275</b>            | <b>278</b>   | <b>142</b> | <b>695</b> | <b>-</b>  |

Table 4.2: Proposed Car Parking Provision and Residential Parking Ratio

- 4.4.4 With reference to the OCC development plan, the two neighbourhood centre land uses require a total of 66 no. car parking spaces. Accordingly, the proposed 68 no. neighbourhood centre car parking spaces is comparable to the development plan requirement.
- 4.4.5 Finally, the proposed 5 no. car parking spaces assigned to the small shop located within Block F is comparable to the 3 no. required by the local development management standards.
- 4.4.6 In addition to the above dedicated car parking spaces, an additional 15 no. car parking spaces have been provided (including 9 no. spaces at Clonminch Square) which aims to provide additional visitor car parking spaces reducing any potential for inappropriate car parking practices which could occur in the absence of sufficient visitor parking facilities.

Car Parking Management Regime

- 4.4.7 The proposed developments 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.
- 4.4.8 The outright purchase of one of the proposed residential apartments will NOT include the ownership of a designated parking space. Nevertheless, all residents of the proposed apartments will have the opportunity to apply to the management company for both a (i) residents car parking permit (updated annually or upon return of same permit) to the management company to gain access to a dedicated (assigned) on-site car parking space or (ii) a visitor's car parking permit (which will be issued electronically and subject to time restrictions). A nominal charge will be applied to obtain a permit with the objective of covering the associated management and enforcement costs.
- 4.4.9 Each permit will enable the resident (or visitor) to park a vehicle within a specific assigned parking bay for a defined period of time. This management regime will enhance the availability of on-site car parking, ensure that every resident who needs car parking can avail of an on-site car parking space whilst residents that actually don't own a car are not unnecessarily assigned a car parking space.

#### *Mobility Impaired Car Parking*

- 4.4.10 Whilst the OCC development plan does not specify a specific quantum of mobility impaired car parking provision, as introduced previously the mobility impaired parking standard recommended was referenced from Section 1.4.4 of "Buildings for Everyone" which states that disabled parking should be provided at "5% of the total car parking capacity". The subject development proposes a total of 14 no. mobility impaired car parking spaces for the apartment units and non-residential units.

#### *Electric Vehicle Parking*

- 4.4.11 Section 8.16.4 of the County Development Plan requires that developments "*shall be constructed to be capable of accommodating future charging points as required - residential space facilities to be coded/metered, slow charging 220-240V, 13A single phase*". It is assumed that housing units with in-curtilage parking spaces will utilise their own power supply therefore the provision of electric charge points has been applied to apartment units and those houses which do not benefit from in curtilage parking only in addition to non-residential uses. The proposals include EV charger

facilities at a rate of 10% of these residential car parking spaces and non-residential car parking spaces equating to a total 41 no. electric vehicle spaces comprising 31 for the apartments and houses without in curtilage parking facilities and 10 no. for the non-residential units as indicatively shown in Figure 4.7 below. Also presented in Figure 4.7 below are indicative locations for domestic electric vehicle charge points at 23 no. housing units. All car parking spaces will be ducted for future EV charge points.

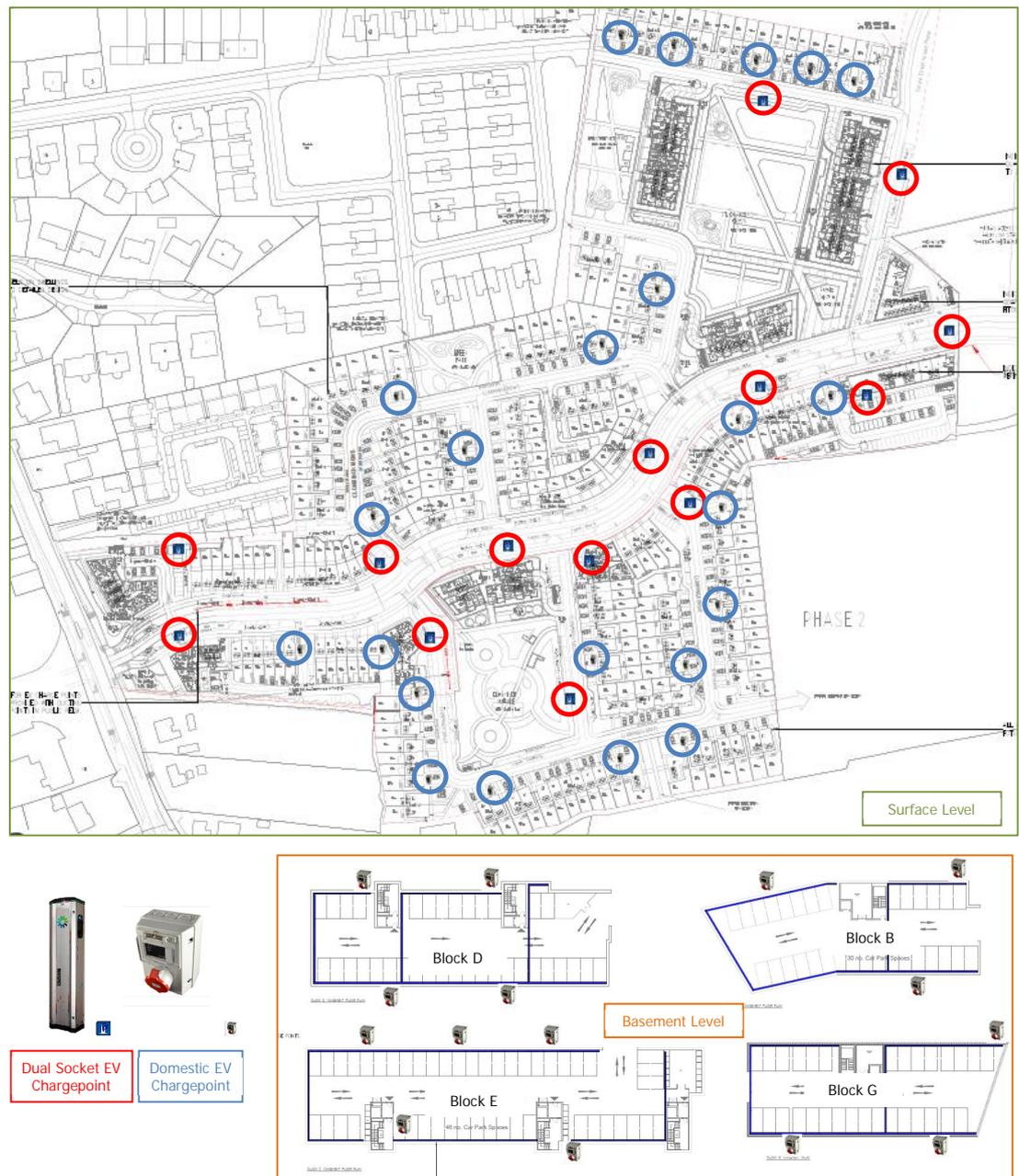


Figure 4.7: Proposed EV Charger Facilities

### *Bicycle Parking*

4.4.12 A total of 315 no. bicycle parking spaces are proposed as part of the development scheme comprising 236 no. apartment cycle parking spaces and 79 no. non-residential cycle parking spaces as summarised in Table 4.3 below.

4.4.13 The proposed overall cycle parking provision of 315 no. spaces is 194 spaces (or 160%) higher than the development plan minimum requirement. With reference to the DHPLG apartment guidelines, the development is required to provide 355 no. cycle parking spaces for the apartment units comprising 278 no. long stay spaces and 77 no. short stay apartment cycle parking spaces. The subject site's provision of 236 no. apartment cycle parking spaces is slightly lower when compared to the apartment guidelines recommendation however is considered to represent a good compromise between the development plan and DHPLG requirements and leans towards the DHPLG requirement. Accordingly, DBFL believe that an appropriate quantum of bicycle parking is being provided for as part of the development proposals in order to encourage the uptake of sustainable bike based travel particularly for journeys of up to 5-7km in length.

| Land Use       | OCC Requirement | DHPLG Guidelines  |            | Proposed Development |            |
|----------------|-----------------|-------------------|------------|----------------------|------------|
|                |                 | Long Stay         | Short Stay | Long Stay            | Short Stay |
| Apartments     | 92              | 278               | 77         | 161                  | 75         |
| Crèche         | 14              | -                 | -          | 14                   |            |
| NC1 & NC2      | 15              | -                 | -          | 64                   |            |
| Shop (Block F) | 1               | -                 | -          | 1                    |            |
| <b>Total</b>   | <b>121</b>      | <b>355 (385*)</b> |            | <b>315</b>           |            |

\* Includes OCC's Non-Residential Requirement

**Table 4.3: Proposed Bicycle Parking Provision**

## 5.0 TRIP GENERATION AND DISTRIBUTION

### 5.1 CURRENT TRANSPORT MODAL SPLIT

5.1.1 The Central Statistics Office's SAPMAP (Small Areas Population Map) data has been investigated to determine the travel trends within the local vicinity of the subject residential development. SAPMAP is an interactive mapping tool that allows users to pinpoint a location on the map and access 2016 census data related to that area.

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

5.1.3 Figure 5.1 below illustrates the areas selected for this analysis. These residential sites were selected due to their proximity to the subject site and as such best represents the development's future travel trends (at least in the short/medium term).

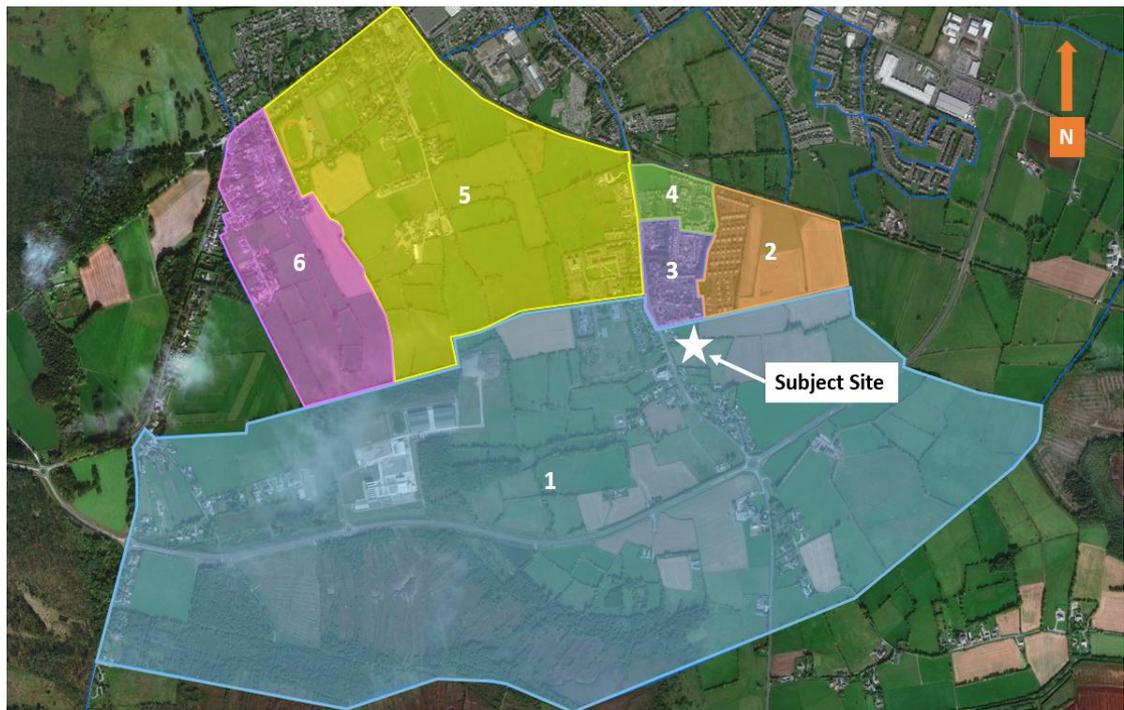


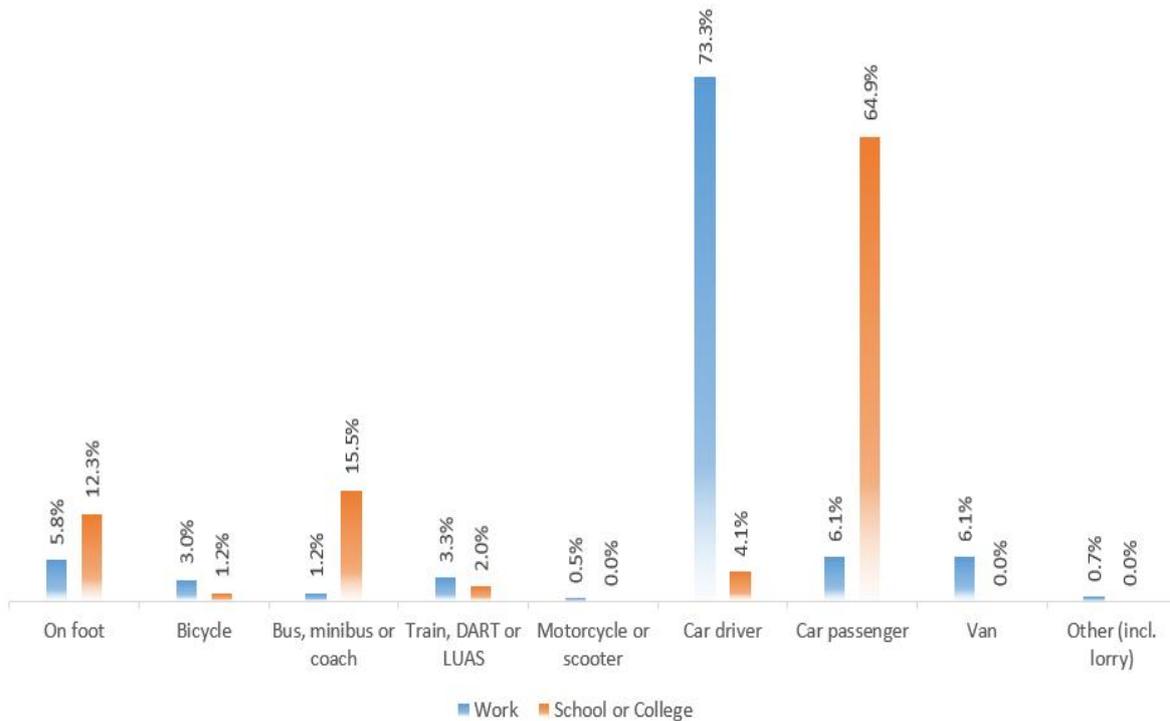
Figure 5.1: Residential Areas of Interest for Trend Analysis (Source : <http://census.cso.ie/sapmap/>)

5.1.4 The analysis included the following local residential areas:

- 1) Clonminch / Deerpark,
- 2) Clonminch Wood,
- 3) Limefield / Clonminch Wood / Tara Crescent,

- 4) St. Columba's Place,
- 5) Ballynagh / Healion Drive / Spollanstown Road / The Willows,
- 6) Adam's Villas and St Colman's Terrace.

5.1.5 The analysis highlights the existing trend in modes used by the residents when travelling to work, school / college from their homes. The summary of the 2016 data for the aforementioned 6 selected sites are illustrated in Figure 5.2 below.



**Figure 5.2: 2016 Modal Split for Existing Residential Developments in the Tullamore Area**

5.1.6 The above graph indicates that travel by car is the primary mode of transportation in the study area within Tullamore with 73.3% of residents travelling to work as a car driver and 64.9% travelling to school/college as a car passenger.

5.1.7 4.5% of residents travelling to work use public transport (1.2% by bus and 3.3% by Train) whilst 17.5% of residents travelling for educational purposes do so using public transport (15.5% by bus and 5% by train).

5.1.8 The analysis reveals that 8.8% of work trips are undertaken using active modes of travel whilst active travel trips to schools and colleges account for a 13.5% mode share.

## 5.2 TRAFFIC SURVEYS

5.2.1 In order to establish the existing up to date local road networks traffic characteristics and subsequently enable the identification of the potential impact of the proposed residential development, a number of traffic surveys were commissioned and undertaken by an independent specialist survey firm IDASO Ltd in June 2019 including Automatic Traffic Counts (ATC) and Junction Turning Counts (JTC).

5.2.2 JTCs were surveyed over a twelve-hour period between 7:00 AM and 7:00 PM on the 18<sup>th</sup> of June 2019. ATCs were conducted 24 hours a day over a seven-day period which began on 17<sup>th</sup> of June 2019 and ended on the 23<sup>rd</sup> of June 2019. The location of the JTC and the ATC surveys are presented in Figure 5.3.

- **ATC** – Clonminch Road (R443) and
- **JTC** – Clonminch Roundabout (N52/N80/N52/R443).

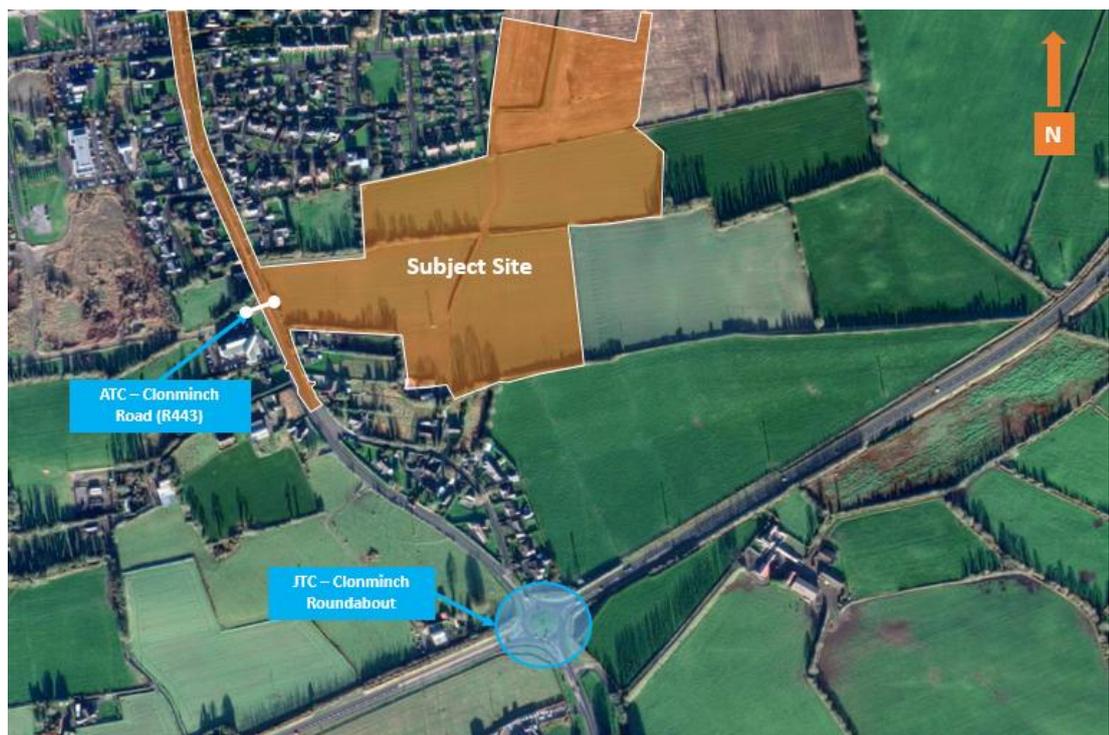


Figure 5.3: Traffic Survey Locations

5.2.3 The analysis of the survey results established that the local weekday AM and PM peak hours occur between 08:45 to 09:45 and 17:00 – 18:00 respectively.

5.2.4 In order to analyse and assess the predicted traffic generation from the proposed residential development upon the local road network, a traffic model incorporating the aforementioned local junction and proposed site access junction has been created.

## 5.3 TRIP GENERATION

5.3.1 It is predicted, particularly in the 2023 Opening Year, that the residents travel mode share will be similar to that illustrated in Figure 5.2 (Local Area 2016 Census data). Nevertheless, with the objective of investigating the long-term vehicle trip demand that could potentially be generated by the proposed development, trip rates have been derived from the TRICS database for residential developments with similar characteristics to the subject development site. These vehicle trip rates as predicted by TRICS are presented in Table 5.3 below.

### *Person Trips*

5.3.2 Based on the mode share proportions derived from the Census 2016 data in Section 5.1 above, the total person trips can be estimated.

5.3.3 It has been assumed that the predicted vehicle trips generated by the subject residential development correspond to the proportion of vehicle trips derived within the Census mode share data. Table 5.1 below presents the predicted person trips generated by the subject residential development during the AM and PM peak hours.

| Mode of Travel        | Average Mode Share (%) | AM Peak Hour |     | PM Peak Hour |     |
|-----------------------|------------------------|--------------|-----|--------------|-----|
|                       |                        | Arr          | Dep | Arr          | Dep |
| On Foot               | 8.2%                   | 16           | 17  | 21           | 18  |
| Bicycle               | 2.3%                   | 4            | 5   | 6            | 5   |
| Bus, minibus or coach | 6.4%                   | 12           | 13  | 17           | 14  |
| Train, DART or LUAS   | 2.9%                   | 5            | 6   | 8            | 6   |
| Motorcycle or scooter | 0.3%                   | 1            | 1   | 1            | 1   |
| Car / Van             | 52.4%                  | 100          | 106 | 137          | 117 |
| Car Passenger         | 27.5%                  | 52           | 56  | 72           | 61  |
| Total Person Trips    |                        | 190          | 203 | 262          | 223 |

Table 5.1: Predicted Person Trips

### *Construction Rate*

5.3.4 For the purpose of this assessment and utilising typical house construction rates, it is estimated that 100 houses could be constructed by the end of the proposed Opening Year 2023, whilst the remaining residential and non-residential units could be constructed sometime before the 2028 Future Design Year. Table 5.2 summarises the construction schedule for the proposed residential development in each of the

adopted design years. It is assumed that the crèche facility will be operational before the end of the 2028 Future Design Year.

| Unit Type    | Design Year |            |            |
|--------------|-------------|------------|------------|
|              | 2023        | 2028       | 2038       |
| Houses       | 100         | 196        | 196        |
| Apartments   | 0           | 153        | 153        |
| <b>Total</b> | <b>100</b>  | <b>349</b> | <b>349</b> |

**Table 5.2: Adopted Residential Construction Schedule**

### Vehicle Trip Generation

5.3.5 Table 5.3 presents the predicted trip generation arriving and departing the proposed development during the morning and evening peak hour periods.

| Land Use             | Unit                              | Trip Rates  |       |       |             |       |       |       |
|----------------------|-----------------------------------|-------------|-------|-------|-------------|-------|-------|-------|
|                      |                                   | AM Peak     |       |       | PM Peak     |       |       |       |
|                      |                                   | 08:45-09:45 |       |       | 17:00-18:00 |       |       |       |
|                      |                                   | Arr         | Dep   | Total | Arr         | Dep   | Total |       |
| Apartments           | per dwelling                      | 0.111       | 0.133 | 0.244 | 0.220       | 0.132 | 0.352 |       |
| Houses               | per dwelling                      | 0.171       | 0.280 | 0.451 | 0.379       | 0.241 | 0.620 |       |
| Crèche               | per child                         | 0.217       | 0.189 | 0.406 | 0.200       | 0.289 | 0.489 |       |
| Shop Block F         | per 100 sqm                       | 1.938       | 1.697 | 3.635 | 2.443       | 2.633 | 5.076 |       |
| Neighbourhood Centre | Retail Units                      | per 100 sqm | 1.938 | 1.697 | 3.635       | 2.443 | 2.633 | 5.076 |
|                      | Business Hub                      | per 100 sqm | 1.571 | 0.145 | 1.716       | 0.068 | 1.264 | 1.332 |
|                      | Gym                               | per 100 sqm | 1.254 | 0.507 | 1.761       | 1.536 | 1.135 | 2.671 |
|                      | Medical Centre / Consulting Rooms | per 100 sqm | 3.976 | 3.117 | 7.092       | 1.593 | 2.990 | 4.583 |

**Table 5.3: Predicted Development Trip Rates**

5.3.6 Based on the above trip rates, potential peak hour vehicle traffic flow has been calculated based on the total development quantities (i.e., 349 residential units, the 100 child crèche and the neighbourhood centres). This TTA assumes that 100 houses will be built before the end of the 2023 Opening Year and the entire development will be built before the end of the 2028 Future Design Year. Table 5.4 summarises the predicted AM and PM peak hour vehicle trips generated in the 2023 Opening Year whilst the vehicle trips generated in the 2028 & 2038 Future Design Years is presented in Table 5.5.

5.3.7 The proposed crèche facility has been included in the vehicle trip generation process; however, it is predicted this facility will predominantly generate 'internal' trips within the boundary of the proposed development due to its location within the site layout. Nevertheless, the crèche has been included in the trip generation exercise albeit discounted by a modest factor of 40% to account for the expected low proportion of external vehicle trips.

5.3.8 Similarly, the proposed neighbourhood centre facility is predicted to generate predominantly internal trips. In addition, a proportion of vehicle trips to the neighbourhood centre will comprise 'dual' trips implying such visitors to the centre will call at more than one neighbourhood centre facility. Accordingly, the vehicle trips associated with the shop facility have been discounted by 50%.

| Land Use     | Units      | Vehicle Trips |           |           |             |           |           |
|--------------|------------|---------------|-----------|-----------|-------------|-----------|-----------|
|              |            | AM Peak       |           |           | PM Peak     |           |           |
|              |            | 08:45-09:45   |           |           | 17:00-18:00 |           |           |
|              |            | Arr           | Dep       | Total     | Arr         | Dep       | Total     |
| Apartments   | 0          | 0             | 0         | 0         | 0           | 0         | 0         |
| Houses       | 100        | 17            | 28        | 45        | 38          | 24        | 62        |
| <b>Total</b> | <b>100</b> | <b>17</b>     | <b>28</b> | <b>45</b> | <b>38</b>   | <b>24</b> | <b>62</b> |

Table 5.4: 2023 Opening Year Peak Hour Vehicle Trips

| Land Use             | Units / GFA                       | Trip Rates  |            |            |             |            |            |    |
|----------------------|-----------------------------------|-------------|------------|------------|-------------|------------|------------|----|
|                      |                                   | AM Peak     |            |            | PM Peak     |            |            |    |
|                      |                                   | 08:45-09:45 |            |            | 17:00-18:00 |            |            |    |
|                      |                                   | Arr         | Dep        | Total      | Arr         | Dep        | Total      |    |
| Apartments           | 153                               | 17          | 20         | 37         | 34          | 20         | 54         |    |
| Houses               | 196                               | 33          | 55         | 88         | 74          | 47         | 122        |    |
| Crèche <sup>1</sup>  | 100 children                      | 13          | 11         | 24         | 12          | 17         | 29         |    |
| Shop Block F         | 56 sq.m                           | 1           | 1          | 2          | 1           | 1          | 3          |    |
| Neighbourhood Centre | Retail Units <sup>2</sup>         | 531.11 sq.m | 5          | 5          | 10          | 6          | 7          | 13 |
|                      | Business                          | 712.12 sq.m | 11         | 1          | 12          | 0          | 9          | 9  |
|                      | Gym                               | 442.6 sq.m  | 6          | 2          | 8           | 7          | 5          | 12 |
|                      | Medical Centre / Consulting Rooms | 458.43 sq.m | 18         | 14         | 33          | 7          | 14         | 21 |
| <b>Total</b>         |                                   | <b>105</b>  | <b>110</b> | <b>214</b> | <b>142</b>  | <b>121</b> | <b>263</b> |    |

<sup>1</sup> Crèche vehicle trips discounted by 40%.

<sup>2</sup> Retail units vehicle trips discounted by 50% for internal trips & dual purpose trips.

Table 5.5: 2028/2038 Future Design Year Vehicle Trips

## 5.4 COMMITTED DEVELOPMENT

5.4.1 As per TII guidelines, DBFL includes third party developments that have the potential to generate additional vehicle movements across the local road network above that which has been established by the commissioned traffic surveys.

5.4.2 A third party committed development has been identified and is located in close proximity to the subject Clonminch residential development site. Offaly County Council, in partnership with approved housing body Oaklee, proposes an approved Part 8 planning application to construct a residential development comprising;

- 10 No. 2 Bedroom, Single Storey, Elderly Houses;
- 4 No. 2 Bedroom, Single Storey, Accessible Elderly Houses and
- 5 No. 1 Bedroom, Single Storey, Elderly Houses.

### *Committed Development Trip Generation*

5.4.3 As no transport assessment was provided for this development, in order to establish the potential quantum of vehicle traffic generated by the third party development, vehicle trip rates have been derived from the TRICS database. The vehicle trips derived from this exercise have been incorporated as committed development trips within the Excel based network traffic model.



Figure 5.4: Committed Development Location

5.4.4 Table 5.6 presents the predicted committed development trip rates whilst Table 5.7 presents the estimated traffic flows arriving and departing the committed development during the morning and evening peak hour periods.

| Committed Residential Development |              | Trip Rates  |       |       |             |       |       |
|-----------------------------------|--------------|-------------|-------|-------|-------------|-------|-------|
|                                   |              | AM Peak     |       |       | PM Peak     |       |       |
|                                   |              | 09:00-10:00 |       |       | 13:00-14:00 |       |       |
| Land Use                          | Unit/GFA     | Arr         | Dep   | Total | Arr         | Dep   | Total |
| Elderly Homes                     | per dwelling | 0.195       | 0.150 | 0.345 | 0.089       | 0.108 | 0.197 |

Table 5.6: Proposed Committed Development Trip Rates

| Committed Residential Development |          | Vehicle Trips |     |       |             |     |       |
|-----------------------------------|----------|---------------|-----|-------|-------------|-----|-------|
|                                   |          | AM Peak       |     |       | PM Peak     |     |       |
|                                   |          | 09:00-10:00   |     |       | 13:00-14:00 |     |       |
| Land Use                          | Unit/GFA | Arr           | Dep | Total | Arr         | Dep | Total |
| Elderly Homes                     | 19       | 4             | 3   | 7     | 2           | 2   | 4     |

Table 5.7: Proposed Committed Development Vehicle Trips

## 5.5 TRIP DISTRIBUTION & ASSIGNMENT

5.5.1 In order to determine the potential trip distribution of future development vehicle trips, a local gravity model was developed to evaluate peak hour vehicle origins and destinations reflecting the sites proximity to Tullamore Town Centre and both education and employment sites (i.e., within walking/cycling distances the gravity model focused on longer journeys where the private motor car is more likely to be the mode of choice). The subsequent assignment has been based upon the shortest peak hour journey time which in some cases may not be the shortest route distance. A total of 4 no. origin/destination zones have been incorporated into the trip distribution and assignment exercise as presented in Table 5.8.

5.5.1 The distribution of proposed development traffic as proposed by DBFL are presented in Figures 6 and 8 as included in Appendix A of this report.

| Zone | Origin/Destination                          | Development Vehicle Trips (%) |
|------|---|-------------------------------|
| 1    | North (Athlone, Mullingar, M4)              | 25%                           |
| 2    | South (Birr, Portlaoise, M7)                | 25%                           |
| 3    | Tullamore Town Centre (Schools, Employment) | 30%                           |
| 4    | East (Employment opportunities)             | 20%                           |

Table 5.8: Predicted Peak Hour Origin/Destination Trip Distribution

## 5.6 TRAFFIC GROWTH

5.6.1 The TTA adopts an Opening Design Year of 2023 and accordingly the Future Design Years of 2028 (Opening Year +5 years) and 2038 (Opening Year + 15 years) as per TII guidelines. To ensure a robust analysis of the impact of traffic upon the local road network we have adopted growth rates using the Transport Infrastructure Ireland (TII) traffic projections. Table 6.2 (Unit 5.3 – Travel Demand Projections) within the TII Project Appraisal Guidelines provides Annual Growth Factors for each county within the Republic of Ireland. The subject site lies within the region ‘Offaly’ with the growth factors as outlined within Table 5.9 below.

| County | Low Sensitivity Growth |        |           |        | Central Growth |        |           |        | High Sensitivity Growth |        |           |        |
|--------|------------------------|--------|-----------|--------|----------------|--------|-----------|--------|-------------------------|--------|-----------|--------|
|        | 2016-2030              |        | 2030-2040 |        | 2016-2030      |        | 2030-2040 |        | 2016-2030               |        | 2030-2040 |        |
|        | LV                     | HV     | LV        | HV     | LV             | HV     | LV        | HV     | LV                      | HV     | LV        | HV     |
| Offaly | 1.0103                 | 1.0307 | 1.0021    | 1.0119 | 1.0118         | 1.0323 | 1.0042    | 1.0139 | 1.0152                  | 1.0357 | 1.0018    | 1.0176 |

Table 5.9: Link-Based Growth Rates: County Annual Growth Rates  
(Extract from Table 6.2 PAG)

5.6.2 Applying the annual factors as outlined in Table 5.9 above for the adopted Opening Year of 2023 and Future Design Years of 2028 (Opening Year +5 years) and 2038 (Opening Year +15 years), the following growth rates have been adopted to establish corresponding 2023, 2028 and 2038 baseline network flows as shown in Table 5.10.

| Central Growth Rates (Co. Offaly) | 2019 to 2023 | 2019 to 2028 | 2019 to 2038 |
|-----------------------------------|--------------|--------------|--------------|
|                                   | 1.048        | 1.111        | 1.167        |
|                                   | 4.8%         | 11.1%        | 16.8%        |

Table 5.10: TII Growth Rates

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

## 5.7 ASSESSMENT SCOPE

### *Assessment Scenarios*

5.7.1 Two different traffic scenarios have been assessed, namely (a) the ‘Base’ (Do-

Nothing) traffic characteristics and (b) the 'Post Development' (Do-Something).

5.7.2 The 'Do-Nothing' traffic scenario considers the potential level of traffic that could be generated by the 'committed development' in addition to the existing flows travelling across the network.

5.7.3 The proposed development traffic flows are then added to the network's 'Do-Nothing (Base + Committed Development) traffic flows to establish the new 'Post Development' traffic flows. Base Flows for the future design years were based on Project Appraisal Guidelines for National Roads Unit 5.3 - Travel Demand Projections published by Transport Infrastructure Ireland (TII).

5.7.4 In summary the following scenarios are considered: -

#### *Do Nothing*

- A1 – 2023 Base Flows + Committed Development
- A2 – 2028 Base Flows + Committed Development
- A3 – 2038 Base Flows + Committed Development

#### *Do Something*

- B1 – 2023 Do Nothing (A1) + Proposed Development Traffic
- B2 – 2022 Do Nothing (A2) + Proposed Development Traffic
- B3 – 2038 Do Nothing (A2) + Proposed Development Traffic

#### *Assessment Period*

5.7.5 The AM and PM peak hour flows have been identified as occurring between 08:45 - 09:45 and 17:00 – 18:00 respectively. These peak hour periods form the basis of the 2023, 2028 and 2038 network assessments.

#### *Network Vehicle Flows*

5.7.6 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 12 – 2023 Do Nothing
- Figure 13 – 2028 Do Nothing
- Figure 14 – 2038 Do Nothing
- Figure 15 – 2023 Do Something
- Figure 16 – 2028 Do Something
- Figure 17 – 2038 Do Something

## 5.8 NETWORK IMPACT

5.8.1 The Institution of Highways and Transportation document ‘Guidelines for Traffic Impact Assessments’ states that the impact of a proposed development upon the local road network is considered material when the level of traffic it generates surpasses 10% and 5% on normal and congested networks respectively. When such levels of impact are generated a more detailed assessment should be undertaken to ascertain the specific impact upon the network’s operational performance. These same thresholds are reproduced in the NRA (TII) document entitled Traffic and Transport Assessment Guidelines (2014). In accordance with the IHT and NRA (TII) guidelines we have undertaken an assessment to establish the potential level of impact upon the key junctions of the local road network. To enable this calculation to be undertaken we have based the analysis upon the 2023 Opening Year and the 2028 and 2038 Future Design Year scenarios.

5.8.2 Table 5.11 details the specific scale of network impact predicted at each of the key local junctions during the 2023, 2028 and 2038 design years as a result of the subject development proposals.

| Design Year | AM Peak Hour | PM Peak Hour |
|-------------|--------------|--------------|
| 2023        | 1.5%         | 2.2%         |
| 2028        | 6.7%         | 9.0%         |
| 2038        | 6.4%         | 8.5%         |

Table 5.11: Network Impact at the N52 / R443 / N80 Roundabout

5.8.3 Table 5.11 reveals that the impact on the surrounding road network will be sub threshold at the local N52 / R443 / N80 Roundabout with maximum impacts predicted to be below the 10% on normal networks for all design year scenarios.

5.8.4 In Table 5.12 the predicted impacts have been categorised for the 2038 Future Design Year. It reveals that, during the AM peak hour, the impact significance of the proposed development is categorised as *Slight*. Similarly, during the PM peak hour, the impact significance of the development is also categorised as *Slight*.

5.8.5 Figure 5.5 below details the total amount of two-way vehicle trips that will pass through Clonminch Roundabout in the 2038 assessment year in the AM and PM peak hours and the resulting percentage increase in traffic flows as a result of the traffic generated by the proposed development.

| Peak Hour    | Impact Scale | Impact Significance |
|--------------|--------------|---------------------|
| AM Peak Hour | 6.4%         | Slight              |
| PM Peak Hour | 8.5%         | Slight              |

Table 5.12: Network Impact Categorisation 2038



Figure 5.5: Increase in Vehicle Trips Generated Through Key Of-Site Junction (2038 Future Design Year)

## 5.9 MITIGATION STRATEGY

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

### *Construction Stage*

5.9.2 The Construction Management Plan and the associated Construction Traffic Management Plan (CTMP) in addition to the applications accompanying Construction

and Waste Management Plan will incorporate a range of integrated control measures and associated management initiatives with the objective of mitigating the impact of the proposed developments on-site construction activities.

### *Operational Stage*

5.9.3 With the objective of mitigating the potential impact of the proposed development as predicted in Section 5.8 above during its operational stage, the following initiatives have been identified and subsequently form an integral part of the subject development proposals.

- Management – A Mobility Management (MMP) is to be compiled with the aim of guiding the delivery and management of coordinated initiatives by the scheme promotor. The MMP ultimately seeks to encourage sustainable travel practices for all journeys to and from the proposed development.
- Infrastructure - The proposed scheme design incorporates dedicated cycle facilities along the 'Link Street' and on all approaches to the proposed new signal controlled junction. In addition, permeable links with adjacent residential areas are facilitated (subject to approval) for thereby maximising connectivity for walking and cycle trips.
- Infrastructure – Two new bus stops are proposed in the vicinity of the subject site access which will not only benefit future residents of the subject development but also existing residents in the surrounding area. An additional two new bus stops are proposed along the 'Link Street'.
- Infrastructure – New cycle infrastructure is proposed along Clonminch Road, as part of the subject scheme, which will provide dedicated cycle lanes between the subject site and Tullamore Town Centre. Accordingly, following the implementation of the proposed cycle infrastructure, the subject development will be more accessible by bicycle with the potential for future residents to choose cycling as a mode of travel increased significantly.

## 6.0 NETWORK ANALYSIS

### 6.1 INTRODUCTION

- 6.1.1 As discussed in Section 5, the subject development proposals are predicted to have a subthreshold impact upon the N52 / N80 / R443 roundabout junction. Nevertheless, the existing N52 / N60 / R443 roundabout junction has been considered for further analysis due to its close proximity to the subject site. Also included in the detailed network analysis is the proposed new site access signal controlled junction located on Clonminch Road.
- 6.1.2 The operational assessment of the local road network has been undertaken using the Transport Research Laboratory (TRL) computer packages TRANSYT for the proposed signal-controlled site access junction, and ARCADY for the existing N52 / N80 / R443 roundabout junction.
- 6.1.3 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. Similarly, for roundabout junctions, a Ratio of Flow to Capacity (RFC) of greater than 85% (0.85) would indicate a junction to be approaching capacity, as operation above this RFC value is poor and deteriorates quickly.
- 6.1.4 For the TRANSYT analysis a one-hour AM and PM period has been simulated from 08:45 to 09:45 and 17:00 to 18:00. Additionally, for the ARCADY analyses a 90-minute AM period has been simulated; from 08:30 to 10:00 and 16:45 to 18:15. For the ARCADY and TRANSYT analyses, traffic flows were entered using an Origin-Destination table for the peak hours.
- 6.1.5 In order to analyse and assess the impact of the proposed development on the surrounding road network, a traffic model of the key junctions were analysed for the schemes following opening and future design years:
- 2023 Opening Year
  - 2028 Future Design Year (Opening Year +5 years)
  - 2038 Future Design Year (Opening Year +15 years)

## 6.2 JUNCTION 1: N52/N80/R443 CLONMINCH ROUNDABOUT

6.2.1 The results of the operational assessment of this existing off-site roundabout junction during the weekday morning and evening peaks are summarised in Tables 6.1 to 6.3 below. The arms were labelled as follows within the ARCADY model:

Arm A: N52 (E)

Arm B: N80

Arm C: N52 (W)

Arm D: R443 Clonminch Road

### *2023 Opening Year*

6.2.1 The ARCADY results indicate that the existing N52 / N80 / R443 four arm roundabout junction is predicted to operate with significant reserve capacity for both the 2023 “Do Nothing” (DN) and “Do Something” (DS) AM & PM peak hours. A maximum Ratio of Flow to Capacity (RFC) value of 0.58 and a maximum queue of 1.4 pcu’s was recorded during the DN AM peak hour and a RFC value of 0.59 and a maximum queue of 1.4 pcu’s was recorded during the DS AM peak hour.

6.2.2 In the 2023 DN PM peak hour scenario, a max RFC of 0.70 with a corresponding queue of 2.3 pcu’s was recorded. With the introduction of the subject development traffic, the maximum RFC value remains at 0.70 with a maximum queue of 2.3 pcu’s.

| Scenario     |              | Arm | Arm Name | Queue (PCU) | Delay (s) | RFC  |
|--------------|--------------|-----|----------|-------------|-----------|------|
| Do-Nothing   | AM Peak Hour | A   | N52 (E)  | 1.1         | 6.25      | 0.53 |
|              |              | B   | N80      | 1.4         | 7.31      | 0.58 |
|              |              | C   | N52 (W)  | 0.7         | 6.14      | 0.41 |
|              |              | D   | R443     | 0.3         | 4.82      | 0.24 |
|              | PM Peak Hour | A   | N52 (E)  | 2.3         | 10.32     | 0.70 |
|              |              | B   | N80      | 0.8         | 5.75      | 0.46 |
|              |              | C   | N52 (W)  | 0.4         | 4.37      | 0.26 |
|              |              | D   | R443     | 1.0         | 6.9       | 0.50 |
| Do-Something | AM Peak Hour | A   | N52 (E)  | 1.1         | 6.35      | 0.54 |
|              |              | B   | N80      | 1.4         | 7.45      | 0.59 |
|              |              | C   | N52 (W)  | 0.7         | 6.21      | 0.41 |
|              |              | D   | R443     | 0.4         | 4.94      | 0.26 |
|              | PM Peak Hour | A   | N52 (E)  | 2.3         | 10.66     | 0.70 |
|              |              | B   | N80      | 0.9         | 5.98      | 0.48 |
|              |              | C   | N52 (W)  | 0.4         | 4.46      | 0.27 |
|              |              | D   | R443     | 1.0         | 7.13      | 0.51 |

**Table 6.1: 2023 Peak Hour ARCADY Analysis**

### 2028 Future Design Year

6.2.3 Similar to the 2023 opening year assessment, the ARCADY results indicate that this roundabout junction is predicted to continue to operate with significant reserve capacity for both the 2028 “Do Nothing” (DN) and “Do Something” (DS) AM & PM peak hours. A maximum RFC value of 0.63 and a maximum queue of 1.7 pcu’s was recorded during the DN AM peak hour and similarly a RFC value of 0.67 and a maximum queue of 2.0 pcu’s was recorded during the DS AM peak hour.

6.2.4 In the 2028 DN PM peak hour scenario, a max RFC of 0.75 with a corresponding queue of 2.9 pcu’s was recorded whilst a RFC value of 0.79 and a maximum queue of 3.6 pcu’s was recorded during the DS PM peak hour.

| Scenario     |              | Arm | Arm Name | Queue (PCU) | Delay (s) | RFC  |
|--------------|--------------|-----|----------|-------------|-----------|------|
| Do-Nothing   | AM Peak Hour | A   | N52 (E)  | 1.3         | 6.79      | 0.57 |
|              |              | B   | N80      | 1.7         | 8.24      | 0.63 |
|              |              | C   | N52 (W)  | 0.8         | 6.7       | 0.45 |
|              |              | D   | R443     | 0.4         | 5.06      | 0.26 |
|              | PM Peak Hour | A   | N52 (E)  | 2.9         | 12.51     | 0.75 |
|              |              | B   | N80      | 1.0         | 6.2       | 0.49 |
|              |              | C   | N52 (W)  | 0.4         | 4.56      | 0.28 |
|              |              | D   | R443     | 1.1         | 7.59      | 0.53 |
| Do-Something | AM Peak Hour | A   | N52 (E)  | 1.4         | 7.44      | 0.59 |
|              |              | B   | N80      | 2.0         | 9.47      | 0.67 |
|              |              | C   | N52 (W)  | 0.9         | 7.27      | 0.47 |
|              |              | D   | R443     | 0.5         | 5.62      | 0.34 |
|              | PM Peak Hour | A   | N52 (E)  | 3.6         | 15.45     | 0.79 |
|              |              | B   | N80      | 1.3         | 7.4       | 0.57 |
|              |              | C   | N52 (W)  | 0.4         | 4.96      | 0.31 |
|              |              | D   | R443     | 1.6         | 9.46      | 0.63 |

Table 6.2: 2028 Peak Hour ARCADY Analysis

### 2038 Future Design Year

6.2.1 Similar to the above 2023 and 2028 assessments, the ARCADY results indicate that this roundabout junction is predicted to continue to operate within capacity for both the 2038 “Do Nothing” (DN) and “Do Something” (DS) AM & PM peak hours. A maximum RFC value of 0.66 and a maximum queue of 2.0 pcu’s was recorded during

the DN AM peak hour whilst a RFC value of 0.71 and a maximum queue of 2.4 pcu's was recorded during the DS AM peak hour.

6.2.2 In the 2038 DN PM peak hour scenario, a max RFC of 0.79 with a corresponding queue of 3.7 pcu's was recorded whilst a RFC value of 0.84 and a maximum queue of 4.8 pcu's was recorded during the DS PM peak hour. A copy of the ARCADY output data is provided in Appendix C of this TTA report.

| Scenario     |              | Arm | Arm Name | Queue (PCU) | Delay (s) | RFC  |
|--------------|--------------|-----|----------|-------------|-----------|------|
| Do-Nothing   | AM Peak Hour | A   | N52 (E)  | 1.5         | 7.36      | 0.60 |
|              |              | B   | N80      | 2.0         | 9.26      | 0.66 |
|              |              | C   | N52 (W)  | 0.9         | 7.31      | 0.48 |
|              |              | D   | R443     | 0.4         | 5.28      | 0.28 |
|              | PM Peak Hour | A   | N52 (E)  | 3.7         | 15.33     | 0.79 |
|              |              | B   | N80      | 1.1         | 6.69      | 0.52 |
|              |              | C   | N52 (W)  | 0.4         | 4.75      | 0.30 |
|              |              | D   | R443     | 1.3         | 8.36      | 0.57 |
| Do-Something | AM Peak Hour | A   | N52 (E)  | 1.7         | 8.11      | 0.63 |
|              |              | B   | N80      | 2.4         | 10.84     | 0.71 |
|              |              | C   | N52 (W)  | 1.0         | 7.98      | 0.51 |
|              |              | D   | R443     | 0.6         | 5.90      | 0.36 |
|              | PM Peak Hour | A   | N52 (E)  | 4.8         | 19.88     | 0.84 |
|              |              | B   | N80      | 1.5         | 8.11      | 0.60 |
|              |              | C   | N52 (W)  | 0.5         | 5.19      | 0.33 |
|              |              | D   | R443     | 1.9         | 10.67     | 0.66 |

Table 6.3: 2038 Peak Hour ARCADY Analysis

### 6.3 JUNCTION 2: PROPOSED SITE ACCESS SIGNAL CONTROLLED JUNCTION

6.3.1 As this junction will not be in place without the proposed development, only a Do-Something assessment has been undertaken.

6.3.2 The results of the operational assessment of this proposed signal controlled junction during the weekday morning and evening peaks are summarised in Tables 6.4 to 6.6 below. The arms were labelled as follows within the TRANSYT model:

- Arm A: R443 (N)
- Arm B: Site Access
- Arm C: R443 (S)

### 2023 Opening Year

6.3.3 The TRANSYT results indicate that the proposed site access signal controlled junction will operate with significant reserve capacity for both the 2023 AM & PM peak hours. A maximum Degree of Saturation (DoS) value of 38% and a maximum MMQ (mean max queue) of 4.10 pcu's was recorded during the AM peak hour and similarly a DoS value of 39% and a MMQ of 5.90 pcu's was recorded during the PM peak hour. A copy of the TRANSYT output data is provided in Appendix D of this TTA report.

| Peak         | Arm         | Movement | DoS (%) | Mean Delay per Veh (s) | MMQ (pcu) |
|--------------|-------------|----------|---------|------------------------|-----------|
| AM Peak Hour | R443 (N)    | S, L     | 18      | 7.17                   | 2.37      |
|              | Site Access | L, R     | 18      | 40.71                  | 0.67      |
|              | R443 (S)    | S        | 38      | 7.95                   | 4.10      |
|              |             | R        | 1       | 7.89                   | 0.08      |
| PM Peak Hour | R443 (N)    | S, L     | 39      | 8.92                   | 5.90      |
|              | Site Access | L, R     | 16      | 40.15                  | 0.57      |
|              | R443 (S)    | S        | 20      | 6.89                   | 2.22      |
|              |             | R        | 6       | 11.75                  | 0.33      |

Table 6.4: 2023 Peak Hour TRANSYT Analysis

### 2028 Future Design Year

6.3.4 The TRANSYT results indicate that the proposed site access signal controlled junction will operate with significant reserve capacity for both the 2028 AM & PM peak hours. A maximum DoS value of 53% and a maximum MMQ of 4.16 pcu's was recorded during the AM peak hour and a DoS value of 58% and a MMQ of 7.61 pcu's was recorded during the PM peak hour.

| Peak         | Arm         | Movement | DoS (%) | Mean Delay per Veh (s) | MMQ (pcu) |
|--------------|-------------|----------|---------|------------------------|-----------|
| AM Peak Hour | R443 (N)    | S, L     | 23      | 8.84                   | 3.19      |
|              | Site Access | L, R     | 53      | 46.45                  | 2.85      |
|              | R443 (S)    | S        | 43      | 8.93                   | 4.16      |
|              |             | R        | 9       | 9.69                   | 0.53      |
| PM Peak Hour | R443 (N)    | S, L     | 46      | 11.23                  | 7.61      |
|              | Site Access | L, R     | 58      | 48.85                  | 3.24      |
|              | R443 (S)    | S        | 22      | 8.31                   | 2.58      |
|              |             | R        | 26      | 17.93                  | 1.44      |

Table 6.5: 2028 Peak Hour TRANSYT Analysis

*2038 Future Design Year*

6.3.5 The TRANSYT results indicate that the proposed site access signal controlled junction will operate with significant reserve capacity for both the 2038 AM & PM peak hours. A maximum DoS value of 53% and a maximum MMQ of 4.18 pcu's was recorded during the AM peak hour and similarly a DoS value of 58% and a MMQ of 8.14 pcu's was recorded during the PM peak hour.

| Peak         | Arm         | Movement | DoS (%) | Mean Delay per Veh (s) | MMQ (pcu) |
|--------------|-------------|----------|---------|------------------------|-----------|
| AM Peak Hour | R443 (N)    | S, L     | 24      | 8.93                   | 3.41      |
|              | Site Access | L, R     | 53      | 46.45                  | 2.85      |
|              | R443 (S)    | S        | 45      | 8.87                   | 4.18      |
|              |             | R        | 9       | 9.57                   | 0.52      |
| PM Peak Hour | R443 (N)    | S, L     | 48      | 11.52                  | 8.14      |
|              | Site Access | L, R     | 58      | 48.85                  | 3.24      |
|              | R443 (S)    | S        | 23      | 8.39                   | 2.71      |
|              |             | R        | 28      | 18.92                  | 1.47      |

Table 6.6: 2038 Peak Hour TRANSYT Analysis

## 7.0 SENSITIVITY ANALYSIS

### 7.1 INTRODUCTION

7.1.1 A additional sensitivity assessment has been undertaken which considers the scenario where the entire Eastern Node masterplan lands are developed. According to the Tullamore Town and Environs Development Plan 2010-2016 (extended), *“the northern and eastern portions of the Eastern Node will be developed for medium density residential development prior to the development of the western and south sections of this node for medium and low density housing”*. For the purposes of this sensitivity assessment, it has been assumed that there will be an additional 1000 residential units comprising 600 houses and 400 apartments in addition to a 400 pupil primary school.

7.1.2 In the interest of providing a worst case sensitivity assessment, it has been assumed that the entire masterplan lands will be developed by the 2038 Future Design Year (and that only one access to the overall lands is available). Accordingly, this sensitivity assessment considers only the 2038 Future Design Year scenario. The trip rates identified for the proposed development have been adopted and applied to the Eastern Node masterplan lands residential units. Similar to the subject SHD scheme assessment, the following junctions have been assessed;

- Junction 1 - N80/N52/R443 Clonminch Roundabout
- Junction 2 – Proposed Site Access Signal Controlled Junction

### 7.2 JUNCTION 1 - N80/N52/R443 CLONMINCH ROUNDABOUT

7.2.1 The 2038 “Sensitivity Analysis” ARCADY results indicate that the N80/N52/R443 Clonminch Road Roundabout will operate within capacity during the AM peak hour with a maximum RFC value of 0.82 and a maximum queue length of 4.4 pcu’s being recorded on the N80 approach arm.

7.2.2 During the PM peak hour, the eastern approach arm to this existing roundabout junction is predicted to be approaching capacity with a maximum RFC value of 0.95 and a corresponding queue length of 12.4 pcu’s being recorded. It is noted that this eastern approach road to the junction is operating close to capacity over a 30 minute period only within the PM peak hour. Outside of this 30 minute period, all approaches

to this existing roundabout junction are predicted to operate with significant reserve capacity.

| Scenario     | Arm | Arm Name | Queue (PCU) | Delay (s) | RFC  |
|--------------|-----|----------|-------------|-----------|------|
| AM Peak Hour | A   | N52 (E)  | 2.3         | 10.98     | 0.70 |
|              | B   | N80      | 4.4         | 18.04     | 0.82 |
|              | C   | N52 (W)  | 1.4         | 10.17     | 0.58 |
|              | D   | R443     | 1.2         | 8.51      | 0.56 |
| PM Peak Hour | A   | N52 (E)  | 12.4        | 48.82     | 0.95 |
|              | B   | N80      | 3.8         | 16.48     | 0.79 |
|              | C   | N52 (W)  | 0.7         | 6.73      | 0.41 |
|              | D   | R443     | 5.7         | 25.11     | 0.86 |

Table 7.1: 2038 ARCADY Sensitivity Analysis

### 7.3 JUNCTION 2 - PROPOSED SITE ACCESS SIGNAL CONTROLLED JUNCTION

7.3.1 The sensitivity assessment results of the operational assessment of this proposed signal controlled site access junction during the weekday morning and evening peaks are summarised in Table 7.2 below.

7.3.2 In the 2038 sensitivity assessment a maximum DoS value of 75% and a maximum MMQ of 11.86 pcu's is predicted during the AM peak hour. During the PM peak hour, this proposed junction is predicted to be approaching capacity with a maximum DoS value of 94% and a maximum MMQ of 22.54 pcu's being recorded.

| Peak         | Arm         | Movement | DoS (%) | Mean Delay per Veh (s) | MMQ (pcu) |
|--------------|-------------|----------|---------|------------------------|-----------|
| AM Peak Hour | R443 (N)    | S, L     | 39      | 14.97                  | 6.54      |
|              | Site Access | L, R     | 75      | 38.99                  | 11.86     |
|              | R443 (S)    | S        | 55      | 12.52                  | 4.33      |
|              |             | R        | 50      | 21.72                  | 3.11      |
| PM Peak Hour | R443 (N)    | S, L     | 88      | 49.07                  | 22.54     |
|              | Site Access | L, R     | 94      | 83.56                  | 16.63     |
|              | R443 (S)    | S        | 25      | 10.68                  | 3.21      |
|              |             | R        | 92      | 73.31                  | 8.01      |

Table 7.2: 2038 TRANSYT Sensitivity Analysis

## 8.0 SUMMARY AND CONCLUSION

### 8.1 OVERVIEW

8.1.1 DBFL Consulting Engineers has been commissioned by Steinfort Investments Fund to compile a Traffic and Transport Assessment (TTA) for a proposed residential development on a greenfield site situated in Tullamore, Co. Offaly.

8.1.2 The subject site is located in Clonminch, Tullamore and the proposed development within the subject lands will incorporate 349 no. residential units comprising 196 no. detached / semi-detached / terrace houses and 153 no. apartments. The development also proposes crèche facility (GFA of 1,299 sqm.), two neighbourhood centres (GFA of 3,007 sqm.) and a shop (56 sqm) in Block F.

8.1.3 This report has been produced to address any potential concerns that the local planning authority may have pertaining to the level of influence of the proposed development upon the local transportation system.

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

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

8.1.5 As per best practice guidance this TTA has carried out a range of network assessments investigating different traffic conditions for an Opening Year of 2023, and Future Design Year assessments of 2028 and 2038.

### 8.2 SUMMARY

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

- The development site benefits from the appropriate land use zoning in Tullamore Town and Environs Development Plan 2010-2016 (Extended).
- The review of the RSA road collision data demonstrated that the local road network benefits from having a very good road safety record.
- The design of the scheme proposals has sought to maximise the ability to provide attractive safe permeable connections in the future to the adjoining third-party lands surrounding the subject development site thereby encouraging walking and cycling as a viable and preferred mode of travel.
- The subject development site is proposed to be accessed via a new signal controlled junction on the R443 Clonminch Road corridor which is to be implemented as part of the subject development. Shared cycle / pedestrian facilities are proposed on all approaches to this new junction thereby ensuring segregation between vehicles and pedestrians / cyclists. Toucan crossings are proposed on all arms of the proposed new signal controlled junction.
- The proposals include for the provision of two new off-site bus stops in the vicinity of the proposed new site access junction on Clonminch Rd and along the proposed new 'Link' Street. The provision of bus interchanges adjacent to and within the subject site aims to maximise accessibility to bus services which will help encourage future residents to travel to work / school / college by bus as opposed to private car. According to the planning documentation for the neighbouring Part 8 development, an agreement has been reached with Slieve Bloom Coaches to serve new bus stop locations in this area.
- The design of the internal street network fully respects the design guidance and recommendations outlined in DMURS.
- The proposals include for the provision new dedicated cycle infrastructure off-site along Clonminch Road (R443). These Clonminch Road enhancements commence approximately 100m south of the proposed site access junction and continue along Clonminch Road to tie into the existing road carriageway at a location approximately 80m northwest of the Bachelor's Walk junction. The scheme aims to provide a cycle route between the subject site location and Tullamore Town Centre along Clonminch Road.
- The proposed development layout design provides a total of 695 no. car parking spaces comprising 392 no. car parking spaces for the house units (278 in-curtilage spaces, 75 on-street and 19 off-street / courtyard parking), 194 no. car parking spaces for the apartment units (52 on-street/courtyards and 142 at

basement level, 21 no. crèche car parking spaces (inclusive of 8 no. set down spaces), 5 no. spaces assigned to the shop located within Block F, 68 no. spaces at the proposed neighbourhood centres, 6 no visitor spaces and 9 no. spaces at Clonminch Square. The proposed 194 no. apartment car parking spaces is lower than the local development management standards (306 spaces required). This provision, however, adheres to the DHPLG guidelines of between 191-204 no. spaces for new apartment developments located at sites classified as *“Peripheral and/or Less Accessible Urban Locations”*. The proposed 392 no. car parking spaces for the house units complies with the local development management standards which requires 2 no. spaces per unit. The ratio of car parking spaces per residential unit equates to 2 spaces per house and 1.27 spaces per apartment unit.

- A total of 315 no. bicycle parking spaces are proposed as part of the development scheme comprising 236 no. apartment cycle parking spaces and 79 no. non-residential cycle parking spaces. The proposed overall cycle parking provision of 315 no. spaces is 194 spaces (or 160%) higher than the development plan minimum requirement. With reference to the DHPLG apartment guidelines, the development is required to provide 355 no. cycle parking spaces for the apartment units comprising 278 no. long stay spaces and 77 no. short stay apartment cycle parking spaces. The subject site's provision of 236 no. apartment cycle parking spaces is slightly lower when compared to the apartment guidelines recommendations however represents a good compromise between the development plan and DHPLG requirements leaning towards the DHPLG requirement.
- A third party committed development has been identified and included within the reported network assessment.
- A junction impact analysis was undertaken and has demonstrated that the proposals will generate a subthreshold impact (<10%) upon the N52 / N80 / R443 roundabout junction during the 2038 Future Design Year scenario. Figure 8.1 below details the total amount of two-way vehicle trips that will pass through Clonminch Roundabout in the 2038 assessment year in the AM and PM peak hours and the resulting percentage increase in traffic flows as a result of the traffic generated by the proposed development.



Figure 8.1: Increase in Vehicle Trips Generated Through Key Off-Site Junction (2038 Peak Hour)

- Whilst the subject development proposals are predicted to have subthreshold impacts upon the N52 / N80 / R443 roundabout junction, this key off-site junction has nevertheless been considered for more detailed analysis due to its close proximity to the subject site. Also included in the detailed network analysis is the proposed new site access signal controlled junction on Clonminch Rd.
- The junction analysis undertaken at the aforementioned roundabout junction reveals that the proposals will not have a notable impact on the N52 / N80 / R443 roundabout junction's operational performance compared to the corresponding Do-Nothing scenario. In addition, the proposed signal controlled junction is predicted to operate with significant reserve capacity in the adopted worst case 2038 Future Design Year scenario.
- An additional sensitivity assessment has been undertaken which considers the scenario where the entire Eastern Node masterplan lands are developed. For the purposes of this sensitivity assessment, it has been assumed that there will be an additional 1000 residential units comprising 600 houses and 400 apartments in addition to a 400 pupil primary school in place by the 2038 Future Design Year. The sensitivity analysis results of the operational assessment of the existing N52

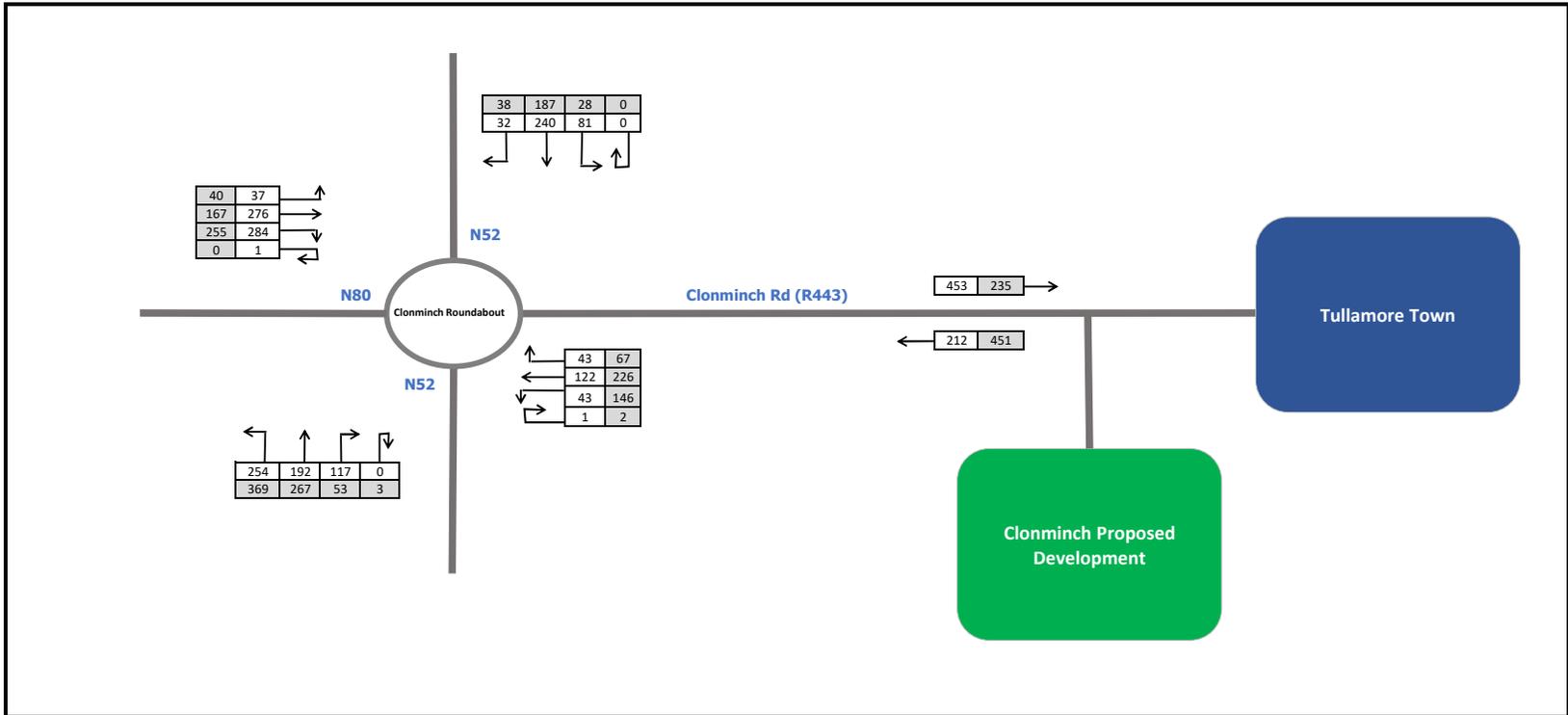
/ N80 / R443 roundabout junction reveal that this junction is predicted to be approaching capacity for a 30 minute period only during the PM peak hour. Outside of this 30 minute period, all approaches to this existing roundabout junction are predicted to operate with significant reserve capacity. The assessment of the proposed site access signal-controlled junction reveals that, with the addition of the estimated future development on the overall masterplan lands (and the worst case scenario that only one access to the overall lands is available), this proposed junction will be approaching capacity in the 2038 PM peak hour but will operate with significant reserve capacity during the AM peak hour.

### 8.3 CONCLUSION

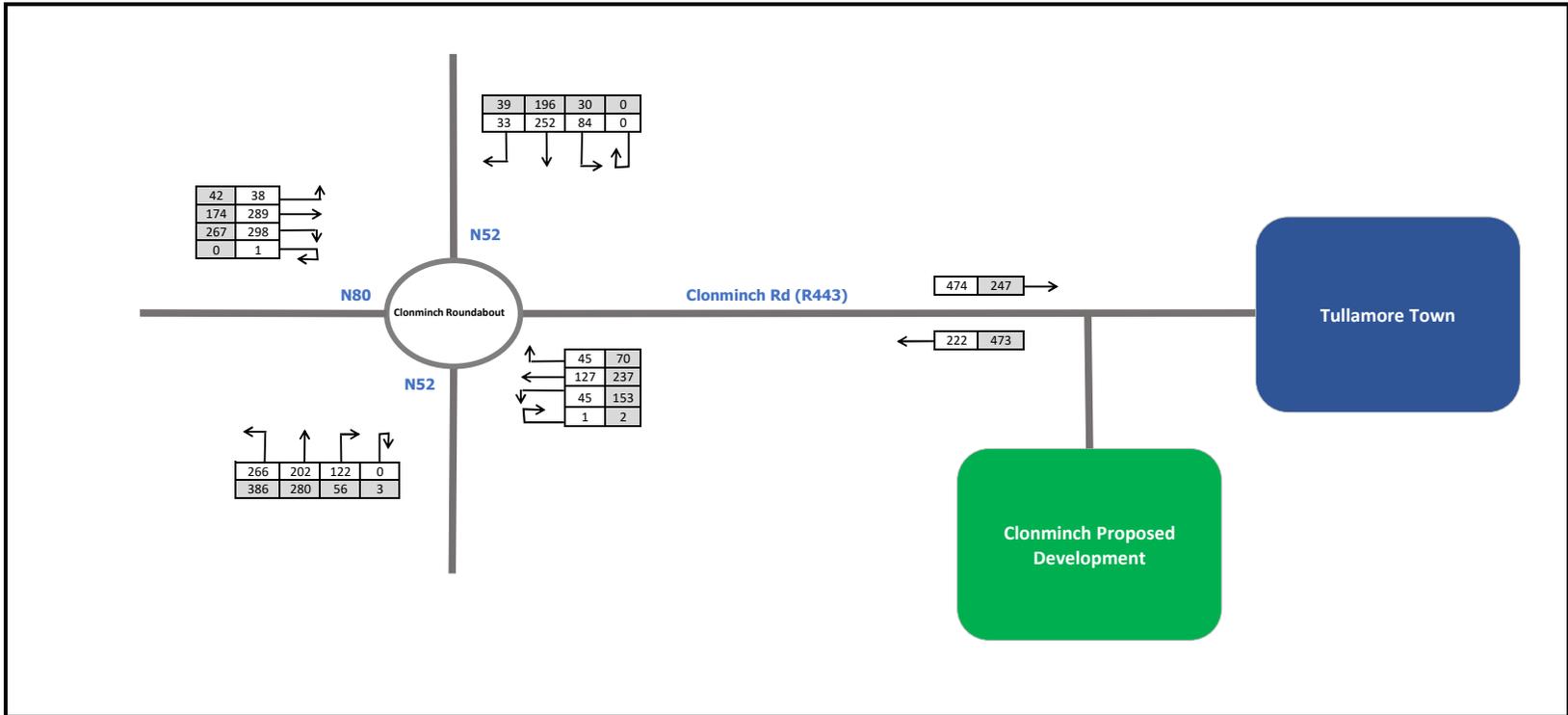
- 8.3.1 In conclusion, it is considered that the impact on the surrounding road network, as a result of the proposed development will be slight. This is based on the anticipated levels of traffic generated by the proposed development and the information and analysis summarised in the above report.
- 8.3.2 DBFL concludes that the proposals represent a sustainable and practical approach to development on the subject zoned lands and with no material traffic or road safety related reasons that should prevent the granting of planning permission for the proposed residential development at Clonminch, Tullamore.

## APPENDICES

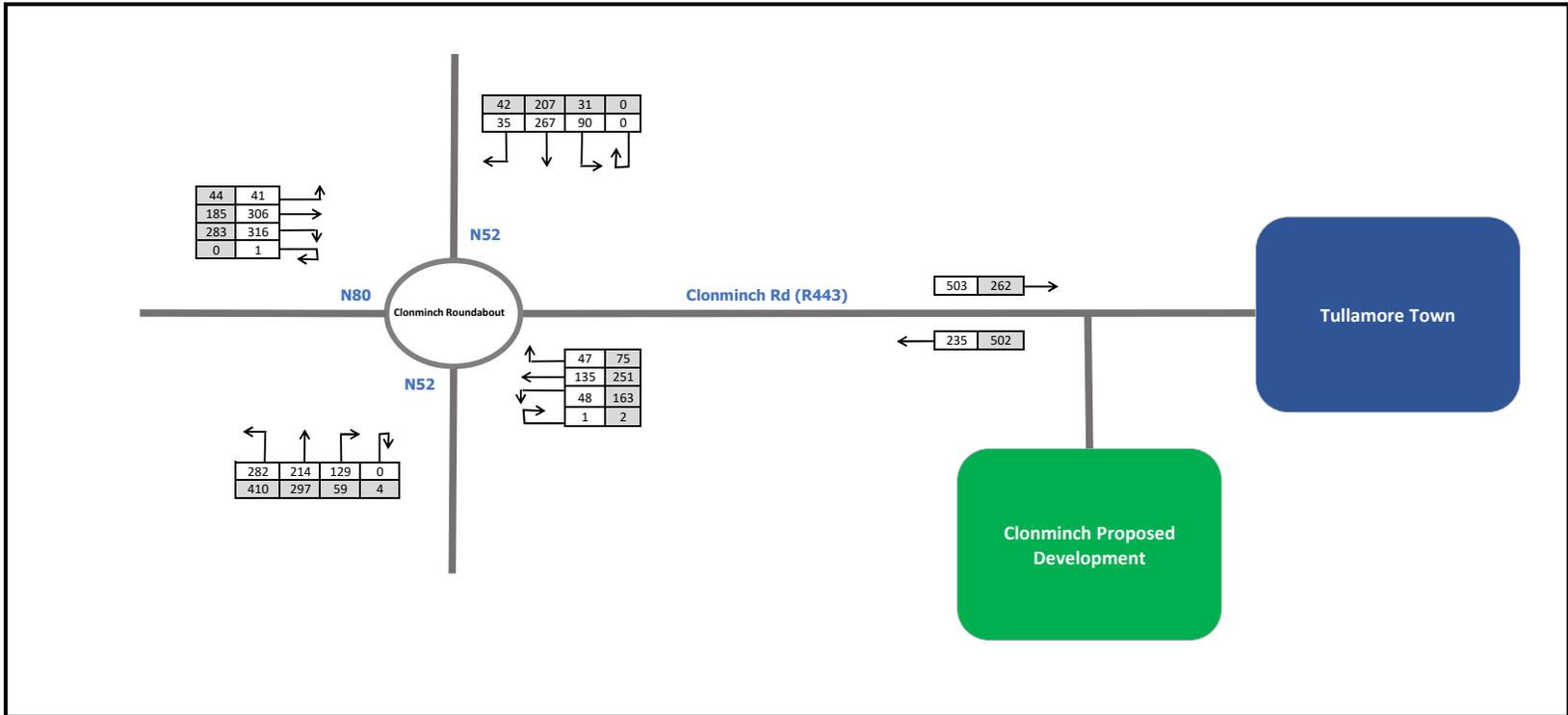
APPENDIX A  
Traffic Flow Diagram



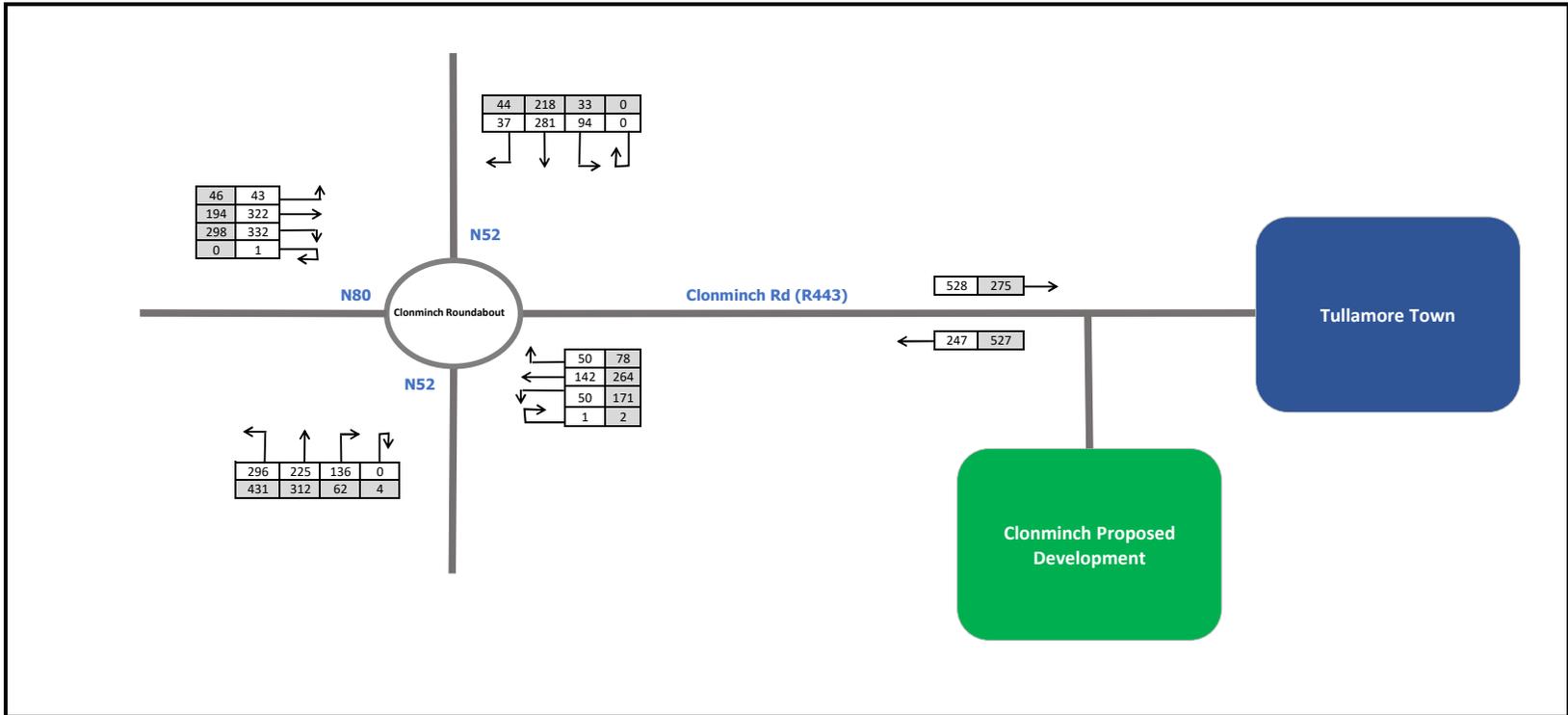
|   |  |  |  |                |                               |   |                               |   |             |             |              |    |    |            |
|---|--|--|--|----------------|-------------------------------|---|-------------------------------|---|-------------|-------------|--------------|----|----|------------|
|  <p><b>DBFL Consulting Engineers</b></p> | <p><b>Dublin Office:</b><br/>Dublin Office: Ormond House,<br/>Upper Ormond Quay, Dublin 7<br/>phone: +353 1 400 4000</p> | <p><b>Project :</b><br/>Proposed Residential Development at<br/>Clonminch, Tullamore, Co. Offaly</p> | <p><b>Key:</b></p> <table border="1"> <tr><td>□</td><td>AM Peak Hour (08:45 to 09:45)</td></tr> <tr><td>■</td><td>PM Peak Hour (17:00 to 18:00)</td></tr> </table> | □              | AM Peak Hour (08:45 to 09:45) | ■ | PM Peak Hour (17:00 to 18:00) | <table border="1"> <tr><td><b>Dwn:</b></td><td><b>Ckd:</b></td><td><b>Date:</b></td></tr> <tr><td>DG</td><td>MK</td><td>04/09/2019</td></tr> </table> | <b>Dwn:</b> | <b>Ckd:</b> | <b>Date:</b> | DG | MK | 04/09/2019 |
|   | □  | AM Peak Hour (08:45 to 09:45)  |  |                |                               |   |                               |   |             |             |              |    |    |            |
|   | ■  | PM Peak Hour (17:00 to 18:00)  |  |                |                               |   |                               |   |             |             |              |    |    |            |
| <b>Dwn:</b>   | <b>Ckd:</b>  | <b>Date:</b>   |  |                |                               |   |                               |   |             |             |              |    |    |            |
| DG  | MK   | 04/09/2019   |  |                |                               |   |                               |   |             |             |              |    |    |            |
| <p><b>Waterford Office:</b><br/>Suite 8b The Atrium, Maritana<br/>Gate, Canada St, Waterford<br/>phone: +353 51 309 500</p> | <p><b>DRG. Title :</b><br/>Network Traffic Flows - Vehicles<br/>2019 Base Flows</p>                                      | <p><b>Ref:</b><br/>p180002\calcs\excel\Traffic\ Traffic Model01</p>                                  | <table border="1"> <tr><td><b>Figure:</b></td><td><b>Rev:</b></td></tr> <tr><td>1</td><td>-</td></tr> </table>   | <b>Figure:</b> | <b>Rev:</b>                   | 1 | -                             |   |             |             |              |    |    |            |
| <b>Figure:</b>  | <b>Rev:</b>  |  |  |                |                               |   |                               |   |             |             |              |    |    |            |
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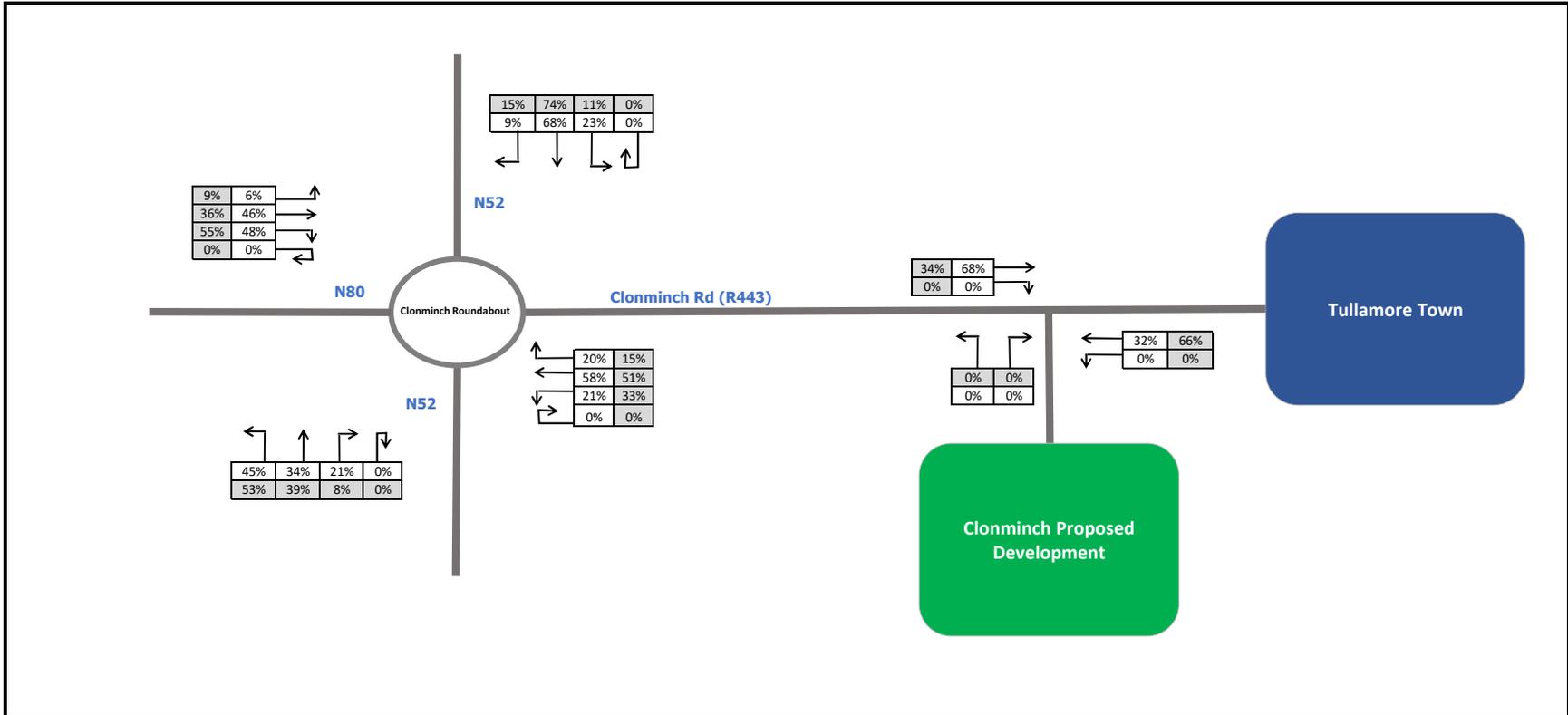
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|  <p><b>DBFL Consulting Engineers</b></p> | <p><b>Dublin Office:</b><br/>Dublin Office: Ormond House,<br/>Upper Ormond Quay, Dublin 7<br/>phone: +353 1 400 4000</p> | <p><b>Project :</b><br/>Proposed Residential Development at<br/>Clonminch, Tullamore, Co. Offaly</p> | <p><b>Key:</b></p> <table border="1"> <tr><td>□</td><td>AM Peak Hour (08:45 to 09:45)</td></tr> <tr><td>■</td><td>PM Peak Hour (17:00 to 18:00)</td></tr> </table> | □              | AM Peak Hour (08:45 to 09:45) | ■ | PM Peak Hour (17:00 to 18:00) | <table border="1"> <tr><td><b>Dwn:</b></td><td><b>Ckd:</b></td><td><b>Date:</b></td></tr> <tr><td>DG</td><td>MK</td><td>05/09/2019</td></tr> </table> | <b>Dwn:</b> | <b>Ckd:</b> | <b>Date:</b> | DG | MK | 05/09/2019 |
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| <b>Dwn:</b>   | <b>Ckd:</b>  | <b>Date:</b>   |  |                |                               |   |                               |   |             |             |              |    |    |            |
| DG  | MK   | 05/09/2019   |  |                |                               |   |                               |   |             |             |              |    |    |            |
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| <b>Figure:</b>  | <b>Rev:</b>  |  |  |                |                               |   |                               |   |             |             |              |    |    |            |
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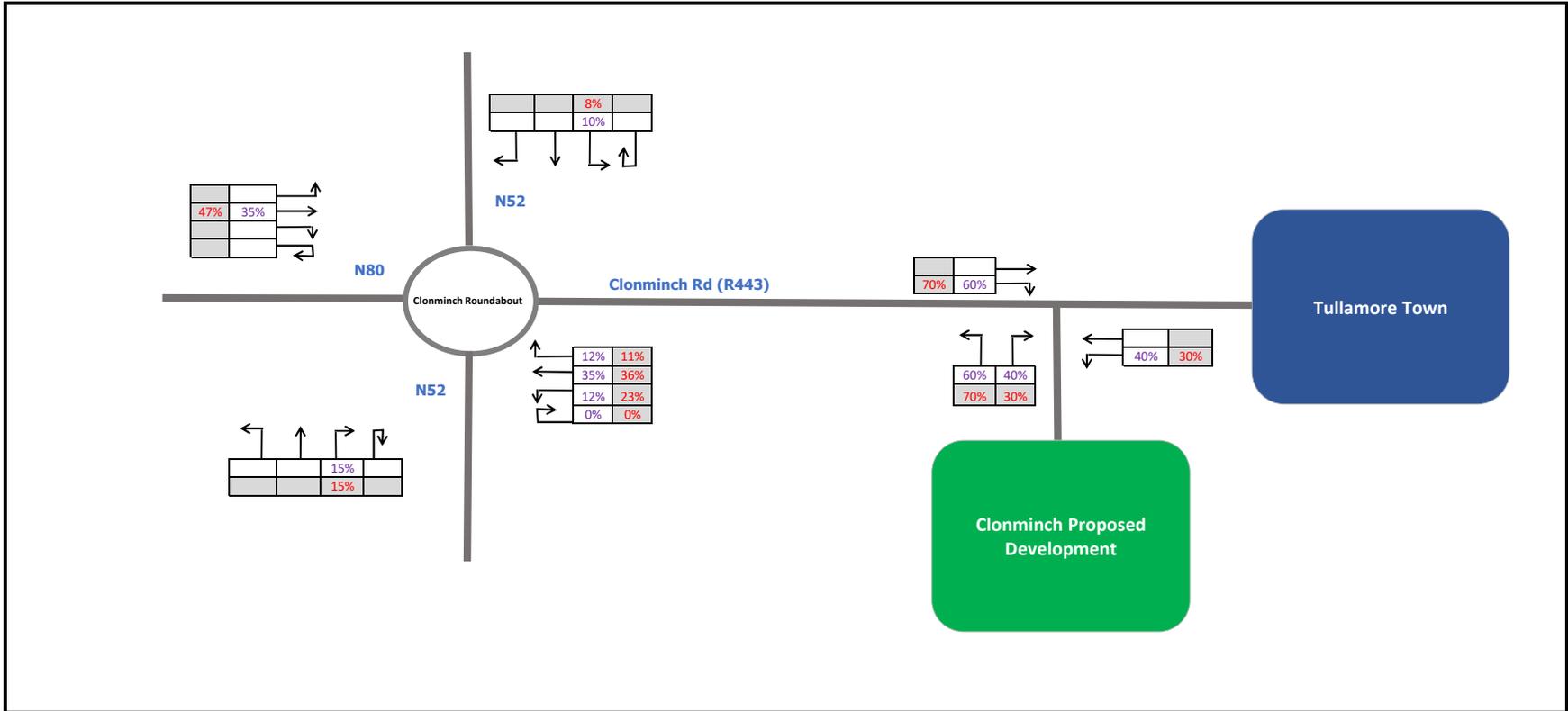
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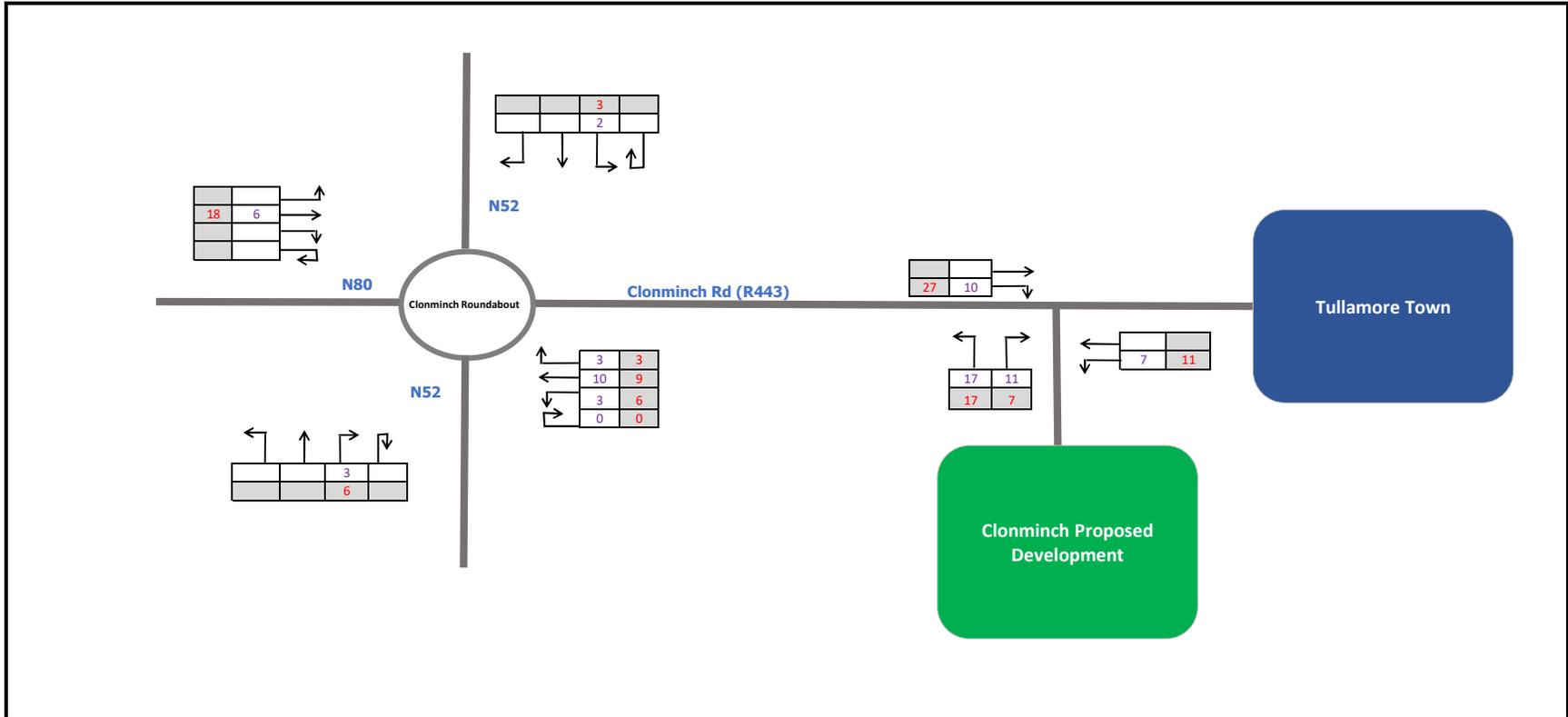
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| <p><b>email:</b> info@dbfl.ie<br/><b>website:</b> www.dbfl.ie</p>   |  |  |  |                     |                               |  |                               |   |                   |                   |                            |



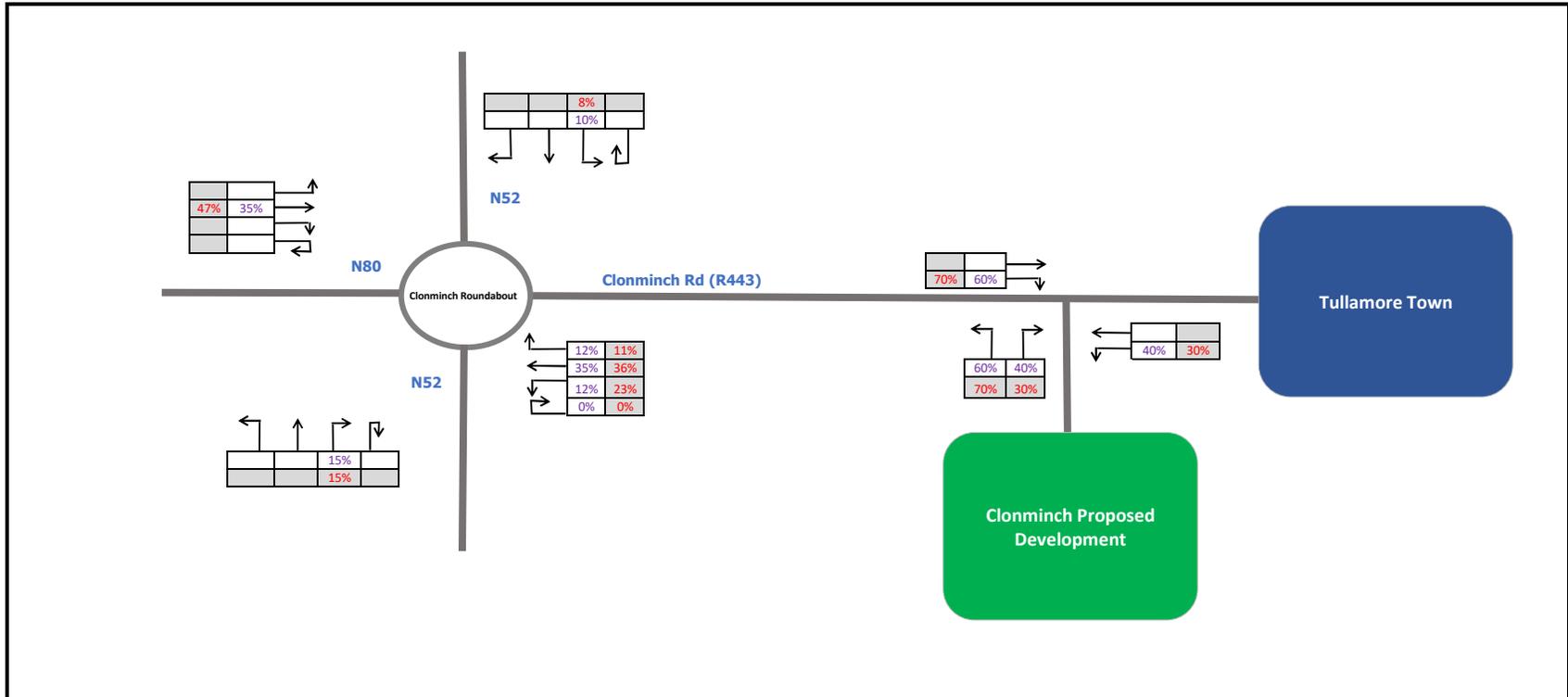
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| <br><b>DBFL Consulting Engineers</b>  | <b>Dublin Office:</b><br>Dublin Office: Ormond House,<br>Upper Ormond Quay, Dublin 7<br>phone: +353 1 400 4000 | <b>Project :</b><br>Proposed Residential Development at<br>Clonminch, Tullamore, Co. Offaly | <b>Key:</b><br><table border="1"> <tr><td> </td><td>AM Peak Hour (08:45 to 09:45)</td></tr> <tr><td> </td><td>PM Peak Hour (17:00 to 18:00)</td></tr> </table> |                  | AM Peak Hour (08:45 to 09:45) |  | PM Peak Hour (17:00 to 18:00) | <b>Dwn:</b><br>DG | <b>Ckd:</b><br>MK | <b>Date:</b><br>05/09/2019 |
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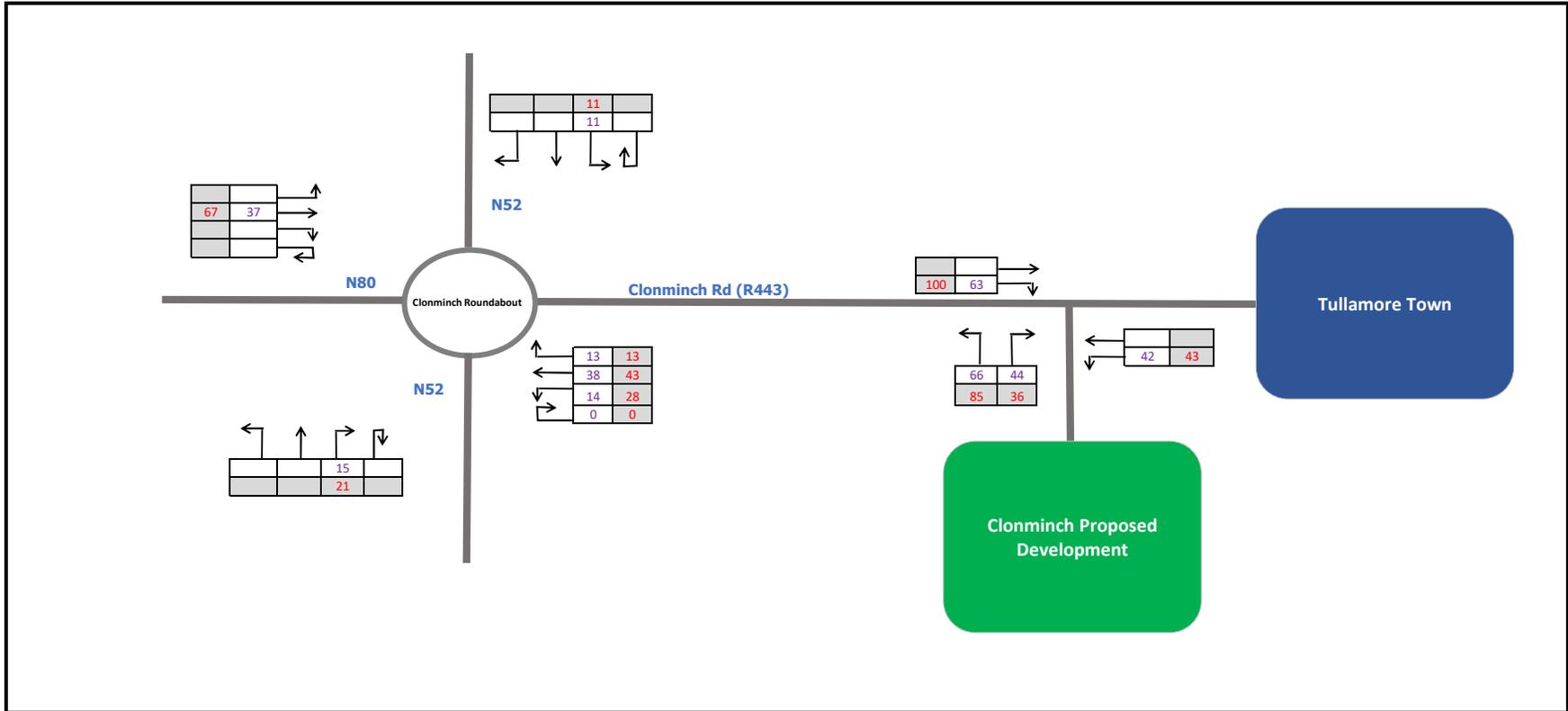
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|  <p><b>DBFL Consulting Engineers</b></p> | <p><b>Dublin Office:</b><br/>Dublin Office: Ormond House, Upper Ormond Quay, Dublin 7<br/>phone: +353 1 400 4000</p>    | <p><b>Project :</b><br/>Proposed Residential Development at Clonminch, Tullamore, Co. Offaly</p>       | <p><b>Key:</b></p> <p> AM Peak Hour (08:45 to 09:45)</p> <p> PM Peak Hour (17:00 to 18:00)</p> | <p><b>Dwn:</b> DG</p>       | <p><b>Ckd:</b> MK</p>    | <p><b>Date:</b> 05/09/2019</p> |  |
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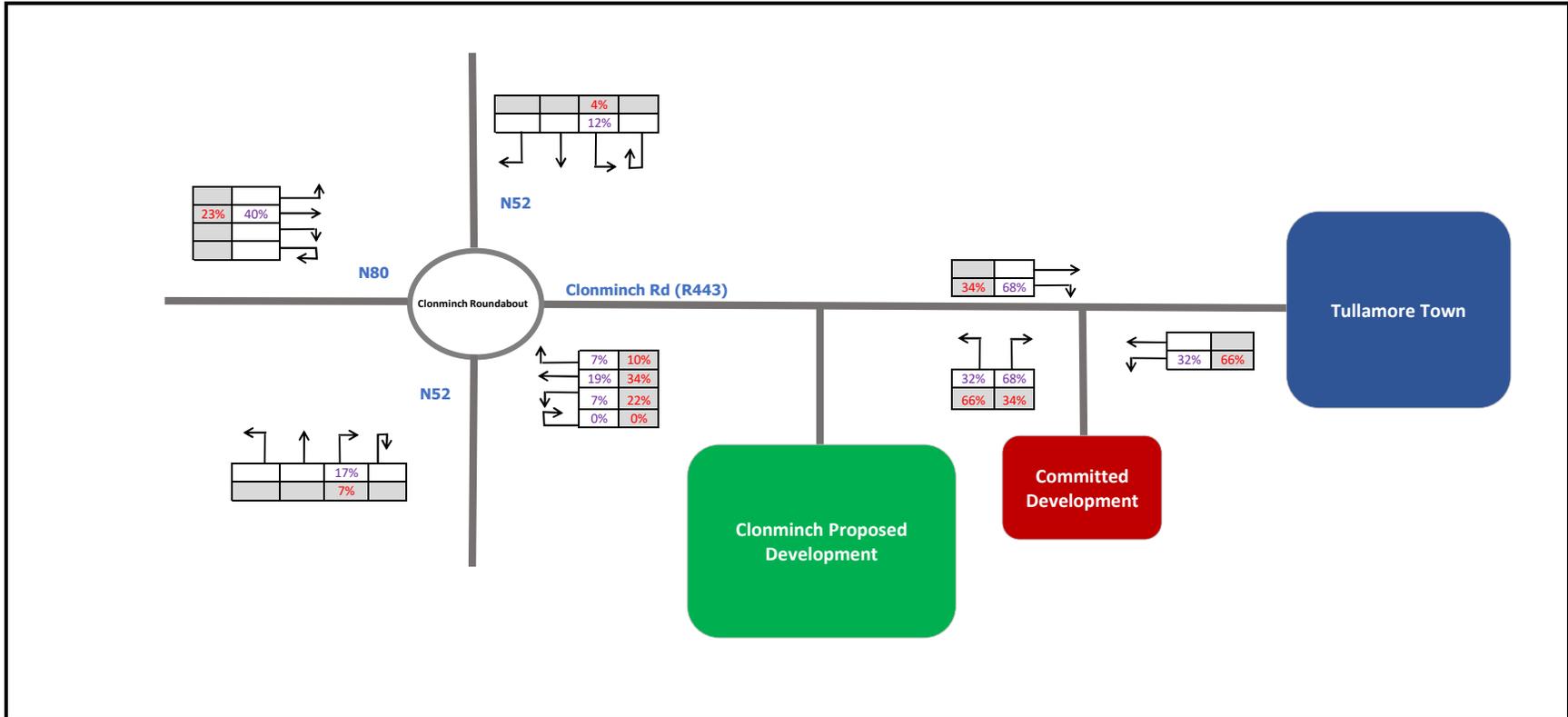
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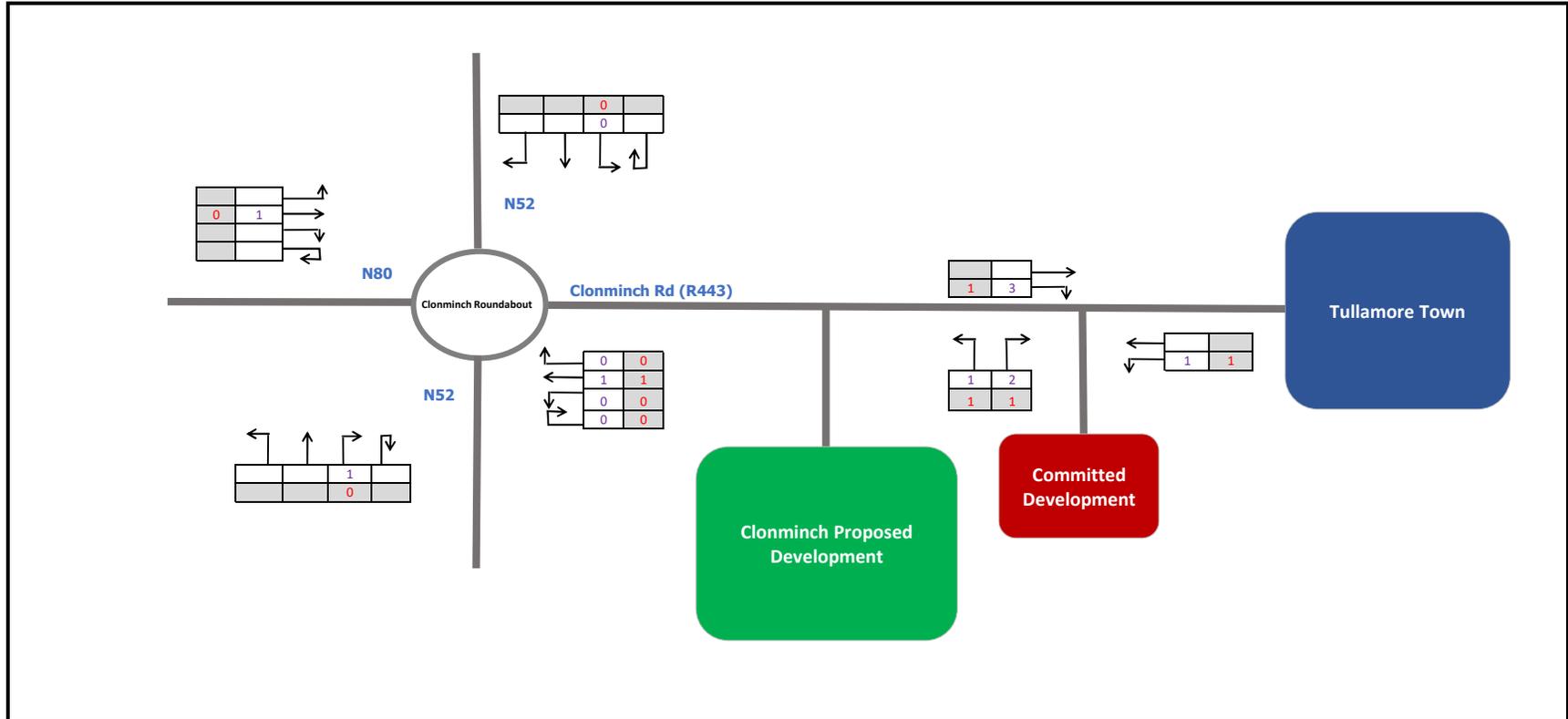
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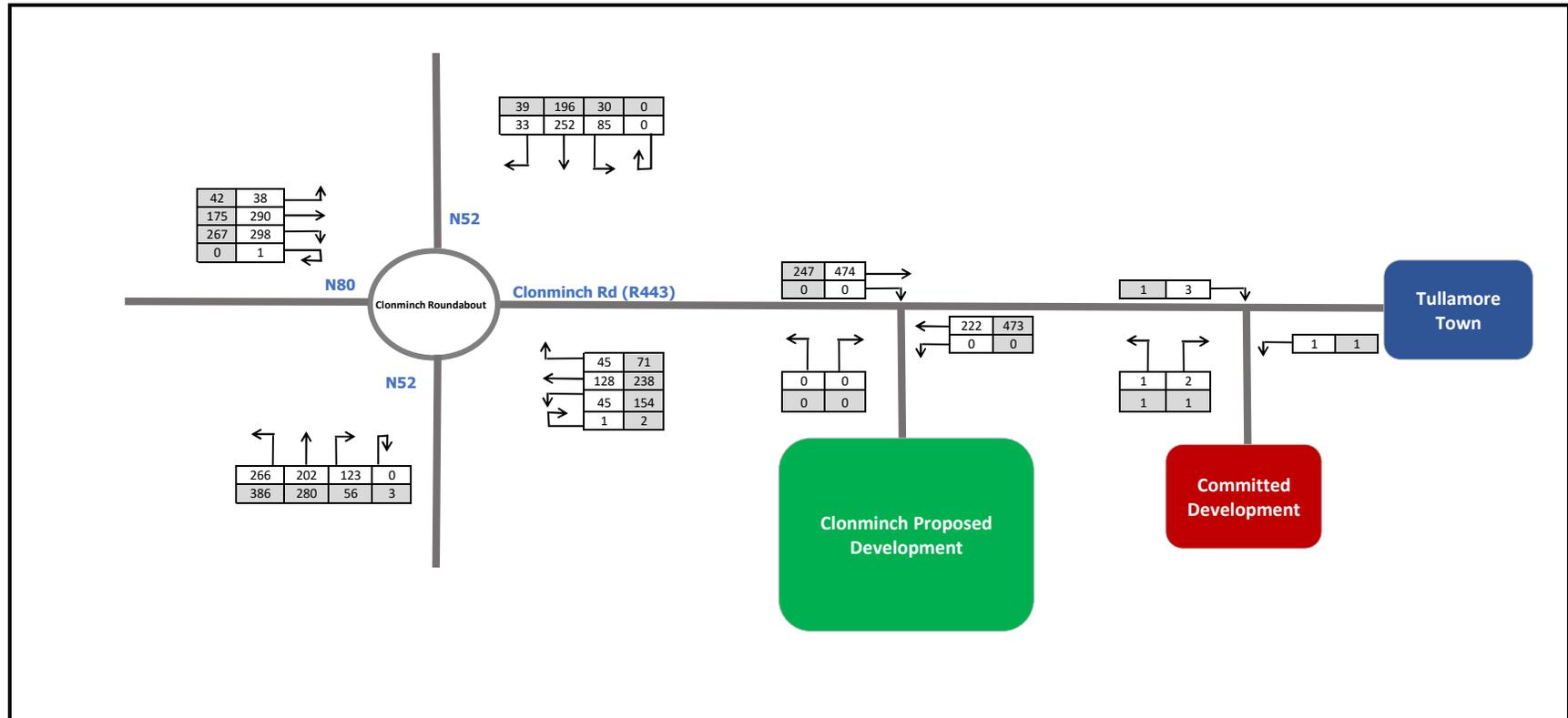
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| <b>Dwn:</b>   | <b>Ckd:</b>  | <b>Date:</b>   |  |                |                               |   |                               |   |             |             |              |    |    |            |
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|   | <p><b>DRG. Title :</b><br/>Network Traffic Flows - Vehicles<br/>Proposed Development Trips 2028 &amp; 2038</p>   | <p><b>Ref:</b><br/>p180002\calcs\excel\Traffic\ Traffic Model01</p>                              | <table border="1"> <tr><td><b>Figure:</b></td><td><b>Rev:</b></td></tr> <tr><td>9</td><td>-</td></tr> </table>   | <b>Figure:</b> | <b>Rev:</b>                   | 9 | -                             |   |             |             |              |    |    |            |
| <b>Figure:</b>  | <b>Rev:</b>  |  |  |                |                               |   |                               |   |             |             |              |    |    |            |
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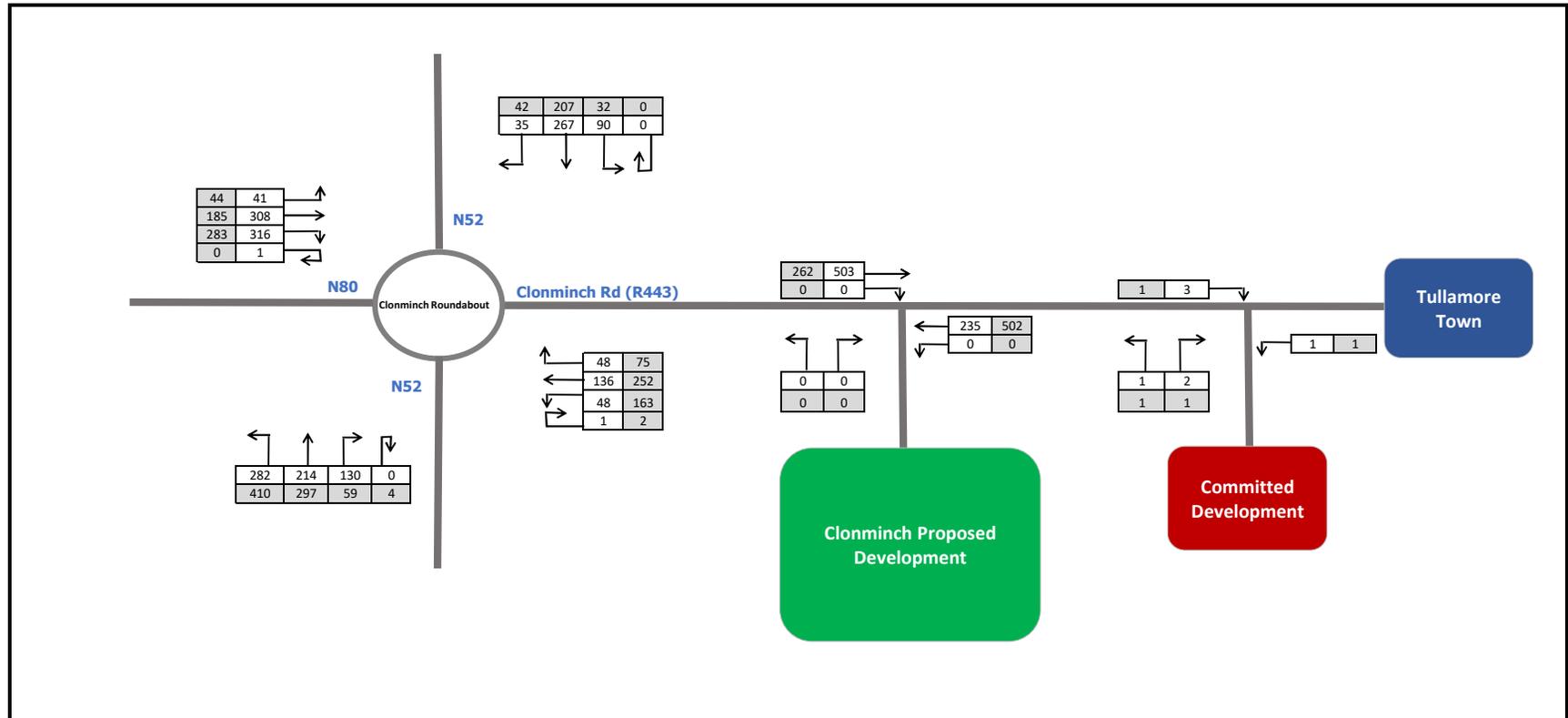
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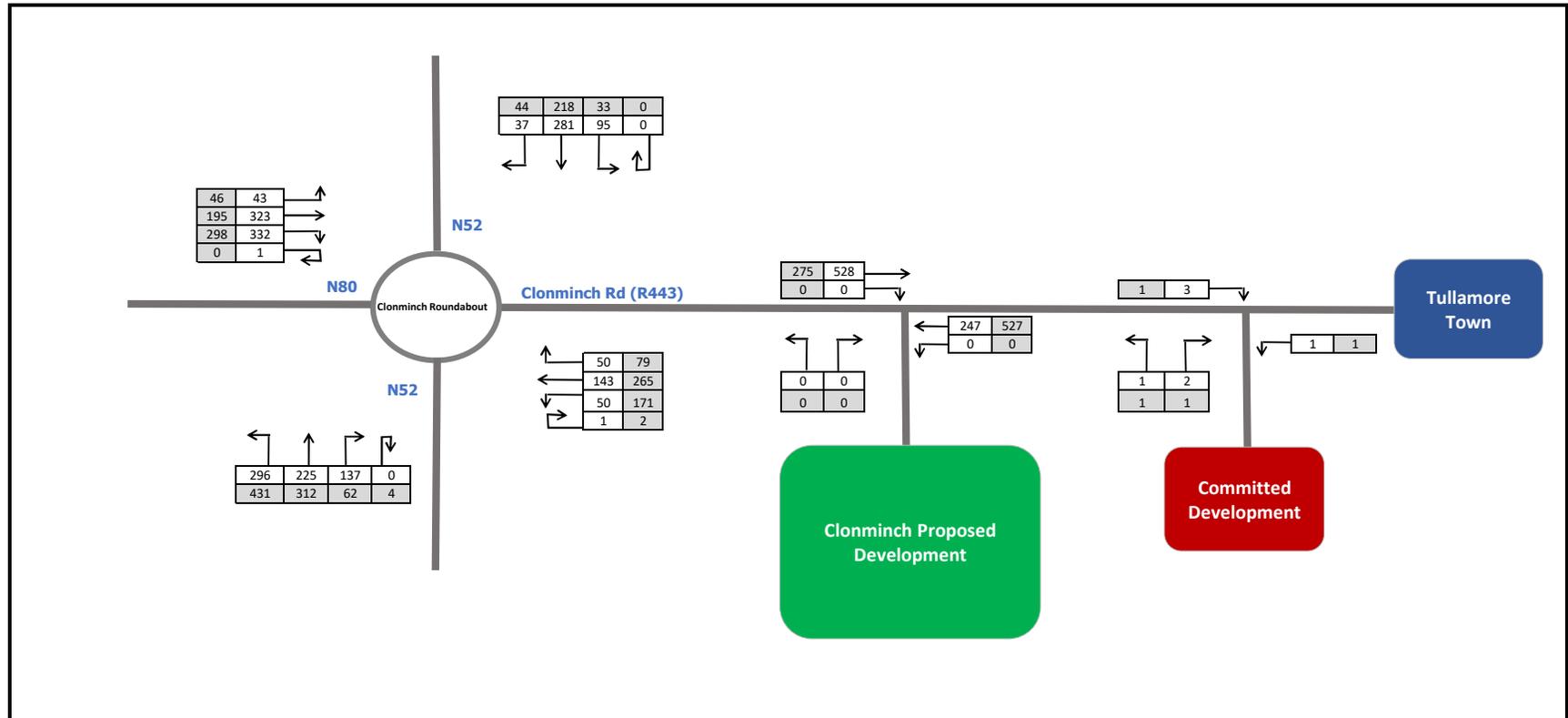
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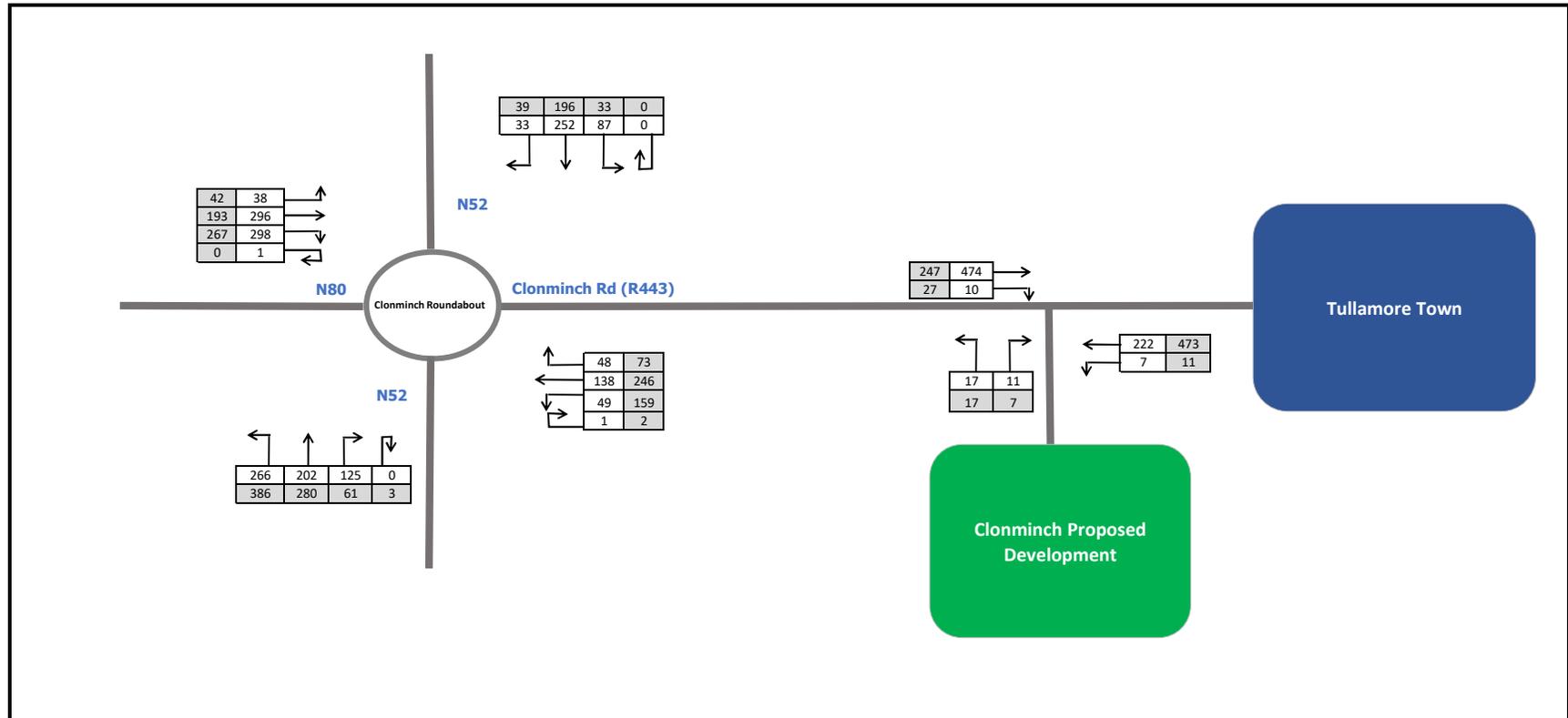
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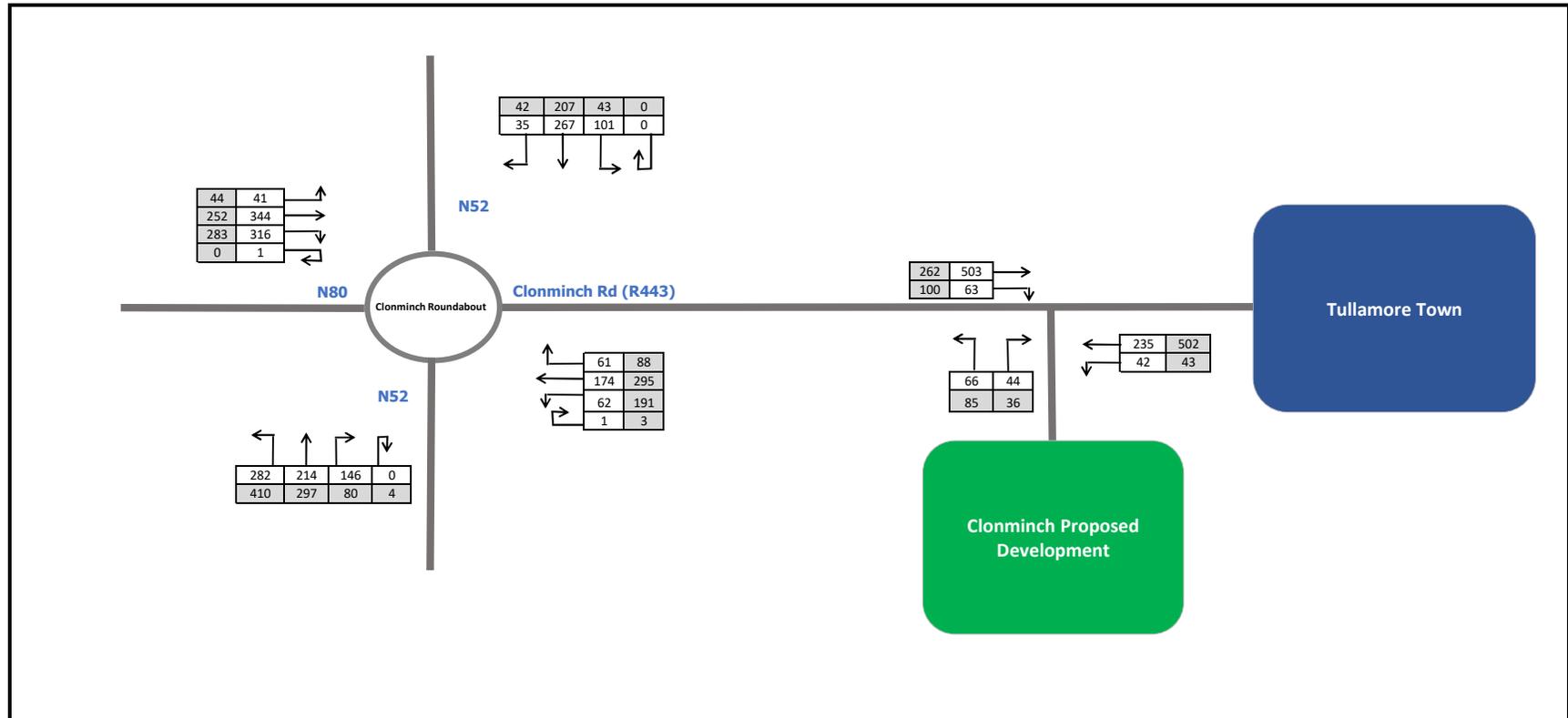
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|   | □  | AM Peak Hour (08:45 to 09:45)  |  |                          |                               |   |                               |                       |                       |                                |
| ■   | PM Peak Hour (17:00 to 18:00)  |  |  |                          |                               |   |                               |                       |                       |                                |
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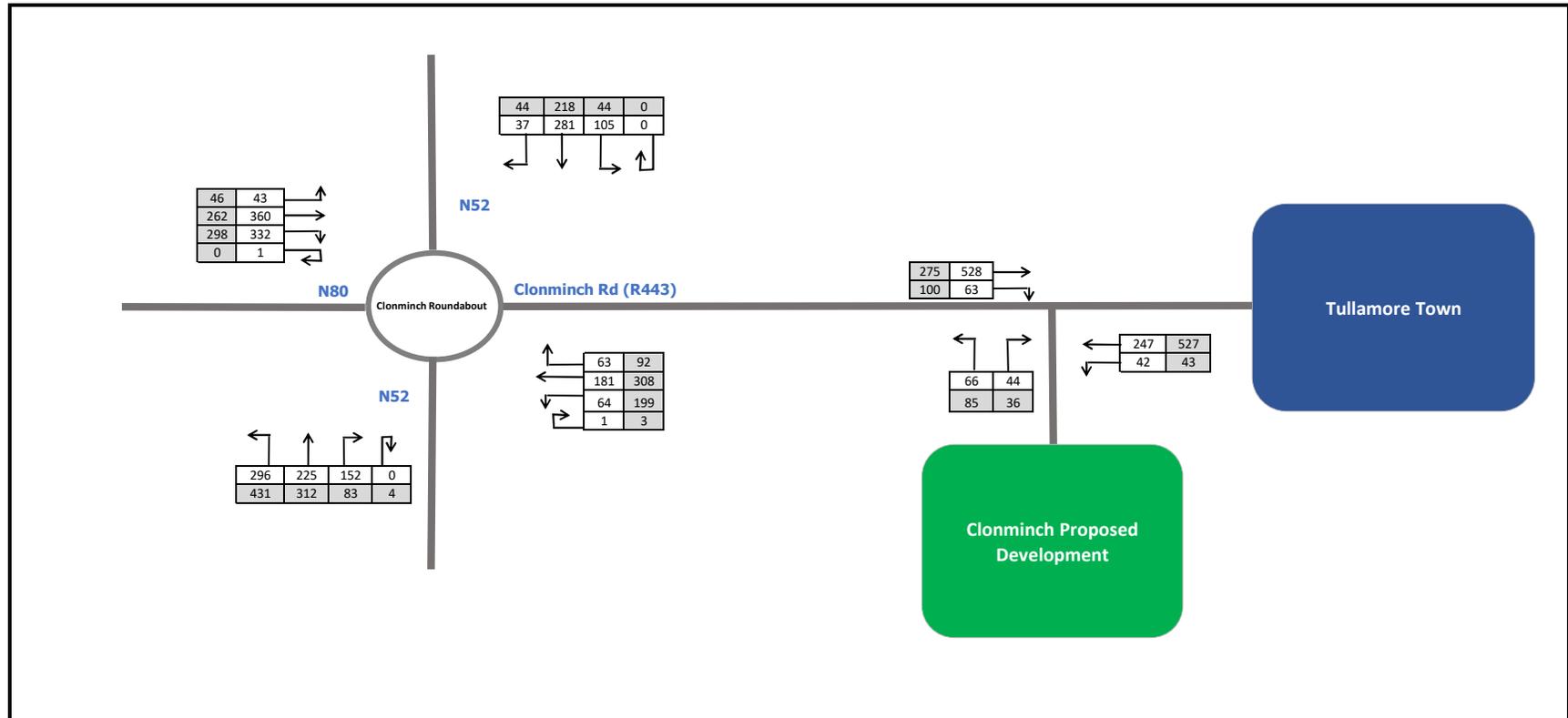
|   |  |  |  |   |                               |   |                               |  |
|---|--|--|--|---|-------------------------------|---|-------------------------------|--|
|  <p><b>DBFL Consulting Engineers</b></p>   | <p><b>Dublin Office:</b><br/>Dublin Office: Ormond House, Upper Ormond Quay, Dublin 7<br/>phone: +353 1 400 4000</p> | <p><b>Project :</b><br/>Proposed Residential Development at Clonminch, Tullamore, Co. Offaly</p> | <p><b>Key:</b></p> <table border="1"> <tr><td>□</td><td>AM Peak Hour (08:45 to 09:45)</td></tr> <tr><td>■</td><td>PM Peak Hour (17:00 to 18:00)</td></tr> </table> | □ | AM Peak Hour (08:45 to 09:45) | ■ | PM Peak Hour (17:00 to 18:00) | <p><b>Dwn:</b> DG</p> <p><b>Ckd:</b> MK</p> <p><b>Date:</b> 09/09/2019</p> |
|   | □  | AM Peak Hour (08:45 to 09:45)  |  |   |                               |   |                               |  |
| ■   | PM Peak Hour (17:00 to 18:00)  |  |  |   |                               |   |                               |  |
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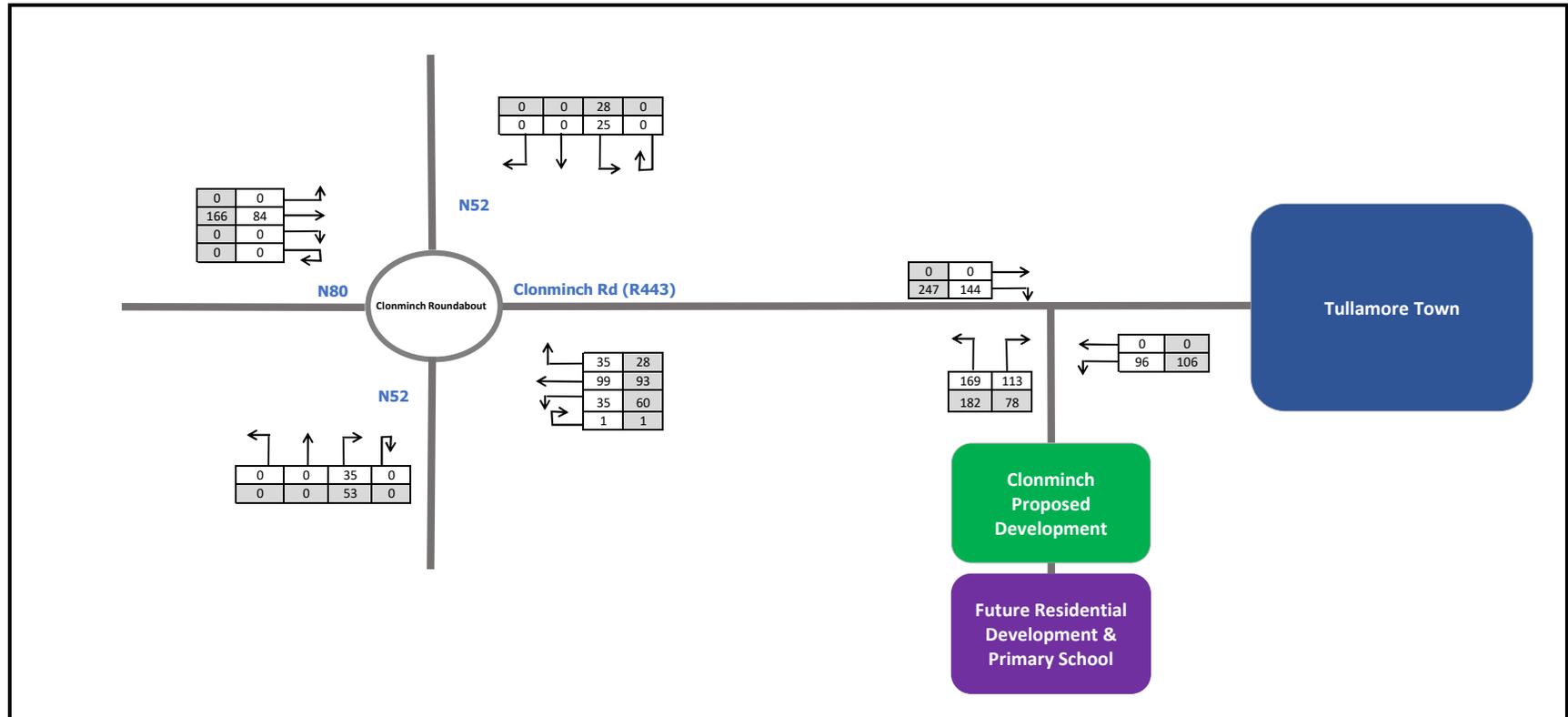
|   |  |  |  |   |                               |   |                               |  |
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|   | □  | AM Peak Hour (08:45 to 09:45)  |  |   |                               |   |                               |  |
| ■   | PM Peak Hour (17:00 to 18:00)  |  |  |   |                               |   |                               |  |
|   |  | <p><b>DRG. Title :</b><br/>Network Traffic Flows - Vehicles<br/>Do Something 2023</p>            |  | <p><b>Ref:</b><br/>p180002\calcs\excel\Traffic\ Traffic Model01</p> <p><b>Figure:</b> 15</p> <p><b>Rev:</b> -</p> |                               |   |                               |  |



|   |  |  |  |   |                               |   |                               |  |
|---|--|--|--|---|-------------------------------|---|-------------------------------|--|
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|   | □  | AM Peak Hour (08:45 to 09:45)  |  |   |                               |   |                               |  |
| ■   | PM Peak Hour (17:00 to 18:00)  |  |  |   |                               |   |                               |  |
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|   |  |  |  |   |                               |   |                               |  |
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|   | □  | AM Peak Hour (08:45 to 09:45)  |  |   |                               |   |                               |  |
| ■   | PM Peak Hour (17:00 to 18:00)  |  |  |   |                               |   |                               |  |
|   | <p><b>DRG. Title :</b><br/>Network Traffic Flows - Vehicles<br/>Do Something 2038</p>  | <p><b>Ref:</b><br/>p180002\calcs\excel\Traffic\ Traffic Model01</p>                              | <p><b>Figure:</b> 17</p> <p><b>Rev:</b> -</p>  |   |                               |   |                               |  |



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**Project :**  
 Proposed Residential Development at Clonminch, Tullamore, Co. Offaly

**DRG. Title :**  
 Network Traffic Flows - Vehicles  
 2038 Sensitivity Analysis Trip Generation

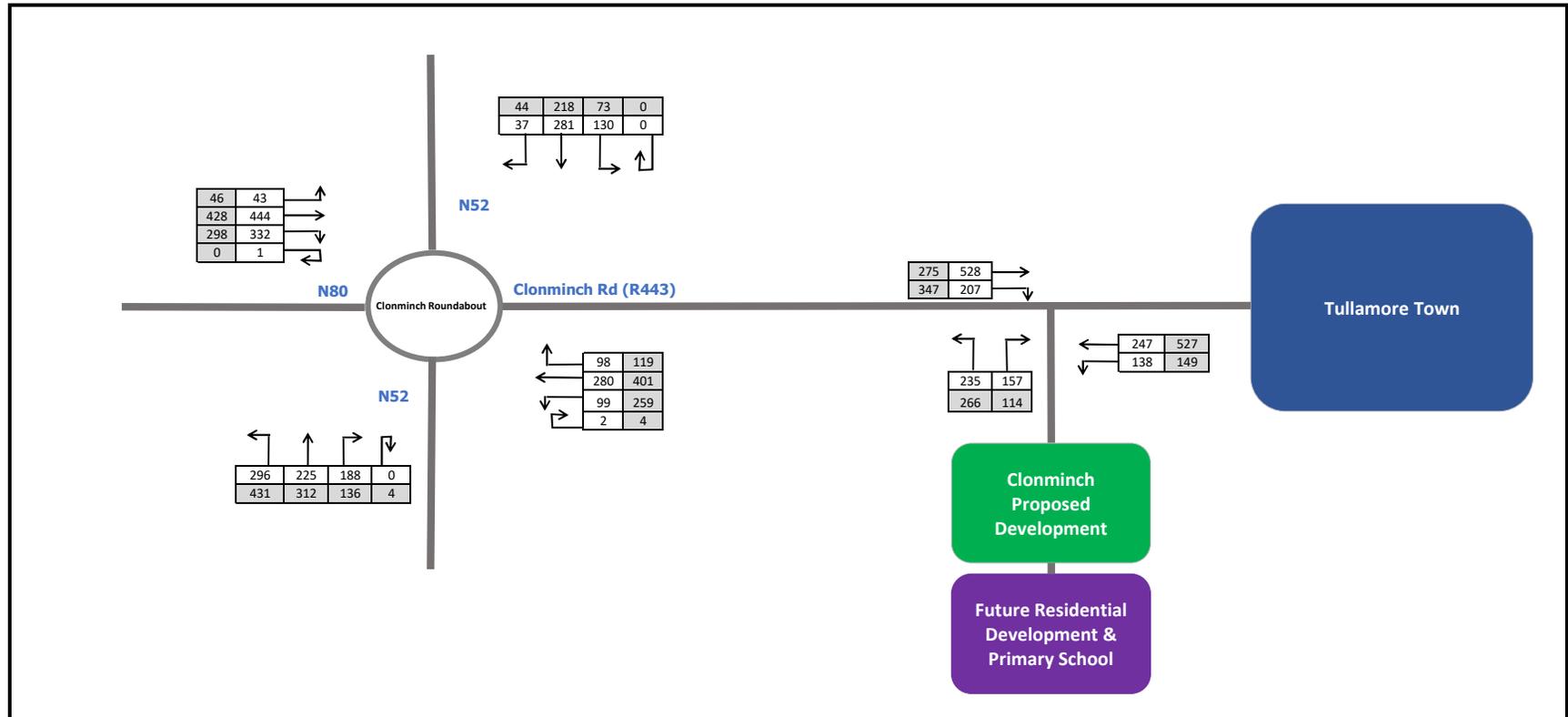
**Key:**

|   |                               |
|---|-------------------------------|
| □ | AM Peak Hour (08:45 to 09:45) |
| ■ | PM Peak Hour (17:00 to 18:00) |

|                   |                   |                            |
|-------------------|-------------------|----------------------------|
| <b>Dwn:</b><br>DG | <b>Ckd:</b><br>MK | <b>Date:</b><br>06/11/2019 |
|-------------------|-------------------|----------------------------|

**Ref:**  
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|                      |                  |
|----------------------|------------------|
| <b>Figure:</b><br>18 | <b>Rev:</b><br>- |
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**Project :**  
 Proposed Residential Development at  
 Clonminch, Tullamore, Co. Offaly

**DRG. Title :**  
 Network Traffic Flows - Vehicles  
 2038 Sensitivity Analysis

**Key:**

|  |                               |
|--|-------------------------------|
|  | AM Peak Hour (08:45 to 09:45) |
|  | PM Peak Hour (17:00 to 18:00) |

|                   |                   |                            |
|-------------------|-------------------|----------------------------|
| <b>Dwn:</b><br>DG | <b>Ckd:</b><br>MK | <b>Date:</b><br>06/11/2019 |
|-------------------|-------------------|----------------------------|

**Ref:**  
 p180002\calcs\excel\Traffic\ Traffic Model01

|                      |                  |
|----------------------|------------------|
| <b>Figure:</b><br>19 | <b>Rev:</b><br>- |
|----------------------|------------------|

APPENDIX B  
TRICS Output Data

Calculation Reference: AUDIT-638801-190904-0909

**TRIP RATE CALCULATION SELECTION PARAMETERS:**

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

**VEHICLES**

Selected regions and areas:

|  |        |
|--|--------|
| <b>04 EAST ANGLIA</b>                        |        |
| NF NORFOLK                                   | 1 days |
| SF SUFFOLK                                   | 1 days |
| <b>07 YORKSHIRE &amp; NORTH LINCOLNSHIRE</b> |        |
| RI EAST RIDING OF YORKSHIRE                  | 1 days |
| <b>09 NORTH</b>                              |        |
| CB CUMBRIA                                   | 1 days |
| <b>10 WALES</b>                              |        |
| CO CONWY                                     | 1 days |
| DB DENBIGHSHIRE                              | 1 days |
| <b>11 SCOTLAND</b>                           |        |
| SA SOUTH Ayrshire                            | 1 days |
| <b>13 MUNSTER</b>                            |        |
| WA WATERFORD                                 | 1 days |
| <b>14 LEINSTER</b>                           |        |
| LU LOUTH                                     | 2 days |
| <b>16 ULSTER (REPUBLIC OF IRELAND)</b>       |        |
| MG MONAGHAN                                  | 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: Number of dwellings  
 Actual Range: 16 to 51 (units: )  
 Range Selected by User: 8 to 450 (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 13/11/18

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

Selected survey days:

|           |        |
|-----------|--------|
| Monday    | 3 days |
| Tuesday   | 3 days |
| Wednesday | 2 days |
| Thursday  | 1 days |
| Friday    | 2 days |

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

Selected survey types:

|                       |         |
|-----------------------|---------|
| Manual count          | 11 days |
| Directional ATC Count | 0 days  |

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

Selected Locations:

|  |   |
|--|---|
| Edge of Town Centre                      | 6 |
| Suburban Area (PPS6 Out of Centre)       | 2 |
| Edge of Town                             | 2 |
| Neighbourhood Centre (PPS6 Local Centre) | 1 |

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

Selected Location Sub-Categories:

|                  |   |
|------------------|---|
| Residential Zone | 7 |
| Built-Up Zone    | 2 |
| No Sub Category  | 2 |

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 | 11 days |
|----|---------|

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

Population within 1 mile:

|                  |        |
|------------------|--------|
| 1,001 to 5,000   | 2 days |
| 5,001 to 10,000  | 3 days |
| 10,001 to 15,000 | 6 days |

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

Population within 5 miles:

|                  |        |
|------------------|--------|
| 5,001 to 25,000  | 2 days |
| 25,001 to 50,000 | 2 days |
| 50,001 to 75,000 | 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 | 5 days |
| 1.1 to 1.5 | 6 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 | 11 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 | 11 days |
|-----------------|---------|

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

LIST OF SITES relevant to selection parameters

|   |                                 |
|---|---------------------------------|
| <b>1 CB-03-C-02 BLOCK OF FLATS</b>  | <b>CUMBRIA</b>                  |
| BRIDGE LANE<br>PENRITH  |                                 |
| Edge of Town<br>No Sub Category<br>Total Number of dwellings: 35                              |                                 |
| Survey date: WEDNESDAY 11/06/14   | Survey Type: MANUAL             |
| <b>2 CO-03-C-01 BLOCKS OF FLATS</b>   | <b>CONWY</b>                    |
| MOSTYN BROADWAY<br>LLANDUDNO  |                                 |
| Edge of Town Centre<br>Built-Up Zone<br>Total Number of dwellings: 37                         |                                 |
| Survey date: MONDAY 26/03/18  | Survey Type: MANUAL             |
| <b>3 DB-03-C-01 FLATS IN HOUSES</b>   | <b>DENBIGHSHIRE</b>             |
| RHYL ROAD<br>RHUDDLAN   |                                 |
| Neighbourhood Centre (PPS6 Local Centre)<br>Residential Zone<br>Total Number of dwellings: 16 |                                 |
| Survey date: FRIDAY 07/10/11  | Survey Type: MANUAL             |
| <b>4 LU-03-C-02 BLOCK OF FLATS</b>  | <b>LOUTH</b>                    |
| NICHOLAS STREET<br>DUNDALK  |                                 |
| Edge of Town Centre<br>Residential Zone<br>Total Number of dwellings: 33                      |                                 |
| Survey date: MONDAY 16/09/13  | Survey Type: MANUAL             |
| <b>5 LU-03-C-03 BLOCK OF FLATS</b>  | <b>LOUTH</b>                    |
| NICHOLAS STREET<br>DUNDALK  |                                 |
| Edge of Town Centre<br>Residential Zone<br>Total Number of dwellings: 20                      |                                 |
| Survey date: MONDAY 16/09/13  | Survey Type: MANUAL             |
| <b>6 MG-03-C-01 BLOCK OF FLATS</b>  | <b>MONAGHAN</b>                 |
| MALL ROAD<br>MONAGHAN   |                                 |
| Edge of Town Centre<br>No Sub Category<br>Total Number of dwellings: 28                       |                                 |
| Survey date: FRIDAY 06/09/13  | Survey Type: MANUAL             |
| <b>7 NF-03-C-01 BLOCKS OF FLATS</b>   | <b>NORFOLK</b>                  |
| PAGE STAIR LANE<br>KING'S LYNN  |                                 |
| Edge of Town Centre<br>Built-Up Zone<br>Total Number of dwellings: 51                         |                                 |
| Survey date: THURSDAY 11/12/14  | Survey Type: MANUAL             |
| <b>8 RI-03-C-01 FLATS</b>   | <b>EAST RIDING OF YORKSHIRE</b> |
| 465 PRIORY ROAD<br>HULL   |                                 |
| Edge of Town<br>Residential Zone<br>Total Number of dwellings: 20                             |                                 |
| Survey date: TUESDAY 13/05/14   | Survey Type: MANUAL             |

LIST OF SITES relevant to selection parameters (Cont.)

|   |                       |
|---|-----------------------|
| <b>9 SA-03-C-01 BLOCK OF FLATS</b>  | <b>SOUTH AYRSHIRE</b> |
| RACECOURSE ROAD<br>AYR  |                       |
| Edge of Town Centre<br>Residential Zone<br>Total Number of dwellings: 51                |                       |
| Survey date: TUESDAY 16/09/14   | Survey Type: MANUAL   |
| <b>10 SF-03-C-03 BLOCKS OF FLATS</b>  | <b>SUFFOLK</b>        |
| TOLLGATE LANE<br>BURY ST EDMUNDS  |                       |
| Suburban Area (PPS6 Out of Centre)<br>Residential Zone<br>Total Number of dwellings: 30 |                       |
| Survey date: WEDNESDAY 03/12/14   | Survey Type: MANUAL   |
| <b>11 WA-03-C-01 BLOCKS OF FLATS</b>  | <b>WATERFORD</b>      |
| UPPER YELLOW ROAD<br>WATERFORD  |                       |
| Suburban Area (PPS6 Out of Centre)<br>Residential Zone<br>Total Number of dwellings: 51 |                       |
| Survey date: TUESDAY 12/05/15   | 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.

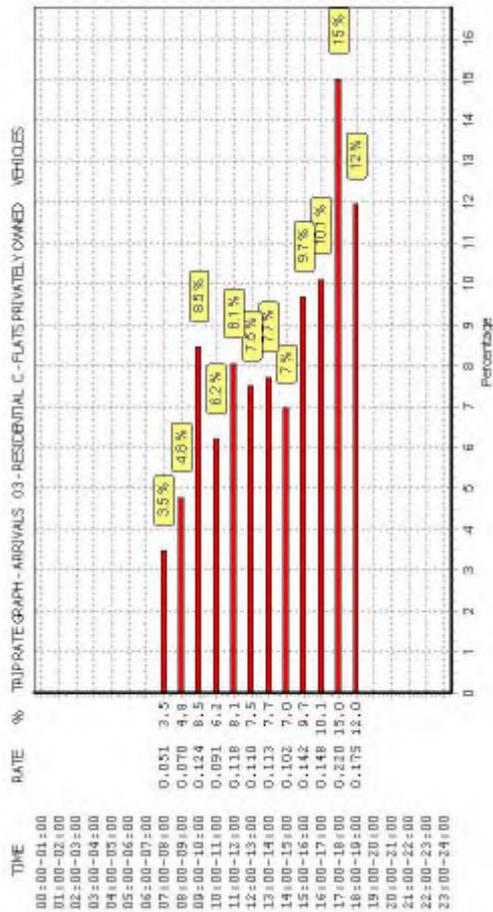
TRIP RATE for Land Use 03 - RESIDENTIAL/C - FLATS PRIVATELY OWNED

**VEHICLES**  
**Calculation factor: 1 DWELLS**  
**BOLD print indicates peak (busiest) period**

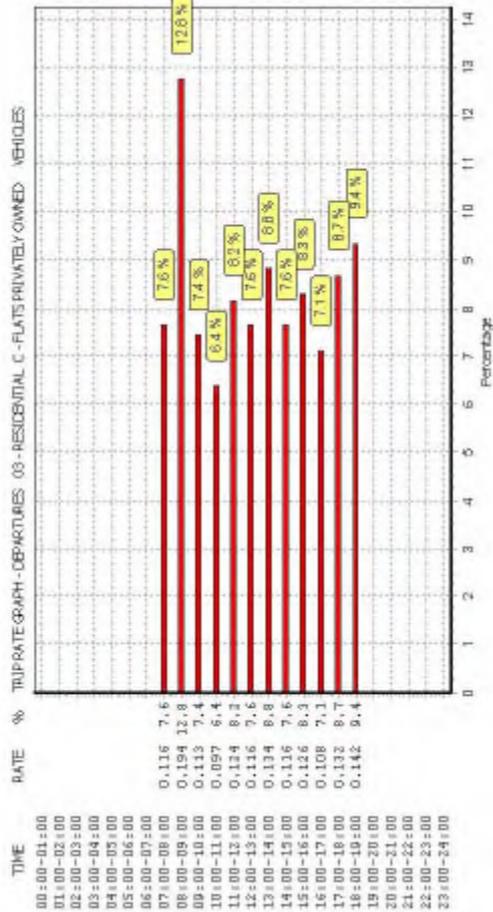
| Time Range          | ARRIVALS  |             |              | DEPARTURES |             |              | TOTALS    |             |              |
|---------------------|-----------|-------------|--------------|------------|-------------|--------------|-----------|-------------|--------------|
|                     | No. Days  | Ave. DWELLS | Trip Rate    | No. Days   | Ave. DWELLS | Trip Rate    | No. Days  | Ave. DWELLS |              |
| 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       | 11        | 34          | 0.051        | 11         | 34          | 0.116        | 11        | 34          | 0.167        |
| 08:00 - 09:00       | 11        | 34          | 0.070        | <b>11</b>  | <b>34</b>   | <b>0.194</b> | 11        | 34          | 0.264        |
| 09:00 - 10:00       | 11        | 34          | 0.124        | 11         | 34          | 0.113        | 11        | 34          | 0.237        |
| 10:00 - 11:00       | 11        | 34          | 0.091        | 11         | 34          | 0.097        | 11        | 34          | 0.188        |
| 11:00 - 12:00       | 11        | 34          | 0.118        | 11         | 34          | 0.124        | 11        | 34          | 0.242        |
| 12:00 - 13:00       | 11        | 34          | 0.110        | 11         | 34          | 0.116        | 11        | 34          | 0.226        |
| 13:00 - 14:00       | 11        | 34          | 0.113        | 11         | 34          | 0.134        | 11        | 34          | 0.247        |
| 14:00 - 15:00       | 11        | 34          | 0.102        | 11         | 34          | 0.116        | 11        | 34          | 0.218        |
| 15:00 - 16:00       | 11        | 34          | 0.142        | 11         | 34          | 0.126        | 11        | 34          | 0.268        |
| 16:00 - 17:00       | 11        | 34          | 0.148        | 11         | 34          | 0.108        | 11        | 34          | 0.256        |
| 17:00 - 18:00       | <b>11</b> | <b>34</b>   | <b>0.220</b> | 11         | 34          | 0.132        | <b>11</b> | <b>34</b>   | <b>0.352</b> |
| 18:00 - 19:00       | 11        | 34          | 0.175        | 11         | 34          | 0.142        | 11        | 34          | 0.317        |
| 19:00 - 20:00       |           |             |              |            |             |              |           |             |              |
| 20:00 - 21:00       |           |             |              |            |             |              |           |             |              |
| 21:00 - 22:00       |           |             |              |            |             |              |           |             |              |
| 22:00 - 23:00       |           |             |              |            |             |              |           |             |              |
| 23:00 - 24:00       |           |             |              |            |             |              |           |             |              |
| <b>Total Rates:</b> |           |             | 1.464        |            |             | 1.518        |           |             | 2.982        |

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.



This graph is a visual representation of the trip rate calculation results screen. The same time periods and trip rates are displayed. In addition there is a table at the bottom showing the size of the total trip rate calculation factor. The table is sorted in descending order of the total trip rate calculation factor. The table is sorted in descending order of the total trip rate calculation factor. The table is sorted in descending order of the total trip rate calculation factor.



This graph is a visual representation of the trip rate calculation results screen. The same time periods and trip rates are displayed. In addition there is a table at the bottom showing the size of the total trip rate calculation factor. The table is sorted in descending order of the total trip rate calculation factor. The table is sorted in descending order of the total trip rate calculation factor.

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**Parameter summary**

Trip rate parameter range selected: 16 - 51 (units :)  
 Survey date date range: 01/01/11 - 13/11/18  
 Number of weekdays (Monday-Friday): 11  
 Number of Saturdays: 0  
 Number of Sundays: 0  
 Surveys automatically removed from selection: 0  
 Surveys manually removed from selection: 0

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

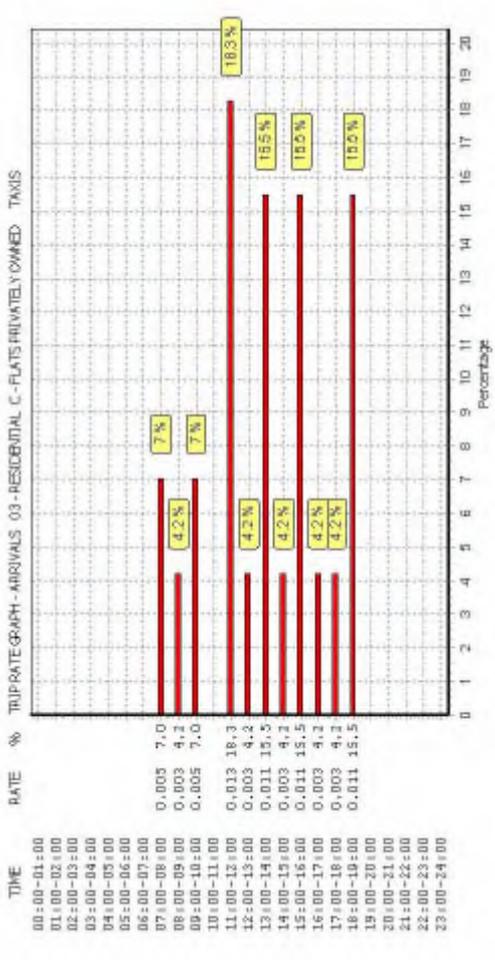
TRIP RATE for Land Use 03 - RESIDENTIAL/C - FLATS PRIVATELY OWNED  
**TAXIS**

Calculation factor: 1 DWELLS  
 BOLD print indicates peak (busiest) period

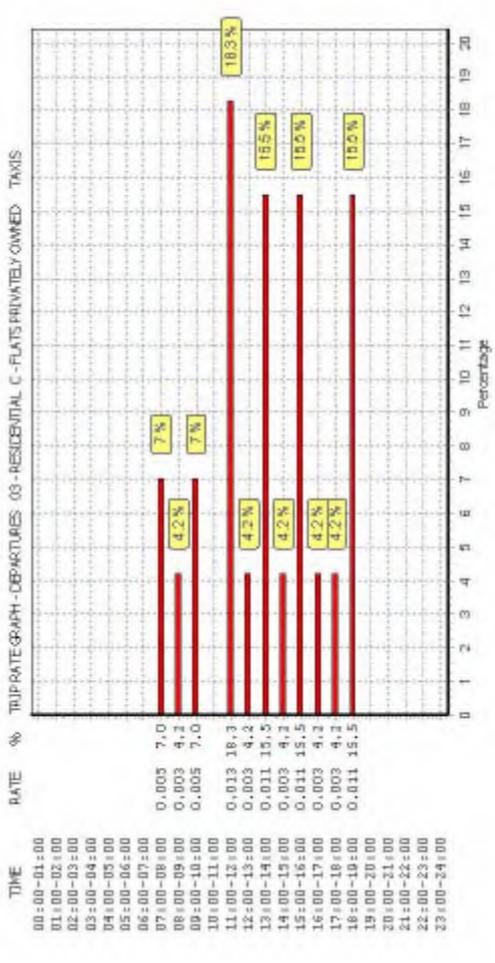
| Time Range          | ARRIVALS  |             |              | DEPARTURES |             |              | TOTALS    |             |              |
|---------------------|-----------|-------------|--------------|------------|-------------|--------------|-----------|-------------|--------------|
|                     | No. Days  | Ave. DWELLS | Trip Rate    | No. Days   | Ave. DWELLS | Trip Rate    | No. Days  | Ave. DWELLS | Trip Rate    |
| 00:00 - 01:00       |           |             |              |            |             |              |           |             |              |
| 01:00 - 02:00       |           |             |              |            |             |              |           |             |              |
| 02:00 - 03:00       |           |             |              |            |             |              |           |             |              |
| 03:00 - 04:00       |           |             |              |            |             |              |           |             |              |
| 04:00 - 05:00       |           |             |              |            |             |              |           |             |              |
| 05:00 - 06:00       |           |             |              |            |             |              |           |             |              |
| 06:00 - 07:00       |           |             |              |            |             |              |           |             |              |
| 07:00 - 08:00       | 11        | 34          | 0.005        | 11         | 34          | 0.005        | 11        | 34          | 0.010        |
| 08:00 - 09:00       | 11        | 34          | 0.003        | 11         | 34          | 0.003        | 11        | 34          | 0.006        |
| 09:00 - 10:00       | 11        | 34          | 0.005        | 11         | 34          | 0.005        | 11        | 34          | 0.010        |
| 10:00 - 11:00       | 11        | 34          | 0.000        | 11         | 34          | 0.000        | 11        | 34          | 0.000        |
| 11:00 - 12:00       | <b>11</b> | <b>34</b>   | <b>0.013</b> | <b>11</b>  | <b>34</b>   | <b>0.013</b> | <b>11</b> | <b>34</b>   | <b>0.026</b> |
| 12:00 - 13:00       | 11        | 34          | 0.003        | 11         | 34          | 0.003        | 11        | 34          | 0.006        |
| 13:00 - 14:00       | 11        | 34          | 0.011        | 11         | 34          | 0.011        | 11        | 34          | 0.022        |
| 14:00 - 15:00       | 11        | 34          | 0.003        | 11         | 34          | 0.003        | 11        | 34          | 0.006        |
| 15:00 - 16:00       | 11        | 34          | 0.011        | 11         | 34          | 0.011        | 11        | 34          | 0.022        |
| 16:00 - 17:00       | 11        | 34          | 0.003        | 11         | 34          | 0.003        | 11        | 34          | 0.006        |
| 17:00 - 18:00       | 11        | 34          | 0.003        | 11         | 34          | 0.003        | 11        | 34          | 0.006        |
| 18:00 - 19:00       | 11        | 34          | 0.011        | 11         | 34          | 0.011        | 11        | 34          | 0.022        |
| 19:00 - 20:00       |           |             |              |            |             |              |           |             |              |
| 20:00 - 21:00       |           |             |              |            |             |              |           |             |              |
| 21:00 - 22:00       |           |             |              |            |             |              |           |             |              |
| 22:00 - 23:00       |           |             |              |            |             |              |           |             |              |
| 23:00 - 24:00       |           |             |              |            |             |              |           |             |              |
| <b>Total Rates:</b> |           |             | <b>0.071</b> |            |             | <b>0.071</b> |           |             | <b>0.142</b> |

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 columns) are also displayed at the foot of the table.

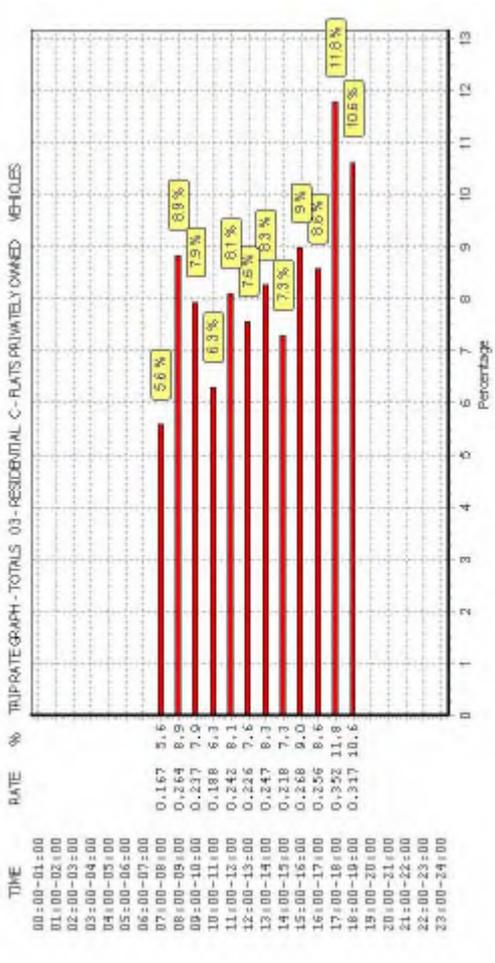
To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected 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.



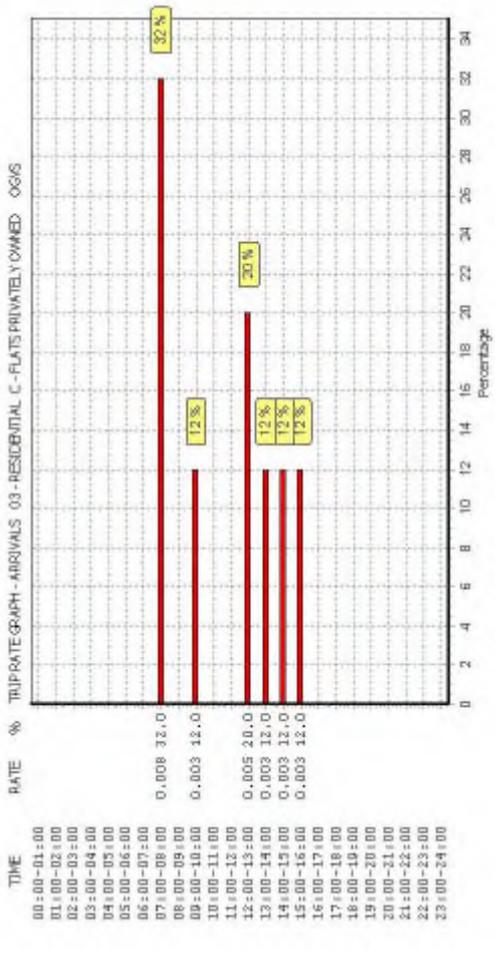
This graph is a visual representation of the trip rate calculation results screen. The same time periods and trip rates are displayed. In addition there is a third column showing the rate of the total trips by individual time period, allowing peak periods to be easily identified through observation. Note that the type of count and the selected direction is shown at the top of the graph.



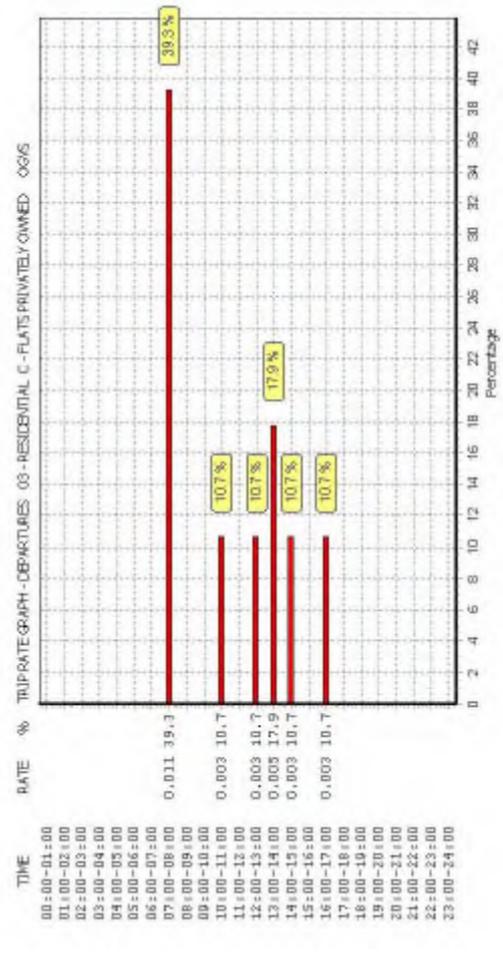
This graph is a visual representation of the trip rate calculation results screen. The same time periods and trip rates are displayed. In addition there is a third column showing the rate of the total trips by individual time period, allowing peak periods to be easily identified through observation. Note that the type of count and the selected direction is shown at the top of the graph.



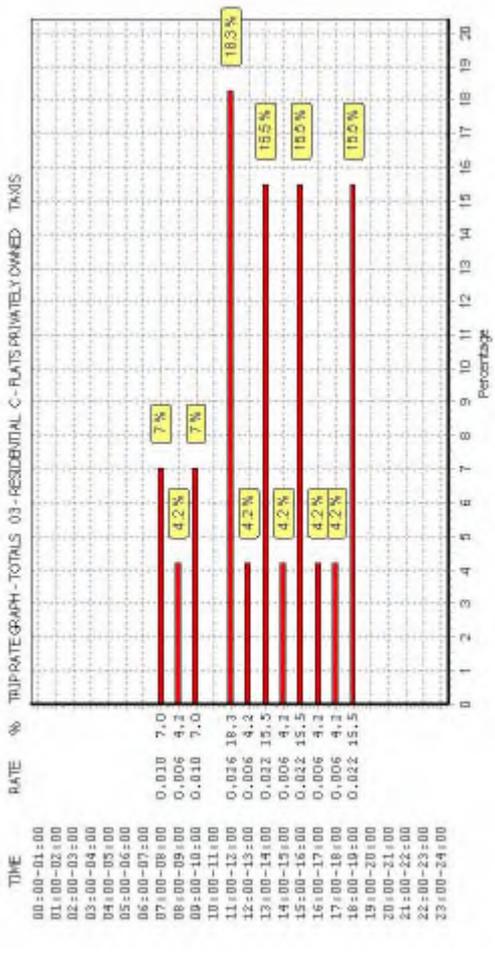
This graph is a visual representation of the trip rate calculation results screen. The same time periods and trip rates are displayed. In addition there is a third column showing the rate of the total trips by individual time period, allowing peak periods to be easily identified through observation. Note that the type of count and the selected direction is shown at the top of the graph.



This graph is a visual representation of the trip rate calculation results screen. The same time periods and trip rates are displayed. In addition there is a third column showing the rate of the total trips by individual time period, allowing peak periods to be easily identified through observation. Note that the type of count and the selected direction is shown at the top of the graph.



This graph is a visual representation of the trip rate calculation results screen. The same time periods and trip rates are displayed. In addition there is a third column showing the rate of the total trips by individual time period, allowing peak periods to be easily identified through observation. Note that the type of count and the selected direction is shown at the top of the graph.



This graph is a visual representation of the trip rate calculation results screen. The same time periods and trip rates are displayed. In addition there is a third column showing the rate of the total trips by individual time period, allowing peak periods to be easily identified through observation. Note that the type of count and the selected direction is shown at the top of the graph.

TRIP RATE for Land Use 03 - RESIDENTIAL/C - FLATS PRIVATELY OWNED  
**OGVS**  
**Calculation factor: 1 DWELLS**  
**BOLD print indicates peak (busiest) period**

| Time Range          | ARRIVALS  |             |              | DEPARTURES |             |              | TOTALS    |             |              |
|---------------------|-----------|-------------|--------------|------------|-------------|--------------|-----------|-------------|--------------|
|                     | No. Days  | Ave. DWELLS | Trip Rate    | No. Days   | Ave. DWELLS | Trip Rate    | No. Days  | Ave. DWELLS | Trip Rate    |
| 00:00 - 01:00       |           |             |              |            |             |              |           |             |              |
| 01:00 - 02:00       |           |             |              |            |             |              |           |             |              |
| 02:00 - 03:00       |           |             |              |            |             |              |           |             |              |
| 03:00 - 04:00       |           |             |              |            |             |              |           |             |              |
| 04:00 - 05:00       |           |             |              |            |             |              |           |             |              |
| 05:00 - 06:00       |           |             |              |            |             |              |           |             |              |
| 06:00 - 07:00       |           |             |              |            |             |              |           |             |              |
| 07:00 - 08:00       | <b>11</b> | <b>34</b>   | <b>0.008</b> | <b>11</b>  | <b>34</b>   | <b>0.011</b> | <b>11</b> | <b>34</b>   | <b>0.019</b> |
| 08:00 - 09:00       | 11        | 34          | 0.000        | 11         | 34          | 0.000        | 11        | 34          | 0.000        |
| 09:00 - 10:00       | 11        | 34          | 0.003        | 11         | 34          | 0.000        | 11        | 34          | 0.003        |
| 10:00 - 11:00       | 11        | 34          | 0.000        | 11         | 34          | 0.003        | 11        | 34          | 0.003        |
| 11:00 - 12:00       | 11        | 34          | 0.000        | 11         | 34          | 0.000        | 11        | 34          | 0.000        |
| 12:00 - 13:00       | 11        | 34          | 0.005        | 11         | 34          | 0.003        | 11        | 34          | 0.008        |
| 13:00 - 14:00       | 11        | 34          | 0.003        | 11         | 34          | 0.005        | 11        | 34          | 0.008        |
| 14:00 - 15:00       | 11        | 34          | 0.003        | 11         | 34          | 0.003        | 11        | 34          | 0.006        |
| 15:00 - 16:00       | 11        | 34          | 0.003        | 11         | 34          | 0.000        | 11        | 34          | 0.003        |
| 16:00 - 17:00       | 11        | 34          | 0.000        | 11         | 34          | 0.003        | 11        | 34          | 0.003        |
| 17:00 - 18:00       | 11        | 34          | 0.000        | 11         | 34          | 0.000        | 11        | 34          | 0.000        |
| 18:00 - 19:00       | 11        | 34          | 0.000        | 11         | 34          | 0.000        | 11        | 34          | 0.000        |
| 19:00 - 20:00       |           |             |              |            |             |              |           |             |              |
| 20:00 - 21:00       |           |             |              |            |             |              |           |             |              |
| 21:00 - 22:00       |           |             |              |            |             |              |           |             |              |
| 22:00 - 23:00       |           |             |              |            |             |              |           |             |              |
| 23:00 - 24:00       |           |             |              |            |             |              |           |             |              |
| <b>Total Rates:</b> |           |             | <b>0.025</b> |            |             | <b>0.028</b> |           |             | <b>0.053</b> |

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.

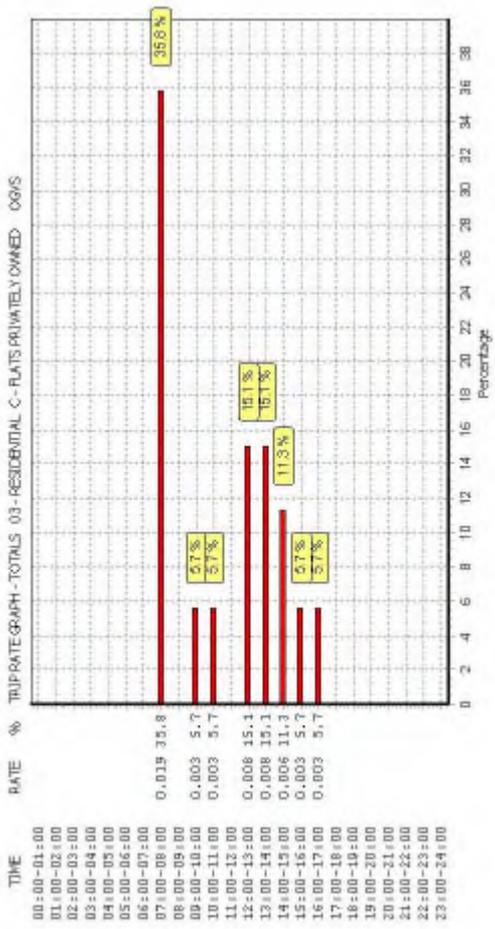
To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected 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.

TRIP RATE for Land Use 03 - RESIDENTIAL/C - FLATS PRIVATELY OWNED  
**PSYS**  
**Calculation factor: 1 DWELLS**  
**BOLD print indicates peak (busiest) period**

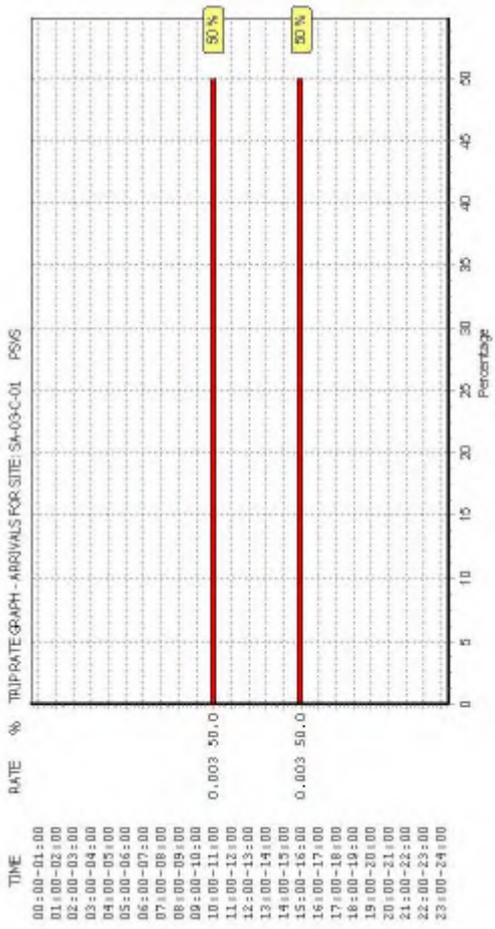
| Time Range          | ARRIVALS  |             |              | DEPARTURES |             |              | TOTALS    |             |              |
|---------------------|-----------|-------------|--------------|------------|-------------|--------------|-----------|-------------|--------------|
|                     | No. Days  | Ave. DWELLS | Trip Rate    | No. Days   | Ave. DWELLS | Trip Rate    | No. Days  | Ave. DWELLS | Trip Rate    |
| 00:00 - 01:00       |           |             |              |            |             |              |           |             |              |
| 01:00 - 02:00       |           |             |              |            |             |              |           |             |              |
| 02:00 - 03:00       |           |             |              |            |             |              |           |             |              |
| 03:00 - 04:00       |           |             |              |            |             |              |           |             |              |
| 04:00 - 05:00       |           |             |              |            |             |              |           |             |              |
| 05:00 - 06:00       |           |             |              |            |             |              |           |             |              |
| 06:00 - 07:00       |           |             |              |            |             |              |           |             |              |
| 07:00 - 08:00       | 11        | 34          | 0.000        | 11         | 34          | 0.000        | 11        | 34          | 0.000        |
| 08:00 - 09:00       | 11        | 34          | 0.000        | 11         | 34          | 0.000        | 11        | 34          | 0.000        |
| 09:00 - 10:00       | 11        | 34          | 0.000        | 11         | 34          | 0.000        | 11        | 34          | 0.000        |
| 10:00 - 11:00       | <b>11</b> | <b>34</b>   | <b>0.003</b> | <b>11</b>  | <b>34</b>   | <b>0.003</b> | <b>11</b> | <b>34</b>   | <b>0.006</b> |
| 11:00 - 12:00       | 11        | 34          | 0.000        | 11         | 34          | 0.000        | 11        | 34          | 0.000        |
| 12:00 - 13:00       | 11        | 34          | 0.000        | 11         | 34          | 0.000        | 11        | 34          | 0.000        |
| 13:00 - 14:00       | 11        | 34          | 0.000        | 11         | 34          | 0.000        | 11        | 34          | 0.000        |
| 14:00 - 15:00       | 11        | 34          | 0.000        | 11         | 34          | 0.000        | 11        | 34          | 0.000        |
| 15:00 - 16:00       | 11        | 34          | 0.003        | 11         | 34          | 0.000        | 11        | 34          | 0.003        |
| 16:00 - 17:00       | 11        | 34          | 0.000        | 11         | 34          | 0.003        | 11        | 34          | 0.003        |
| 17:00 - 18:00       | 11        | 34          | 0.000        | 11         | 34          | 0.000        | 11        | 34          | 0.000        |
| 18:00 - 19:00       | 11        | 34          | 0.000        | 11         | 34          | 0.000        | 11        | 34          | 0.000        |
| 19:00 - 20:00       |           |             |              |            |             |              |           |             |              |
| 20:00 - 21:00       |           |             |              |            |             |              |           |             |              |
| 21:00 - 22:00       |           |             |              |            |             |              |           |             |              |
| 22:00 - 23:00       |           |             |              |            |             |              |           |             |              |
| 23:00 - 24:00       |           |             |              |            |             |              |           |             |              |
| <b>Total Rates:</b> |           |             | <b>0.006</b> |            |             | <b>0.006</b> |           |             | <b>0.012</b> |

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 columns) are also displayed at the foot of the table.

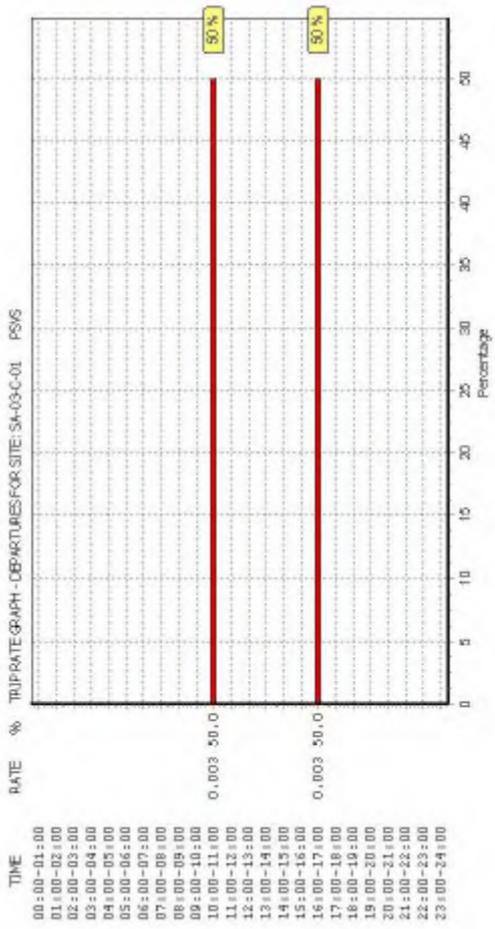
To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected 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.



This graph is a visual representation of the trip rate calculation results screen. The same time periods and trip rates are displayed. In addition there is a third column showing the total trip rate by individual time period, allowing peak periods to be easily identified through observation. Note that the type of count and the selected direction is shown at the top of the graph.



This graph is a visual representation of the trip rate calculation results screen. The same time periods and trip rates are displayed. In addition there is a third column showing the total trip rate by individual time period, allowing peak periods to be easily identified through observation. Note that the type of count and the selected direction is shown at the top of the graph.



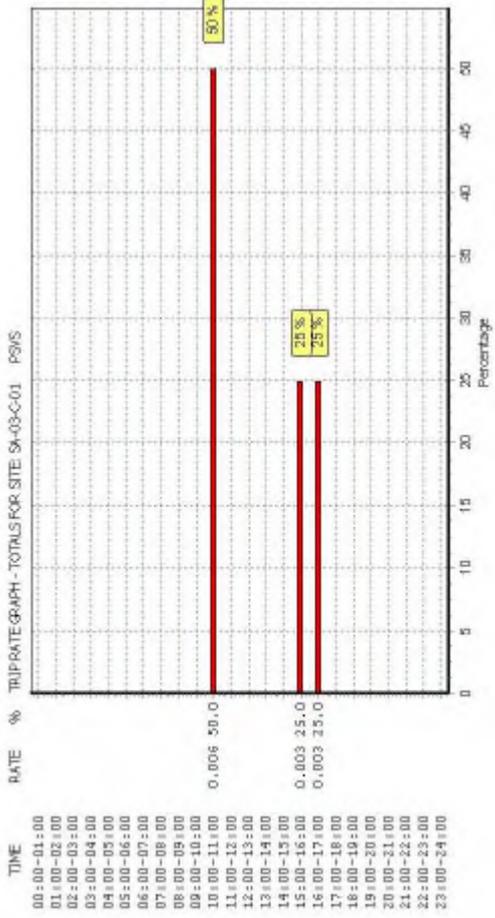
This graph is a visual representation of the trip rate calculation results screen. The same time periods and trip rates are displayed. In addition there is a third column showing the total trip rate by individual time period, allowing peak periods to be easily identified through observation. Note that the type of count and the selected direction is shown at the top of the graph.

TRIP RATE for Land Use 03 - RESIDENTIAL/C - FLATS PRIVATELY OWNED  
**CYCLISTS**  
**Calculation factor: 1 DWELLS**  
**BOLD print indicates peak (busiest) period**

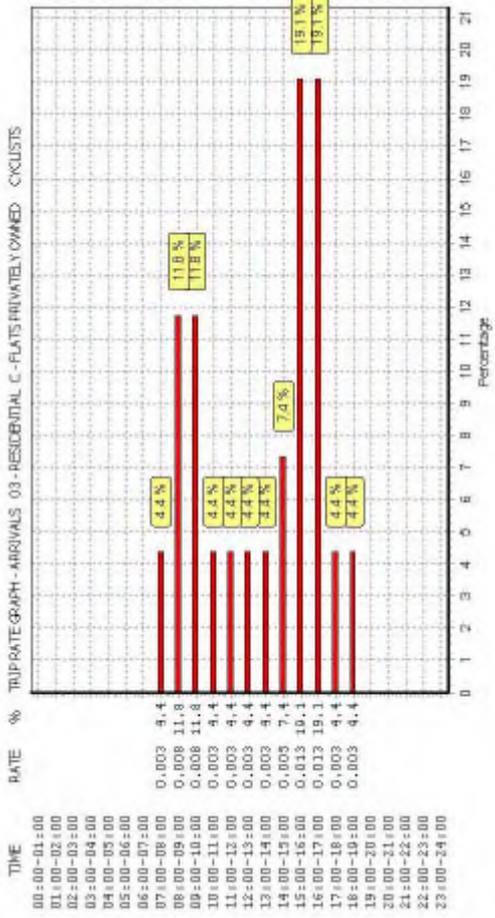
| Time Range          | ARRIVALS  |             |              | DEPARTURES |             |              | TOTALS    |             |              |
|---------------------|-----------|-------------|--------------|------------|-------------|--------------|-----------|-------------|--------------|
|                     | No. Days  | Ave. DWELLS | Trip Rate    | No. Days   | Ave. DWELLS | Trip Rate    | No. Days  | Ave. DWELLS | Trip Rate    |
| 00:00 - 01:00       |           |             |              |            |             |              |           |             |              |
| 01:00 - 02:00       |           |             |              |            |             |              |           |             |              |
| 02:00 - 03:00       |           |             |              |            |             |              |           |             |              |
| 03:00 - 04:00       |           |             |              |            |             |              |           |             |              |
| 04:00 - 05:00       |           |             |              |            |             |              |           |             |              |
| 05:00 - 06:00       |           |             |              |            |             |              |           |             |              |
| 06:00 - 07:00       |           |             |              |            |             |              |           |             |              |
| 07:00 - 08:00       | 11        | 34          | 0.003        | 11         | 34          | 0.005        | 11        | 34          | 0.008        |
| 08:00 - 09:00       | 11        | 34          | 0.008        | <b>11</b>  | <b>34</b>   | <b>0.016</b> | 11        | 34          | 0.024        |
| 09:00 - 10:00       | 11        | 34          | 0.008        | 11         | 34          | 0.013        | 11        | 34          | 0.021        |
| 10:00 - 11:00       | 11        | 34          | 0.003        | 11         | 34          | 0.013        | 11        | 34          | 0.016        |
| 11:00 - 12:00       | 11        | 34          | 0.003        | 11         | 34          | 0.005        | 11        | 34          | 0.008        |
| 12:00 - 13:00       | 11        | 34          | 0.003        | 11         | 34          | 0.003        | 11        | 34          | 0.006        |
| 13:00 - 14:00       | 11        | 34          | 0.003        | 11         | 34          | 0.005        | 11        | 34          | 0.008        |
| 14:00 - 15:00       | 11        | 34          | 0.005        | 11         | 34          | 0.000        | 11        | 34          | 0.005        |
| 15:00 - 16:00       | <b>11</b> | <b>34</b>   | <b>0.013</b> | 11         | 34          | 0.016        | <b>11</b> | <b>34</b>   | <b>0.029</b> |
| 16:00 - 17:00       | 11        | 34          | 0.013        | 11         | 34          | 0.005        | 11        | 34          | 0.018        |
| 17:00 - 18:00       | 11        | 34          | 0.003        | 11         | 34          | 0.003        | 11        | 34          | 0.006        |
| 18:00 - 19:00       | 11        | 34          | 0.003        | 11         | 34          | 0.003        | 11        | 34          | 0.006        |
| 19:00 - 20:00       |           |             |              |            |             |              |           |             |              |
| 20:00 - 21:00       |           |             |              |            |             |              |           |             |              |
| 21:00 - 22:00       |           |             |              |            |             |              |           |             |              |
| 22:00 - 23:00       |           |             |              |            |             |              |           |             |              |
| 23:00 - 24:00       |           |             |              |            |             |              |           |             |              |
| <b>Total Rates:</b> |           |             | <b>0.068</b> |            |             | <b>0.087</b> |           |             | <b>0.155</b> |

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 columns) are also displayed at the foot of the table.

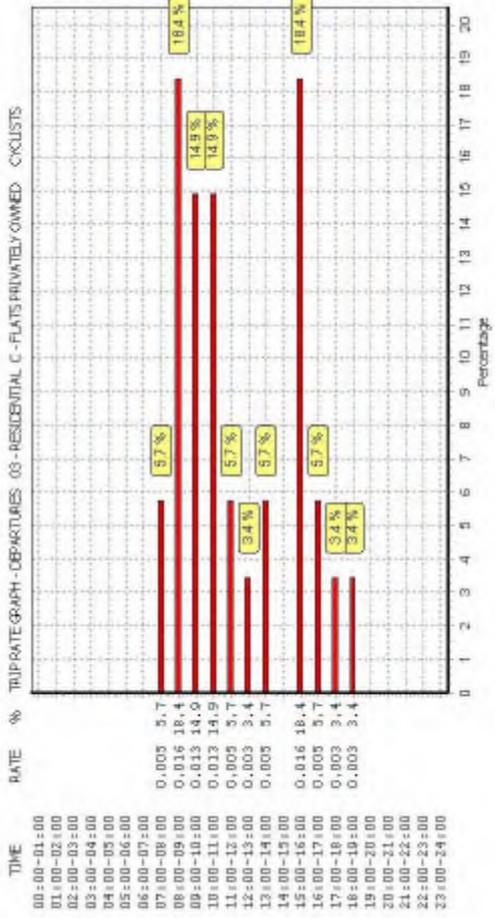
To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected 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.



This graph is a visual representation of the trip rate calculation results screen. The same time periods and trip rates are displayed. In addition there is a third column showing the total trip rate by individual time period, allowing peak periods to be easily identified through observation. Note that the type of count and the selected direction is shown at the top of the graph.



This graph is a visual representation of the trip rate calculation results screen. The same time periods and trip rates are displayed. In addition there is a third column showing the total trip rate by individual time period, allowing peak periods to be easily identified through observation. Note that the type of count and the selected direction is shown at the top of the graph.



This graph is a visual representation of the trip rate calculation results screen. The same time periods and trip rates are displayed. In addition there is a third column showing the total trip rate by individual time period, allowing peak periods to be easily identified through observation. Note that the type of count and the selected direction is shown at the top of the graph.

**TRIP RATE CALCULATION SELECTION PARAMETERS:**

Land Use : 03 - RESIDENTIAL  
 Category : A - HOUSES PRIVATELY OWNED  
**VEHICLES**

- Selected regions and areas:
- 04 **EAST ANGLIA**
    - SF SUFFOLK 1 days
  - 07 **YORKSHIRE & NORTH LINCOLNSHIRE**
    - NE NORTH EAST LINCOLNSHIRE 1 days
    - NY NORTH YORKSHIRE 3 days
  - 09 **NORTH**
    - DH DURHAM 1 days
  - 12 **CONNAUGHT**
    - CS SLIGO 2 days
    - GA GALWAY 1 days
    - LT LEITRIM 1 days
    - RO ROSCOMMON 3 days
  - 14 **LEINSTER**
    - WC WICKLOW 1 days
  - 16 **ULSTER (REPUBLIC OF IRELAND)**
    - CV CAVAN 1 days
    - DN DONEGAL 1 days
  - 17 **ULSTER (NORTHERN IRELAND)**
    - AN ANTRIM 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 180 (units: )  
 Range Selected by User: 4 to 450 (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 09/05/19

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

Selected survey days:

- Monday 2 days
- Tuesday 5 days
- Wednesday 3 days
- Thursday 4 days
- Friday 4 days

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

Selected survey types:

- Manual count 18 days
- Directional ATC Count 0 days

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

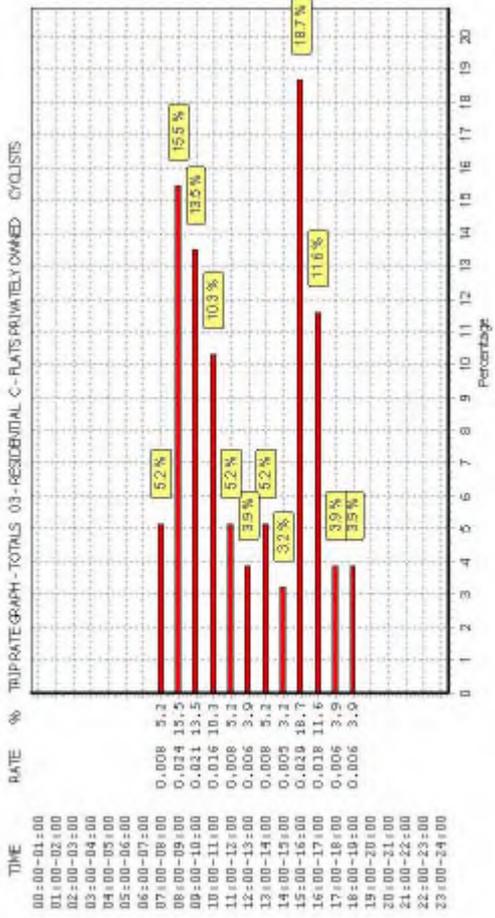
Selected Locations:

- Edge of Town Centre 2
- Suburban Area (PPS6 Out of Centre) 5
- Edge of Town 4
- Neighbourhood Centre (PPS6 Local Centre) 7

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

Selected Location Sub Categories:

- Residential Zone 10
- Village 3



This graph is a visual representation of the trip rate calculation results screen. The same time periods and trip rates are displayed. In an additional view, there is a legend showing the total trip rate by individual time period, allowing peak periods to be easily identified through observation. Note that the type of count and the selected direction is shown at the top of the graph.

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 18 days

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

Population within 1 mile:  
 1,000 or Less 3 days  
 1,001 to 5,000 15 days

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

Population within 5 miles:  
 5,000 or Less 5 days  
 5,001 to 25,000 11 days  
 25,001 to 50,000 2 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 3 days  
 1.1 to 1.5 12 days  
 1.6 to 2.0 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 18 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 18 days

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

LIST OF SITES relevant to selection parameters

| ID | Location  | Category                       | Sub-Category | Survey Type         |
|----|---|--------------------------------|--------------|---------------------|
| 1  | AN-03-A-07<br>CASTLE WAY<br>ANTRIM                                | SEMI DETACHED/TERRACED HOUSING | ANTRIM       |                     |
|    | Suburban Area (PPS6 Out of Centre)                                |                                |              |                     |
|    | Residential Zone  |                                |              |                     |
|    | Total Number of dwellings: 55                                     |                                |              |                     |
|    | Survey date: TUESDAY 20/12/11                                     |                                |              | Survey Type: MANUAL |
| 2  | AN-03-A-09<br>SLOEFIELD DRIVE<br>CARRICKFERGUS                    | DETACHED & SEMI-DETACHED       | ANTRIM       |                     |
|    | Edge of Town  |                                |              |                     |
|    | No Sub Category   |                                |              |                     |
|    | Total Number of dwellings: 151                                    |                                |              |                     |
|    | Survey date: WEDNESDAY 12/10/16                                   |                                |              | Survey Type: MANUAL |
| 3  | CS-03-A-03<br>TOP ROAD<br>STRANDHILL<br>STRANDHILL                | MIXED HOUSES                   | SLIGO        |                     |
|    | Neighbourhood Centre (PPS6 Local Centre)                          |                                |              |                     |
|    | Village   |                                |              |                     |
|    | Total Number of dwellings: 30                                     |                                |              |                     |
|    | Survey date: THURSDAY 27/10/16                                    |                                |              | Survey Type: MANUAL |
| 4  | CS-03-A-04<br>R292<br>STRANDHILL                                  | DETACHED & SEMI-DETACHED       | SLIGO        |                     |
|    | Neighbourhood Centre (PPS6 Local Centre)                          |                                |              |                     |
|    | Village   |                                |              |                     |
|    | Total Number of dwellings: 63                                     |                                |              |                     |
|    | Survey date: THURSDAY 27/10/16                                    |                                |              | Survey Type: MANUAL |
| 5  | CV-03-A-01<br>DUBLIN ROAD<br>CAVAN                                | DETACHED HOUSES                | CAVAN        |                     |
|    | Edge of Town  |                                |              |                     |
|    | No Sub Category   |                                |              |                     |
|    | Total Number of dwellings: 37                                     |                                |              |                     |
|    | Survey date: TUESDAY 18/12/12                                     |                                |              | Survey Type: MANUAL |
| 6  | DH-03-A-02<br>LEAZES LANE<br>BISHOP AUCKLAND<br>ST HELEN AUCKLAND | MIXED HOUSES                   | DURHAM       |                     |
|    | Neighbourhood Centre (PPS6 Local Centre)                          |                                |              |                     |
|    | Residential Zone  |                                |              |                     |
|    | Total Number of dwellings: 125                                    |                                |              |                     |
|    | Survey date: MONDAY 27/03/17                                      |                                |              | Survey Type: MANUAL |
| 7  | DN-03-A-06<br>GLENFIN ROAD<br>BALLYBOFEY                          | DETACHED HOUSING               | DONEGAL      |                     |
|    | Edge of Town  |                                |              |                     |
|    | Residential Zone  |                                |              |                     |
|    | Total Number of dwellings: 6                                      |                                |              |                     |
|    | Survey date: WEDNESDAY 10/10/18                                   |                                |              | Survey Type: MANUAL |
| 8  | GA-03-A-04<br>R347 CAHEROYN ROAD<br>ATHENRY                       | SEMI DET. & BUNGALOWS          | GALWAY       |                     |
|    | Edge of Town Centre   |                                |              |                     |
|    | Residential Zone  |                                |              |                     |
|    | Total Number of dwellings: 21                                     |                                |              |                     |
|    | Survey date: TUESDAY 09/10/12                                     |                                |              | Survey Type: MANUAL |
| 9  | LT-03-A-01<br>ARD NA S<br>CARRICK-ON-SHANNON<br>ATTIORY           | SEMI-DETACHED & DETACHED       | LEITRIM      |                     |
|    | Suburban Area (PPS6 Out of Centre)                                |                                |              |                     |
|    | Residential Zone  |                                |              |                     |
|    | Total Number of dwellings: 90                                     |                                |              |                     |
|    | Survey date: FRIDAY 24/04/15                                      |                                |              | Survey Type: MANUAL |

LIST OF SITES relevant to selection parameters (Cont.)

|           |   |                                     |                                |
|-----------|---|-------------------------------------|--------------------------------|
| <b>10</b> | <b>NE-03-A-03</b>   | <b>PRIVATE HOUSES</b>               | <b>NORTH EAST LINCOLNSHIRE</b> |
|           | STATION ROAD<br>SCUNTHORPE  |                                     |                                |
|           | Edge of Town Centre<br>Residential Zone<br>Total Number of dwellings: 180<br>Survey date: <b>TUESDAY</b> 20/05/14   |                                     |                                |
|           |   |                                     | Survey Type: <b>MANUAL</b>     |
| <b>11</b> | <b>NY-03-A-06</b>   | <b>BUNGALOWS &amp; SEMI DET.</b>    | <b>NORTH YORKSHIRE</b>         |
|           | HORSEFAIR<br>BOROUGHBRIDGE  |                                     |                                |
|           | Suburban Area (PPS6 Out of Centre)<br>Residential Zone<br>Total Number of dwellings: 115<br>Survey date: <b>FRIDAY</b> 14/07/11   |                                     |                                |
|           |   |                                     | Survey Type: <b>MANUAL</b>     |
| <b>12</b> | <b>NY-03-A-07</b>   | <b>DETACHED &amp; SEMI DET.</b>     | <b>NORTH YORKSHIRE</b>         |
|           | CRAVEN WAY<br>BOROUGHBRIDGE   |                                     |                                |
|           | Edge of Town<br>No Sub Category<br>Total Number of dwellings: 23<br>Survey date: <b>TUESDAY</b> 18/10/11  |                                     |                                |
|           |   |                                     | Survey Type: <b>MANUAL</b>     |
| <b>13</b> | <b>NY-03-A-11</b>   | <b>PRIVATE HOUSING</b>              | <b>NORTH YORKSHIRE</b>         |
|           | HORSEFAIR<br>BOROUGHBRIDGE  |                                     |                                |
|           | Edge of Town<br>Residential Zone<br>Total Number of dwellings: 23<br>Survey date: <b>WEDNESDAY</b> 18/09/13   |                                     |                                |
|           |   |                                     | Survey Type: <b>MANUAL</b>     |
| <b>14</b> | <b>RO-03-A-02</b>   | <b>SEMI DET. &amp; BUNGALOWS</b>    | <b>ROSCOMMON</b>               |
|           | SLIGO ROAD<br>BALLAGHADERREEN   |                                     |                                |
|           | Suburban Area (PPS6 Out of Centre)<br>Residential Zone<br>Total Number of dwellings: 31<br>Survey date: <b>THURSDAY</b> 14/07/11  |                                     |                                |
|           |   |                                     | Survey Type: <b>MANUAL</b>     |
| <b>15</b> | <b>RO-03-A-03</b>   | <b>DETACHED HOUSES</b>              | <b>ROSCOMMON</b>               |
|           | N61<br>BOYLE<br>GREATMEADOW<br>Edge of Town<br>No Sub Category<br>Total Number of dwellings: 23<br>Survey date: <b>THURSDAY</b> 25/09/14                                |                                     |                                |
|           |   |                                     | Survey Type: <b>MANUAL</b>     |
| <b>16</b> | <b>RO-03-A-04</b>   | <b>SEMI DET. &amp; BUNGALOWS</b>    | <b>ROSCOMMON</b>               |
|           | EAGLE COURT<br>ROSCOMMON<br>ARDNANACH<br>Suburban Area (PPS6 Out of Centre)<br>Residential Zone<br>Total Number of dwellings: 39<br>Survey date: <b>FRIDAY</b> 26/09/14 |                                     |                                |
|           |   |                                     | Survey Type: <b>MANUAL</b>     |
| <b>17</b> | <b>SF-03-A-06</b>   | <b>DETACHED &amp; SEMI-DETACHED</b> | <b>SUFFOLK</b>                 |
|           | BURY ROAD<br>KENTFORD   |                                     |                                |
|           | Neighbourhood Centre (PPS6 Local Centre)<br>Village<br>Total Number of dwellings: 38<br>Survey date: <b>FRIDAY</b> 22/09/17   |                                     |                                |
|           |   |                                     | Survey Type: <b>MANUAL</b>     |

TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED

**VEHICLES**  
**Calculation factor: 1 DWELLS**  
**BOLD print indicates peak (busiest) period**

| Time Range          | ARRIVALS |             |              | DEPARTURES |             |              | TOTALS   |             |
|---------------------|----------|-------------|--------------|------------|-------------|--------------|----------|-------------|
|                     | No. Days | Ave. DWELLS | Trip Rate    | No. Days   | Ave. DWELLS | Trip Rate    | No. Days | Ave. DWELLS |
| 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       | 18       | 61          | 0.053        | 18         | 61          | 0.175        | 18       | 61          |
| 08:00 - 09:00       | 18       | 61          | 0.149        | 18         | 61          | <b>0.441</b> | 18       | 61          |
| 09:00 - 10:00       | 18       | 61          | 0.178        | 18         | 61          | 0.226        | 18       | 61          |
| 10:00 - 11:00       | 18       | 61          | 0.156        | 18         | 61          | 0.172        | 18       | 61          |
| 11:00 - 12:00       | 18       | 61          | 0.169        | 18         | 61          | 0.173        | 18       | 61          |
| 12:00 - 13:00       | 18       | 61          | 0.202        | 18         | 61          | 0.194        | 18       | 61          |
| 13:00 - 14:00       | 18       | 61          | 0.229        | 18         | 61          | 0.227        | 18       | 61          |
| 14:00 - 15:00       | 18       | 61          | 0.228        | 18         | 61          | 0.243        | 18       | 61          |
| 15:00 - 16:00       | 18       | 61          | 0.265        | 18         | 61          | 0.210        | 18       | 61          |
| 16:00 - 17:00       | 18       | 61          | 0.315        | 18         | 61          | 0.225        | 18       | 61          |
| 17:00 - 18:00       | 18       | 61          | <b>0.379</b> | 18         | 61          | 0.241        | 18       | 61          |
| 18:00 - 19:00       | 18       | 61          | 0.298        | 18         | 61          | 0.227        | 18       | 61          |
| 19:00 - 20:00       |          |             |              |            |             |              |          |             |
| 20:00 - 21:00       |          |             |              |            |             |              |          |             |
| 21:00 - 22:00       |          |             |              |            |             |              |          |             |
| 22:00 - 23:00       |          |             |              |            |             |              |          |             |
| 23:00 - 24:00       |          |             |              |            |             |              |          |             |
| <b>Total Rates:</b> |          |             | 2.621        |            |             | 2.754        |          | 5.375       |

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.

LIST OF SITES relevant to selection parameters (Cont.)

|           |   |                        |                            |
|-----------|---|------------------------|----------------------------|
| <b>18</b> | <b>WC-03-A-01</b>   | <b>DETACHED HOUSES</b> | <b>WICKLOW</b>             |
|           | STATION ROAD<br>WICKLOW<br>CORPORATION MURRAGH<br>Edge of Town<br>No Sub Category<br>Total Number of dwellings: 50<br>Survey date: <b>MONDAY</b> 28/05/18 |                        |                            |
|           |   |                        | Survey Type: <b>MANUAL</b> |

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.

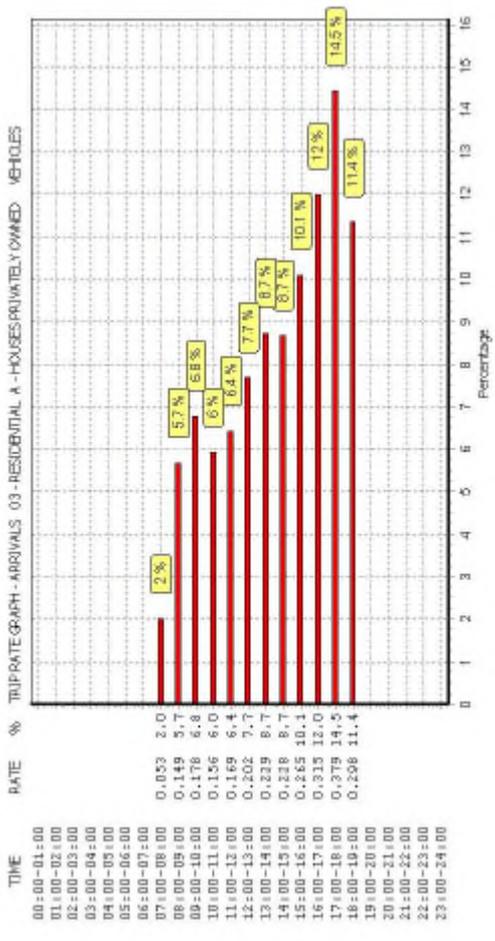
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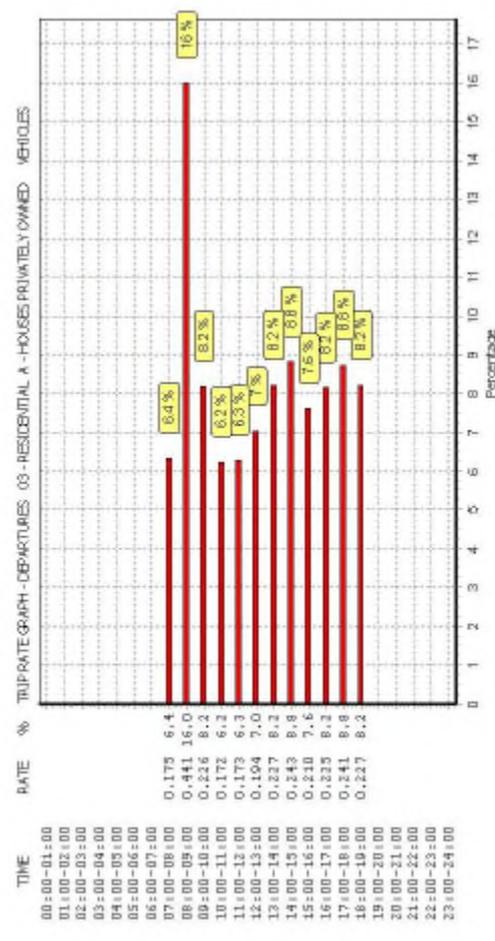
**Parameter summary**

|   |                     |
|---|---------------------|
| Trip rate parameter range selected:           | 6 - 180 (units: )   |
| Survey date date range:                       | 01/01/11 - 09/05/19 |
| Number of weekdays (Monday-Friday):           | 18                  |
| Number of Saturdays:                          | 0                   |
| Number of Sundays:                            | 0                   |
| Surveys automatically removed from selection: | 1                   |
| Surveys manually removed from selection:      | 0                   |

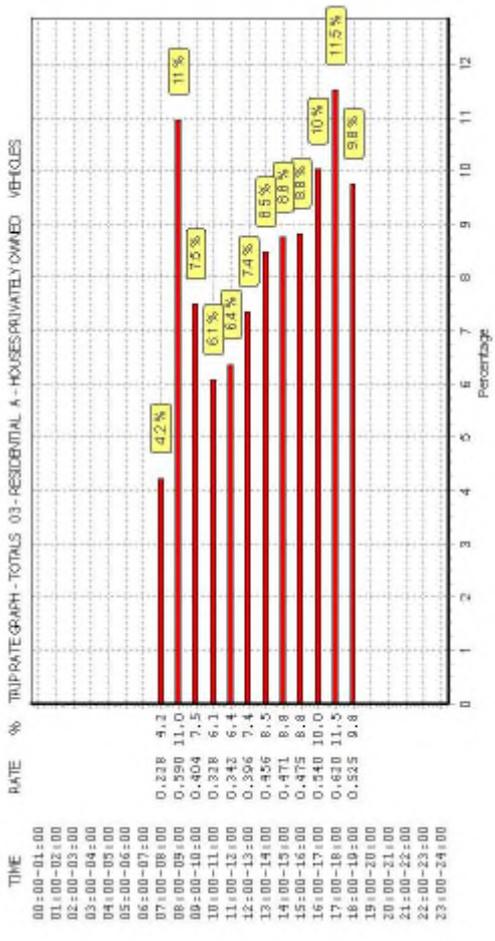
This section displays a quick summary of some of the data filtering selections made by the TRICS® user. The trip rate calculation parameter range of all selected surveys is displayed first, followed by the range of minimum and maximum survey dates selected by the user. Then, the total number of selected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



This graph is a visual representation of the trip rate calculation results screen. The same time periods and trip rates are displayed. In addition, there is an additional column showing the rate of the total trips as a percentage of the total trip rate for the selected time period, allowing peak periods to be easily identified through observation. Note that the type of count and the selected direction is shown at the top of the graph.



This graph is a visual representation of the trip rate calculation results screen. The same time periods and trip rates are displayed. In addition, there is an additional column showing the rate of the total trips as a percentage of the total trip rate for the selected time period, allowing peak periods to be easily identified through observation. Note that the type of count and the selected direction is shown at the top of the graph.



This graph is a visual representation of the trip rate calculation results screen. The same time periods and trip rates are displayed. In addition, there is an additional column showing the rate of the total trips as a percentage of the total trip rate for the selected time period, allowing peak periods to be easily identified through observation. Note that the type of count and the selected direction is shown at the top of the graph.

TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED

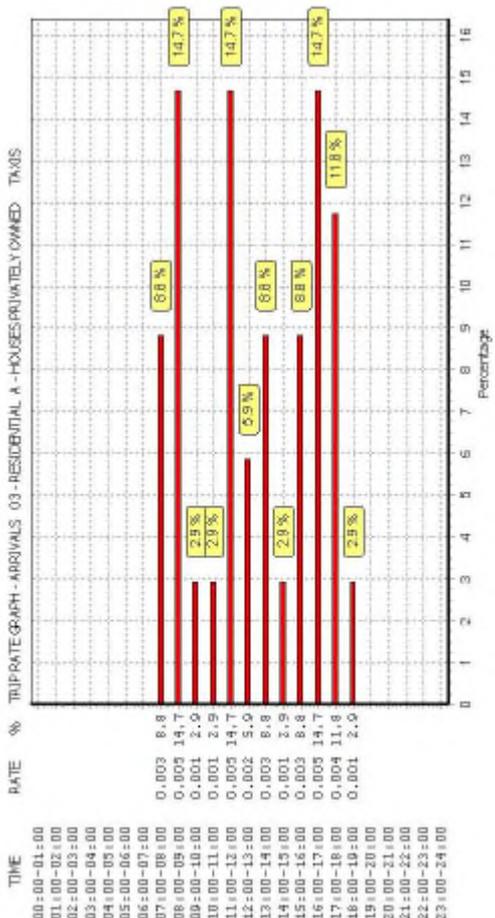
**TAXIS**

Calculation factor: 1 DWELLS  
 BOLD print indicates peak (busiest) period

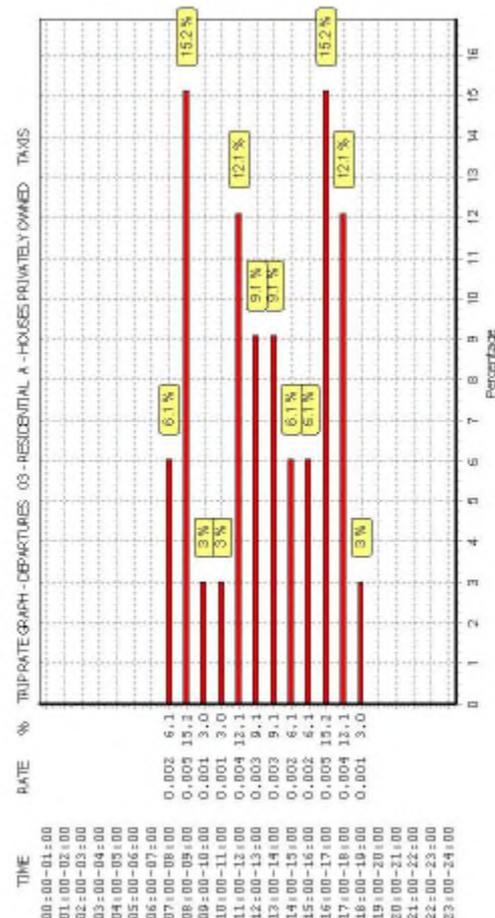
| Time Range    | ARRIVALS |             |           | DEPARTURES |             |           | TOTALS   |             |           |
|---------------|----------|-------------|-----------|------------|-------------|-----------|----------|-------------|-----------|
|               | No. Days | Ave. DWELLS | Trip Rate | No. Days   | Ave. DWELLS | Trip Rate | No. Days | Ave. DWELLS | Trip Rate |
| 00:00 - 01:00 |          |             |           |            |             |           |          |             |           |
| 01:00 - 02:00 |          |             |           |            |             |           |          |             |           |
| 02:00 - 03:00 |          |             |           |            |             |           |          |             |           |
| 03:00 - 04:00 |          |             |           |            |             |           |          |             |           |
| 04:00 - 05:00 |          |             |           |            |             |           |          |             |           |
| 05:00 - 06:00 |          |             |           |            |             |           |          |             |           |
| 06:00 - 07:00 |          |             |           |            |             |           |          |             |           |
| 07:00 - 08:00 | 18       | 61          | 0.003     | 18         | 61          | 0.002     | 18       | 61          | 0.005     |
| 08:00 - 09:00 | 18       | 61          | 0.005     | 18         | 61          | 0.005     | 18       | 61          | 0.010     |
| 09:00 - 10:00 | 18       | 61          | 0.001     | 18         | 61          | 0.001     | 18       | 61          | 0.002     |
| 10:00 - 11:00 | 18       | 61          | 0.001     | 18         | 61          | 0.001     | 18       | 61          | 0.002     |
| 11:00 - 12:00 | 18       | 61          | 0.005     | 18         | 61          | 0.004     | 18       | 61          | 0.009     |
| 12:00 - 13:00 | 18       | 61          | 0.002     | 18         | 61          | 0.003     | 18       | 61          | 0.005     |
| 13:00 - 14:00 | 18       | 61          | 0.003     | 18         | 61          | 0.003     | 18       | 61          | 0.006     |
| 14:00 - 15:00 | 18       | 61          | 0.001     | 18         | 61          | 0.002     | 18       | 61          | 0.003     |
| 15:00 - 16:00 | 18       | 61          | 0.003     | 18         | 61          | 0.002     | 18       | 61          | 0.005     |
| 16:00 - 17:00 | 18       | 61          | 0.005     | 18         | 61          | 0.005     | 18       | 61          | 0.010     |
| 17:00 - 18:00 | 18       | 61          | 0.004     | 18         | 61          | 0.004     | 18       | 61          | 0.008     |
| 18:00 - 19:00 | 18       | 61          | 0.001     | 18         | 61          | 0.001     | 18       | 61          | 0.002     |
| 19:00 - 20:00 |          |             |           |            |             |           |          |             |           |
| 20:00 - 21:00 |          |             |           |            |             |           |          |             |           |
| 21:00 - 22:00 |          |             |           |            |             |           |          |             |           |
| 22:00 - 23:00 |          |             |           |            |             |           |          |             |           |
| 23:00 - 24:00 |          |             |           |            |             |           |          |             |           |
| Total Rates:  |          |             | 0.034     |            |             | 0.033     |          |             | 0.067     |

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.

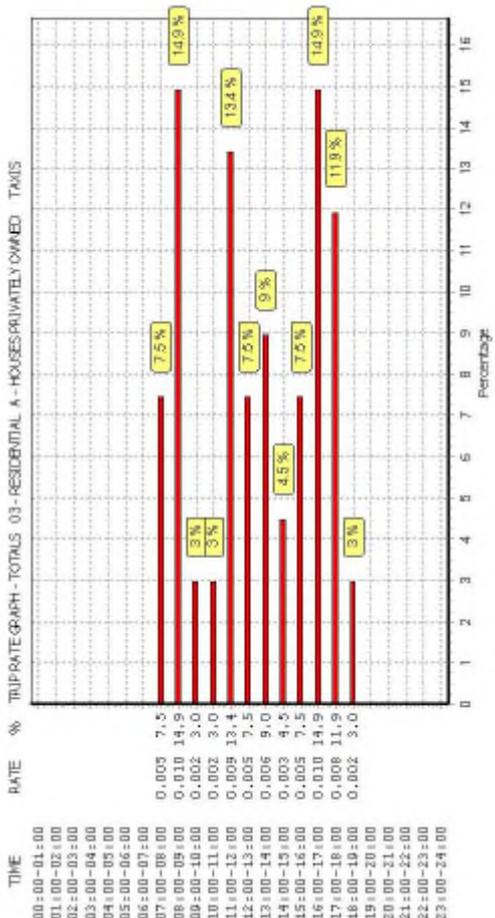
To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected 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.



This graph is a visual representation of the trip rate calculation results screen. The same time periods and trip rates are displayed. In addition, there is a third column showing the rate of the total trips as a percentage of the total trips for the selected time period, allowing peak periods to be easily identified through observation. Note that the type of count and the selected direction is shown at the top of the graph.



This graph is a visual representation of the trip rate calculation results screen. The same time periods and trip rates are displayed. In addition, there is a third column showing the rate of the total trips as a percentage of the total trips for the selected time period, allowing peak periods to be easily identified through observation. Note that the type of count and the selected direction is shown at the top of the graph.



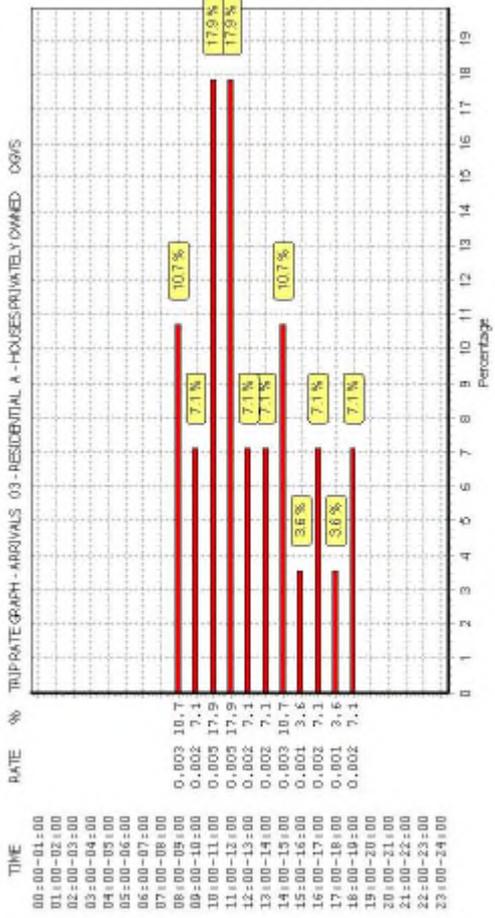
This graph is a visual representation of the trip rate calculation results screen. The same time periods and trip rates are displayed. In addition, there is a third column showing the rate of the total trips as a percentage of the total trips for the selected time period, allowing peak periods to be easily identified through observation. Note that the type of count and the selected direction is shown at the top of the graph.

TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED  
 OGVS  
 Calculation factor: 1 DWELLS  
 BOLD print indicates peak (busiest) period

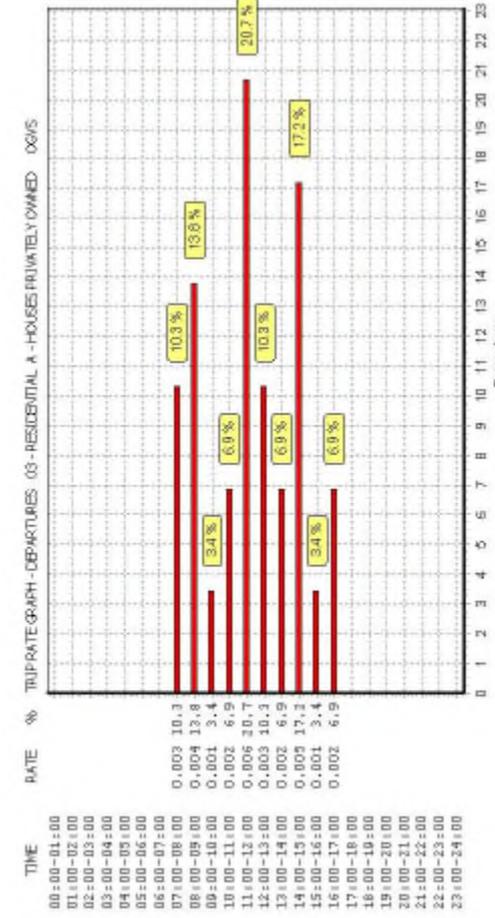
| Time Range   | ARRIVALS |             |           | DEPARTURES |             |           | TOTALS   |             |           |
|--------------|----------|-------------|-----------|------------|-------------|-----------|----------|-------------|-----------|
|              | No. Days | Ave. DWELLS | Trip Rate | No. Days   | Ave. DWELLS | Trip Rate | No. Days | Ave. DWELLS | Trip Rate |
| 00:00-01:00  |          |             |           |            |             |           |          |             |           |
| 01:00-02:00  |          |             |           |            |             |           |          |             |           |
| 02:00-03:00  |          |             |           |            |             |           |          |             |           |
| 03:00-04:00  |          |             |           |            |             |           |          |             |           |
| 04:00-05:00  |          |             |           |            |             |           |          |             |           |
| 05:00-06:00  |          |             |           |            |             |           |          |             |           |
| 06:00-07:00  |          |             |           |            |             |           |          |             |           |
| 07:00-08:00  | 18       | 61          | 0.000     | 18         | 61          | 0.003     | 18       | 61          | 0.003     |
| 08:00-09:00  | 18       | 61          | 0.003     | 18         | 61          | 0.004     | 18       | 61          | 0.007     |
| 09:00-10:00  | 18       | 61          | 0.002     | 18         | 61          | 0.001     | 18       | 61          | 0.003     |
| 10:00-11:00  | 18       | 61          | 0.005     | 18         | 61          | 0.002     | 18       | 61          | 0.007     |
| 11:00-12:00  | 18       | 61          | 0.005     | 18         | 61          | 0.006     | 18       | 61          | 0.011     |
| 12:00-13:00  | 18       | 61          | 0.002     | 18         | 61          | 0.003     | 18       | 61          | 0.005     |
| 13:00-14:00  | 18       | 61          | 0.002     | 18         | 61          | 0.002     | 18       | 61          | 0.004     |
| 14:00-15:00  | 18       | 61          | 0.003     | 18         | 61          | 0.005     | 18       | 61          | 0.008     |
| 15:00-16:00  | 18       | 61          | 0.001     | 18         | 61          | 0.001     | 18       | 61          | 0.002     |
| 16:00-17:00  | 18       | 61          | 0.002     | 18         | 61          | 0.002     | 18       | 61          | 0.004     |
| 17:00-18:00  | 18       | 61          | 0.001     | 18         | 61          | 0.000     | 18       | 61          | 0.001     |
| 18:00-19:00  | 18       | 61          | 0.002     | 18         | 61          | 0.000     | 18       | 61          | 0.002     |
| 19:00-20:00  |          |             |           |            |             |           |          |             |           |
| 20:00-21:00  |          |             |           |            |             |           |          |             |           |
| 21:00-22:00  |          |             |           |            |             |           |          |             |           |
| 22:00-23:00  |          |             |           |            |             |           |          |             |           |
| 23:00-24:00  |          |             |           |            |             |           |          |             |           |
| Total Rates: |          |             | 0.028     |            |             | 0.029     |          |             | 0.057     |

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.

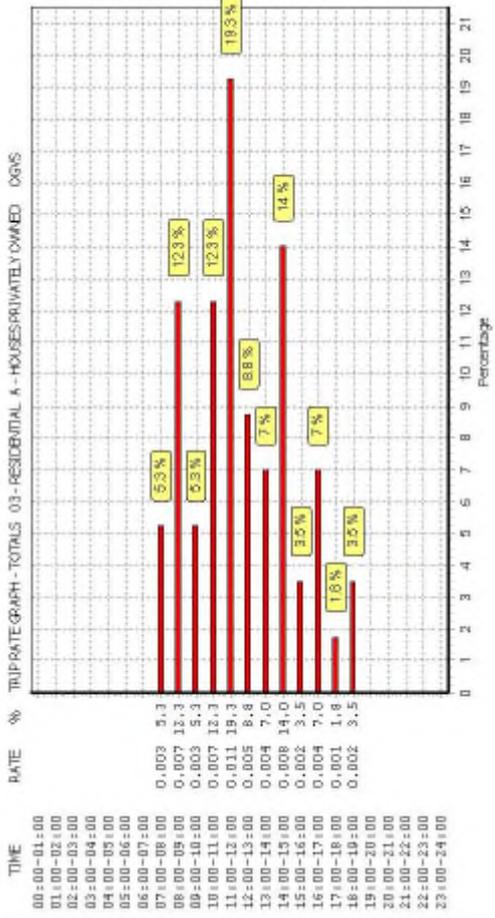
To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected 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.



This graph is a visual representation of the trip rate calculation results screen. The same time periods and trip rates are displayed. In addition, there is an additional column showing the rate of the total trips by individual time period, allowing peak periods to be easily identified through observation. Note that the type of count and the selected direction is shown at the top of the graph.



This graph is a visual representation of the trip rate calculation results screen. The same time periods and trip rates are displayed. In addition, there is an additional column showing the rate of the total trips by individual time period, allowing peak periods to be easily identified through observation. Note that the type of count and the selected direction is shown at the top of the graph.



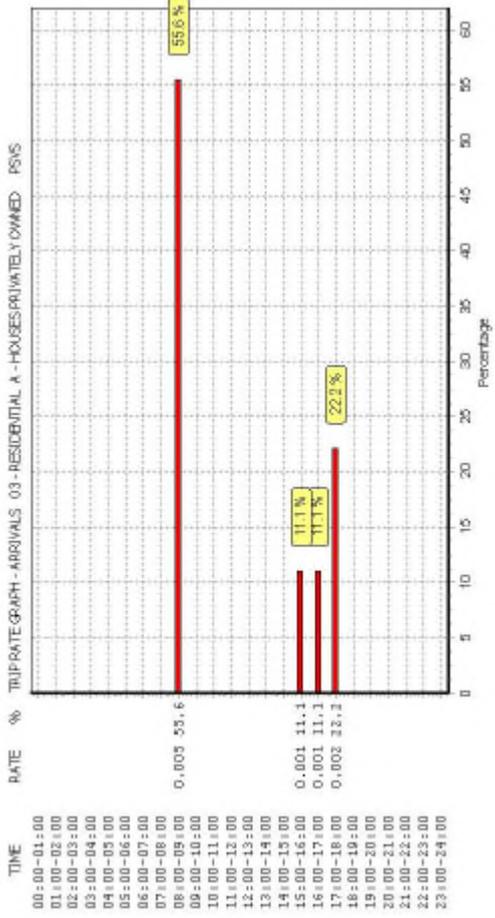
This graph is a visual representation of the trip rate calculation results screen. The same time periods and trip rates are displayed. In addition, there is an additional column showing the rate of the total trips by individual time period, allowing peak periods to be easily identified through observation. Note that the type of count and the selected direction is shown at the top of the graph.

TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED  
 PSVS  
 Calculation factor: 1 DWELLS  
 BOLD print indicates peak (busiest) period

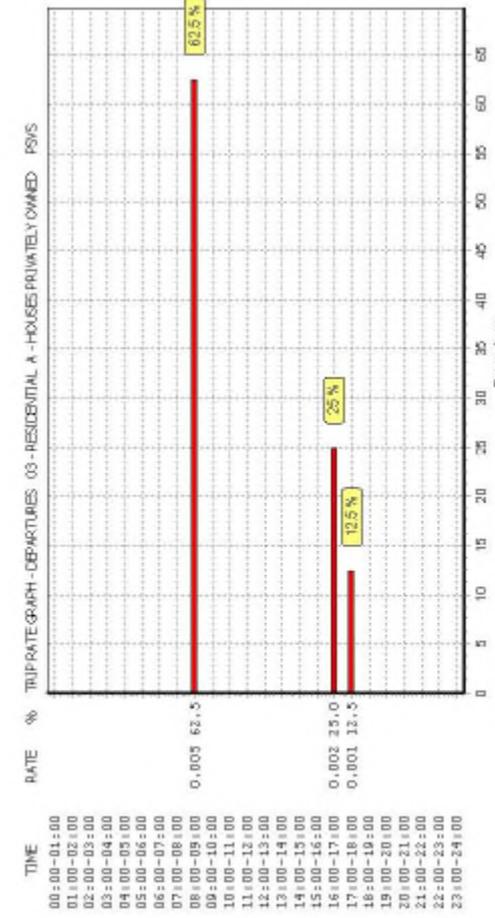
| Time Range    | ARRIVALS |             |           | DEPARTURES |             |           | TOTALS   |             |           |
|---------------|----------|-------------|-----------|------------|-------------|-----------|----------|-------------|-----------|
|               | No. Days | Ave. DWELLS | Trip Rate | No. Days   | Ave. DWELLS | Trip Rate | No. Days | Ave. DWELLS | Trip Rate |
| 00:00 - 01:00 |          |             |           |            |             |           |          |             |           |
| 01:00 - 02:00 |          |             |           |            |             |           |          |             |           |
| 02:00 - 03:00 |          |             |           |            |             |           |          |             |           |
| 03:00 - 04:00 |          |             |           |            |             |           |          |             |           |
| 04:00 - 05:00 |          |             |           |            |             |           |          |             |           |
| 05:00 - 06:00 |          |             |           |            |             |           |          |             |           |
| 06:00 - 07:00 |          |             |           |            |             |           |          |             |           |
| 07:00 - 08:00 | 18       | 61          | 0.000     | 18         | 61          | 0.000     | 18       | 61          | 0.000     |
| 08:00 - 09:00 | 18       | 61          | 0.005     | 18         | 61          | 0.005     | 18       | 61          | 0.010     |
| 09:00 - 10:00 | 18       | 61          | 0.000     | 18         | 61          | 0.000     | 18       | 61          | 0.000     |
| 10:00 - 11:00 | 18       | 61          | 0.000     | 18         | 61          | 0.000     | 18       | 61          | 0.000     |
| 11:00 - 12:00 | 18       | 61          | 0.000     | 18         | 61          | 0.000     | 18       | 61          | 0.000     |
| 12:00 - 13:00 | 18       | 61          | 0.000     | 18         | 61          | 0.000     | 18       | 61          | 0.000     |
| 13:00 - 14:00 | 18       | 61          | 0.000     | 18         | 61          | 0.000     | 18       | 61          | 0.000     |
| 14:00 - 15:00 | 18       | 61          | 0.000     | 18         | 61          | 0.000     | 18       | 61          | 0.000     |
| 15:00 - 16:00 | 18       | 61          | 0.001     | 18         | 61          | 0.000     | 18       | 61          | 0.001     |
| 16:00 - 17:00 | 18       | 61          | 0.001     | 18         | 61          | 0.002     | 18       | 61          | 0.003     |
| 17:00 - 18:00 | 18       | 61          | 0.002     | 18         | 61          | 0.001     | 18       | 61          | 0.003     |
| 18:00 - 19:00 | 18       | 61          | 0.000     | 18         | 61          | 0.000     | 18       | 61          | 0.000     |
| 19:00 - 20:00 |          |             |           |            |             |           |          |             |           |
| 20:00 - 21:00 |          |             |           |            |             |           |          |             |           |
| 21:00 - 22:00 |          |             |           |            |             |           |          |             |           |
| 22:00 - 23:00 |          |             |           |            |             |           |          |             |           |
| 23:00 - 24:00 |          |             |           |            |             |           |          |             |           |
| Total Rates:  |          |             | 0.009     |            |             | 0.008     |          |             | 0.017     |

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.

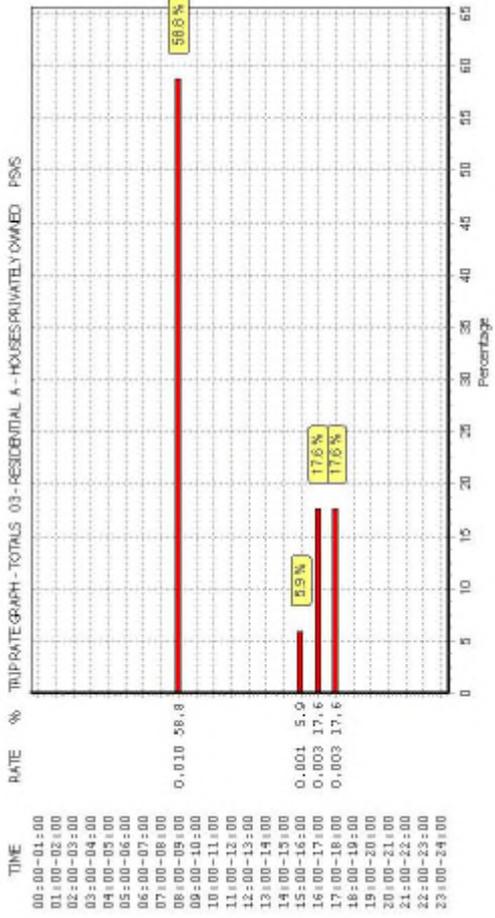
To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected 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.



This graph is a visual representation of the trip rate calculation results screen. The same time periods and trip rates are displayed. In addition, there is a third column showing the rate of the total trips as a percentage of the total trips for the selected time period, allowing peak periods to be easily identified through observation. Note that the type of count and the selected direction is shown at the top of the graph.



This graph is a visual representation of the trip rate calculation results screen. The same time periods and trip rates are displayed. In addition, there is a third column showing the rate of the total trips as a percentage of the total trips for the selected time period, allowing peak periods to be easily identified through observation. Note that the type of count and the selected direction is shown at the top of the graph.



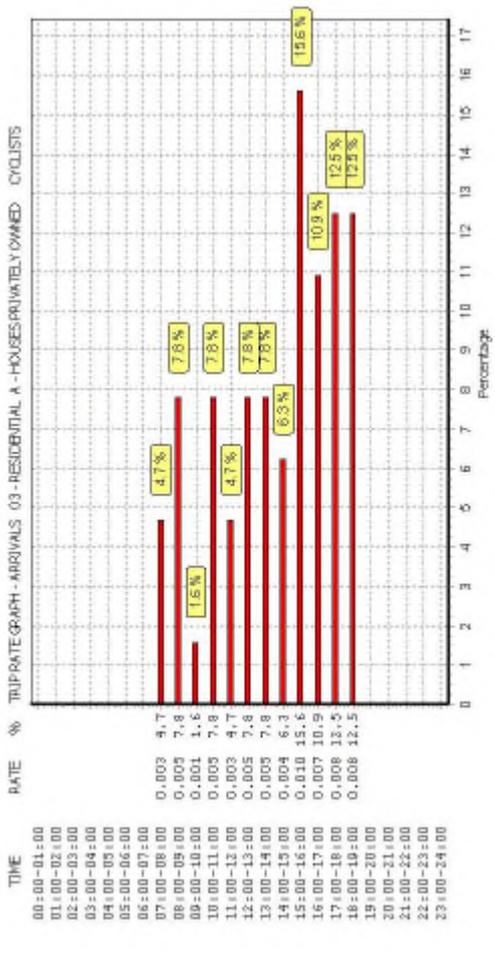
This graph is a visual representation of the trip rate calculation results screen. The same time periods and trip rates are displayed. In addition, there is a third column showing the rate of the total trips as a percentage of the total trips for the selected time period, allowing peak periods to be easily identified through observation. Note that the type of count and the selected direction is shown at the top of the graph.

TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED  
**CYCLISTS**  
 Calculation factor: 1 DWELLS  
 BOLD print indicates peak (busiest) period

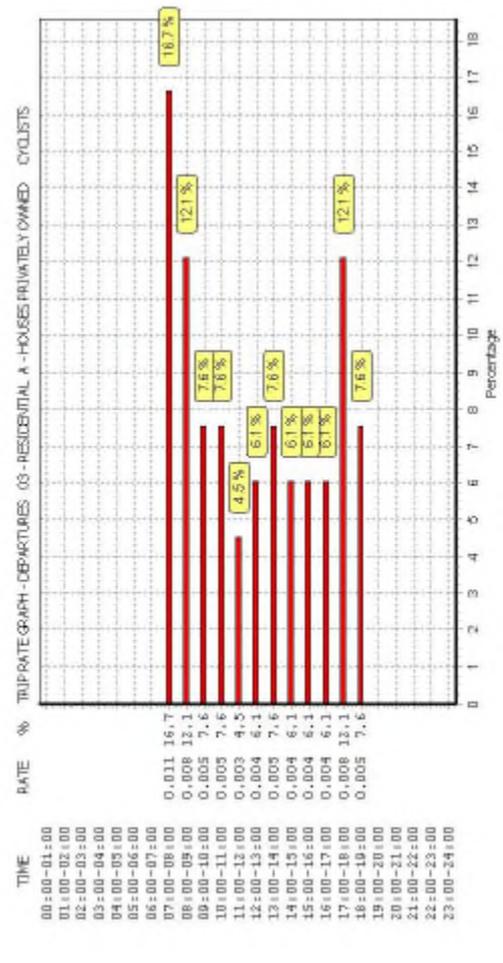
| Time Range   | ARRIVALS |             |           | DEPARTURES |             |           | TOTALS   |             |           |
|--------------|----------|-------------|-----------|------------|-------------|-----------|----------|-------------|-----------|
|              | No. Days | Ave. DWELLS | Trip Rate | No. Days   | Ave. DWELLS | Trip Rate | No. Days | Ave. DWELLS | Trip Rate |
| 00:00-01:00  |          |             |           |            |             |           |          |             |           |
| 01:00-02:00  |          |             |           |            |             |           |          |             |           |
| 02:00-03:00  |          |             |           |            |             |           |          |             |           |
| 03:00-04:00  |          |             |           |            |             |           |          |             |           |
| 04:00-05:00  |          |             |           |            |             |           |          |             |           |
| 05:00-06:00  |          |             |           |            |             |           |          |             |           |
| 06:00-07:00  |          |             |           |            |             |           |          |             |           |
| 07:00-08:00  | 18       | 61          | 0.003     | 18         | 61          | 0.011     | 18       | 61          | 0.014     |
| 08:00-09:00  | 18       | 61          | 0.005     | 18         | 61          | 0.008     | 18       | 61          | 0.013     |
| 09:00-10:00  | 18       | 61          | 0.001     | 18         | 61          | 0.005     | 18       | 61          | 0.006     |
| 10:00-11:00  | 18       | 61          | 0.005     | 18         | 61          | 0.005     | 18       | 61          | 0.010     |
| 11:00-12:00  | 18       | 61          | 0.003     | 18         | 61          | 0.003     | 18       | 61          | 0.006     |
| 12:00-13:00  | 18       | 61          | 0.005     | 18         | 61          | 0.004     | 18       | 61          | 0.009     |
| 13:00-14:00  | 18       | 61          | 0.005     | 18         | 61          | 0.005     | 18       | 61          | 0.010     |
| 14:00-15:00  | 18       | 61          | 0.004     | 18         | 61          | 0.004     | 18       | 61          | 0.008     |
| 15:00-16:00  | 18       | 61          | 0.010     | 18         | 61          | 0.004     | 18       | 61          | 0.014     |
| 16:00-17:00  | 18       | 61          | 0.007     | 18         | 61          | 0.004     | 18       | 61          | 0.011     |
| 17:00-18:00  | 18       | 61          | 0.008     | 18         | 61          | 0.008     | 18       | 61          | 0.016     |
| 18:00-19:00  | 18       | 61          | 0.008     | 18         | 61          | 0.005     | 18       | 61          | 0.013     |
| 19:00-20:00  |          |             |           |            |             |           |          |             |           |
| 20:00-21:00  |          |             |           |            |             |           |          |             |           |
| 21:00-22:00  |          |             |           |            |             |           |          |             |           |
| 22:00-23:00  |          |             |           |            |             |           |          |             |           |
| 23:00-24:00  |          |             |           |            |             |           |          |             |           |
| Total Rates: |          |             | 0.064     |            |             | 0.066     |          |             | 0.130     |

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.

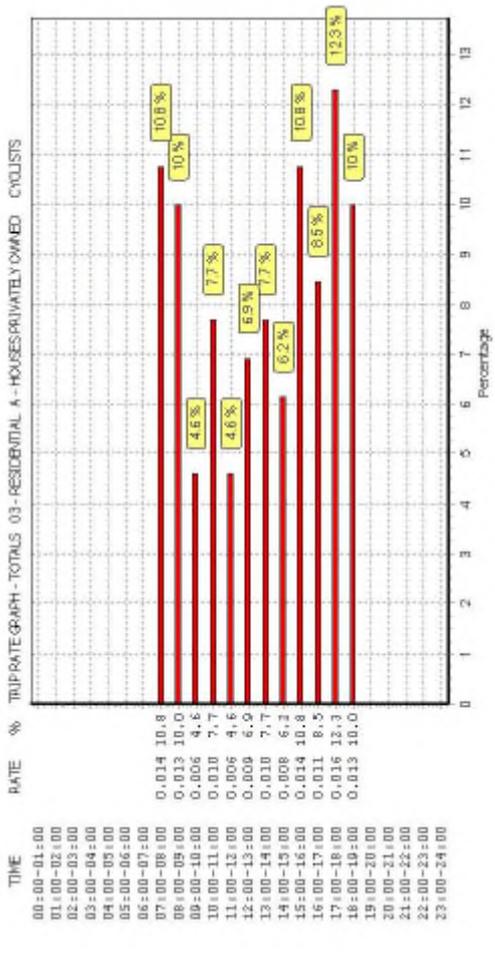
To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected 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.



This graph is a visual representation of the trip rate calculation results screen. The same time periods and trip rates are displayed. In addition there is additional column showing the rate of the total trip as a percentage of the total trip for each time period, allowing peak periods to be easily identified through observation. Note that the type of count and the selected direction is shown at the top of the graph.



This graph is a visual representation of the trip rate calculation results screen. The same time periods and trip rates are displayed. In addition there is additional column showing the rate of the total trip as a percentage of the total trip for each time period, allowing peak periods to be easily identified through observation. Note that the type of count and the selected direction is shown at the top of the graph.



This graph is a visual representation of the trip rate calculation results screen. The same time periods and trip rates are displayed. In addition there is additional column showing the rate of the total trip as a percentage of the total trip for each time period, allowing peak periods to be easily identified through observation. Note that the type of count and the selected direction is shown at the top of the graph.

Calculation Reference: AUDIT-638801-190906-0928

**TRIP RATE CALCULATION SELECTION PARAMETERS:**

Land Use : 03 - RESIDENTIAL  
 Category : 0 - RETIREMENT AND CARE COMMUNITY

**VEHICLES**

- Selected regions and areas:
- 02 SOUTH EAST**
    - KC KENT 1 days
    - OX OXFORDSHIRE 1 days
    - SC SURREY 1 days
  - 03 SOUTH WEST**
    - BR BRISTOL CITY 1 days
    - DV DEVON 2 days
  - 16 ULSTER (REPUBLIC OF IRELAND)**
    - CV CAVAN 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: Number of dwellings  
 Actual Range: 39 to 71 (units: )  
 Range Selected by User: 36 to 149 (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 22/05/17

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 1 days
- Wednesday 2 days
- Thursday 1 days
- Friday 2 days

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

Selected survey types:

- Manual count 7 days
- Directional ATC Count 0 days

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

Selected Locations:

- Suburban Area (PPS6 Out of Centre) 3
- Edge of Town 3
- Free Standing (PPS6 Out of Town) 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:

- Residential Zone 6
- Out of Town 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:  
 Not Known 1 days  
 C3 1 days

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

Population within 1 mile:  
 5,001 to 10,000 3 days  
 20,001 to 25,000 2 days  
 25,001 to 50,000 2 days

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

Population within 5 miles:  
 5,001 to 25,000 1 days  
 25,001 to 50,000 1 days  
 50,001 to 75,000 1 days  
 100,001 to 125,000 1 days  
 125,001 to 250,000 2 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 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 1 days  
 No 6 days

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

PTAL Rating:  
 No PTAL Present 7 days

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

LIST OF SITES relevant to selection parameters

| Site Ref | Site Name   | County       | Total Number of dwellings | Survey date | Survey Type |
|----------|---|--------------|---------------------------|-------------|-------------|
| 1        | BR-03-0-02 RETIREMENT VILLAGE<br>MEG THATCHERS GARDENS<br>BRISTOL   | BRISTOL CITY | 49                        | 18/09/15    | MANUAL      |
| 2        | CV-03-0-01 RETIREMENT VILLAGE<br>DRUMALEE MANOR<br>CAVAN<br>DRUMALEE<br>Edge of Town<br>Residential Zone                                  | CAVAN        | 71                        | 22/05/17    | MANUAL      |
| 3        | DV-03-0-01 RETIREMENT VILLAGE<br>ST MARYCHURCH ROAD<br>TORQUAY<br>ST MARYCHURCH<br>Suburban Area (PPS6 Out of Centre)<br>Residential Zone | DEVON        | 45                        | 29/09/15    | MANUAL      |
| 4        | DV-03-0-02 RETIREMENT VILLAGE<br>SIDMOUTH ROAD<br>NEAR HONITON  | DEVON        | 66                        | 25/09/15    | MANUAL      |
| 5        | KC-03-0-01 RETIREMENT VILLAGE<br>RUMFIELDS ROAD<br>BROADSTAIRS  | KENT         | 40                        | 19/11/15    | MANUAL      |
| 6        | OX-03-0-01 RETIREMENT VILLAGE<br>RUSKIN ROAD<br>BANBURY<br>EASINGTON<br>Edge of Town<br>Residential Zone                                  | OXFORDSHIRE  | 70                        | 11/11/15    | MANUAL      |
| 7        | SC-03-0-01 RETIREMENT VILLAGE<br>WESTFIELD ROAD<br>WOKING   | SURREY       | 39                        | 18/11/15    | 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.

MANUALLY DESELECTED SITES

| Site Ref   | Reason for Deselection |
|------------|------------------------|
| HF-03-0-01 | too large              |
| NS-03-0-01 | too large              |

TRIP RATE for Land Use 03 - RESIDENTIAL/O - RETIREMENT AND CARE COMMUNITY

**VEHICLES**  
**Calculation factor: 1 DWELLS**  
**BOLD print indicates peak (busiest) period**

| Time Range          | ARRIVALS |             |              | DEPARTURES |             |              | TOTALS   |             |              |
|---------------------|----------|-------------|--------------|------------|-------------|--------------|----------|-------------|--------------|
|                     | No. Days | Ave. DWELLS | Trip Rate    | No. Days   | Ave. DWELLS | Trip Rate    | No. Days | Ave. DWELLS |              |
| 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       | 7        | 54          | 0.147        | 7          | 54          | 0.074        | 7        | 54          | 0.221        |
| 08:00 - 09:00       | 7        | 54          | 0.145        | 7          | 54          | 0.082        | 7        | 54          | 0.227        |
| 09:00 - 10:00       | 7        | <b>54</b>   | <b>0.195</b> | 7          | 54          | 0.150        | 7        | 54          | 0.345        |
| 10:00 - 11:00       | 7        | 54          | 0.192        | 7          | 54          | 0.179        | 7        | 54          | 0.371        |
| 11:00 - 12:00       | 7        | 54          | 0.187        | 7          | 54          | 0.184        | 7        | 54          | 0.371        |
| 12:00 - 13:00       | 7        | 54          | 0.150        | 7          | 54          | 0.168        | 7        | 54          | 0.318        |
| 13:00 - 14:00       | 7        | 54          | 0.192        | 7          | <b>54</b>   | <b>0.213</b> | 7        | <b>54</b>   | <b>0.405</b> |
| 14:00 - 15:00       | 7        | 54          | 0.163        | 7          | 54          | 0.208        | 7        | 54          | 0.371        |
| 15:00 - 16:00       | 7        | 54          | 0.166        | 7          | 54          | 0.176        | 7        | 54          | 0.342        |
| 16:00 - 17:00       | 7        | 54          | 0.132        | 7          | 54          | 0.171        | 7        | 54          | 0.303        |
| 17:00 - 18:00       | 7        | 54          | 0.089        | 7          | 54          | 0.108        | 7        | 54          | 0.197        |
| 18:00 - 19:00       | 7        | 54          | 0.095        | 7          | 54          | 0.076        | 7        | 54          | 0.171        |
| 19:00 - 20:00       | 6        | 52          | 0.042        | 6          | 52          | 0.042        | 6        | 52          | 0.084        |
| 20:00 - 21:00       | 6        | 52          | 0.029        | 6          | 52          | 0.052        | 6        | 52          | 0.081        |
| 21:00 - 22:00       |          |             |              |            |             |              |          |             |              |
| 22:00 - 23:00       |          |             |              |            |             |              |          |             |              |
| 23:00 - 24:00       |          |             |              |            |             |              |          |             |              |
| <b>Total Rates:</b> |          |             | 1.924        |            |             | 1.883        |          |             | 3.807        |

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.

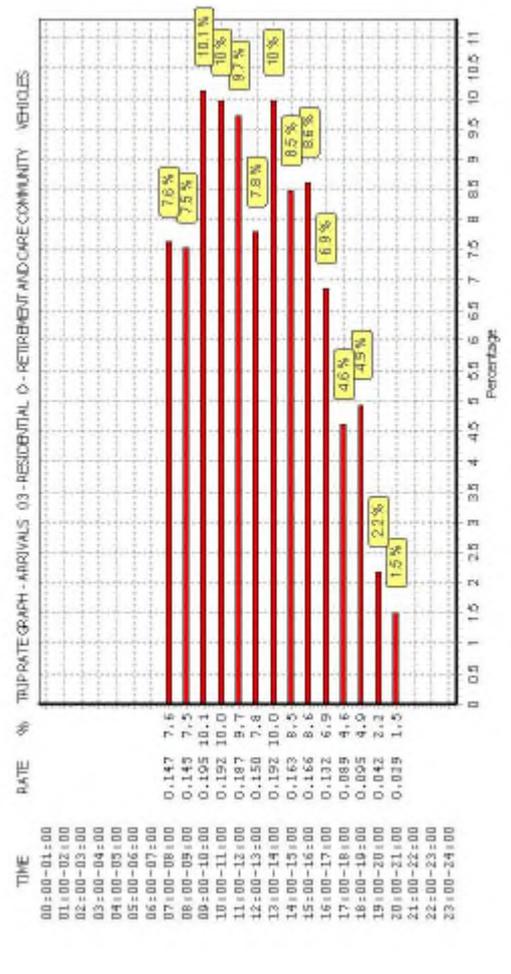
The survey data, graphs and all associated supporting information, contained within the TRICS Database are published by TRICS Consortium Limited ("the Company") and the Company claims copyright and database rights in this published work. The Company authorises those who possess a current TRICS licence to access the TRICS Database and copy the data contained within the TRICS Database for the licence holders' use only. Any resulting copy must retain all copyrights and other proprietary notices, and any disclaimer contained thereon.

The Company accepts no responsibility for loss which may arise from reliance on data contained in the TRICS Database. [No warranty of any kind, express or implied, is made as to the data contained in the TRICS Database.]

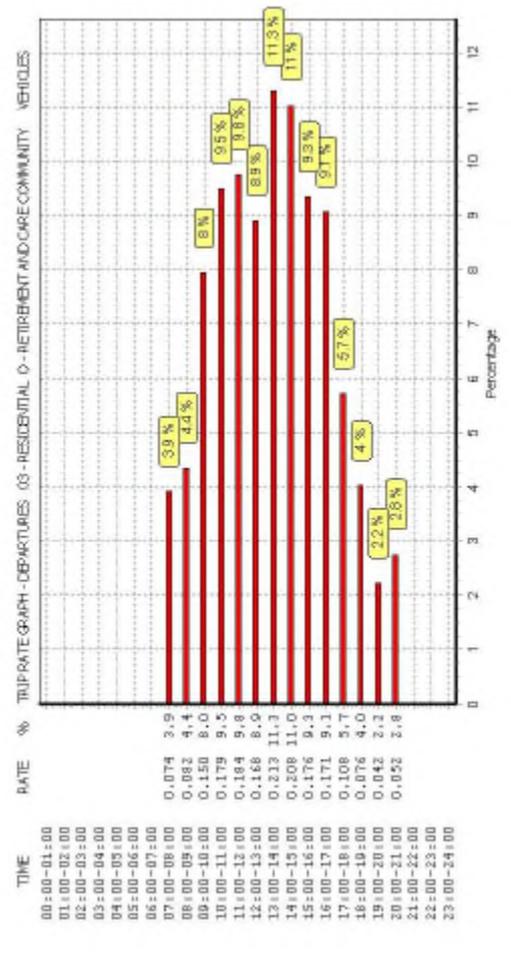
**Parameter summary**

|   |                     |
|---|---------------------|
| Trip rate parameter range selected:           | 39 - 71 (units: )   |
| Survey date date range:                       | 01/01/11 - 22/05/17 |
| Number of weekdays (Monday-Friday):           | 7                   |
| Number of Saturdays:                          | 0                   |
| Number of Sundays:                            | 0                   |
| Surveys automatically removed from selection: | 0                   |
| Surveys manually removed from selection:      | 2                   |

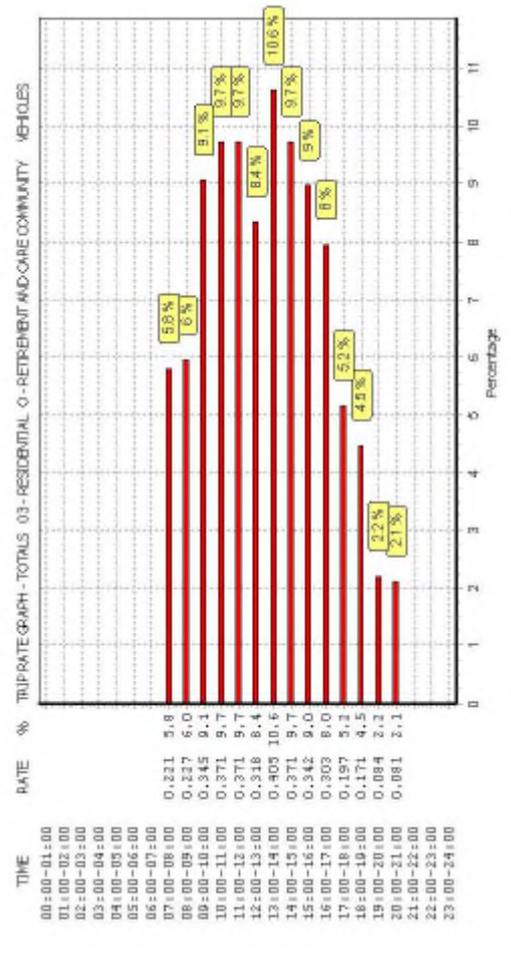
This section displays a quick summary of some of the data filtering selections made by the TRICS® user. The trip rate calculation parameter range of all selected surveys is displayed first, followed by the range of minimum and maximum survey dates selected by the user. Then, the total number of selected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



This graph is a visual representation of the trip rate calculation results screen. The same time periods and trip rates are displayed. In addition, there is a third column showing the rate of the total trip as by individual time period, allowing peak periods to be easily identified through observation. Note that the type of count and the selected direction is shown at the top of the graph.



This graph is a visual representation of the trip rate calculation results screen. The same time periods and trip rates are displayed. In addition, there is a third column showing the rate of the total trip as by individual time period, allowing peak periods to be easily identified through observation. Note that the type of count and the selected direction is shown at the top of the graph.



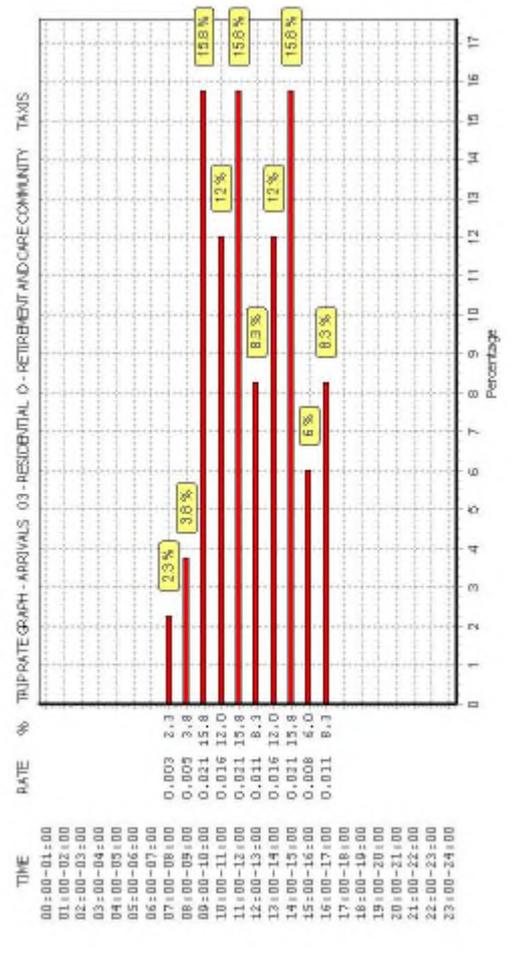
This graph is a visual representation of the trip rate calculation results screen. The same time periods and trip rates are displayed. In addition, there is a third column showing the rate of the total trip as by individual time period, allowing peak periods to be easily identified through observation. Note that the type of count and the selected direction is shown at the top of the graph.

TRIP RATE for Land Use 03 - RESIDENTIAL/O - RETIREMENT AND CARE COMMUNITY  
**TAXIS**  
 Calculation factor: 1 DWELLS  
 BOLD print indicates peak (busiest) period

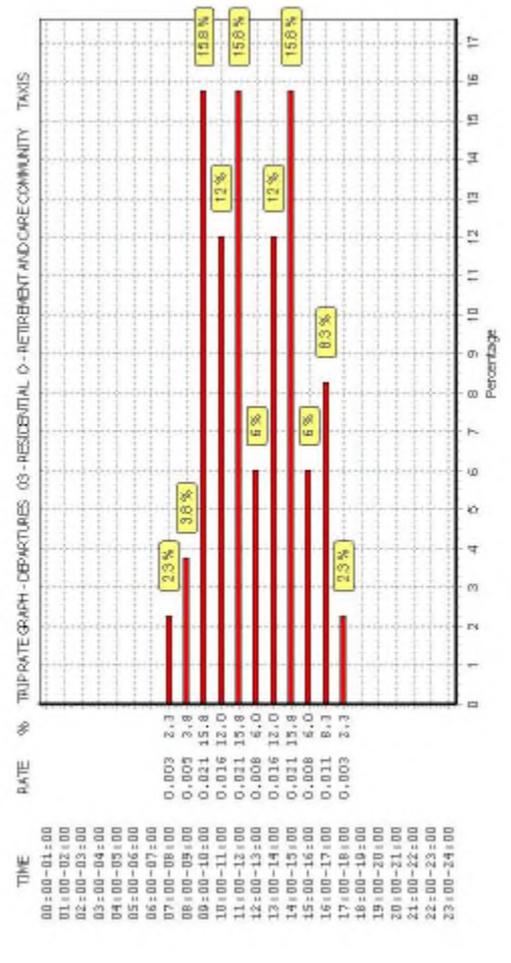
| Time Range          | ARRIVALS |             |              | DEPARTURES |             |              | TOTALS   |             |              |
|---------------------|----------|-------------|--------------|------------|-------------|--------------|----------|-------------|--------------|
|                     | No. Days | Ave. DWELLS | Trip Rate    | No. Days   | Ave. DWELLS | Trip Rate    | No. Days | Ave. DWELLS | Trip Rate    |
| 00:00-01:00         |          |             |              |            |             |              |          |             |              |
| 01:00-02:00         |          |             |              |            |             |              |          |             |              |
| 02:00-03:00         |          |             |              |            |             |              |          |             |              |
| 03:00-04:00         |          |             |              |            |             |              |          |             |              |
| 04:00-05:00         |          |             |              |            |             |              |          |             |              |
| 05:00-06:00         |          |             |              |            |             |              |          |             |              |
| 06:00-07:00         |          |             |              |            |             |              |          |             |              |
| 07:00-08:00         | 7        | 54          | 0.003        | 7          | 54          | 0.003        | 7        | 54          | 0.006        |
| 08:00-09:00         | 7        | 54          | 0.005        | 7          | 54          | 0.005        | 7        | 54          | 0.010        |
| 09:00-10:00         | 7        | 54          | <b>0.021</b> | 7          | 54          | <b>0.021</b> | 7        | 54          | <b>0.042</b> |
| 10:00-11:00         | 7        | 54          | 0.016        | 7          | 54          | 0.016        | 7        | 54          | 0.032        |
| 11:00-12:00         | 7        | 54          | 0.021        | 7          | 54          | 0.021        | 7        | 54          | 0.042        |
| 12:00-13:00         | 7        | 54          | 0.011        | 7          | 54          | 0.008        | 7        | 54          | 0.019        |
| 13:00-14:00         | 7        | 54          | 0.016        | 7          | 54          | 0.016        | 7        | 54          | 0.032        |
| 14:00-15:00         | 7        | 54          | 0.021        | 7          | 54          | 0.021        | 7        | 54          | 0.042        |
| 15:00-16:00         | 7        | 54          | 0.008        | 7          | 54          | 0.008        | 7        | 54          | 0.016        |
| 16:00-17:00         | 7        | 54          | 0.011        | 7          | 54          | 0.011        | 7        | 54          | 0.022        |
| 17:00-18:00         | 7        | 54          | 0.000        | 7          | 54          | 0.003        | 7        | 54          | 0.003        |
| 18:00-19:00         | 7        | 54          | 0.000        | 7          | 54          | 0.000        | 7        | 54          | 0.000        |
| 19:00-20:00         | 6        | 52          | 0.000        | 6          | 52          | 0.000        | 6        | 52          | 0.000        |
| 20:00-21:00         | 6        | 52          | 0.000        | 6          | 52          | 0.000        | 6        | 52          | 0.000        |
| 21:00-22:00         |          |             |              |            |             |              |          |             |              |
| 22:00-23:00         |          |             |              |            |             |              |          |             |              |
| 23:00-24:00         |          |             |              |            |             |              |          |             |              |
| <b>Total Rates:</b> |          |             | 0.133        |            |             | 0.133        |          |             | 0.266        |

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.

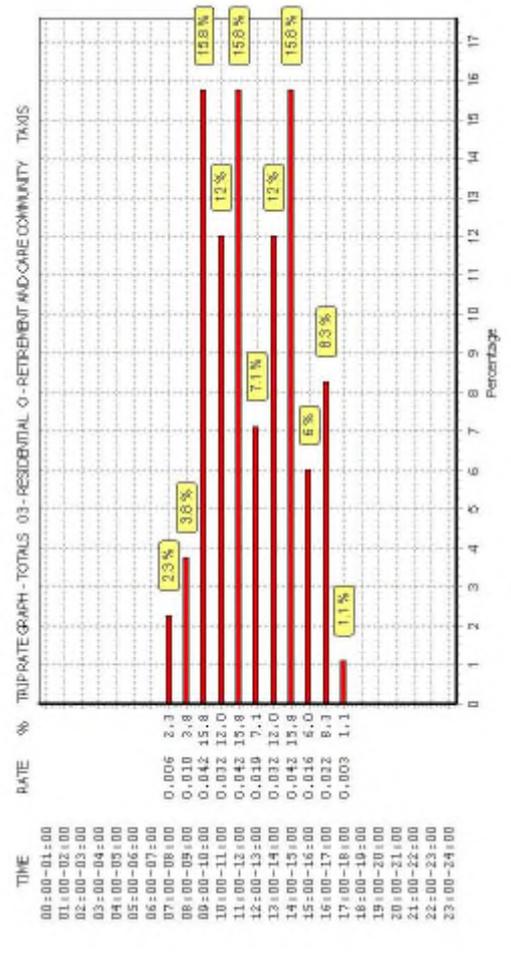
To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected 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.



This graph is a visual representation of the trip rate calculation results screen. The same time periods and trip rates are displayed. In addition, there is a third column showing the rate of the total trips by individual time period, allowing peak periods to be easily identified through observation. Note that the type of count and the selected direction is shown at the top of the graph.



This graph is a visual representation of the trip rate calculation results screen. The same time periods and trip rates are displayed. In addition, there is a third column showing the rate of the total trips by individual time period, allowing peak periods to be easily identified through observation. Note that the type of count and the selected direction is shown at the top of the graph.



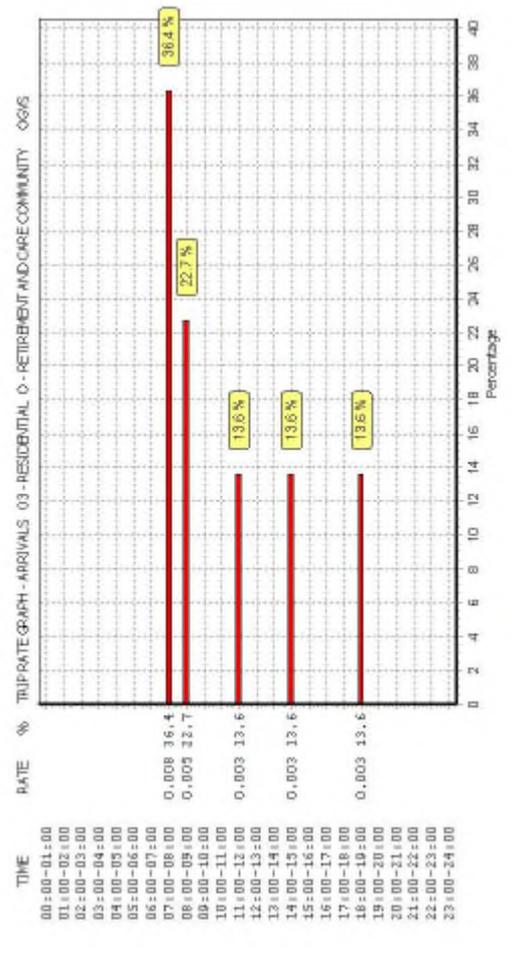
This graph is a visual representation of the trip rate calculation results screen. The same time periods and trip rates are displayed. In addition, there is a third column showing the rate of the total trips by individual time period, allowing peak periods to be easily identified through observation. Note that the type of count and the selected direction is shown at the top of the graph.

TRIP RATE for Land Use 03 - RESIDENTIAL/O - RETIREMENT AND CARE COMMUNITY  
 OGVS  
 Calculation factor: 1 DWELLS  
 BOLD print indicates peak (busiest) period

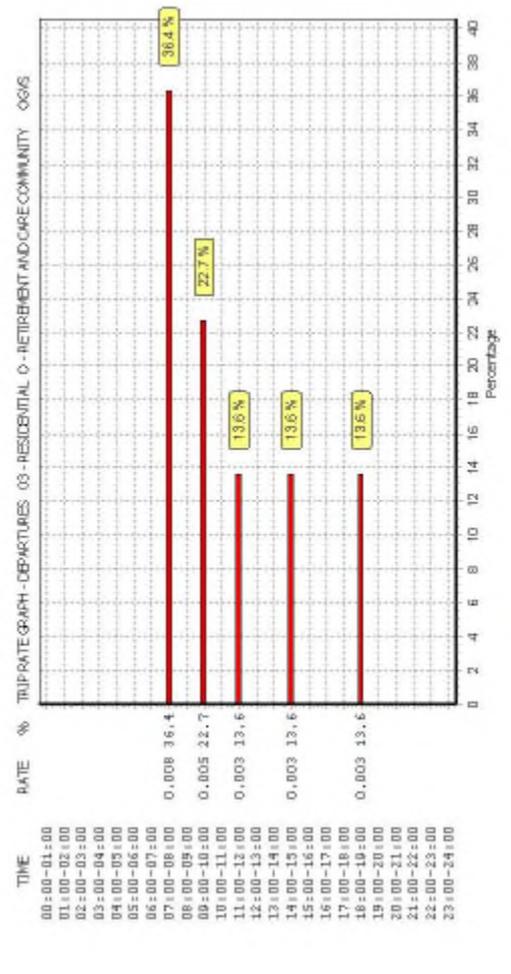
| Time Range    | ARRIVALS |             |           | DEPARTURES |             |           | TOTALS   |             |           |
|---------------|----------|-------------|-----------|------------|-------------|-----------|----------|-------------|-----------|
|               | No. Days | Ave. DWELLS | Trip Rate | No. Days   | Ave. DWELLS | Trip Rate | No. Days | Ave. DWELLS | Trip Rate |
| 00:00 - 01:00 |          |             |           |            |             |           |          |             |           |
| 01:00 - 02:00 |          |             |           |            |             |           |          |             |           |
| 02:00 - 03:00 |          |             |           |            |             |           |          |             |           |
| 03:00 - 04:00 |          |             |           |            |             |           |          |             |           |
| 04:00 - 05:00 |          |             |           |            |             |           |          |             |           |
| 05:00 - 06:00 |          |             |           |            |             |           |          |             |           |
| 06:00 - 07:00 |          |             |           |            |             |           |          |             |           |
| 07:00 - 08:00 | 7        | 54          | 0.008     | 7          | 54          | 0.008     | 7        | 54          | 0.016     |
| 08:00 - 09:00 | 7        | 54          | 0.005     | 7          | 54          | 0.005     | 7        | 54          | 0.005     |
| 09:00 - 10:00 | 7        | 54          | 0.000     | 7          | 54          | 0.000     | 7        | 54          | 0.000     |
| 10:00 - 11:00 | 7        | 54          | 0.000     | 7          | 54          | 0.000     | 7        | 54          | 0.000     |
| 11:00 - 12:00 | 7        | 54          | 0.003     | 7          | 54          | 0.003     | 7        | 54          | 0.006     |
| 12:00 - 13:00 | 7        | 54          | 0.000     | 7          | 54          | 0.000     | 7        | 54          | 0.000     |
| 13:00 - 14:00 | 7        | 54          | 0.000     | 7          | 54          | 0.000     | 7        | 54          | 0.000     |
| 14:00 - 15:00 | 7        | 54          | 0.003     | 7          | 54          | 0.003     | 7        | 54          | 0.006     |
| 15:00 - 16:00 | 7        | 54          | 0.000     | 7          | 54          | 0.000     | 7        | 54          | 0.000     |
| 16:00 - 17:00 | 7        | 54          | 0.000     | 7          | 54          | 0.000     | 7        | 54          | 0.000     |
| 17:00 - 18:00 | 7        | 54          | 0.000     | 7          | 54          | 0.000     | 7        | 54          | 0.000     |
| 18:00 - 19:00 | 7        | 54          | 0.003     | 7          | 54          | 0.003     | 7        | 54          | 0.006     |
| 19:00 - 20:00 | 6        | 52          | 0.000     | 6          | 52          | 0.000     | 6        | 52          | 0.000     |
| 20:00 - 21:00 | 6        | 52          | 0.000     | 6          | 52          | 0.000     | 6        | 52          | 0.000     |
| 21:00 - 22:00 |          |             |           |            |             |           |          |             |           |
| 22:00 - 23:00 |          |             |           |            |             |           |          |             |           |
| 23:00 - 24:00 |          |             |           |            |             |           |          |             |           |
| Total Rates:  |          |             | 0.022     |            |             | 0.022     |          |             | 0.044     |

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.

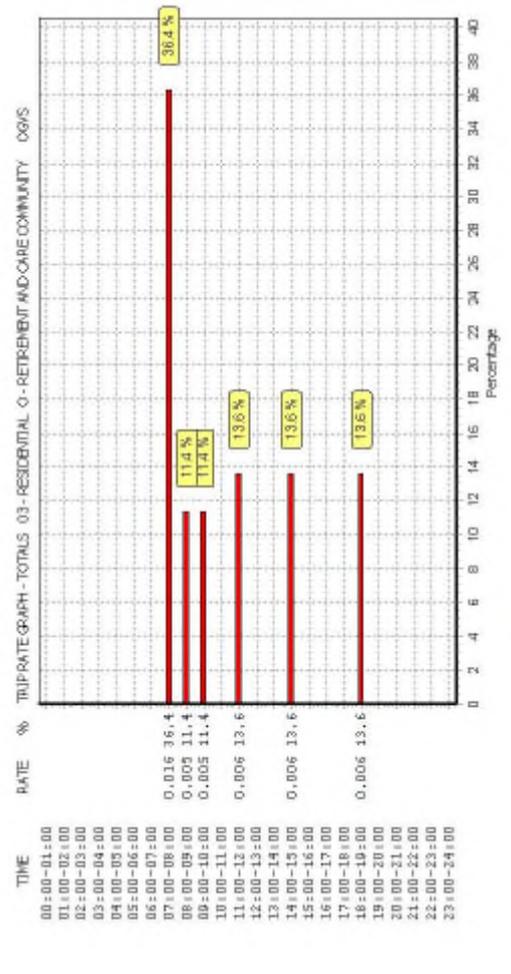
To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected 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.



This graph is a visual representation of the trip rate calculation results screen. The same time periods and trip rates are displayed. In addition, there is a third column showing the rate of the total trips as a percentage of the total trips for the selected time period, allowing peak periods to be easily identified through observation. Note that the type of count and the selected direction is shown at the top of the graph.



This graph is a visual representation of the trip rate calculation results screen. The same time periods and trip rates are displayed. In addition, there is a third column showing the rate of the total trips as a percentage of the total trips for the selected time period, allowing peak periods to be easily identified through observation. Note that the type of count and the selected direction is shown at the top of the graph.



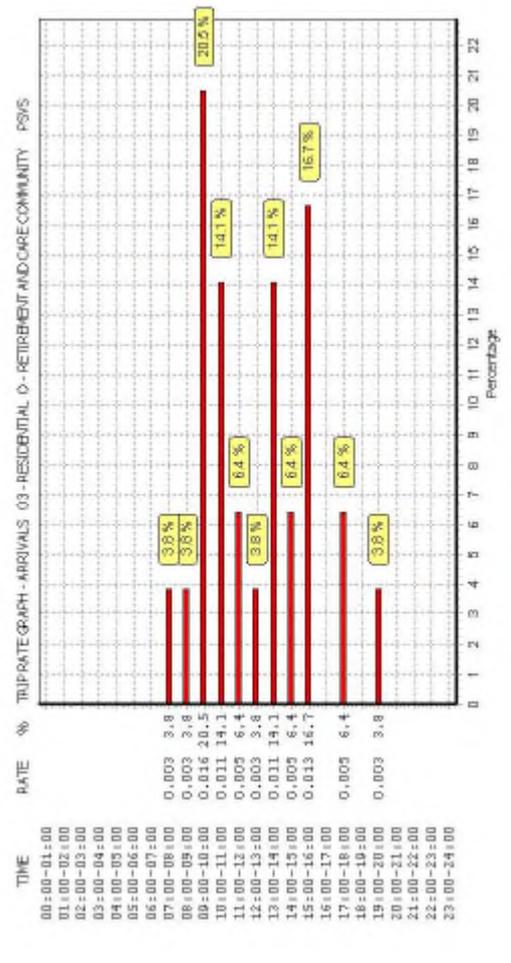
This graph is a visual representation of the trip rate calculation results screen. The same time periods and trip rates are displayed. In addition, there is a third column showing the rate of the total trips as a percentage of the total trips for the selected time period, allowing peak periods to be easily identified through observation. Note that the type of count and the selected direction is shown at the top of the graph.

TRIP RATE for Land Use 03 - RESIDENTIAL/O - RETIREMENT AND CARE COMMUNITY  
**PSVS**  
 Calculation factor: 1 DWELLS  
 BOLD print indicates peak (busiest) period

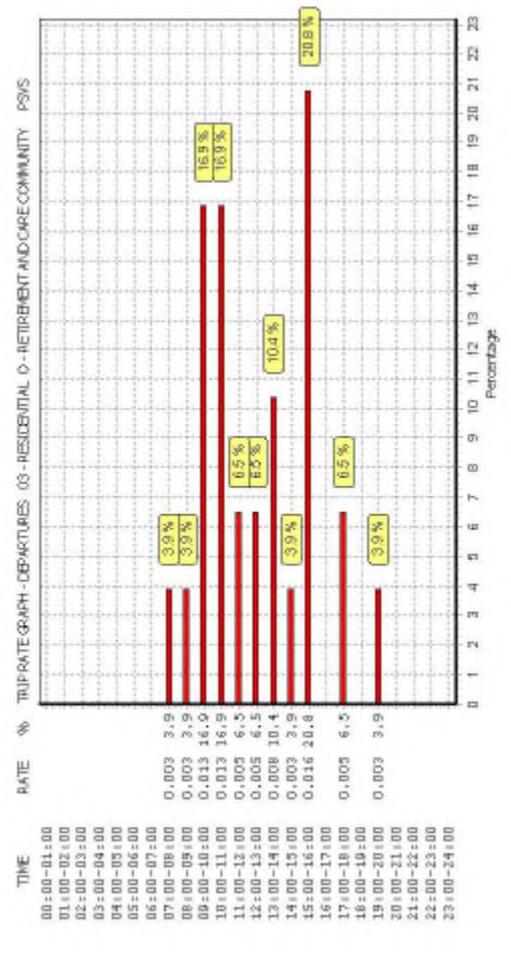
| Time Range    | ARRIVALS |             |           | DEPARTURES |             |           | TOTALS   |             |           |
|---------------|----------|-------------|-----------|------------|-------------|-----------|----------|-------------|-----------|
|               | No. Days | Ave. DWELLS | Trip Rate | No. Days   | Ave. DWELLS | Trip Rate | No. Days | Ave. DWELLS | Trip Rate |
| 00:00 - 01:00 |          |             |           |            |             |           |          |             |           |
| 01:00 - 02:00 |          |             |           |            |             |           |          |             |           |
| 02:00 - 03:00 |          |             |           |            |             |           |          |             |           |
| 03:00 - 04:00 |          |             |           |            |             |           |          |             |           |
| 04:00 - 05:00 |          |             |           |            |             |           |          |             |           |
| 05:00 - 06:00 |          |             |           |            |             |           |          |             |           |
| 06:00 - 07:00 |          |             |           |            |             |           |          |             |           |
| 07:00 - 08:00 | 7        | 54          | 0.003     | 7          | 54          | 0.003     | 7        | 54          | 0.006     |
| 08:00 - 09:00 | 7        | 54          | 0.003     | 7          | 54          | 0.003     | 7        | 54          | 0.006     |
| 09:00 - 10:00 | 7        | 54          | 0.016     | 7          | 54          | 0.013     | 7        | 54          | 0.029     |
| 10:00 - 11:00 | 7        | 54          | 0.011     | 7          | 54          | 0.013     | 7        | 54          | 0.024     |
| 11:00 - 12:00 | 7        | 54          | 0.005     | 7          | 54          | 0.005     | 7        | 54          | 0.010     |
| 12:00 - 13:00 | 7        | 54          | 0.003     | 7          | 54          | 0.005     | 7        | 54          | 0.008     |
| 13:00 - 14:00 | 7        | 54          | 0.011     | 7          | 54          | 0.008     | 7        | 54          | 0.019     |
| 14:00 - 15:00 | 7        | 54          | 0.005     | 7          | 54          | 0.003     | 7        | 54          | 0.008     |
| 15:00 - 16:00 | 7        | 54          | 0.013     | 7          | 54          | 0.016     | 7        | 54          | 0.029     |
| 16:00 - 17:00 | 7        | 54          | 0.000     | 7          | 54          | 0.000     | 7        | 54          | 0.000     |
| 17:00 - 18:00 | 7        | 54          | 0.005     | 7          | 54          | 0.005     | 7        | 54          | 0.010     |
| 18:00 - 19:00 | 7        | 54          | 0.000     | 7          | 54          | 0.000     | 7        | 54          | 0.000     |
| 19:00 - 20:00 | 6        | 52          | 0.003     | 6          | 52          | 0.003     | 6        | 52          | 0.006     |
| 20:00 - 21:00 | 6        | 52          | 0.000     | 6          | 52          | 0.000     | 6        | 52          | 0.000     |
| 21:00 - 22:00 |          |             |           |            |             |           |          |             |           |
| 22:00 - 23:00 |          |             |           |            |             |           |          |             |           |
| 23:00 - 24:00 |          |             |           |            |             |           |          |             |           |
| Total Rates:  |          |             | 0.078     |            |             | 0.077     |          |             | 0.155     |

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.

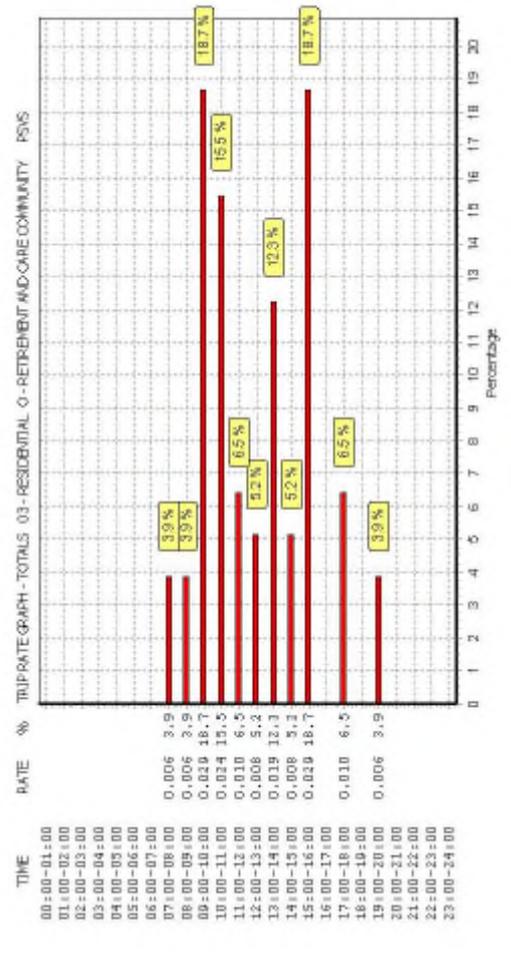
To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected 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.



This graph is a visual representation of the trip rate calculation results screen. The same time periods and trip rates are displayed. In addition, there is a third column showing the rate of the total trips as a percentage of the total trips for the selected direction is shown at the top of the graph.



This graph is a visual representation of the trip rate calculation results screen. The same time periods and trip rates are displayed. In addition, there is a third column showing the rate of the total trips as a percentage of the total trips for the selected direction is shown at the top of the graph.



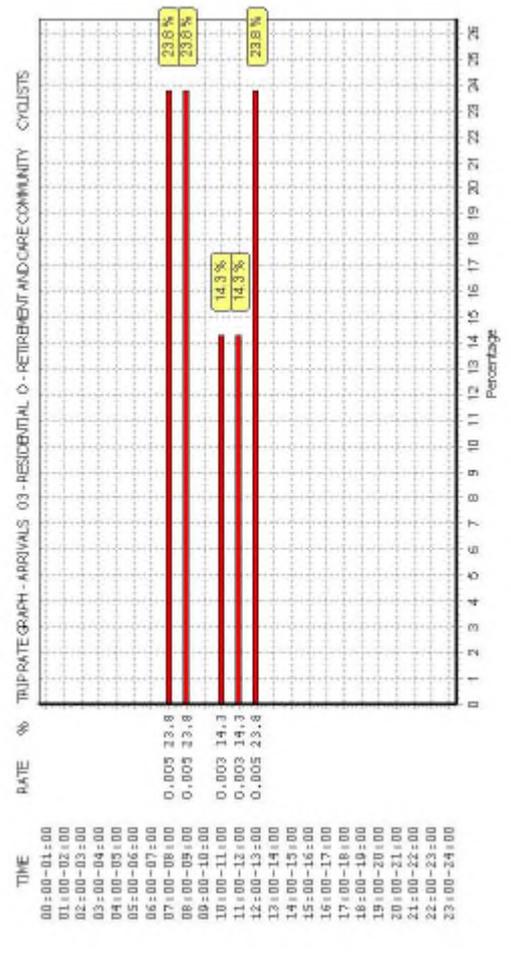
This graph is a visual representation of the trip rate calculation results screen. The same time periods and trip rates are displayed. In addition, there is a third column showing the rate of the total trips as a percentage of the total trips for the selected direction is shown at the top of the graph.

TRIP RATE for Land Use 03 - RESIDENTIAL/O - RETIREMENT AND CARE COMMUNITY  
**CYCLISTS**  
**Calculation factor: 1 DWELLS**  
**BOLD print indicates peak (busiest) period**

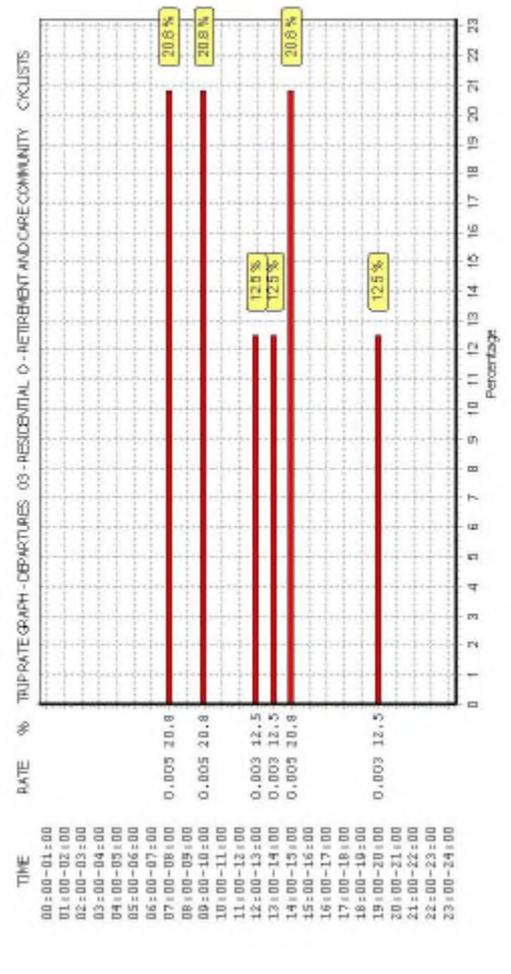
| Time Range          | ARRIVALS |             |              | DEPARTURES |             |              | TOTALS   |             |              |
|---------------------|----------|-------------|--------------|------------|-------------|--------------|----------|-------------|--------------|
|                     | No. Days | Ave. DWELLS | Trip Rate    | No. Days   | Ave. DWELLS | Trip Rate    | No. Days | Ave. DWELLS | Trip Rate    |
| 00:00 - 01:00       |          |             |              |            |             |              |          |             |              |
| 01:00 - 02:00       |          |             |              |            |             |              |          |             |              |
| 02:00 - 03:00       |          |             |              |            |             |              |          |             |              |
| 03:00 - 04:00       |          |             |              |            |             |              |          |             |              |
| 04:00 - 05:00       |          |             |              |            |             |              |          |             |              |
| 05:00 - 06:00       |          |             |              |            |             |              |          |             |              |
| 06:00 - 07:00       |          |             |              |            |             |              |          |             |              |
| 07:00 - 08:00       | <b>7</b> | <b>54</b>   | <b>0.005</b> | <b>7</b>   | <b>54</b>   | <b>0.005</b> | <b>7</b> | <b>54</b>   | <b>0.010</b> |
| 08:00 - 09:00       | 7        | 54          | 0.005        | 7          | 54          | 0.005        | 7        | 54          | 0.005        |
| 09:00 - 10:00       | 7        | 54          | 0.000        | 7          | 54          | 0.005        | 7        | 54          | 0.005        |
| 10:00 - 11:00       | 7        | 54          | 0.003        | 7          | 54          | 0.000        | 7        | 54          | 0.003        |
| 11:00 - 12:00       | 7        | 54          | 0.003        | 7          | 54          | 0.000        | 7        | 54          | 0.003        |
| 12:00 - 13:00       | 7        | 54          | 0.005        | 7          | 54          | 0.003        | 7        | 54          | 0.008        |
| 13:00 - 14:00       | 7        | 54          | 0.000        | 7          | 54          | 0.003        | 7        | 54          | 0.003        |
| 14:00 - 15:00       | 7        | 54          | 0.000        | 7          | 54          | 0.005        | 7        | 54          | 0.005        |
| 15:00 - 16:00       | 7        | 54          | 0.000        | 7          | 54          | 0.000        | 7        | 54          | 0.000        |
| 16:00 - 17:00       | 7        | 54          | 0.000        | 7          | 54          | 0.000        | 7        | 54          | 0.000        |
| 17:00 - 18:00       | 7        | 54          | 0.000        | 7          | 54          | 0.000        | 7        | 54          | 0.000        |
| 18:00 - 19:00       | 7        | 54          | 0.000        | 7          | 54          | 0.000        | 7        | 54          | 0.000        |
| 19:00 - 20:00       | 6        | 52          | 0.000        | 6          | 52          | 0.003        | 6        | 52          | 0.003        |
| 20:00 - 21:00       | 6        | 52          | 0.000        | 6          | 52          | 0.000        | 6        | 52          | 0.000        |
| 21:00 - 22:00       |          |             |              |            |             |              |          |             |              |
| 22:00 - 23:00       |          |             |              |            |             |              |          |             |              |
| 23:00 - 24:00       |          |             |              |            |             |              |          |             |              |
| <b>Total Rates:</b> |          |             | <b>0.021</b> |            |             | <b>0.024</b> |          |             | <b>0.045</b> |

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.

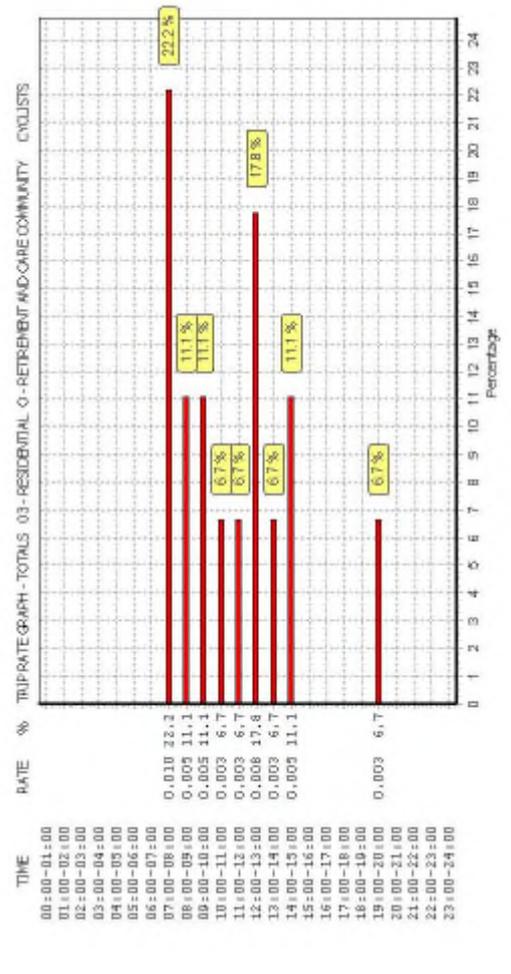
To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected 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.



This graph is a visual representation of the trip rate calculation results screen. The same time periods and trip rates are displayed. In addition, there is a third column showing the rate of the total trip rate by individual time period, allowing peak periods to be easily identified through observation. Note that the type of count and the selected direction is shown at the top of the graph.



This graph is a visual representation of the trip rate calculation results screen. The same time periods and trip rates are displayed. In addition, there is a third column showing the rate of the total trip rate by individual time period, allowing peak periods to be easily identified through observation. Note that the type of count and the selected direction is shown at the top of the graph.



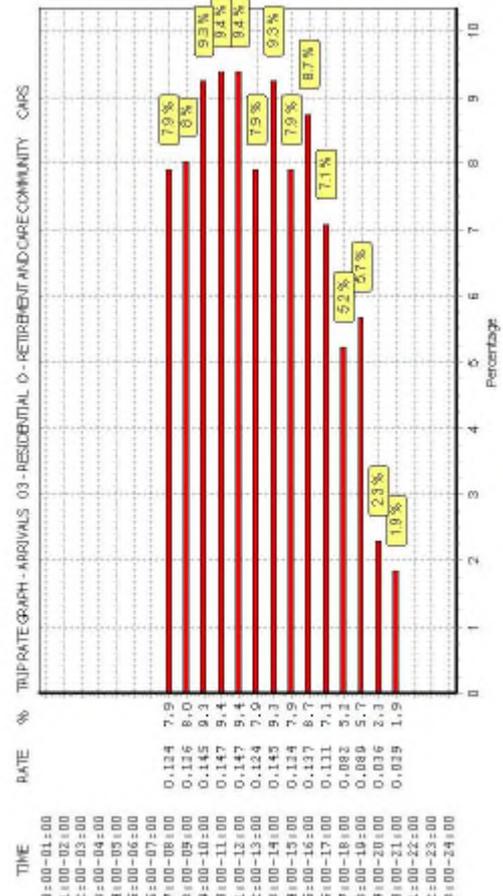
This graph is a visual representation of the trip rate calculation results screen. The same time periods and trip rates are displayed. In addition, there is a third column showing the rate of the total trip rate by individual time period, allowing peak periods to be easily identified through observation. Note that the type of count and the selected direction is shown at the top of the graph.

TRIP RATE for Land Use 03 - RESIDENTIAL/O - RETIREMENT AND CARE COMMUNITY  
**CARS**  
 Calculation factor: 1 DWELLS  
 BOLD print indicates peak (busiest) period

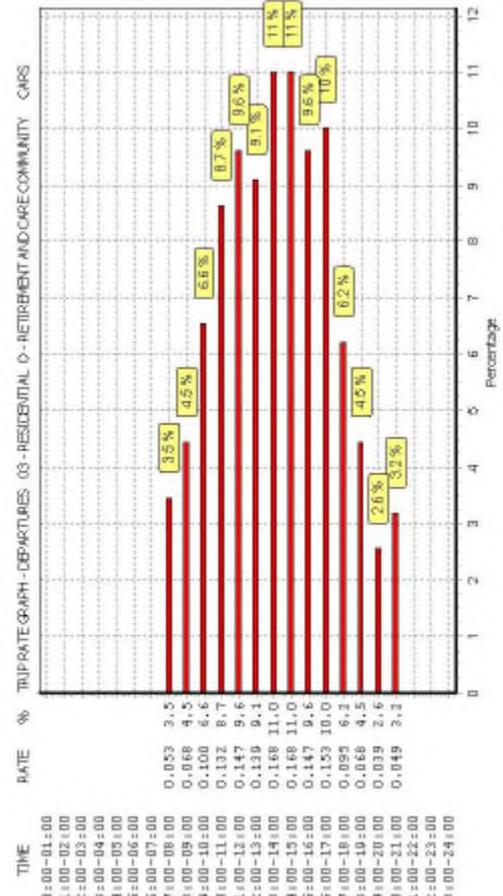
| Time Range    | ARRIVALS |             |              | DEPARTURES |             |              | TOTALS   |             |              |
|---------------|----------|-------------|--------------|------------|-------------|--------------|----------|-------------|--------------|
|               | No. Days | Ave. DWELLS | Trip Rate    | No. Days   | Ave. DWELLS | Trip Rate    | No. Days | Ave. DWELLS | Trip Rate    |
| 00:00 - 01:00 |          |             |              |            |             |              |          |             |              |
| 01:00 - 02:00 |          |             |              |            |             |              |          |             |              |
| 02:00 - 03:00 |          |             |              |            |             |              |          |             |              |
| 03:00 - 04:00 |          |             |              |            |             |              |          |             |              |
| 04:00 - 05:00 |          |             |              |            |             |              |          |             |              |
| 05:00 - 06:00 |          |             |              |            |             |              |          |             |              |
| 06:00 - 07:00 |          |             |              |            |             |              |          |             |              |
| 07:00 - 08:00 | 7        | 54          | 0.124        | 7          | 54          | 0.053        | 7        | 54          | 0.177        |
| 08:00 - 09:00 | 7        | 54          | 0.126        | 7          | 54          | 0.068        | 7        | 54          | 0.194        |
| 09:00 - 10:00 | 7        | 54          | 0.145        | 7          | 54          | 0.100        | 7        | 54          | 0.245        |
| 10:00 - 11:00 | 7        | <b>54</b>   | <b>0.147</b> | 7          | 54          | 0.132        | 7        | 54          | 0.279        |
| 11:00 - 12:00 | 7        | 54          | 0.147        | 7          | 54          | 0.147        | 7        | 54          | 0.294        |
| 12:00 - 13:00 | 7        | 54          | 0.124        | 7          | 54          | 0.139        | 7        | 54          | 0.263        |
| 13:00 - 14:00 | 7        | 54          | 0.145        | 7          | <b>54</b>   | <b>0.168</b> | 7        | <b>54</b>   | <b>0.313</b> |
| 14:00 - 15:00 | 7        | 54          | 0.124        | 7          | 54          | 0.168        | 7        | 54          | 0.292        |
| 15:00 - 16:00 | 7        | 54          | 0.137        | 7          | 54          | 0.147        | 7        | 54          | 0.284        |
| 16:00 - 17:00 | 7        | 54          | 0.111        | 7          | 54          | 0.153        | 7        | 54          | 0.264        |
| 17:00 - 18:00 | 7        | 54          | 0.082        | 7          | 54          | 0.095        | 7        | 54          | 0.177        |
| 18:00 - 19:00 | 7        | 54          | 0.089        | 7          | 54          | 0.068        | 7        | 54          | 0.157        |
| 19:00 - 20:00 | 6        | 52          | 0.036        | 6          | 52          | 0.039        | 6        | 52          | 0.075        |
| 20:00 - 21:00 | 6        | 52          | 0.029        | 6          | 52          | 0.049        | 6        | 52          | 0.078        |
| 21:00 - 22:00 |          |             |              |            |             |              |          |             |              |
| 22:00 - 23:00 |          |             |              |            |             |              |          |             |              |
| 23:00 - 24:00 |          |             |              |            |             |              |          |             |              |
| Total Rates:  |          |             | 1.566        |            |             | 1.526        |          |             | 3.092        |

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.

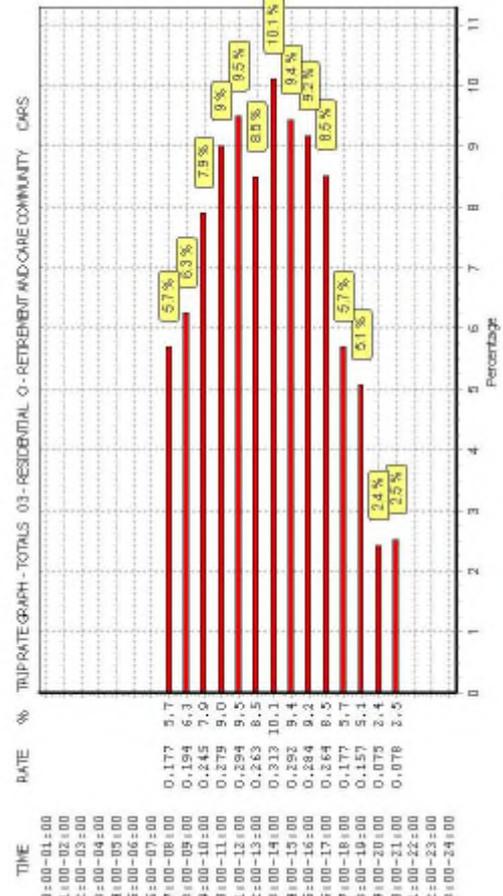
To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected 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.



This graph is a visual representation of the trip rate calculation results screen. The same time periods and trip rates are displayed. In addition, there is an additional column showing the rate of the total trips as a percentage of the total trip count for each time period, allowing peak periods to be easily identified through observation. Note that the type of count and the selected direction is shown at the top of the graph.



This graph is a visual representation of the trip rate calculation results screen. The same time periods and trip rates are displayed. In addition, there is an additional column showing the rate of the total trips as a percentage of the total trip count for each time period, allowing peak periods to be easily identified through observation. Note that the type of count and the selected direction is shown at the top of the graph.



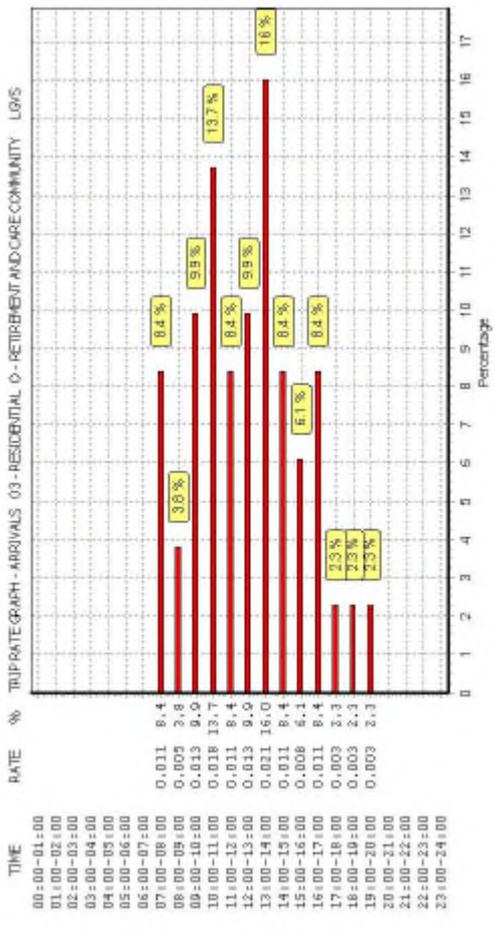
This graph is a visual representation of the trip rate calculation results screen. The same time periods and trip rates are displayed. In addition, there is an additional column showing the rate of the total trips as a percentage of the total trip count for each time period, allowing peak periods to be easily identified through observation. Note that the type of count and the selected direction is shown at the top of the graph.

TRIP RATE for Land Use 03 - RESIDENTIAL/O - RETIREMENT AND CARE COMMUNITY  
**LGVS**  
**Calculation factor: 1 DWELLS**  
**BOLD print indicates peak (busiest) period**

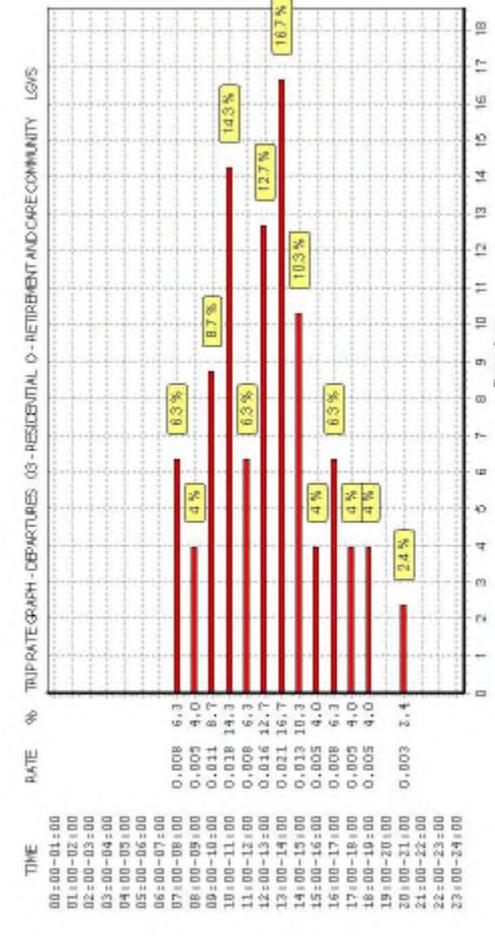
| Time Range    | ARRIVALS |             |              | DEPARTURES |             |              | TOTALS   |             |              |
|---------------|----------|-------------|--------------|------------|-------------|--------------|----------|-------------|--------------|
|               | No. Days | Ave. DWELLS | Trip Rate    | No. Days   | Ave. DWELLS | Trip Rate    | No. Days | Ave. DWELLS | Trip Rate    |
| 00:00 - 01:00 |          |             |              |            |             |              |          |             |              |
| 01:00 - 02:00 |          |             |              |            |             |              |          |             |              |
| 02:00 - 03:00 |          |             |              |            |             |              |          |             |              |
| 03:00 - 04:00 |          |             |              |            |             |              |          |             |              |
| 04:00 - 05:00 |          |             |              |            |             |              |          |             |              |
| 05:00 - 06:00 |          |             |              |            |             |              |          |             |              |
| 06:00 - 07:00 |          |             |              |            |             |              |          |             |              |
| 07:00 - 08:00 | 7        | 54          | 0.011        | 7          | 54          | 0.008        | 7        | 54          | 0.019        |
| 08:00 - 09:00 | 7        | 54          | 0.005        | 7          | 54          | 0.005        | 7        | 54          | 0.010        |
| 09:00 - 10:00 | 7        | 54          | 0.013        | 7          | 54          | 0.011        | 7        | 54          | 0.024        |
| 10:00 - 11:00 | 7        | 54          | 0.018        | 7          | 54          | 0.018        | 7        | 54          | 0.036        |
| 11:00 - 12:00 | 7        | 54          | 0.011        | 7          | 54          | 0.008        | 7        | 54          | 0.019        |
| 12:00 - 13:00 | 7        | 54          | 0.013        | 7          | 54          | 0.016        | 7        | 54          | 0.029        |
| 13:00 - 14:00 | 7        | <b>54</b>   | <b>0.021</b> | 7          | <b>54</b>   | <b>0.021</b> | 7        | <b>54</b>   | <b>0.042</b> |
| 14:00 - 15:00 | 7        | 54          | 0.011        | 7          | 54          | 0.013        | 7        | 54          | 0.024        |
| 15:00 - 16:00 | 7        | 54          | 0.008        | 7          | 54          | 0.005        | 7        | 54          | 0.013        |
| 16:00 - 17:00 | 7        | 54          | 0.011        | 7          | 54          | 0.008        | 7        | 54          | 0.019        |
| 17:00 - 18:00 | 7        | 54          | 0.003        | 7          | 54          | 0.005        | 7        | 54          | 0.008        |
| 18:00 - 19:00 | 7        | 54          | 0.003        | 7          | 54          | 0.005        | 7        | 54          | 0.008        |
| 19:00 - 20:00 | 6        | 52          | 0.003        | 6          | 52          | 0.000        | 6        | 52          | 0.003        |
| 20:00 - 21:00 | 6        | 52          | 0.000        | 6          | 52          | 0.003        | 6        | 52          | 0.003        |
| 21:00 - 22:00 |          |             |              |            |             |              |          |             |              |
| 22:00 - 23:00 |          |             |              |            |             |              |          |             |              |
| 23:00 - 24:00 |          |             |              |            |             |              |          |             |              |
| Total Rates:  |          |             | 0.131        |            |             | 0.126        |          |             | 0.257        |

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.

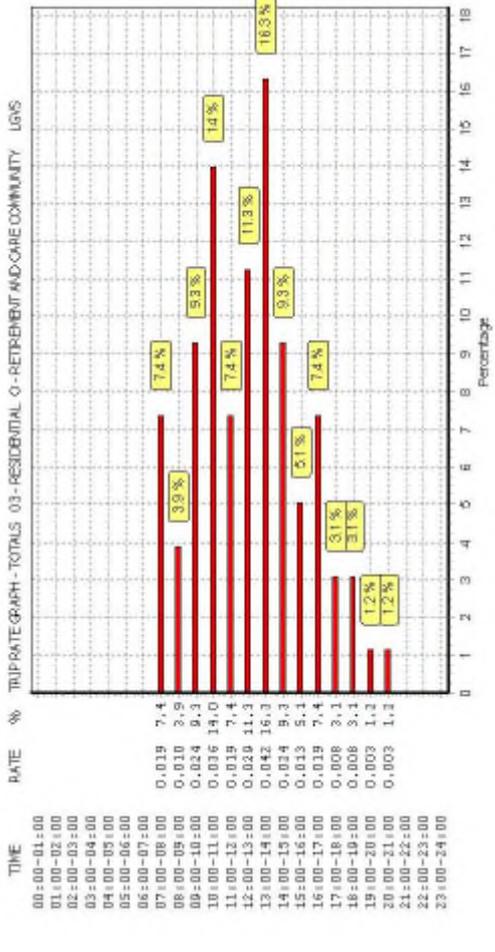
To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected 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.



This graph is a visual representation of the trip rate calculation results screen. The same time periods and trip rates are displayed. In addition, there is a third column showing the rate of the total trip rate by individual time period, allowing peak periods to be easily identified through observation. Note that the type of count and the selected direction is shown at the top of the graph.



This graph is a visual representation of the trip rate calculation results screen. The same time periods and trip rates are displayed. In addition, there is a third column showing the rate of the total trip rate by individual time period, allowing peak periods to be easily identified through observation. Note that the type of count and the selected direction is shown at the top of the graph.



This graph is a visual representation of the trip rate calculation results screen. The same time periods and trip rates are displayed. In addition, there is a third column showing the rate of the total trip rate by individual time period, allowing peak periods to be easily identified through observation. Note that the type of count and the selected direction is shown at the top of the graph.

Calculation Reference: AUDIT-638801-191030-1021

**TRIP RATE CALCULATION SELECTION PARAMETERS:**

Land Use : 04 - EDUCATION  
Category : D - NURSERY

**VEHICLES**

- Selected regions and areas:  
**06 WEST MIDLANDS**  
 WK WARWICKSHIRE 1 days  
**09 NORTH**  
 TV TEES VALLEY 1 days  
**10 WALES**  
 BG BRIDGEND 1 days  
**11 SCOTLAND**  
 SR STIRLING 1 days  
**12 CONNAUGHT**  
 RO ROSCOMMON 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: Number of pupils  
 Actual Range: 25 to 106 (units: )  
 Range Selected by User: 25 to 300 (units: )

Parking Spaces Range: All Surveys Included

Public Transport Provision:

Selection by: Include all surveys

Date Range: 01/01/11 to 21/05/19

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

Selected survey days:

Monday 2 days  
 Friday 3 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 undertaken using machines.

Selected Locations:

Edge of Town 5

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

Selected Location Sub Categories:

Industrial Zone 1  
 Residential Zone 2  
 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:  
 D1 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:

1,001 to 5,000 1 days  
 5,001 to 10,000 2 days  
 10,001 to 15,000 1 days  
 15,001 to 20,000 1 days

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

Population within 5 miles:

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

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

Car ownership within 5 miles:

0.6 to 1.0 1 days  
 1.1 to 1.5 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.

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 5 days

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

LIST OF SITES relevant to selection parameters

| ID | Site Name  | Category | Total Number of pupils | Survey date | Survey Type |
|----|--|----------|------------------------|-------------|-------------|
| 1  | BG-04-D-01<br>GEORGE STREET<br>BRIDGEND<br>BRIDGEND IND. ESTATE<br>Edge of Town<br>Industrial Zone | NURSERY  | 58                     | 13/10/14    | MANUAL      |
| 2  | RO-04-D-01<br>PARK VIEW<br>ROSCOMMON<br>CRUBY HILL<br>Edge of Town                                 | NURSERY  | 106                    | 26/09/14    | MANUAL      |
| 3  | SR-04-D-01<br>HENDERSON STREET<br>STIRLING<br>BRIDGE OF ALLAN<br>Edge of Town<br>No Sub Category   | NURSERY  | 30                     | 16/06/14    | MANUAL      |
| 4  | TV-04-D-01<br>COTSWOLD DRIVE<br>REDCAR<br>Edge of Town<br>Residential Zone                         | NURSERY  | 25                     | 19/05/17    | MANUAL      |
| 5  | WK-04-D-01<br>THE RIDGEWAY<br>STRATFORD UPON AVON<br>Edge of Town<br>Residential Zone              | NURSERY  | 61                     | 29/06/18    | 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 04 - EDUCATION/D - NURSERY

**VEHICLES**

**Calculation factor: 1**

**BOLD print indicates peak (busiest) period**

| Time Range          | ARRIVALS |             |              | DEPARTURES |             |              | TOTALS   |             |              |
|---------------------|----------|-------------|--------------|------------|-------------|--------------|----------|-------------|--------------|
|                     | No. Days | Ave. PUPILS | Trip Rate    | No. Days   | Ave. PUPILS | Trip Rate    | No. Days | Ave. PUPILS | 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        | 56          | 0.132        | 5          | 56          | 0.036        | 5        | 56          | 0.168        |
| 08:00 - 09:00       | <b>5</b> | <b>56</b>   | <b>0.343</b> | 5          | 56          | 0.229        | <b>5</b> | <b>56</b>   | <b>0.572</b> |
| 09:00 - 10:00       | 5        | 56          | 0.175        | 5          | 56          | 0.175        | 5        | 56          | 0.350        |
| 10:00 - 11:00       | 5        | 56          | 0.082        | 5          | 56          | 0.057        | 5        | 56          | 0.139        |
| 11:00 - 12:00       | 5        | 56          | 0.068        | 5          | 56          | 0.039        | 5        | 56          | 0.107        |
| 12:00 - 13:00       | 5        | 56          | 0.146        | 5          | 56          | 0.204        | 5        | 56          | 0.350        |
| 13:00 - 14:00       | 5        | 56          | 0.075        | 5          | 56          | 0.114        | 5        | 56          | 0.189        |
| 14:00 - 15:00       | 5        | 56          | 0.096        | 5          | 56          | 0.079        | 5        | 56          | 0.175        |
| 15:00 - 16:00       | 5        | 56          | 0.064        | 5          | 56          | 0.107        | 5        | 56          | 0.171        |
| 16:00 - 17:00       | 5        | 56          | 0.104        | 5          | 56          | 0.107        | 5        | 56          | 0.211        |
| 17:00 - 18:00       | 5        | 56          | 0.200        | <b>5</b>   | <b>56</b>   | <b>0.289</b> | 5        | 56          | 0.489        |
| 18:00 - 19:00       | 4        | 64          | 0.000        | 4          | 64          | 0.075        | 4        | 64          | 0.075        |
| 19:00 - 20:00       |          |             |              |            |             |              |          |             |              |
| 20:00 - 21:00       |          |             |              |            |             |              |          |             |              |
| 21:00 - 22:00       |          |             |              |            |             |              |          |             |              |
| 22:00 - 23:00       |          |             |              |            |             |              |          |             |              |
| 23:00 - 24:00       |          |             |              |            |             |              |          |             |              |
| <b>Total Rates:</b> |          |             | <b>1.485</b> |            |             | <b>1.511</b> |          |             | <b>2.996</b> |

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

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

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**Parameter summary**

Trip rate parameter range selected: 25 - 106 (units: )  
 Survey date date range: 01/01/11 - 21/05/19  
 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 shown. Finally, the number of survey days that have been manually removed from the selected set outside of the standard filtering procedure are displayed.

**TRIP RATE CALCULATION SELECTION PARAMETERS:**

Calculation Reference: AUDIT-638801-210218-0235

Land Use : 02 - EMPLOYMENT  
 Category : A - OFFICE

**TOTAL VEHICLES**

Selected regions and areas:

|                                   |        |
|-----------------------------------|--------|
| 03 SOUTH WEST                     |        |
| WL WILTSHIRE                      | 1 days |
| 07 YORKSHIRE & NORTH LINCOLNSHIRE |        |
| WY WEST YORKSHIRE                 | 1 days |
| 09 NORTH                          |        |
| DH DURHAM                         | 1 days |
| 13 MUNSTER                        |        |
| CR CORK                           | 1 days |
| 16 ULSTER (REPUBLIC OF IRELAND)   |        |
| MG MONAGHAN                       | 1 days |

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

**Primary Filtering selection:**

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

Parameter: Gross floor area  
 Actual Range: 1230 to 8600 (units: sqm)  
 Range Selected by User: 178 to 175000 (units: sqm)

Parking Spaces Range: All Surveys Included

Public Transport Provision:

Selection by: Include all surveys

Date Range: 01/01/12 to 08/09/20

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

Selected survey days:

|           |        |
|-----------|--------|
| Monday    | 1 days |
| Tuesday   | 2 days |
| Wednesday | 1 days |
| Thursday  | 1 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 undertaken using machines.

Selected Locations:

|              |   |
|--------------|---|
| Edge of Town | 5 |
|--------------|---|

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

Selected Location Sub Categories:

|                  |   |
|------------------|---|
| Development Zone | 1 |
| Out of Town      | 1 |
| No Sub Category  | 3 |

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

**Secondary Filtering selection:**

Use Class:  
 B1 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®.

Filter by Use Class Breakdown:  
 All Surveys Included

Population within 500m Range:  
 All Surveys Included

Population within 1 mile:  
 1,000 or Less 1 days  
 1,001 to 5,000 2 days  
 10,001 to 15,000 2 days

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

Population within 5 miles:  
 All Surveys Included

Population within 1 mile:  
 5,001 to 25,000 1 days  
 25,001 to 50,000 1 days  
 100,001 to 125,000 1 days  
 125,001 to 250,000 2 days

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

Car ownership within 5 miles:

0.6 to 1.0 1 days  
 1.1 to 1.5 3 days  
 1.6 to 2.0 1 days

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

Travel Plan:

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 5 days

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

LIST OF SITES relevant to selection parameters

| ID | CR-02-A-01  | STATISTICS OFFICES   | CORK                                  |
|----|---|--|---------------------------------------|
| 1  | MAHON CRESCENT<br>CORK  | Edge of Town<br>No Sub Category<br>Total Gross floor area: 8600 sqm<br>Survey date: MONDAY 23/06/14    | Survey Type: MANUAL                   |
| 2  | DH-02-A-03<br>ALDERMAN BEST WAY<br>DARLINGTON   | Edge of Town<br>No Sub Category<br>Total Gross floor area: 3530 sqm<br>Survey date: THURSDAY 18/10/18  | DURHAM<br>Survey Type: MANUAL         |
| 3  | MG-02-A-02<br>ARMAGH ROAD<br>MONAGHAN   | Edge of Town<br>No Sub Category<br>Total Gross floor area: 3205 sqm<br>Survey date: WEDNESDAY 16/11/16 | MONAGHAN<br>Survey Type: MANUAL       |
| 4  | WL-02-A-01<br>THE CRESCENT<br>AMESBURY<br>SUNRISE WAY<br>Edge of Town<br>Development Zone | Total Gross floor area: 2500 sqm<br>Survey date: TUESDAY 18/09/18                                      | WILTSHIRE<br>Survey Type: MANUAL      |
| 5  | WY-02-A-05<br>PIONEER WAY<br>CASTLEFORD<br>WHITWOOD                                       | Edge of Town<br>No Sub Category<br>Total Gross floor area: 1230 sqm<br>Survey date: TUESDAY 23/05/17   | WEST YORKSHIRE<br>Survey Type: MANUAL |

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

TRIP RATE for Land Use 02 - EMPLOYMENT/A - OFFICE

**TOTAL VEHICLES**

Calculation factor: 100 sqm

BOLD print indicates peak (busiest) period

| Time Range    | ARRIVALS |             |              | DEPARTURES |             |              | TOTALS   |             |              |
|---------------|----------|-------------|--------------|------------|-------------|--------------|----------|-------------|--------------|
|               | No. Days | Ave. GFA    | Trip Rate    | No. Days   | Ave. GFA    | Trip Rate    | No. Days | Ave. GFA    | Trip Rate    |
| 00:00 - 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 | 5        | 3813        | 0.084        | 5          | 3813        | 0.026        | 5        | 3813        | 0.110        |
| 07:30 - 08:00 | 5        | 3813        | 0.294        | 5          | 3813        | 0.058        | 5        | 3813        | 0.352        |
| 08:00 - 08:30 | 5        | 3813        | 0.771        | 5          | 3813        | 0.089        | 5        | 3813        | 0.860        |
| 08:30 - 09:00 | 5        | 3813        | 0.687        | 5          | 3813        | 0.058        | 5        | 3813        | 0.745        |
| 09:00 - 09:30 | 5        | <b>3813</b> | <b>0.965</b> | 5          | 3813        | 0.063        | 5        | <b>3813</b> | <b>1.028</b> |
| 09:30 - 10:00 | 5        | 3813        | 0.525        | 5          | 3813        | 0.105        | 5        | 3813        | 0.630        |
| 10:00 - 10:30 | 5        | 3813        | 0.199        | 5          | 3813        | 0.100        | 5        | 3813        | 0.299        |
| 10:30 - 11:00 | 5        | 3813        | 0.089        | 5          | 3813        | 0.047        | 5        | 3813        | 0.136        |
| 11:00 - 11:30 | 5        | 3813        | 0.068        | 5          | 3813        | 0.037        | 5        | 3813        | 0.105        |
| 11:30 - 12:00 | 5        | 3813        | 0.026        | 5          | 3813        | 0.073        | 5        | 3813        | 0.099        |
| 12:00 - 12:30 | 5        | 3813        | 0.058        | 5          | 3813        | 0.115        | 5        | 3813        | 0.173        |
| 12:30 - 13:00 | 5        | 3813        | 0.131        | 5          | 3813        | 0.393        | 5        | 3813        | 0.524        |
| 13:00 - 13:30 | 5        | 3813        | 0.194        | 5          | 3813        | 0.273        | 5        | 3813        | 0.467        |
| 13:30 - 14:00 | 5        | 3813        | 0.252        | 5          | 3813        | 0.194        | 5        | 3813        | 0.446        |
| 14:00 - 14:30 | 5        | 3813        | 0.304        | 5          | 3813        | 0.100        | 5        | 3813        | 0.404        |
| 14:30 - 15:00 | 5        | 3813        | 0.121        | 5          | 3813        | 0.094        | 5        | 3813        | 0.215        |
| 15:00 - 15:30 | 5        | 3813        | 0.100        | 5          | 3813        | 0.152        | 5        | 3813        | 0.252        |
| 15:30 - 16:00 | 5        | 3813        | 0.042        | 5          | 3813        | 0.199        | 5        | 3813        | 0.241        |
| 16:00 - 16:30 | 5        | 3813        | 0.058        | 5          | 3813        | 0.477        | 5        | 3813        | 0.535        |
| 16:30 - 17:00 | 5        | 3813        | 0.084        | 5          | 3813        | 0.713        | 5        | 3813        | 0.797        |
| 17:00 - 17:30 | 5        | 3813        | 0.016        | 5          | <b>3813</b> | <b>0.960</b> | 5        | 3813        | 0.976        |
| 17:30 - 18:00 | 5        | 3813        | 0.052        | 5          | 3813        | 0.304        | 5        | 3813        | 0.356        |
| 18:00 - 18:30 | 4        | 4459        | 0.022        | 4          | 4459        | 0.364        | 4        | 4459        | 0.386        |
| 18:30 - 19:00 | 4        | 4459        | 0.028        | 4          | 4459        | 0.191        | 4        | 4459        | 0.219        |
| 19:00 - 19:30 |          |             |              |            |             |              |          |             |              |
| 19:30 - 20:00 |          |             |              |            |             |              |          |             |              |
| 20:00 - 20:30 |          |             |              |            |             |              |          |             |              |
| 20:30 - 21:00 |          |             |              |            |             |              |          |             |              |
| 21:00 - 21:30 |          |             |              |            |             |              |          |             |              |
| 21:30 - 22:00 |          |             |              |            |             |              |          |             |              |
| 22:00 - 22:30 |          |             |              |            |             |              |          |             |              |
| 22:30 - 23:00 |          |             |              |            |             |              |          |             |              |
| 23:00 - 23:30 |          |             |              |            |             |              |          |             |              |
| 23:30 - 24:00 |          |             |              |            |             |              |          |             |              |
| Total Rates:  |          |             | 5.170        |            |             | 5.185        |          |             | 10.355       |

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

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

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**Parameter summary**

Trip rate parameter range selected: 1230 - 8600 (units: sqm)  
 Survey date date range: 01/01/12 - 08/09/20  
 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 shown. Finally, the number of survey days that have been manually removed from the selected set outside of the standard filtering procedure are displayed.

Calculation Reference: AUDIT-638801-200617-0634

**TRIP RATE CALCULATION SELECTION PARAMETERS:**

Land Use : 05 - HEALTH  
 Category : G - GP SURGERIES

**VEHICLES**

Selected regions and areas:

|                         |        |
|-------------------------|--------|
| <b>02 SOUTH EAST</b>    |        |
| ES EAST SUSSEX          | 1 days |
| IW ISLE OF WIGHT        | 1 days |
| <b>05 EAST MIDLANDS</b> |        |
| LE LEICESTERSHIRE       | 1 days |
| <b>08 NORTH WEST</b>    |        |
| CH CHESHIRE             | 1 days |
| <b>11 SCOTLAND</b>      |        |
| FI FIFE                 | 2 days |
| <b>12 CONNAUGHT</b>     |        |
| RO ROSCOMMON            | 1 days |

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

**Primary Filtering selection:**

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

Parameter: Gross floor area  
 Actual Range: 200 to 1400 (units: sqm)  
 Range Selected by User: 40 to 1592 (units: sqm)

Parking Spaces Range: All Surveys Included

Public Transport Provision:

Selection by: Include all surveys

Date Range: 01/01/12 to 26/11/19

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

Selected survey days:

|           |        |
|-----------|--------|
| Monday    | 1 days |
| Tuesday   | 1 days |
| Wednesday | 3 days |
| Friday    | 2 days |

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

Selected survey types:

|                       |        |
|-----------------------|--------|
| Manual count          | 7 days |
| Directional ATC Count | 0 days |

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

Selected Locations:

|  |   |
|--|---|
| Edge of Town                             | 2 |
| Neighbourhood Centre (PPS6 Local Centre) | 5 |

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

Selected Location Sub Categories:

|                  |   |
|------------------|---|
| Residential Zone | 4 |
| Village          | 3 |

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

**Secondary Filtering selection:**

Use Class:

|    |        |
|----|--------|
| D1 | 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:

|                  |        |
|------------------|--------|
| 1,000 or Less    | 1 days |
| 1,001 to 5,000   | 2 days |
| 5,001 to 10,000  | 1 days |
| 10,001 to 15,000 | 1 days |
| 15,001 to 20,000 | 2 days |

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

Population within 5 miles:

|                    |        |
|--------------------|--------|
| 5,001 to 25,000    | 1 days |
| 25,001 to 50,000   | 2 days |
| 50,001 to 75,000   | 2 days |
| 100,001 to 125,000 | 2 days |

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

Car ownership within 5 miles:

|            |        |
|------------|--------|
| 0.6 to 1.0 | 1 days |
| 1.1 to 1.5 | 5 days |
| 1.6 to 2.0 | 1 days |

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

Travel Plan:

|    |        |
|----|--------|
| No | 7 days |
|----|--------|

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

PTAL Rating:

|                 |        |
|-----------------|--------|
| No PTAL Present | 7 days |
|-----------------|--------|

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

LIST OF SITES relevant to selection parameters

|   |                       |
|---|-----------------------|
| <b>1 CH-05-G-05 GP SURGERY</b>  | <b>CHESHIRE</b>       |
| KINGSMEAD SQUARE<br>NORTHWICH<br>KINGSMEAD<br>Neighbourhood Centre (PPS6 Local Centre)<br>Residential Zone<br>Total Gross floor area: 650 sqm<br>Survey date: FRIDAY 07/06/19   | Survey Type: MANUAL   |
| <b>2 ES-05-G-02 MEDICAL CENTRE</b>  | <b>EAST SUSSEX</b>    |
| JUZIERS DRIVE<br>EAST HOATHLY<br>Neighbourhood Centre (PPS6 Local Centre)<br>Village<br>Total Gross floor area: 215 sqm<br>Survey date: WEDNESDAY 13/07/16                      | Survey Type: MANUAL   |
| <b>3 FI-05-G-02 GP SURGERY</b>  | <b>FIFE</b>           |
| MAIN ROAD<br>NEAR DUNFERMLINE<br>CHARLESTOWN<br>Neighbourhood Centre (PPS6 Local Centre)<br>Village<br>Total Gross floor area: 325 sqm<br>Survey date: FRIDAY 29/03/15          | Survey Type: MANUAL   |
| <b>4 FI-05-G-03 GP SURGERY</b>  | <b>FIFE</b>           |
| IZATT AVENUE<br>DUNFERMLINE<br>HOSPITAL HILL<br>Neighbourhood Centre (PPS6 Local Centre)<br>Residential Zone<br>Total Gross floor area: 425 sqm<br>Survey date: MONDAY 21/03/16 | Survey Type: MANUAL   |
| <b>5 IW-05-G-01 GP SURGERY</b>  | <b>ISLE OF WIGHT</b>  |
| NEWPORT ROAD<br>COWES<br>Edge of Town<br>Residential Zone<br>Total Gross floor area: 1400 sqm<br>Survey date: WEDNESDAY 26/06/19  | Survey Type: MANUAL   |
| <b>6 LE-05-G-02 GP SURGERY</b>  | <b>LEICESTERSHIRE</b> |
| THE SANDS<br>NEAR NELTON MOWBRAY<br>LONG CLAWSON<br>Neighbourhood Centre (PPS6 Local Centre)<br>Village<br>Total Gross floor area: 363 sqm<br>Survey date: TUESDAY 29/11/16     | Survey Type: MANUAL   |
| <b>7 RO-05-G-01 GP SURGERY</b>  | <b>ROSCOMMON</b>      |
| VALLEY COURT<br>ATHLONE<br>BUNNALLY<br>Edge of Town<br>Residential Zone<br>Total Gross floor area: 200 sqm<br>Survey date: WEDNESDAY 24/09/14                                   | Survey Type: MANUAL   |

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

**TRIP RATE for Land Use 05 - HEALTH/G - GP SURGERIES**

**VEHICLES**

**Calculation factor: 100 sqm**  
**BOLD print indicates peak (busiest) period**

| Time Range          | ARRIVALS |          |           | DEPARTURES |          |           | TOTALS   |          |           |
|---------------------|----------|----------|-----------|------------|----------|-----------|----------|----------|-----------|
|                     | No. Days | Ave. GFA | Trip Rate | No. Days   | Ave. GFA | Trip Rate | No. Days | Ave. GFA | Trip Rate |
| 00:00 - 01:00       |          |          |           |            |          |           |          |          |           |
| 01:00 - 02:00       |          |          |           |            |          |           |          |          |           |
| 02:00 - 03:00       |          |          |           |            |          |           |          |          |           |
| 03:00 - 04:00       |          |          |           |            |          |           |          |          |           |
| 04:00 - 05:00       |          |          |           |            |          |           |          |          |           |
| 05:00 - 06:00       |          |          |           |            |          |           |          |          |           |
| 06:00 - 07:00       |          |          |           |            |          |           |          |          |           |
| 07:00 - 08:00       | 7        | 511      | 1.062     | 7          | 511      | 0.056     | 7        | 511      | 1.118     |
| 08:00 - 09:00       | 7        | 511      | 4.080     | 7          | 511      | 1.984     | 7        | 511      | 6.064     |
| 09:00 - 10:00       | 7        | 511      | 3.941     | 7          | 511      | 3.494     | 7        | 511      | 7.435     |
| 10:00 - 11:00       | 7        | 511      | 3.969     | 7          | 511      | 3.745     | 7        | 511      | 7.714     |
| 11:00 - 12:00       | 7        | 511      | 3.969     | 7          | 511      | 4.136     | 7        | 511      | 8.105     |
| 12:00 - 13:00       | 7        | 511      | 2.990     | 7          | 511      | 3.857     | 7        | 511      | 6.847     |
| 13:00 - 14:00       | 7        | 511      | 2.764     | 7          | 511      | 2.767     | 7        | 511      | 5.031     |
| 14:00 - 15:00       | 7        | 511      | 4.192     | 7          | 511      | 3.549     | 7        | 511      | 7.741     |
| 15:00 - 16:00       | 7        | 511      | 3.494     | 7          | 511      | 3.633     | 7        | 511      | 7.127     |
| 16:00 - 17:00       | 7        | 511      | 3.242     | 7          | 511      | 3.605     | 7        | 511      | 6.847     |
| 17:00 - 18:00       | 7        | 511      | 1.593     | 7          | 511      | 2.990     | 7        | 511      | 4.583     |
| 18:00 - 19:00       | 6        | 488      | 0.410     | 6          | 488      | 1.127     | 6        | 488      | 1.537     |
| 19:00 - 20:00       |          |          |           |            |          |           |          |          |           |
| 20:00 - 21:00       |          |          |           |            |          |           |          |          |           |
| 21:00 - 22:00       |          |          |           |            |          |           |          |          |           |
| 22:00 - 23:00       |          |          |           |            |          |           |          |          |           |
| 23:00 - 24:00       |          |          |           |            |          |           |          |          |           |
| <b>Total Rates:</b> |          |          | 35.206    |            |          | 34.943    |          |          | 70.149    |

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

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

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**Parameter summary**

|   |                         |
|---|-------------------------|
| Trip rate parameter range selected:           | 200 - 1400 (units: sqm) |
| Survey date date range:                       | 01/01/12 - 26/11/19     |
| Number of weekdays (Monday-Friday):           | 7                       |
| Number of Saturdays:                          | 0                       |
| Number of Sundays:                            | 0                       |
| Surveys automatically removed from selection: | 0                       |
| Surveys manually removed from selection:      | 0                       |

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

Calculation Reference: AUDIT-638801-210218-0214

**TRIP RATE CALCULATION SELECTION PARAMETERS:**

Land Use : 07 - LEISURE  
 Category : K - FITNESS CLUB (PRIVATE)  
**TOTAL VEHICLES**

Selected regions and areas:

- 05 EAST MIDLANDS**  
NR NORTHAMPTONSHIRE 1 days
- 06 WEST MIDLANDS**  
SH SHROPSHIRE 1 days
- 07 YORKSHIRE & NORTH LINCOLNSHIRE**  
NY NORTH YORKSHIRE 1 days
- 09 NORTH**  
CB CUMBRIA 1 days  
TW TYNE & WEAR 1 days
- 10 WALES**  
PS POWYS 1 days
- 17 ULSTER (NORTHERN IRELAND)**  
AN ANTRIM 1 days  
DO DOWN 1 days

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

**Primary Filtering selection:**

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

Parameter: Gross floor area  
 Actual Range: 404 to 8550 (units: sqm)  
 Range Selected by User: 404 to 15000 (units: sqm)

Parking Spaces Range: All Surveys Included

Public Transport Provision:

Selection by: Include all surveys

Date Range: 01/01/12 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:

- Monday 1 days
- Tuesday 2 days
- Wednesday 3 days
- Thursday 2 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 undertaken using machines.

Selected Locations:

- Suburban Area (PP56 Out of Centre) 1
- Edge of Town 7

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

Selected Location Sub Categories:

- Industrial Zone 1
- Commercial Zone 1
- Development Zone 1
- Residential Zone 2
- No Sub Category 3

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

**Secondary Filtering selection:**

Use Class:

D2 8 days

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

Population within 500m Range:

All Surveys Included  
Population within 1 mile:  
 1,001 to 5,000 1 days  
 5,001 to 10,000 5 days  
 10,001 to 15,000 1 days  
 15,001 to 20,000 1 days

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

Population within 5 miles:

5,001 to 25,000 4 days  
 75,001 to 100,000 1 days  
 125,001 to 250,000 3 days

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

Car ownership within 5 miles:

0.6 to 1.0 4 days  
 1.1 to 1.5 3 days  
 1.6 to 2.0 1 days

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

Travel Plan:

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 AN-07-K-01 VIRGIN ACTIVE ANTRIM**  
 BELFAST ROAD  
 BELFAST  
 HOLYWOOD  
 Edge of Town  
 No Sub Category  
 Total Gross floor area: 2676 sqm  
 Survey date: WEDNESDAY 12/11/16  
 Survey Type: MANUAL
- 2 CB-07-K-01 FITNESS CLUB CUMBRIA**  
 COWPER ROAD  
 PENRITH  
 GILWILLY IND. ESTATE  
 Edge of Town  
 Industrial Zone  
 Total Gross floor area: 650 sqm  
 Survey date: TUESDAY 10/06/14  
 Survey Type: MANUAL
- 3 DO-07-K-01 DAVID LLOYD CLUB DOWN**  
 OLD DUNDONALD ROAD  
 BELFAST  
 DUNDONALD  
 Edge of Town  
 No Sub Category  
 Total Gross floor area: 8550 sqm  
 Survey date: THURSDAY 27/11/14  
 Survey Type: MANUAL
- 4 NR-07-K-01 PUMP GYM NORTHAMPTONSHIRE**  
 GLADSTONE ROAD  
 NORTHAMPTON  
 KINGSFIELD BUS. CENTRE  
 Edge of Town  
 Commercial Zone  
 Total Gross floor area: 1333 sqm  
 Survey date: WEDNESDAY 23/11/16  
 Survey Type: MANUAL
- 5 NY-07-K-01 FITNESS CLUB NORTH YORKSHIRE**  
 RIVER VIEW ROAD  
 RIPON  
 Edge of Town  
 No Sub Category  
 Total Gross floor area: 404 sqm  
 Survey date: TUESDAY 27/09/16  
 Survey Type: MANUAL
- 6 PS-07-K-01 SPORTS CENTRE POWYS**  
 BROOK STREET  
 WELSHPOOL  
 Edge of Town  
 Residential Zone  
 Total Gross floor area: 950 sqm  
 Survey date: MONDAY 11/05/15  
 Survey Type: MANUAL
- 7 SH-07-K-01 FITNESS, TENNIS & LEISURE SHROPSHIRE**  
 SUNDORNE ROAD  
 SHREWSBURY  
 Edge of Town  
 Residential Zone  
 Total Gross floor area: 4500 sqm  
 Survey date: WEDNESDAY 21/05/14  
 Survey Type: MANUAL
- 8 TW-07-K-01 DW SPORTS FITNESS TYNE & WEAR**  
 TIMBER BEACH ROAD  
 SUNDERLAND  
 CASTLETOWN  
 Suburban Area (PP56 Out of Centre)  
 Development Zone  
 Total Gross floor area: 1380 sqm  
 Survey date: THURSDAY 06/04/17  
 Survey Type: MANUAL

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

**TRIP RATE for Land Use 07 - LEISURE/K - FITNESS CLUB (PRIVATE)**

**TOTAL VEHICLES**

Calculation factor: 100 sqm  
 BOLD print indicates peak (busiest) period

| Time Range          | ARRIVALS |             |               | DEPARTURES |             |               | TOTALS   |             |               |
|---------------------|----------|-------------|---------------|------------|-------------|---------------|----------|-------------|---------------|
|                     | No. Days | Ave. GFA    | Trip Rate     | No. Days   | Ave. GFA    | Trip Rate     | No. Days | Ave. GFA    | Trip Rate     |
| 00:00 - 01:00       |          |             |               |            |             |               |          |             |               |
| 01:00 - 02:00       |          |             |               |            |             |               |          |             |               |
| 02:00 - 03:00       |          |             |               |            |             |               |          |             |               |
| 03:00 - 04:00       |          |             |               |            |             |               |          |             |               |
| 04:00 - 05:00       |          |             |               |            |             |               |          |             |               |
| 05:00 - 06:00       |          |             |               |            |             |               |          |             |               |
| 06:00 - 07:00       | 8        | 2555        | 0.832         | 8          | 2555        | 0.059         | 8        | 2555        | 0.891         |
| 07:00 - 08:00       | 8        | 2555        | 0.553         | 8          | 2555        | 0.631         | 8        | 2555        | 1.184         |
| 08:00 - 09:00       | 8        | 2555        | 0.773         | 8          | 2555        | 0.592         | 8        | 2555        | 1.365         |
| 09:00 - 10:00       | 8        | 2555        | 1.414         | 8          | 2555        | 0.479         | 8        | 2555        | 1.893         |
| 10:00 - 11:00       | 8        | 2555        | 0.890         | 8          | 2555        | 0.895         | 8        | 2555        | 1.785         |
| 11:00 - 12:00       | 8        | 2555        | 0.543         | 8          | 2555        | 1.052         | 8        | 2555        | 1.595         |
| 12:00 - 13:00       | 8        | 2555        | 0.621         | 8          | 2555        | 0.792         | 8        | 2555        | 1.413         |
| 13:00 - 14:00       | 8        | 2555        | 0.611         | 8          | 2555        | 0.778         | 8        | 2555        | 1.389         |
| 14:00 - 15:00       | 8        | 2555        | 0.587         | 8          | 2555        | 0.577         | 8        | 2555        | 1.164         |
| 15:00 - 16:00       | 8        | 2555        | 1.013         | 8          | 2555        | 0.675         | 8        | 2555        | 1.688         |
| 16:00 - 17:00       | 8        | 2555        | 1.159         | 8          | 2555        | 0.817         | 8        | 2555        | 1.976         |
| 17:00 - 18:00       | 8        | <b>2555</b> | <b>1.536</b>  | 8          | 2555        | 1.135         | 8        | <b>2555</b> | <b>2.671</b>  |
| 18:00 - 19:00       | 8        | 2555        | 1.321         | 8          | 2555        | 1.267         | 8        | 2555        | 2.588         |
| 19:00 - 20:00       | 8        | 2555        | 0.836         | 8          | <b>2555</b> | <b>1.306</b>  | 8        | 2555        | 2.142         |
| 20:00 - 21:00       | 8        | 2555        | 0.479         | 8          | 2555        | 1.208         | 8        | 2555        | 1.687         |
| 21:00 - 22:00       | 7        | 1699        | 0.151         | 7          | 1699        | 0.858         | 7        | 1699        | 1.009         |
| 22:00 - 23:00       | 1        | 404         | 0.000         | 1          | 404         | 0.000         | 1        | 404         | 0.000         |
| 23:00 - 24:00       |          |             |               |            |             |               |          |             |               |
| <b>Total Rates:</b> |          |             | <b>13.319</b> |            |             | <b>13.121</b> |          |             | <b>26.440</b> |

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 surveys where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

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

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**Parameter summary**

Trip rate parameter range selected: 404 - 8550 (units: sqm)  
 Survey date date range: 01/01/12 - 14/03/19  
 Number of weekdays (Monday-Friday): 8  
 Number of Saturdays: 0  
 Number of Sundays: 0  
 Surveys automatically removed from selection: 0  
 Surveys manually removed from selection: 0

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

Calculation Reference: AUDIT-638801-200617-0606

**TRIP RATE CALCULATION SELECTION PARAMETERS:**

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

Selected regions and areas:

|                         |        |
|-------------------------|--------|
| <b>06 WEST MIDLANDS</b> |        |
| WO WORCESTERSHIRE       | 1 days |
| <b>08 NORTH WEST</b>    |        |
| CH CHESHIRE             | 2 days |
| <b>09 NORTH</b>         |        |
| TV TEES VALLEY          | 1 days |
| <b>13 MUNSTER</b>       |        |
| CR CORK                 | 1 days |

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

**Primary Filtering selection:**

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

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

Parking Spaces Range: All Surveys Included

Public Transport Provision:

Selection by: Include all surveys

Date Range: 01/01/12 to 28/06/19

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

Selected survey days:

|          |        |
|----------|--------|
| Monday   | 1 days |
| Tuesday  | 1 days |
| Thursday | 2 days |
| Friday   | 1 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 undertaken using machines.

Selected Locations:

Neighbourhood Centre (PPS6 Local Centre) 5

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

Selected Location Sub Categories:

|                  |   |
|------------------|---|
| Residential Zone | 4 |
| Retail Zone      | 1 |

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

**Secondary Filtering selection:**

Use Class:

AL 1 days

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

**Secondary Filtering selection (Cont.):**

Population within 1 mile:

|                  |        |
|------------------|--------|
| 10,001 to 15,000 | 2 days |
| 20,001 to 25,000 | 1 days |
| 25,001 to 50,000 | 2 days |

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

Population within 5 miles:

|                    |        |
|--------------------|--------|
| 100,001 to 125,000 | 2 days |
| 125,001 to 250,000 | 3 days |

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

Car ownership within 5 miles:

|            |        |
|------------|--------|
| 0.6 to 1.0 | 2 days |
| 1.1 to 1.5 | 3 days |

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

Petrol filling station:

|   |        |
|---|--------|
| Included in the survey count              | 0 days |
| Excluded from count or no filling station | 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:

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 5 days

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

LIST OF SITES relevant to selection parameters

|  |                            |
|--|----------------------------|
| <b>1 CH-01-I-02 LOCAL SHOPS</b>  | <b>CHESHIRE</b>            |
| CHRISTLETON ROAD<br>CHESTER<br>BOUGHTON HEATH<br>Neighbourhood Centre (PPS6 Local Centre)<br>Residential Zone<br>Total Gross floor area: 260 sqm<br>Survey date: <b>TUESDAY</b> 15/05/12 | Survey Type: <b>MANUAL</b> |
| <b>2 CH-01-I-03 LOCAL SHOPS</b>  | <b>CHESHIRE</b>            |
| MILL LANE<br>CHESTER<br>BACHE<br>Neighbourhood Centre (PPS6 Local Centre)<br>Residential Zone<br>Total Gross floor area: 365 sqm<br>Survey date: <b>THURSDAY</b> 17/05/12                | Survey Type: <b>MANUAL</b> |
| <b>3 CR-01-I-01 LOCAL SHOPS</b>  | <b>CORK</b>                |
| BISHOPSTOWN ROAD<br>CORK<br>WILTON<br>Neighbourhood Centre (PPS6 Local Centre)<br>Retail Zone<br>Total Gross floor area: 1575 sqm<br>Survey date: <b>FRIDAY</b> 23/03/18                 | Survey Type: <b>MANUAL</b> |
| <b>4 TV-01-I-04 LOCAL SHOPS</b>  | <b>TEES VALLEY</b>         |
| CARGO FLEET LANE<br>MIDDLESBROUGH<br>ORMESBY<br>Neighbourhood Centre (PPS6 Local Centre)<br>Residential Zone<br>Total Gross floor area: 585 sqm<br>Survey date: <b>MONDAY</b> 07/10/13   | Survey Type: <b>MANUAL</b> |
| <b>5 WO-01-I-02 LOCAL SHOPS</b>  | <b>WORCESTERSHIRE</b>      |
| CRANHAM DRIVE<br>WORCESTER<br>Neighbourhood Centre (PPS6 Local Centre)<br>Residential Zone<br>Total Gross floor area: 4052 sqm<br>Survey date: <b>THURSDAY</b> 22/05/14                  | Survey Type: <b>MANUAL</b> |

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

**TRIP RATE for Land Use 01 - RETAIL/I - SHOPPING CENTRE - LOCAL SHOPS**

**VEHICLES**  
**Calculation factor: 100 sqm**  
**BOLD print indicates peak (busiest) period**

| Time Range          | ARRIVALS |             |               | DEPARTURES |             |               | TOTALS   |             |               |
|---------------------|----------|-------------|---------------|------------|-------------|---------------|----------|-------------|---------------|
|                     | No. Days | Ave. GFA    | Trip Rate     | No. Days   | Ave. GFA    | Trip Rate     | No. Days | Ave. GFA    | Trip Rate     |
| 00:00 - 01:00       |          |             |               |            |             |               |          |             |               |
| 01:00 - 02:00       |          |             |               |            |             |               |          |             |               |
| 02:00 - 03:00       |          |             |               |            |             |               |          |             |               |
| 03:00 - 04:00       |          |             |               |            |             |               |          |             |               |
| 04:00 - 05:00       |          |             |               |            |             |               |          |             |               |
| 05:00 - 06:00       |          |             |               |            |             |               |          |             |               |
| 06:00 - 07:00       |          |             |               |            |             |               |          |             |               |
| 07:00 - 08:00       | 5        | 1367        | 1,272         | 5          | 1367        | 1,185         | 5        | 1367        | 2,457         |
| 08:00 - 09:00       | 5        | 1367        | 2,179         | 5          | 1367        | 1,697         | 5        | 1367        | 3,876         |
| 09:00 - 10:00       | 5        | 1367        | 1,858         | 5          | 1367        | 1,697         | 5        | 1367        | 3,555         |
| 10:00 - 11:00       | 5        | 1367        | 2,501         | 5          | 1367        | 2,150         | 5        | 1367        | 4,651         |
| 11:00 - 12:00       | 5        | 1367        | 2,720         | 5          | 1367        | 2,984         | 5        | 1367        | 5,704         |
| 12:00 - 13:00       | <b>5</b> | <b>1367</b> | <b>3,613</b>  | <b>5</b>   | <b>1367</b> | <b>3,466</b>  | <b>5</b> | <b>1367</b> | <b>7,079</b>  |
| 13:00 - 14:00       | 5        | 1367        | 3,291         | 5          | 1367        | 3,203         | 5        | 1367        | 6,494         |
| 14:00 - 15:00       | 5        | 1367        | 2,925         | 5          | 1367        | 2,838         | 5        | 1367        | 5,763         |
| 15:00 - 16:00       | 5        | 1367        | 2,969         | 5          | 1367        | 3,218         | 5        | 1367        | 6,187         |
| 16:00 - 17:00       | 5        | 1367        | 2,867         | 5          | 1367        | 2,998         | 5        | 1367        | 5,865         |
| 17:00 - 18:00       | 5        | 1367        | 2,443         | 5          | 1367        | 2,633         | 5        | 1367        | 5,076         |
| 18:00 - 19:00       | 5        | 1367        | 2,574         | 5          | 1367        | 2,618         | 5        | 1367        | 5,192         |
| 19:00 - 20:00       | 3        | 2071        | 1,642         | 3          | 2071        | 1,932         | 3        | 2071        | 3,574         |
| 20:00 - 21:00       | 3        | 2071        | 1,175         | 3          | 2071        | 1,320         | 3        | 2071        | 2,495         |
| 21:00 - 22:00       | 2        | 1080        | 2,037         | 2          | 1080        | 2,407         | 2        | 1080        | 4,444         |
| 22:00 - 23:00       |          |             |               |            |             |               |          |             |               |
| 23:00 - 24:00       |          |             |               |            |             |               |          |             |               |
| <b>Total Rates:</b> |          |             | <b>36,066</b> |            |             | <b>36,346</b> |          |             | <b>72,412</b> |

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

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

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**Parameter summary**

|   |                         |
|---|-------------------------|
| Trip rate parameter range selected:           | 260 - 4052 (units: sqm) |
| Survey date date range:                       | 01/01/12 - 28/06/19     |
| 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 shown. Finally, the number of survey days that have been manually removed from the selected set outside of the standard filtering procedure are displayed.

Calculation Reference: AUDIT-638801-191105-1125

**TRIP RATE CALCULATION SELECTION PARAMETERS:**

Land Use : 04 - EDUCATION  
 Category : A - PRIMARY

**VEHICLES**

Selected regions and areas:

|  |        |  |
|--|--------|--|
| <b>02 SOUTH EAST</b>                         |        |  |
| BU BUCKINGHAMSHIRE                           | 1 days |  |
| EX ESSEX                                     | 1 days |  |
| SC SURREY                                    | 1 days |  |
| <b>03 SOUTH WEST</b>                         |        |  |
| DV DEVON                                     | 1 days |  |
| SM SOMERSET                                  | 1 days |  |
| WL WILTSHIRE                                 | 1 days |  |
| <b>04 EAST ANGLIA</b>                        |        |  |
| SF SUFFOLK                                   | 1 days |  |
| <b>05 EAST MIDLANDS</b>                      |        |  |
| LN LINCOLNSHIRE                              | 1 days |  |
| <b>07 YORKSHIRE &amp; NORTH LINCOLNSHIRE</b> |        |  |
| NE NORTH EAST LINCOLNSHIRE                   | 1 days |  |
| <b>11 SCOTLAND</b>                           |        |  |
| FA FALKIRK                                   | 1 days |  |
| FI FIFE                                      | 2 days |  |
| SR STIRLING                                  | 1 days |  |
| <b>12 CONNAUGHT</b>                          |        |  |
| GA GALWAY                                    | 1 days |  |
| RO ROSCOMMON                                 | 1 days |  |
| <b>13 MUNSTER</b>                            |        |  |
| LI LIMERICK                                  | 2 days |  |
| TI TIPPERARY                                 | 1 days |  |
| <b>14 LEINSTER</b>                           |        |  |
| LU LOUTH                                     | 2 days |  |
| <b>16 ULSTER (REPUBLIC OF IRELAND)</b>       |        |  |
| MG MONAGHAN                                  | 1 days |  |
| <b>17 ULSTER (NORTHERN IRELAND)</b>          |        |  |
| DO DOWN                                      | 1 days |  |

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

**Secondary Filtering selection:**

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

Parameter: Number of pupils  
 Actual Range: 79 to 1020 (units: )  
 Range Selected by User: 79 to 1020 (units: )

Parking Spaces Range: All Surveys Included

Public Transport Provision:

Selection by: Include all surveys

Date Range: 01/01/11 to 20/06/19

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 | 6 days |
| Thursday  | 8 days |
| Friday    | 1 days |

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

Selected survey types:

|                       |         |
|-----------------------|---------|
| Manual count          | 22 days |
| Directional ATC Count | 0 days  |

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

Selected Locations:

|  |    |
|--|----|
| Edge of Town Centre                      | 5  |
| Edge of Town                             | 5  |
| Neighbourhood Centre (PPS6 Local Centre) | 12 |

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 | 10 |
| Village          | 10 |
| No Sub Category  | 2  |

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:

D1 22 days

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

Population within 1 mile:

|                  |         |
|------------------|---------|
| 1,000 or Less    | 2 days  |
| 1,001 to 5,000   | 11 days |
| 5,001 to 10,000  | 3 days  |
| 10,001 to 15,000 | 2 days  |
| 15,001 to 20,000 | 3 days  |
| 20,001 to 25,000 | 1 days  |

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

Population within 5 miles:

|                    |         |
|--------------------|---------|
| 5,000 or Less      | 3 days  |
| 5,001 to 25,000    | 4 days  |
| 25,001 to 50,000   | 2 days  |
| 50,001 to 75,000   | 2 days  |
| 75,001 to 100,000  | 10 days |
| 100,001 to 125,000 | 1 days  |

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

Car ownership within 5 miles:

|            |         |
|------------|---------|
| 0.6 to 1.0 | 2 days  |
| 1.1 to 1.5 | 18 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 | 5 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

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

LIST OF SITES relevant to selection parameters

|  |                        |
|--|------------------------|
| <b>1 BU-04-A-01 PRIMARY SCHOOL</b>   | <b>BUCKINGHAMSHIRE</b> |
| LOWER ROAD<br>NEAR AYLESBURY<br>STOKE MANDEVILLE<br>Neighbourhood Centre (PPS6 Local Centre)<br>Village<br>Total Number of pupils: 208<br>Survey date: WEDNESDAY 01/10/14  | Survey Type: MANUAL    |
| <b>2 DO-04-A-01 PRIMARY SCHOOL</b>   | <b>DOWN</b>            |
| CHURCH GROVE<br>KIRCUBBIN<br>Neighbourhood Centre (PPS6 Local Centre)<br>Village<br>Total Number of pupils: 120<br>Survey date: MONDAY 19/12/11                            | Survey Type: MANUAL    |
| <b>3 DV-04-A-04 PRIMARY SCHOOL</b>   | <b>DEVON</b>           |
| CHURCH LANE<br>CHERITON BISHOP<br>Neighbourhood Centre (PPS6 Local Centre)<br>Village<br>Total Number of pupils: 85<br>Survey date: WEDNESDAY 12/07/17                     | Survey Type: MANUAL    |
| <b>4 EX-04-A-01 PRIMARY SCHOOL</b>   | <b>ESSEX</b>           |
| THE STREET<br>NEAR CHELMSFORD<br>ROXBELL<br>Neighbourhood Centre (PPS6 Local Centre)<br>Village<br>Total Number of pupils: 79<br>Survey date: TUESDAY 05/11/13             | Survey Type: MANUAL    |
| <b>5 FA-04-A-03 PRIMARY SCHOOL</b>   | <b>FALKIRK</b>         |
| GLENDON DRIVE<br>FALKIRK<br>MADDISTON<br>Edge of Town<br>Residential Zone<br>Total Number of pupils: 452<br>Survey date: MONDAY 03/06/13                                   | Survey Type: MANUAL    |
| <b>6 FI-04-A-01 PRIMARY SCHOOL</b>   | <b>FIFE</b>            |
| NORTHBANK ROAD<br>NEAR DUNFERMLINE<br>CAIRNEYHILL<br>Neighbourhood Centre (PPS6 Local Centre)<br>Village<br>Total Number of pupils: 285<br>Survey date: WEDNESDAY 27/05/15 | Survey Type: MANUAL    |
| <b>7 FI-04-A-02 PRIMARY SCHOOL</b>   | <b>FIFE</b>            |
| RINTOUL AVENUE<br>NEAR DUNFERMLINE<br>BLAIRHALL<br>Neighbourhood Centre (PPS6 Local Centre)<br>Village<br>Total Number of pupils: 159<br>Survey date: TUESDAY 22/03/16     | Survey Type: MANUAL    |
| <b>8 GA-04-A-01 PRIMARY SCHOOL</b>   | <b>GALWAY</b>          |
| SALTHILL ROAD LOWER<br>GALWAY<br>Edge of Town Centre<br>Residential Zone<br>Total Number of pupils: 249<br>Survey date: THURSDAY 11/10/12                                  | Survey Type: MANUAL    |
| <b>9 LI-04-A-02 PRIMARY SCHOOL</b>   | <b>LIMERICK</b>        |
| SHELBOURNE ROAD<br>LIMERICK<br>Edge of Town Centre<br>Residential Zone<br>Total Number of pupils: 180<br>Survey date: THURSDAY 07/11/13                                    | Survey Type: MANUAL    |

LIST OF SITES relevant to selection parameters (Cont.)

|  |                                |
|--|--------------------------------|
| <b>10 LI-04-A-03 PRIMARY SCHOOL</b>  | <b>LIMERICK</b>                |
| DUBLIN ROAD<br>LIMERICK<br>QUARRY HILL<br>Edge of Town Centre<br>Residential Zone<br>Total Number of pupils: 225<br>Survey date: THURSDAY 07/11/13                     | Survey Type: MANUAL            |
| <b>11 LN-04-A-01 PRIMARY SCHOOL</b>  | <b>LINCOLNSHIRE</b>            |
| GONERBY HILL FOOT<br>GRANTHAM<br>Neighbourhood Centre (PPS6 Local Centre)<br>Residential Zone<br>Total Number of pupils: 312<br>Survey date: WEDNESDAY 12/06/13        | Survey Type: MANUAL            |
| <b>12 LU-04-A-01 PRIMARY SCHOOL</b>  | <b>LOUTH</b>                   |
| UNION STREET<br>DUNDALK<br>Edge of Town Centre<br>No Sub Category<br>Total Number of pupils: 324<br>Survey date: THURSDAY 12/09/13                                     | Survey Type: MANUAL            |
| <b>13 LU-04-A-02 PRIMARY SCHOOL</b>  | <b>LOUTH</b>                   |
| BRYANSTOWN<br>DROGHEDA<br>BRYANSTOWN MANOR<br>Edge of Town<br>Residential Zone<br>Total Number of pupils: 1020<br>Survey date: FRIDAY 19/06/15                         | Survey Type: MANUAL            |
| <b>14 MG-04-A-01 PRIMARY SCHOOL</b>  | <b>MONAGHAN</b>                |
| CLONES ROAD<br>MONAGHAN<br>Edge of Town Centre<br>No Sub Category<br>Total Number of pupils: 304<br>Survey date: WEDNESDAY 25/09/13                                    | Survey Type: MANUAL            |
| <b>15 NE-04-A-01 PRIMARY SCHOOL</b>  | <b>NORTH EAST LINCOLNSHIRE</b> |
| SUNNINGDALE ROAD<br>SCUNTHORPE<br>Edge of Town<br>Residential Zone<br>Total Number of pupils: 147<br>Survey date: TUESDAY 20/05/14                                     | Survey Type: MANUAL            |
| <b>16 RO-04-A-01 PRIMARY SCHOOL</b>  | <b>ROSCOMMON</b>               |
| WARREN ROAD<br>BOYLE<br>Edge of Town<br>Residential Zone<br>Total Number of pupils: 82<br>Survey date: THURSDAY 25/09/14   | Survey Type: MANUAL            |
| <b>17 SC-04-A-01 PRIMARY SCHOOL</b>  | <b>SURREY</b>                  |
| SCHOOL LANE<br>NEAR WOKING<br>PIRBRIGHT<br>Neighbourhood Centre (PPS6 Local Centre)<br>Village<br>Total Number of pupils: 414<br>Survey date: THURSDAY 22/11/12        | Survey Type: MANUAL            |
| <b>18 SF-04-A-03 PRIMARY SCHOOL</b>  | <b>SUFFOLK</b>                 |
| ENSTONE ROAD<br>LOWESTOFT<br>KIRKLEY<br>Neighbourhood Centre (PPS6 Local Centre)<br>Residential Zone<br>Total Number of pupils: 234<br>Survey date: WEDNESDAY 10/12/14 | Survey Type: MANUAL            |

LIST OF SITES relevant to selection parameters (Cont.)

|           |   |                       |                  |
|-----------|---|-----------------------|------------------|
| <b>19</b> | <b>SM-04-A-01</b>   | <b>PRIMARY SCHOOL</b> | <b>SOMERSET</b>  |
|           | BRIDGWATER ROAD<br>NEAR TAUNTON<br>BATHPOOL<br>Neighbourhood Centre (PPS6 Local Centre)<br>Village<br>Total Number of pupils: 407<br>Survey date: THURSDAY 27/09/18<br>Survey Type: MANUAL  |                       |                  |
| <b>20</b> | <b>SR-04-A-01</b>   | <b>PRIMARY SCHOOL</b> | <b>STIRLING</b>  |
|           | PULLAR AVENUE<br>STIRLING<br>BRIDGE OF ALLAN<br>Edge of Town<br>Residential Zone<br>Total Number of pupils: 386<br>Survey date: MONDAY 16/06/14<br>Survey Type: MANUAL                      |                       |                  |
| <b>21</b> | <b>TI-04-A-01</b>   | <b>PRIMARY SCHOOL</b> | <b>TIPPERARY</b> |
|           | OLD ROAD<br>NEAR NENAGH<br>SILVERMINES<br>Neighbourhood Centre (PPS6 Local Centre)<br>Village<br>Total Number of pupils: 84<br>Survey date: THURSDAY 26/05/16<br>Survey Type: MANUAL        |                       |                  |
| <b>22</b> | <b>WL-04-A-01</b>   | <b>PRIMARY SCHOOL</b> | <b>WILTSHIRE</b> |
|           | CASTLE VIEW ROAD<br>NEAR SWINDON<br>CHISELDON<br>Neighbourhood Centre (PPS6 Local Centre)<br>Village<br>Total Number of pupils: 178<br>Survey date: TUESDAY 20/09/16<br>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 04 - EDUCATION/A - PRIMARY

**VEHICLES**  
**Calculation factor: 1 PUPILS**  
**BOLD print indicates peak (busiest) period**

| Time Range          | ARRIVALS  |             |              | DEPARTURES |             |              | TOTALS    |             |              |
|---------------------|-----------|-------------|--------------|------------|-------------|--------------|-----------|-------------|--------------|
|                     | No. Days  | Ave. PUPILS | Trip Rate    | No. Days   | Ave. PUPILS | Trip Rate    | No. Days  | Ave. PUPILS | 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       | 1         | 312         | 0.000        | 1          | 312         | 0.000        | 1         | 312         | 0.000        |
| 06:00 - 07:00       | 1         | 312         | 0.013        | 1          | 312         | 0.003        | 1         | 312         | 0.016        |
| 07:00 - 08:00       | 22        | 270         | 0.032        | 22         | 270         | 0.011        | 22        | 270         | 0.043        |
| 08:00 - 09:00       | <b>22</b> | <b>270</b>  | <b>0.233</b> | 22         | 270         | 0.153        | <b>22</b> | <b>270</b>  | <b>0.386</b> |
| 09:00 - 10:00       | 22        | 270         | 0.061        | 22         | 270         | 0.081        | 22        | 270         | 0.142        |
| 10:00 - 11:00       | 22        | 270         | 0.012        | 22         | 270         | 0.012        | 22        | 270         | 0.024        |
| 11:00 - 12:00       | 22        | 270         | 0.022        | 22         | 270         | 0.020        | 22        | 270         | 0.042        |
| 12:00 - 13:00       | 22        | 270         | 0.022        | 22         | 270         | 0.024        | 22        | 270         | 0.046        |
| 13:00 - 14:00       | 22        | 270         | 0.037        | 22         | 270         | 0.036        | 22        | 270         | 0.073        |
| 14:00 - 15:00       | 22        | 270         | 0.081        | 22         | 270         | 0.049        | 22        | 270         | 0.130        |
| 15:00 - 16:00       | 22        | 270         | 0.094        | <b>22</b>  | <b>270</b>  | <b>0.155</b> | 22        | 270         | 0.249        |
| 16:00 - 17:00       | 22        | 270         | 0.033        | 22         | 270         | 0.060        | 22        | 270         | 0.093        |
| 17:00 - 18:00       | 22        | 270         | 0.022        | 22         | 270         | 0.033        | 22        | 270         | 0.055        |
| 18:00 - 19:00       | 22        | 270         | 0.014        | 22         | 270         | 0.016        | 22        | 270         | 0.030        |
| 19:00 - 20:00       | 3         | 552         | 0.000        | 3          | 552         | 0.001        | 3         | 552         | 0.001        |
| 20:00 - 21:00       | 1         | 312         | 0.000        | 1          | 312         | 0.032        | 1         | 312         | 0.032        |
| 21:00 - 22:00       |           |             |              |            |             |              |           |             |              |
| 22:00 - 23:00       |           |             |              |            |             |              |           |             |              |
| 23:00 - 24:00       |           |             |              |            |             |              |           |             |              |
| <b>Total Rates:</b> |           |             | 0.676        |            |             | 0.686        |           |             | 1.362        |

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

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

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Parameter summary

|   |                     |
|---|---------------------|
| Trip rate parameter range selected:           | 79 - 1020 (units: ) |
| Survey date date range:                       | 01/01/11 - 20/06/19 |
| Number of weekdays (Monday-Friday):           | 22                  |
| Number of Saturdays:                          | 0                   |
| Number of Sundays:                            | 0                   |
| Surveys automatically removed from selection: | 0                   |
| Surveys manually removed from selection:      | 0                   |

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

APPENDIX C  
ARCADY Output Files

| Junctions 9   |  |
|---|--|
| ARCADY 9 - Roundabout Module  |  |
| Version: 9.0.0.4211 [ ]   |  |
| © Copyright TRL Limited, 2021   |  |
| For sales and distribution information, program advice and maintenance, contact TRL:<br>Tel: +44 (0)1344 770758 email: software@trl.co.uk Web: http://www.trlsoftware.co.uk |  |
| The users of this computer program for the solution of an engineering problem are in no way relieved of their responsibility for the correctness of the solution            |  |

Filename: Clonminch Roundabout Do Nothing.j9  
 Path: G:\2018\p180002\calcs\arcady  
 Report generation date: 15/02/2021 12:45:54

- >Do-Nothing - DN 2023, AM
- >Do-Nothing - DN 2023, PM
- >Do-Nothing - DN 2028, AM
- >Do-Nothing - DN 2028, PM
- >Do-Nothing - DN 2038, AM
- >Do-Nothing - DN 2038, PM

Summary of junction performance

|                      | AM          |           |      |     | PM          |           |      |     |
|----------------------|-------------|-----------|------|-----|-------------|-----------|------|-----|
|                      | Queue (PCU) | Delay (s) | RFC  | LOS | Queue (PCU) | Delay (s) | RFC  | LOS |
| Do-Nothing - DN 2023 |             |           |      |     |             |           |      |     |
| A - N52 East         | 1.1         | 6.25      | 0.53 | A   | 2.3         | 10.32     | 0.70 | B   |
| B - N80              | 1.4         | 7.31      | 0.58 | A   | 0.8         | 5.75      | 0.46 | A   |
| C - N52 West         | 0.7         | 6.14      | 0.41 | A   | 0.4         | 4.37      | 0.26 | A   |
| D - Clonminch Rd     | 0.3         | 4.82      | 0.24 | A   | 1.0         | 6.90      | 0.50 | A   |
| Do-Nothing - DN 2028 |             |           |      |     |             |           |      |     |
| A - N52 East         | 1.3         | 6.79      | 0.57 | A   | 2.9         | 12.51     | 0.75 | B   |
| B - N80              | 1.7         | 8.24      | 0.63 | A   | 1.0         | 6.20      | 0.49 | A   |
| C - N52 West         | 0.8         | 6.70      | 0.45 | A   | 0.4         | 4.56      | 0.28 | A   |
| D - Clonminch Rd     | 0.4         | 5.06      | 0.26 | A   | 1.1         | 7.59      | 0.53 | A   |
| Do-Nothing - DN 2038 |             |           |      |     |             |           |      |     |
| A - N52 East         | 1.5         | 7.36      | 0.60 | A   | 3.7         | 15.33     | 0.79 | C   |
| B - N80              | 2.0         | 9.26      | 0.66 | A   | 1.1         | 6.69      | 0.52 | A   |
| C - N52 West         | 0.9         | 7.31      | 0.48 | A   | 0.4         | 4.75      | 0.30 | A   |
| D - Clonminch Rd     | 0.4         | 5.28      | 0.28 | A   | 1.3         | 8.36      | 0.57 | A   |

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

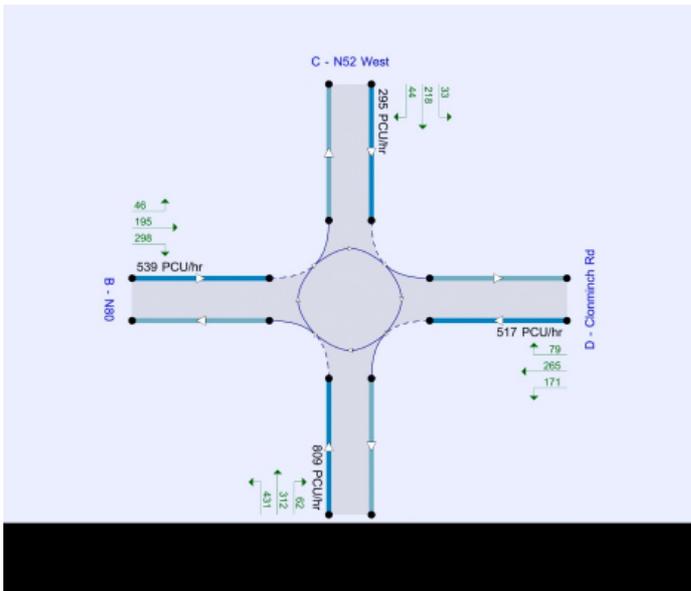
File summary

File Description

|             |                                   |
|-------------|-----------------------------------|
| Title       | Clonminch Residential Development |
| Location    | Clonminch, Tullamore.             |
| Site number |                                   |
| Date        | 22/06/2020                        |
| Version     |                                   |
| Status      | Pre-Planning                      |
| Identifier  | DSG                               |
| Client      |                                   |
| Jobnumber   | 180002                            |
| Enumerator  | HEADOFFICE\gild                   |
| 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              | km/h        | PCU                 | PCU                   | perHour    | s                   | -/Min             | perMin              |



The junction diagram reflects the last run of Junctions.

Analysis Options

| Calculate Queue Percentiles | Calculate residual capacity | RFC Threshold | Average Delay threshold (s) | Queue threshold (PCU) |
|-----------------------------|-----------------------------|---------------|-----------------------------|-----------------------|
|                             |                             | 0.85          | 36.00                       | 20.00                 |

Demand Set Summary

| Scenario name | Time Period name | Traffic profile type | Model start time (HH:mm) | Model finish time (HH:mm) | Time segment length (min) |
|---------------|------------------|----------------------|--------------------------|---------------------------|---------------------------|
| DN 2023       | AM               | ONE HOUR             | 08:00                    | 09:30                     | 15                        |
| DN 2023       | PM               | ONE HOUR             | 17:00                    | 18:30                     | 15                        |
| DN 2028       | AM               | ONE HOUR             | 08:00                    | 09:30                     | 15                        |
| DN 2028       | PM               | ONE HOUR             | 17:00                    | 18:30                     | 15                        |
| DN 2038       | AM               | ONE HOUR             | 08:00                    | 09:30                     | 15                        |
| DN 2038       | PM               | ONE HOUR             | 17:00                    | 18:30                     | 15                        |

Do-Nothing - DN 2023, AM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

| ID | Name       | Network flow scaling factor (%) |
|----|------------|---------------------------------|
| A1 | Do-Nothing | 100.000                         |

Junction Network

Junctions

| Junction                 | Name                 | Junction Type       | Junction Delay (s) | Junction LOS |
|--------------------------|----------------------|---------------------|--------------------|--------------|
| 1 - Clonminch Roundabout | Clonminch Roundabout | Standard Roundabout | 6.42               | A            |

Junction Network Options

| Driving side | Lighting       |
|--------------|----------------|
| Left         | Normal/unknown |

Arms

Arms

| Arm | Name         | Description |
|-----|--------------|-------------|
| A   | N52 East     |             |
| B   | N80          |             |
| C   | N52 West     |             |
| D   | Clonminch Rd |             |

Capacity Options

| Arm              | Minimum capacity (PCU/hr) | Maximum capacity (PCU/hr) |
|------------------|---------------------------|---------------------------|
| A - N52 East     | 0.00                      | 99999.00                  |
| B - N80          | 0.00                      | 99999.00                  |
| C - N52 West     | 0.00                      | 99999.00                  |
| D - Clonminch Rd | 0.00                      | 99999.00                  |

Roundabout Geometry

| Arm              | V - Approach road half-width (m) | E - Entry width (m) | I' - Effective flare length (m) | R - Entry radius (m) | D - Inscribed circle diameter (m) | PHI - Conflict (entry) angle (deg) | Exit only |
|------------------|----------------------------------|---------------------|---------------------------------|----------------------|-----------------------------------|------------------------------------|-----------|
| A - N52 East     | 3.65                             | 6.95                | 6.2                             | 16.0                 | 50.0                              | 52.0                               |           |
| B - N80          | 3.30                             | 6.20                | 12.2                            | 35.0                 | 50.0                              | 55.0                               |           |
| C - N52 West     | 3.65                             | 5.67                | 17.2                            | 22.0                 | 50.0                              | 58.0                               |           |
| D - Clonminch Rd | 3.50                             | 5.80                | 7.4                             | 28.0                 | 50.0                              | 52.0                               |           |

## Slope / Intercept / Capacity

### Roundabout Slope and Intercept used in model

| Arm              | Final slope | Final Intercept (PCU/hr) |
|------------------|-------------|--------------------------|
| A - N52 East     | 0.516       | 1345.134                 |
| B - N80          | 0.533       | 1400.254                 |
| C - N52 West     | 0.527       | 1407.038                 |
| D - Clonminch Rd | 0.519       | 1321.961                 |

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

## Traffic Demand

### Demand Set Details

| ID | Scenario name | Time Period name | Traffic profile type | Model start time (HH:mm) | Model finish time (HH:mm) | Time segment length (min) |
|----|---------------|------------------|----------------------|--------------------------|---------------------------|---------------------------|
| D1 | DN 2023       | AM               | ONE HOUR             | 08:00                    | 09:30                     | 15                        |

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

### Demand overview (Traffic)

| Arm              | Linked arm | Use O-D data | Average Demand (PCU/hr) | Scaling Factor (%) |
|------------------|------------|--------------|-------------------------|--------------------|
| A - N52 East     |            | ✓            | 591.00                  | 100.000            |
| B - N80          |            | ✓            | 627.00                  | 100.000            |
| C - N52 West     |            | ✓            | 370.00                  | 100.000            |
| D - Clonminch Rd |            | ✓            | 219.00                  | 100.000            |

## Origin-Destination Data

### Demand (PCU/hr)

|      |                  | To           |         |              |                  |
|------|------------------|--------------|---------|--------------|------------------|
|      |                  | A - N52 East | B - N80 | C - N52 West | D - Clonminch Rd |
| From | A - N52 East     | 0.000        | 266.000 | 202.000      | 123.000          |
|      | B - N80          | 298.000      | 1.000   | 38.000       | 290.000          |
|      | C - N52 West     | 252.000      | 33.000  | 0.000        | 85.000           |
|      | D - Clonminch Rd | 45.000       | 128.000 | 45.000       | 1.000            |

## Vehicle Mix

### Heavy Vehicle proportion

|      |                  | To           |         |              |                  |
|------|------------------|--------------|---------|--------------|------------------|
|      |                  | A - N52 East | B - N80 | C - N52 West | D - Clonminch Rd |
| From | A - N52 East     | 0            | 0       | 0            | 0                |
|      | B - N80          | 0            | 0       | 0            | 0                |
|      | C - N52 West     | 0            | 0       | 0            | 0                |
|      | D - Clonminch Rd | 0            | 0       | 0            | 0                |

## Results

### Results Summary for whole modelled period

| Arm              | Max RFC | Max delay (s) | Max Queue (PCU) | Max LOS |
|------------------|---------|---------------|-----------------|---------|
| A - N52 East     | 0.53    | 6.25          | 1.1             | A       |
| B - N80          | 0.58    | 7.31          | 1.4             | A       |
| C - N52 West     | 0.41    | 6.14          | 0.7             | A       |
| D - Clonminch Rd | 0.24    | 4.82          | 0.3             | A       |

### Main Results for each time segment

#### Main results: (08:00-08:15)

| Arm              | Total Demand (PCU/hr) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC   | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | LOS |
|------------------|-----------------------|---------------------------|-------------------|-------|---------------------|-----------------|-----------|-----|
| A - N52 East     | 444.94                | 155.91                    | 1264.69           | 0.352 | 442.78              | 0.5             | 4.368     | A   |
| B - N80          | 472.04                | 277.98                    | 1252.20           | 0.377 | 469.64              | 0.6             | 4.586     | A   |
| C - N52 West     | 278.56                | 534.08                    | 1125.85           | 0.247 | 277.25              | 0.3             | 4.236     | A   |
| D - Clonminch Rd | 164.87                | 437.51                    | 1094.85           | 0.151 | 164.17              | 0.2             | 3.866     | A   |

#### Main results: (08:15-08:30)

| Arm              | Total Demand (PCU/hr) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC   | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | LOS |
|------------------|-----------------------|---------------------------|-------------------|-------|---------------------|-----------------|-----------|-----|
| A - N52 East     | 531.30                | 186.77                    | 1248.76           | 0.425 | 530.52              | 0.7             | 5.007     | A   |
| B - N80          | 563.66                | 333.05                    | 1222.85           | 0.461 | 562.68              | 0.8             | 5.445     | A   |
| C - N52 West     | 332.62                | 639.89                    | 1070.14           | 0.311 | 332.14              | 0.4             | 4.875     | A   |
| D - Clonminch Rd | 196.88                | 524.16                    | 1049.87           | 0.188 | 196.66              | 0.2             | 4.218     | A   |

#### Main results: (08:30-08:45)

| Arm              | Total Demand (PCU/hr) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC   | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | LOS |
|------------------|-----------------------|---------------------------|-------------------|-------|---------------------|-----------------|-----------|-----|
| A - N52 East     | 650.70                | 228.64                    | 1227.16           | 0.530 | 649.19              | 1.1             | 6.212     | A   |
| B - N80          | 690.34                | 407.57                    | 1183.14           | 0.583 | 688.22              | 1.4             | 7.240     | A   |
| C - N52 West     | 407.38                | 782.72                    | 994.93            | 0.409 | 406.43              | 0.7             | 6.107     | A   |
| D - Clonminch Rd | 241.12                | 641.25                    | 989.09            | 0.244 | 240.76              | 0.3             | 4.808     | A   |

### Main results: (08:45-09:00)

| Arm              | Total Demand (PCU/hr) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC   | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | LOS |
|------------------|-----------------------|---------------------------|-------------------|-------|---------------------|-----------------|-----------|-----|
| A - N52 East     | 650.70                | 229.01                    | 1226.97           | 0.530 | 650.67              | 1.1             | 6.246     | A   |
| B - N80          | 690.34                | 408.46                    | 1182.66           | 0.584 | 690.29              | 1.4             | 7.308     | A   |
| C - N52 West     | 407.38                | 784.97                    | 993.75            | 0.410 | 407.36              | 0.7             | 6.138     | A   |
| D - Clonminch Rd | 241.12                | 642.96                    | 988.20            | 0.244 | 241.12              | 0.3             | 4.818     | A   |

### Main results: (09:00-09:15)

| Arm              | Total Demand (PCU/hr) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC   | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | LOS |
|------------------|-----------------------|---------------------------|-------------------|-------|---------------------|-----------------|-----------|-----|
| A - N52 East     | 531.30                | 187.36                    | 1248.46           | 0.426 | 532.79              | 0.7             | 5.040     | A   |
| B - N80          | 563.66                | 334.42                    | 1222.12           | 0.461 | 565.75              | 0.9             | 5.503     | A   |
| C - N52 West     | 332.62                | 643.25                    | 1068.37           | 0.311 | 333.56              | 0.5             | 4.906     | A   |
| D - Clonminch Rd | 196.88                | 526.73                    | 1048.54           | 0.188 | 197.23              | 0.2             | 4.231     | A   |

### Main results: (09:15-09:30)

| Arm              | Total Demand (PCU/hr) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC   | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | LOS |
|------------------|-----------------------|---------------------------|-------------------|-------|---------------------|-----------------|-----------|-----|
| A - N52 East     | 444.94                | 156.81                    | 1264.22           | 0.352 | 445.74              | 0.5             | 4.404     | A   |
| B - N80          | 472.04                | 279.80                    | 1251.23           | 0.377 | 473.06              | 0.6             | 4.633     | A   |
| C - N52 West     | 278.56                | 537.91                    | 1123.83           | 0.248 | 279.05              | 0.3             | 4.263     | A   |
| D - Clonminch Rd | 164.87                | 440.53                    | 1093.28           | 0.151 | 165.09              | 0.2             | 3.879     | A   |

## Do-Nothing - DN 2023, PM

### Data Errors and Warnings

No errors or warnings

### Analysis Set Details

| ID | Name       | Network flow scaling factor (%) |
|----|------------|---------------------------------|
| A1 | Do-Nothing | 100.000                         |

## Junction Network

### Junctions

| Junction                 | Name                 | Junction Type       | Junction Delay (s) | Junction LOS |
|--------------------------|----------------------|---------------------|--------------------|--------------|
| 1 - Clonminch Roundabout | Clonminch Roundabout | Standard Roundabout | 7.55               | A            |

### Junction Network Options

[same as above]

## Arms

### Arms

[same as above]

### Capacity Options

[same as above]

### Roundabout 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) |
|----|---------------|------------------|----------------------|--------------------------|---------------------------|---------------------------|
| D2 | DN 2023       | PM               | ONE HOUR             | 17:00                    | 18:30                     | 15                        |

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

### Demand overview (Traffic)

| Arm              | Linked arm | Use O-D data | Average Demand (PCU/hr) | Scaling Factor (%) |
|------------------|------------|--------------|-------------------------|--------------------|
| A - N52 East     |            | ✓            | 725.00                  | 100.000            |
| B - N80          |            | ✓            | 484.00                  | 100.000            |
| C - N52 West     |            | ✓            | 265.00                  | 100.000            |
| D - Clonminch Rd |            | ✓            | 465.00                  | 100.000            |

## Origin-Destination Data

### Demand (PCU/hr)

|      |                  | To           |         |              |                  |
|------|------------------|--------------|---------|--------------|------------------|
|      |                  | A - N52 East | B - N80 | C - N52 West | D - Clonminch Rd |
| From | A - N52 East     | 3.000        | 386.000 | 280.000      | 56.000           |
|      | B - N80          | 267.000      | 0.000   | 42.000       | 175.000          |
|      | C - N52 West     | 196.000      | 38.000  | 0.000        | 30.000           |
|      | D - Clonminch Rd | 154.000      | 238.000 | 71.000       | 2.000            |

## Vehicle Mix

### Heavy Vehicle proportion

|      |                  | To           |         |              |                  |
|------|------------------|--------------|---------|--------------|------------------|
|      |                  | A - N52 East | B - N80 | C - N52 West | D - Clonminch Rd |
| From | A - N52 East     | 0            | 0       | 0            | 0                |
|      | B - N80          | 0            | 0       | 0            | 0                |
|      | C - N52 West     | 0            | 0       | 0            | 0                |
|      | D - Clonminch Rd | 0            | 0       | 0            | 0                |

## Results

### Results Summary for whole modelled period

| Arm              | Max RFC | Max delay (s) | Max Queue (PCU) | Max LOS |
|------------------|---------|---------------|-----------------|---------|
| A - N52 East     | 0.70    | 10.32         | 2.3             | B       |
| B - N80          | 0.46    | 5.75          | 0.8             | A       |
| C - N52 West     | 0.26    | 4.37          | 0.4             | A       |
| D - Clonminch Rd | 0.50    | 6.90          | 1.0             | A       |

### Main Results for each time segment

#### Main results: (17:00-17:15)

| Arm              | Total Demand (PCU/hr) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC   | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | LOS |
|------------------|-----------------------|---------------------------|-------------------|-------|---------------------|-----------------|-----------|-----|
| A - N52 East     | 545.82                | 262.18                    | 1209.85           | 0.451 | 542.57              | 0.8             | 5.370     | A   |
| B - N80          | 364.38                | 308.37                    | 1236.00           | 0.295 | 362.72              | 0.4             | 4.115     | A   |
| C - N52 West     | 199.51                | 376.90                    | 1208.60           | 0.165 | 198.72              | 0.2             | 3.565     | A   |
| D - Clonminch Rd | 350.08                | 378.56                    | 1125.45           | 0.311 | 348.28              | 0.4             | 4.622     | A   |

#### Main results: (17:15-17:30)

| Arm              | Total Demand (PCU/hr) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC   | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | LOS |
|------------------|-----------------------|---------------------------|-------------------|-------|---------------------|-----------------|-----------|-----|
| A - N52 East     | 651.76                | 314.15                    | 1183.04           | 0.551 | 650.18              | 1.2             | 6.735     | A   |
| B - N80          | 435.11                | 369.53                    | 1203.41           | 0.362 | 434.52              | 0.6             | 4.679     | A   |
| C - N52 West     | 238.23                | 451.52                    | 1169.31           | 0.204 | 238.00              | 0.3             | 3.864     | A   |
| D - Clonminch Rd | 418.03                | 453.45                    | 1086.58           | 0.385 | 417.34              | 0.6             | 5.373     | A   |

#### Main results: (17:30-17:45)

| Arm              | Total Demand (PCU/hr) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC   | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | LOS |
|------------------|-----------------------|---------------------------|-------------------|-------|---------------------|-----------------|-----------|-----|
| A - N52 East     | 798.24                | 384.37                    | 1146.81           | 0.696 | 794.23              | 2.2             | 10.095    | B   |
| B - N80          | 532.89                | 451.53                    | 1159.71           | 0.460 | 531.78              | 0.8             | 5.722     | A   |
| C - N52 West     | 291.77                | 552.46                    | 1116.17           | 0.261 | 291.38              | 0.4             | 4.363     | A   |
| D - Clonminch Rd | 511.97                | 555.04                    | 1033.84           | 0.495 | 510.59              | 1.0             | 6.862     | A   |

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

| Arm              | Total Demand (PCU/hr) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC   | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | LOS |
|------------------|-----------------------|---------------------------|-------------------|-------|---------------------|-----------------|-----------|-----|
| A - N52 East     | 798.24                | 385.34                    | 1146.31           | 0.696 | 798.08              | 2.3             | 10.324    | B   |
| B - N80          | 532.89                | 453.54                    | 1158.63           | 0.460 | 532.87              | 0.8             | 5.752     | A   |
| C - N52 West     | 291.77                | 553.78                    | 1115.47           | 0.262 | 291.77              | 0.4             | 4.370     | A   |
| D - Clonminch Rd | 511.97                | 556.00                    | 1033.34           | 0.495 | 511.94              | 1.0             | 6.904     | A   |

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

| Arm              | Total Demand (PCU/hr) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC   | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | LOS |
|------------------|-----------------------|---------------------------|-------------------|-------|---------------------|-----------------|-----------|-----|
| A - N52 East     | 651.76                | 315.62                    | 1182.29           | 0.551 | 655.77              | 1.2             | 6.887     | A   |
| B - N80          | 435.11                | 372.47                    | 1201.84           | 0.362 | 436.20              | 0.6             | 4.708     | A   |
| C - N52 West     | 238.23                | 453.52                    | 1168.26           | 0.204 | 238.61              | 0.3             | 3.875     | A   |
| D - Clonminch Rd | 418.03                | 454.95                    | 1085.80           | 0.385 | 419.40              | 0.6             | 5.412     | A   |

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

| Arm              | Total Demand (PCU/hr) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC   | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | LOS |
|------------------|-----------------------|---------------------------|-------------------|-------|---------------------|-----------------|-----------|-----|
| A - N52 East     | 545.82                | 264.01                    | 1208.91           | 0.451 | 547.48              | 0.8             | 5.458     | A   |
| B - N80          | 364.38                | 311.07                    | 1234.57           | 0.295 | 364.98              | 0.4             | 4.142     | A   |
| C - N52 West     | 199.51                | 379.37                    | 1207.30           | 0.165 | 199.74              | 0.2             | 3.575     | A   |
| D - Clonminch Rd | 350.08                | 380.74                    | 1124.32           | 0.311 | 350.78              | 0.5             | 4.659     | A   |

## Do-Nothing - DN 2028, AM

### Data Errors and Warnings

No errors or warnings

### Analysis Set Details

| ID | Name       | Network flow scaling factor (%) |
|----|------------|---------------------------------|
| A1 | Do-Nothing | 100.000                         |

## Junction Network

### Junctions

| Junction                 | Name                 | Junction Type       | Junction Delay (s) | Junction LOS |
|--------------------------|----------------------|---------------------|--------------------|--------------|
| 1 - Clonminch Roundabout | Clonminch Roundabout | Standard Roundabout | 7.06               | A            |

### Junction Network Options

[same as above]

## Arms

### Arms

[same as above]

### Capacity Options

[same as above]

### Roundabout 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) |
|----|---------------|------------------|----------------------|--------------------------|---------------------------|---------------------------|
| D3 | DN 2028       | AM               | ONE HOUR             | 08:00                    | 09:30                     | 15                        |

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

### Demand overview (Traffic)

| Arm              | Linked arm | Use O-D data | Average Demand (PCU/hr) | Scaling Factor (%) |
|------------------|------------|--------------|-------------------------|--------------------|
| A - N52 East     |            | ✓            | 626.00                  | 100.000            |
| B - N80          |            | ✓            | 666.00                  | 100.000            |
| C - N52 West     |            | ✓            | 392.00                  | 100.000            |
| D - Clonminch Rd |            | ✓            | 233.00                  | 100.000            |

## Origin-Destination Data

### Demand (PCU/hr)

|      |                  | To           |         |              |                  |
|------|------------------|--------------|---------|--------------|------------------|
|      |                  | A - N52 East | B - N80 | C - N52 West | D - Clonminch Rd |
| From | A - N52 East     | 0.000        | 282.000 | 214.000      | 130.000          |
|      | B - N80          | 316.000      | 1.000   | 41.000       | 308.000          |
|      | C - N52 West     | 267.000      | 35.000  | 0.000        | 90.000           |
|      | D - Clonminch Rd | 48.000       | 136.000 | 48.000       | 1.000            |

## Vehicle Mix

### Heavy Vehicle proportion

|      |                  | To           |         |              |                  |
|------|------------------|--------------|---------|--------------|------------------|
|      |                  | A - N52 East | B - N80 | C - N52 West | D - Clonminch Rd |
| From | A - N52 East     | 0            | 0       | 0            | 0                |
|      | B - N80          | 0            | 0       | 0            | 0                |
|      | C - N52 West     | 0            | 0       | 0            | 0                |
|      | D - Clonminch Rd | 0            | 0       | 0            | 0                |

## Results

### Results Summary for whole modelled period

| Arm              | Max RFC | Max delay (s) | Max Queue (PCU) | Max LOS |
|------------------|---------|---------------|-----------------|---------|
| A - N52 East     | 0.57    | 6.79          | 1.3             | A       |
| B - N80          | 0.63    | 8.24          | 1.7             | A       |
| C - N52 West     | 0.45    | 6.70          | 0.8             | A       |
| D - Clonminch Rd | 0.26    | 5.06          | 0.4             | A       |

### Main Results for each time segment

#### Main results: (08:00-08:15)

| Arm              | Total Demand (PCU/hr) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC   | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | LOS |
|------------------|-----------------------|---------------------------|-------------------|-------|---------------------|-----------------|-----------|-----|
| A - N52 East     | 471.29                | 165.64                    | 1259.67           | 0.374 | 468.91              | 0.6             | 4.539     | A   |
| B - N80          | 501.40                | 294.41                    | 1243.45           | 0.403 | 498.72              | 0.7             | 4.816     | A   |
| C - N52 West     | 295.12                | 566.15                    | 1108.96           | 0.266 | 293.68              | 0.4             | 4.409     | A   |
| D - Clonminch Rd | 175.41                | 463.63                    | 1081.29           | 0.162 | 174.64              | 0.2             | 3.967     | A   |

#### Main results: (08:15-08:30)

| Arm              | Total Demand (PCU/hr) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC   | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | LOS |
|------------------|-----------------------|---------------------------|-------------------|-------|---------------------|-----------------|-----------|-----|
| A - N52 East     | 562.76                | 198.43                    | 1242.75           | 0.453 | 561.86              | 0.8             | 5.281     | A   |
| B - N80          | 598.72                | 352.75                    | 1212.35           | 0.494 | 597.54              | 1.0             | 5.845     | A   |
| C - N52 West     | 352.40                | 678.34                    | 1049.89           | 0.336 | 351.84              | 0.5             | 5.152     | A   |
| D - Clonminch Rd | 209.46                | 555.47                    | 1033.61           | 0.203 | 209.22              | 0.3             | 4.366     | A   |

#### Main results: (08:30-08:45)

| Arm              | Total Demand (PCU/hr) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC   | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | LOS |
|------------------|-----------------------|---------------------------|-------------------|-------|---------------------|-----------------|-----------|-----|
| A - N52 East     | 689.24                | 242.89                    | 1219.81           | 0.565 | 687.40              | 1.3             | 6.739     | A   |
| B - N80          | 733.28                | 431.61                    | 1170.33           | 0.627 | 730.58              | 1.6             | 8.135     | A   |
| C - N52 West     | 431.60                | 829.45                    | 970.33            | 0.445 | 430.44              | 0.8             | 6.652     | A   |
| D - Clonminch Rd | 256.54                | 679.35                    | 969.31            | 0.265 | 256.12              | 0.4             | 5.044     | A   |

#### Main results: (08:45-09:00)

| Arm              | Total Demand (PCU/hr) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC   | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | LOS |
|------------------|-----------------------|---------------------------|-------------------|-------|---------------------|-----------------|-----------|-----|
| A - N52 East     | 689.24                | 243.32                    | 1219.59           | 0.565 | 689.20              | 1.3             | 6.787     | A   |
| B - N80          | 733.28                | 432.68                    | 1169.75           | 0.627 | 733.20              | 1.7             | 8.242     | A   |
| C - N52 West     | 431.60                | 832.29                    | 968.84            | 0.445 | 431.57              | 0.8             | 6.700     | A   |
| D - Clonminch Rd | 256.54                | 681.47                    | 968.21            | 0.265 | 256.53              | 0.4             | 5.058     | A   |

#### Main results: (09:00-09:15)

| Arm              | Total Demand (PCU/hr) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC   | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | LOS |
|------------------|-----------------------|---------------------------|-------------------|-------|---------------------|-----------------|-----------|-----|
| A - N52 East     | 562.76                | 199.11                    | 1242.40           | 0.453 | 564.57              | 0.8             | 5.324     | A   |
| B - N80          | 598.72                | 354.38                    | 1211.48           | 0.494 | 601.40              | 1.0             | 5.928     | A   |
| C - N52 West     | 352.40                | 682.52                    | 1047.69           | 0.336 | 353.55              | 0.5             | 5.196     | A   |
| D - Clonminch Rd | 209.46                | 558.63                    | 1031.98           | 0.203 | 209.87              | 0.3             | 4.382     | A   |

#### Main results: (09:15-09:30)

| Arm              | Total Demand (PCU/hr) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC   | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | LOS |
|------------------|-----------------------|---------------------------|-------------------|-------|---------------------|-----------------|-----------|-----|
| A - N52 East     | 471.29                | 166.63                    | 1259.16           | 0.374 | 472.22              | 0.6             | 4.579     | A   |
| B - N80          | 501.40                | 296.44                    | 1242.36           | 0.404 | 502.63              | 0.7             | 4.874     | A   |
| C - N52 West     | 295.12                | 570.50                    | 1106.67           | 0.267 | 295.70              | 0.4             | 4.443     | A   |
| D - Clonminch Rd | 175.41                | 467.05                    | 1079.52           | 0.162 | 175.66              | 0.2             | 3.983     | A   |

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## Do-Nothing - DN 2028, PM

### Data Errors and Warnings

No errors or warnings

### Analysis Set Details

| ID | Name       | Network flow scaling factor (%) |
|----|------------|---------------------------------|
| A1 | Do-Nothing | 100.000                         |

## Junction Network

### Junctions

| Junction                 | Name                 | Junction Type       | Junction Delay (s) | Junction LOS |
|--------------------------|----------------------|---------------------|--------------------|--------------|
| 1 - Clonminch Roundabout | Clonminch Roundabout | Standard Roundabout | 8.68               | A            |

### Junction Network Options

[same as above]

## Arms

### Arms

[same as above]

### Capacity Options

[same as above]

### Roundabout 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) |
|----|---------------|------------------|----------------------|--------------------------|---------------------------|---------------------------|
| D4 | DN 2028       | PM               | ONE HOUR             | 17:00                    | 18:30                     | 15                        |

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

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### Demand overview (Traffic)

| Arm              | Linked arm | Use O-D data | Average Demand (PCU/hr) | Scaling Factor (%) |
|------------------|------------|--------------|-------------------------|--------------------|
| A - N52 East     |            | ✓            | 770.00                  | 100.000            |
| B - N80          |            | ✓            | 512.00                  | 100.000            |
| C - N52 West     |            | ✓            | 281.00                  | 100.000            |
| D - Clonminch Rd |            | ✓            | 492.00                  | 100.000            |

## Origin-Destination Data

### Demand (PCU/hr)

|      |                  | To           |         |              |                  |
|------|------------------|--------------|---------|--------------|------------------|
|      |                  | A - N52 East | B - N80 | C - N52 West | D - Clonminch Rd |
| From | A - N52 East     | 4.000        | 410.000 | 297.000      | 59.000           |
|      | B - N80          | 283.000      | 0.000   | 44.000       | 185.000          |
|      | C - N52 West     | 207.000      | 42.000  | 0.000        | 32.000           |
|      | D - Clonminch Rd | 163.000      | 252.000 | 75.000       | 2.000            |

## Vehicle Mix

### Heavy Vehicle proportion

|      |                  | To           |         |              |                  |
|------|------------------|--------------|---------|--------------|------------------|
|      |                  | A - N52 East | B - N80 | C - N52 West | D - Clonminch Rd |
| From | A - N52 East     | 0            | 0       | 0            | 0                |
|      | B - N80          | 0            | 0       | 0            | 0                |
|      | C - N52 West     | 0            | 0       | 0            | 0                |
|      | D - Clonminch Rd | 0            | 0       | 0            | 0                |

## Results

### Results Summary for whole modelled period

| Arm              | Max RFC | Max delay (s) | Max Queue (PCU) | Max LOS |
|------------------|---------|---------------|-----------------|---------|
| A - N52 East     | 0.75    | 12.51         | 2.9             | B       |
| B - N80          | 0.49    | 6.20          | 1.0             | A       |
| C - N52 West     | 0.28    | 4.56          | 0.4             | A       |
| D - Clonminch Rd | 0.53    | 7.59          | 1.1             | A       |

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### Main Results for each time segment

#### Main results: (17:00-17:15)

| Arm              | Total Demand (PCU/hr) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC   | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | LOS |
|------------------|-----------------------|---------------------------|-------------------|-------|---------------------|-----------------|-----------|-----|
| A - N52 East     | 579.70                | 277.86                    | 1201.77           | 0.482 | 576.01              | 0.9             | 5.720     | A   |
| B - N80          | 385.46                | 326.97                    | 1226.09           | 0.314 | 383.64              | 0.5             | 4.265     | A   |
| C - N52 West     | 211.55                | 399.30                    | 1196.81           | 0.177 | 210.70              | 0.2             | 3.647     | A   |
| D - Clonminch Rd | 370.40                | 401.75                    | 1113.42           | 0.333 | 368.43              | 0.5             | 4.820     | A   |

#### Main results: (17:15-17:30)

| Arm              | Total Demand (PCU/hr) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC   | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | LOS |
|------------------|-----------------------|---------------------------|-------------------|-------|---------------------|-----------------|-----------|-----|
| A - N52 East     | 692.21                | 332.95                    | 1173.34           | 0.590 | 690.25              | 1.4             | 7.420     | A   |
| B - N80          | 460.28                | 391.81                    | 1191.53           | 0.386 | 459.60              | 0.6             | 4.914     | A   |
| C - N52 West     | 252.61                | 478.38                    | 1155.17           | 0.219 | 252.35              | 0.3             | 3.986     | A   |
| D - Clonminch Rd | 442.30                | 481.24                    | 1072.15           | 0.413 | 441.50              | 0.7             | 5.701     | A   |

#### Main results: (17:30-17:45)

| Arm              | Total Demand (PCU/hr) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC   | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | LOS |
|------------------|-----------------------|---------------------------|-------------------|-------|---------------------|-----------------|-----------|-----|
| A - N52 East     | 847.79                | 407.27                    | 1134.99           | 0.747 | 842.20              | 2.8             | 12.066    | B   |
| B - N80          | 563.72                | 478.27                    | 1145.46           | 0.492 | 562.39              | 1.0             | 6.161     | A   |
| C - N52 West     | 309.39                | 585.16                    | 1098.95           | 0.282 | 308.94              | 0.4             | 4.555     | A   |
| D - Clonminch Rd | 541.70                | 588.99                    | 1016.22           | 0.533 | 539.99              | 1.1             | 7.532     | A   |

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

| Arm              | Total Demand (PCU/hr) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC   | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | LOS |
|------------------|-----------------------|---------------------------|-------------------|-------|---------------------|-----------------|-----------|-----|
| A - N52 East     | 847.79                | 408.45                    | 1134.39           | 0.747 | 847.50              | 2.9             | 12.513    | B   |
| B - N80          | 563.72                | 481.00                    | 1144.00           | 0.493 | 563.69              | 1.0             | 6.203     | A   |
| C - N52 West     | 309.39                | 586.79                    | 1098.09           | 0.282 | 309.38              | 0.4             | 4.564     | A   |
| D - Clonminch Rd | 541.70                | 590.12                    | 1015.63           | 0.533 | 541.66              | 1.1             | 7.595     | A   |

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

| Arm              | Total Demand (PCU/hr) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC   | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | LOS |
|------------------|-----------------------|---------------------------|-------------------|-------|---------------------|-----------------|-----------|-----|
| A - N52 East     | 692.21                | 334.71                    | 1172.43           | 0.590 | 697.85              | 1.5             | 7.672     | A   |
| B - N80          | 460.28                | 395.75                    | 1189.43           | 0.387 | 461.59              | 0.6             | 4.956     | A   |
| C - N52 West     | 252.61                | 480.82                    | 1153.88           | 0.219 | 253.05              | 0.3             | 3.997     | A   |
| D - Clonminch Rd | 442.30                | 482.99                    | 1071.24           | 0.413 | 443.99              | 0.7             | 5.754     | A   |

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

| Arm              | Total Demand (PCU/hr) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC   | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | LOS |
|------------------|-----------------------|---------------------------|-------------------|-------|---------------------|-----------------|-----------|-----|
| A - N52 East     | 579.70                | 279.90                    | 1200.71           | 0.483 | 581.80              | 0.9             | 5.837     | A   |
| B - N80          | 385.46                | 330.11                    | 1224.42           | 0.315 | 386.16              | 0.5             | 4.299     | A   |
| C - N52 West     | 211.55                | 402.08                    | 1195.34           | 0.177 | 211.81              | 0.2             | 3.660     | A   |
| D - Clonminch Rd | 370.40                | 404.16                    | 1112.16           | 0.333 | 371.23              | 0.5             | 4.863     | A   |

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## Do-Nothing - DN 2038, AM

### Data Errors and Warnings

No errors or warnings

### Analysis Set Details

| ID | Name       | Network flow scaling factor (%) |
|----|------------|---------------------------------|
| A1 | Do-Nothing | 100.000                         |

## Junction Network

### Junctions

| Junction                 | Name                 | Junction Type       | Junction Delay (s) | Junction LOS |
|--------------------------|----------------------|---------------------|--------------------|--------------|
| 1 - Clonminch Roundabout | Clonminch Roundabout | Standard Roundabout | 7.76               | A            |

### Junction Network Options

[same as above]

## Arms

### Arms

[same as above]

### Capacity Options

[same as above]

### Roundabout 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) |
|----|---------------|------------------|----------------------|--------------------------|---------------------------|---------------------------|
| D6 | DN 2038       | AM               | ONE HOUR             | 08:00                    | 09:30                     | 15                        |

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

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### Demand overview (Traffic)

| Arm              | Linked arm | Use O-D data | Average Demand (PCU/hr) | Scaling Factor (%) |
|------------------|------------|--------------|-------------------------|--------------------|
| A - N52 East     |            | ✓            | 658.00                  | 100.000            |
| B - N80          |            | ✓            | 699.00                  | 100.000            |
| C - N52 West     |            | ✓            | 413.00                  | 100.000            |
| D - Clonminch Rd |            | ✓            | 244.00                  | 100.000            |

## Origin-Destination Data

### Demand (PCU/hr)

| From             | To           |         |              |                  |  |
|------------------|--------------|---------|--------------|------------------|--|
|                  | A - N52 East | B - N80 | C - N52 West | D - Clonminch Rd |  |
| A - N52 East     | 0.000        | 296.000 | 225.000      | 137.000          |  |
| B - N80          | 332.000      | 1.000   | 43.000       | 323.000          |  |
| C - N52 West     | 281.000      | 37.000  | 0.000        | 95.000           |  |
| D - Clonminch Rd | 50.000       | 143.000 | 50.000       | 1.000            |  |

## Vehicle Mix

### Heavy Vehicle proportion

| From             | To           |         |              |                  |  |
|------------------|--------------|---------|--------------|------------------|--|
|                  | A - N52 East | B - N80 | C - N52 West | D - Clonminch Rd |  |
| A - N52 East     | 0            | 0       | 0            | 0                |  |
| B - N80          | 0            | 0       | 0            | 0                |  |
| C - N52 West     | 0            | 0       | 0            | 0                |  |
| D - Clonminch Rd | 0            | 0       | 0            | 0                |  |

## Results

### Results Summary for whole modelled period

| Arm              | Max RFC | Max delay (s) | Max Queue (PCU) | Max LOS |
|------------------|---------|---------------|-----------------|---------|
| A - N52 East     | 0.60    | 7.36          | 1.5             | A       |
| B - N80          | 0.66    | 9.26          | 2.0             | A       |
| C - N52 West     | 0.48    | 7.31          | 0.9             | A       |
| D - Clonminch Rd | 0.28    | 5.28          | 0.4             | A       |

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### Main Results for each time segment

#### Main results: (08:00-08:15)

| Arm              | Total Demand (PCU/hr) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC   | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | LOS |
|------------------|-----------------------|---------------------------|-------------------|-------|---------------------|-----------------|-----------|-----|
| A - N52 East     | 495.38                | 173.86                    | 1255.43           | 0.395 | 492.79              | 0.6             | 4.704     | A   |
| B - N80          | 526.24                | 309.33                    | 1235.49           | 0.426 | 523.30              | 0.7             | 5.035     | A   |
| C - N52 West     | 310.93                | 594.46                    | 1094.05           | 0.284 | 309.35              | 0.4             | 4.578     | A   |
| D - Clonminch Rd | 183.70                | 487.49                    | 1068.90           | 0.172 | 182.87              | 0.2             | 4.060     | A   |

#### Main results: (08:15-08:30)

| Arm              | Total Demand (PCU/hr) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC   | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | LOS |
|------------------|-----------------------|---------------------------|-------------------|-------|---------------------|-----------------|-----------|-----|
| A - N52 East     | 591.53                | 208.29                    | 1237.66           | 0.478 | 590.49              | 0.9             | 5.553     | A   |
| B - N80          | 628.39                | 370.65                    | 1202.81           | 0.522 | 627.01              | 1.1             | 6.237     | A   |
| C - N52 West     | 371.28                | 712.28                    | 1032.02           | 0.360 | 370.63              | 0.6             | 5.437     | A   |
| D - Clonminch Rd | 219.35                | 584.08                    | 1018.77           | 0.215 | 219.09              | 0.3             | 4.501     | A   |

#### Main results: (08:30-08:45)

| Arm              | Total Demand (PCU/hr) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC   | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | LOS |
|------------------|-----------------------|---------------------------|-------------------|-------|---------------------|-----------------|-----------|-----|
| A - N52 East     | 724.47                | 254.93                    | 1213.60           | 0.597 | 722.28              | 1.5             | 7.295     | A   |
| B - N80          | 769.61                | 453.42                    | 1158.70           | 0.664 | 766.24              | 1.9             | 9.094     | A   |
| C - N52 West     | 454.72                | 870.59                    | 948.67            | 0.479 | 453.32              | 0.9             | 7.247     | A   |
| D - Clonminch Rd | 268.65                | 714.08                    | 951.28            | 0.282 | 268.18              | 0.4             | 5.266     | A   |

#### Main results: (08:45-09:00)

| Arm              | Total Demand (PCU/hr) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC   | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | LOS |
|------------------|-----------------------|---------------------------|-------------------|-------|---------------------|-----------------|-----------|-----|
| A - N52 East     | 724.47                | 255.43                    | 1213.34           | 0.597 | 724.41              | 1.5             | 7.360     | A   |
| B - N80          | 769.61                | 454.69                    | 1158.02           | 0.665 | 769.49              | 2.0             | 9.259     | A   |
| C - N52 West     | 454.72                | 874.09                    | 946.83            | 0.480 | 454.68              | 0.9             | 7.314     | A   |
| D - Clonminch Rd | 268.65                | 716.68                    | 949.93            | 0.283 | 268.64              | 0.4             | 5.283     | A   |

#### Main results: (09:00-09:15)

| Arm              | Total Demand (PCU/hr) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC   | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | LOS |
|------------------|-----------------------|---------------------------|-------------------|-------|---------------------|-----------------|-----------|-----|
| A - N52 East     | 591.53                | 209.06                    | 1237.26           | 0.478 | 593.69              | 0.9             | 5.611     | A   |
| B - N80          | 628.39                | 372.56                    | 1201.79           | 0.523 | 631.75              | 1.1             | 6.353     | A   |
| C - N52 West     | 371.28                | 717.39                    | 1029.33           | 0.361 | 372.67              | 0.6             | 5.493     | A   |
| D - Clonminch Rd | 219.35                | 587.90                    | 1016.78           | 0.216 | 219.81              | 0.3             | 4.519     | A   |

#### Main results: (09:15-09:30)

| Arm              | Total Demand (PCU/hr) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC   | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | LOS |
|------------------|-----------------------|---------------------------|-------------------|-------|---------------------|-----------------|-----------|-----|
| A - N52 East     | 495.38                | 174.94                    | 1254.87           | 0.395 | 496.45              | 0.7             | 4.753     | A   |
| B - N80          | 526.24                | 311.58                    | 1234.30           | 0.426 | 527.69              | 0.8             | 5.106     | A   |
| C - N52 West     | 310.93                | 599.35                    | 1091.48           | 0.285 | 311.60              | 0.4             | 4.619     | A   |
| D - Clonminch Rd | 183.70                | 491.31                    | 1066.92           | 0.172 | 183.97              | 0.2             | 4.079     | A   |

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## Do-Nothing - DN 2038, PM

### Data Errors and Warnings

No errors or warnings

### Analysis Set Details

| ID | Name       | Network flow scaling factor (%) |
|----|------------|---------------------------------|
| A1 | Do-Nothing | 100.000                         |

## Junction Network

### Junctions

| Junction                 | Name                 | Junction Type       | Junction Delay (s) | Junction LOS |
|--------------------------|----------------------|---------------------|--------------------|--------------|
| 1 - Clonminch Roundabout | Clonminch Roundabout | Standard Roundabout | 10.06              | B            |

### Junction Network Options

[same as above]

## Arms

### Arms

[same as above]

### Capacity Options

[same as above]

### Roundabout 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) |
|----|---------------|------------------|----------------------|--------------------------|---------------------------|---------------------------|
| D6 | DN 2038       | PM               | ONE HOUR             | 17:00                    | 18:30                     | 15                        |

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

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**Demand overview (Traffic)**

| Arm              | Linked arm | Use O-D data | Average Demand (PCU/hr) | Scaling Factor (%) |
|------------------|------------|--------------|-------------------------|--------------------|
| A - N52 East     |            | ✓            | 809.00                  | 100.000            |
| B - N80          |            | ✓            | 539.00                  | 100.000            |
| C - N52 West     |            | ✓            | 295.00                  | 100.000            |
| D - Clonminch Rd |            | ✓            | 517.00                  | 100.000            |

**Origin-Destination Data**
**Demand (PCU/hr)**

| From             | To           |         |              |                  |
|------------------|--------------|---------|--------------|------------------|
|                  | A - N52 East | B - N80 | C - N52 West | D - Clonminch Rd |
| A - N52 East     | 4.000        | 431.000 | 312.000      | 62.000           |
| B - N80          | 298.000      | 0.000   | 46.000       | 195.000          |
| C - N52 West     | 218.000      | 44.000  | 0.000        | 33.000           |
| D - Clonminch Rd | 171.000      | 265.000 | 79.000       | 2.000            |

**Vehicle Mix**
**Heavy Vehicle proportion**

| From             | To           |         |              |                  |
|------------------|--------------|---------|--------------|------------------|
|                  | A - N52 East | B - N80 | C - N52 West | D - Clonminch Rd |
| A - N52 East     | 0            | 0       | 0            | 0                |
| B - N80          | 0            | 0       | 0            | 0                |
| C - N52 West     | 0            | 0       | 0            | 0                |
| D - Clonminch Rd | 0            | 0       | 0            | 0                |

**Results**
**Results Summary for whole modelled period**

| Arm              | Max RFC | Max delay (s) | Max Queue (PCU) | Max LOS |
|------------------|---------|---------------|-----------------|---------|
| A - N52 East     | 0.79    | 15.33         | 3.7             | C       |
| B - N80          | 0.52    | 6.69          | 1.1             | A       |
| C - N52 West     | 0.30    | 4.75          | 0.4             | A       |
| D - Clonminch Rd | 0.57    | 8.36          | 1.3             | A       |

**Main Results for each time segment**
**Main results: (17:00-17:15)**

| Arm              | Total Demand (PCU/hr) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC   | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | LOS |
|------------------|-----------------------|---------------------------|-------------------|-------|---------------------|-----------------|-----------|-----|
| A - N52 East     | 609.06                | 292.03                    | 1194.46           | 0.510 | 604.95              | 1.0             | 6.067     | A   |
| B - N80          | 405.79                | 343.30                    | 1217.39           | 0.333 | 403.80              | 0.5             | 4.414     | A   |
| C - N52 West     | 222.09                | 420.19                    | 1185.81           | 0.187 | 221.17              | 0.2             | 3.728     | A   |
| D - Clonminch Rd | 389.22                | 422.68                    | 1102.55           | 0.353 | 387.06              | 0.5             | 5.016     | A   |

**Main results: (17:15-17:30)**

| Arm              | Total Demand (PCU/hr) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC   | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | LOS |
|------------------|-----------------------|---------------------------|-------------------|-------|---------------------|-----------------|-----------|-----|
| A - N52 East     | 727.27                | 349.94                    | 1164.58           | 0.625 | 724.88              | 1.6             | 8.141     | A   |
| B - N80          | 484.55                | 411.37                    | 1181.11           | 0.410 | 483.78              | 0.7             | 5.157     | A   |
| C - N52 West     | 265.20                | 503.42                    | 1141.99           | 0.232 | 264.91              | 0.3             | 4.104     | A   |
| D - Clonminch Rd | 464.77                | 508.33                    | 1059.12           | 0.439 | 463.84              | 0.8             | 6.037     | A   |

**Main results: (17:30-17:45)**

| Arm              | Total Demand (PCU/hr) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC   | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | LOS |
|------------------|-----------------------|---------------------------|-------------------|-------|---------------------|-----------------|-----------|-----|
| A - N52 East     | 890.73                | 427.93                    | 1124.33           | 0.792 | 883.04              | 3.5             | 14.472    | B   |
| B - N80          | 593.45                | 501.45                    | 1133.10           | 0.524 | 591.87              | 1.1             | 6.631     | A   |
| C - N52 West     | 324.80                | 615.60                    | 1082.93           | 0.300 | 324.30              | 0.4             | 4.742     | A   |
| D - Clonminch Rd | 569.23                | 619.62                    | 1000.31           | 0.569 | 567.15              | 1.3             | 8.270     | A   |

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

| Arm              | Total Demand (PCU/hr) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC   | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | LOS |
|------------------|-----------------------|---------------------------|-------------------|-------|---------------------|-----------------|-----------|-----|
| A - N52 East     | 890.73                | 429.36                    | 1123.60           | 0.793 | 890.20              | 3.7             | 15.333    | C   |
| B - N80          | 593.45                | 505.11                    | 1131.15           | 0.525 | 593.41              | 1.1             | 6.694     | A   |
| C - N52 West     | 324.80                | 617.59                    | 1081.88           | 0.300 | 324.79              | 0.4             | 4.754     | A   |
| D - Clonminch Rd | 569.23                | 620.94                    | 999.63            | 0.569 | 569.17              | 1.3             | 8.360     | A   |

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

| Arm              | Total Demand (PCU/hr) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC   | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | LOS |
|------------------|-----------------------|---------------------------|-------------------|-------|---------------------|-----------------|-----------|-----|
| A - N52 East     | 727.27                | 352.06                    | 1163.48           | 0.625 | 735.15              | 1.7             | 8.552     | A   |
| B - N80          | 484.55                | 416.64                    | 1178.30           | 0.411 | 486.11              | 0.7             | 5.211     | A   |
| C - N52 West     | 265.20                | 506.40                    | 1140.42           | 0.233 | 265.69              | 0.3             | 4.119     | A   |
| D - Clonminch Rd | 464.77                | 508.36                    | 1058.07           | 0.439 | 466.83              | 0.8             | 6.109     | A   |

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

| Arm              | Total Demand (PCU/hr) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC   | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | LOS |
|------------------|-----------------------|---------------------------|-------------------|-------|---------------------|-----------------|-----------|-----|
| A - N52 East     | 609.06                | 294.30                    | 1183.28           | 0.510 | 611.66              | 1.1             | 6.216     | A   |
| B - N80          | 405.79                | 346.93                    | 1215.46           | 0.334 | 406.59              | 0.5             | 4.456     | A   |
| C - N52 West     | 222.09                | 423.30                    | 1184.17           | 0.188 | 222.38              | 0.2             | 3.746     | A   |
| D - Clonminch Rd | 389.22                | 425.32                    | 1101.18           | 0.353 | 390.19              | 0.6             | 5.071     | A   |

|  |
|--|
| <b>Junctions 9</b>   |
| <b>ARCADY 9 - Roundabout Module</b>  |
| Version: 9.0.0.4211 []   |
| © Copyright TRL Limited, 2021  |
| For sales and distribution information, program advice and maintenance, contact TRL:<br>Tel: +44 (0)1344 770758 email: software@trl.co.uk Web: http://www.trlsoftware.co.uk      |
| <small>The users of this computer program for the solution of an engineering problem are in no way relieved of their responsibility for the correctness of the solution.</small> |

Filename: Clonminch Roundabout Do Something.j9  
 Path: G:\2018\p180002\calcs\arcady  
 Report generation date: 10/08/2021 15:51:30

- »Do-Something - DS 2023, AM
- »Do-Something - DS 2023, PM
- »Do-Something - DS 2028, AM
- »Do-Something - DS 2028, PM
- »Do-Something - DS 2038, AM
- »Do-Something - DS 2038, PM

**Summary of junction performance**

|                               | AM          |           |      |     | PM          |           |      |     |
|-------------------------------|-------------|-----------|------|-----|-------------|-----------|------|-----|
|                               | Queue (PCU) | Delay (s) | RFC  | LOS | Queue (PCU) | Delay (s) | RFC  | LOS |
| <b>Do-Something - DS 2023</b> |             |           |      |     |             |           |      |     |
| A - N52 East                  | 1.1         | 6.35      | 0.54 | A   | 2.3         | 10.66     | 0.70 | B   |
| B - N80                       | 1.4         | 7.45      | 0.59 | A   | 0.9         | 5.98      | 0.48 | A   |
| C - N52 West                  | 0.7         | 6.21      | 0.41 | A   | 0.4         | 4.46      | 0.27 | A   |
| D - Clonminch Rd              | 0.4         | 4.94      | 0.26 | A   | 1.0         | 7.13      | 0.51 | A   |
| <b>Do-Something - DS 2028</b> |             |           |      |     |             |           |      |     |
| A - N52 East                  | 1.4         | 7.44      | 0.59 | A   | 3.6         | 15.45     | 0.79 | C   |
| B - N80                       | 2.0         | 9.47      | 0.67 | A   | 1.3         | 7.40      | 0.57 | A   |
| C - N52 West                  | 0.9         | 7.27      | 0.47 | A   | 0.4         | 4.96      | 0.31 | A   |
| D - Clonminch Rd              | 0.5         | 5.62      | 0.34 | A   | 1.6         | 9.46      | 0.63 | A   |
| <b>Do-Something - DS 2038</b> |             |           |      |     |             |           |      |     |
| A - N52 East                  | 1.7         | 8.11      | 0.63 | A   | 4.8         | 19.88     | 0.84 | C   |
| B - N80                       | 2.4         | 10.84     | 0.71 | B   | 1.5         | 8.11      | 0.60 | A   |
| C - N52 West                  | 1.0         | 7.98      | 0.51 | A   | 0.5         | 5.19      | 0.33 | A   |
| D - Clonminch Rd              | 0.6         | 5.90      | 0.36 | A   | 1.9         | 10.67     | 0.66 | B   |

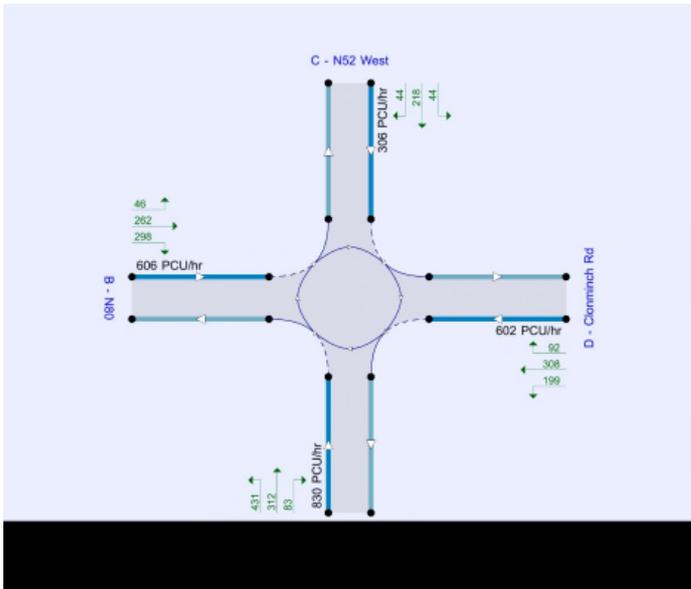
Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle.

**File summary**
**File Description**

| Title       | Clonminch Residential Development |
|-------------|-----------------------------------|
| Location    | Clonminch, Tullamore.             |
| Site number |                                   |
| Date        | 26/06/2020                        |
| Version     |                                   |
| Status      | Pre-Planning                      |
| Identifier  | DSG                               |
| Client      |                                   |
| Jobnumber   | 180002                            |
| Enumerator  | HEADOFFICE\gild                   |
| 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              | km/h        | PCU                 | PCU                   | per/hour   | s                   | -/h               | per/h               |



The junction diagram reflects the last run of Junctions.

### Analysis Options

| Calculate Queue Percentiles | Calculate residual capacity | RFC Threshold | Average Delay threshold (s) | Queue threshold (PCU) |
|-----------------------------|-----------------------------|---------------|-----------------------------|-----------------------|
|                             |                             | 0.85          | 36.00                       | 20.00                 |

### Demand Set Summary

| Scenario name | Time Period name | Traffic profile type | Model start time (HH:mm) | Model finish time (HH:mm) | Time segment length (min) |
|---------------|------------------|----------------------|--------------------------|---------------------------|---------------------------|
| DS 2023       | AM               | ONE HOUR             | 08:00                    | 09:30                     | 15                        |
| DS 2028       | PM               | ONE HOUR             | 17:00                    | 18:30                     | 15                        |
| DS 2028       | AM               | ONE HOUR             | 08:00                    | 09:30                     | 15                        |
| DS 2028       | PM               | ONE HOUR             | 17:00                    | 18:30                     | 15                        |
| DS 2038       | AM               | ONE HOUR             | 08:00                    | 09:30                     | 15                        |
| DS 2038       | PM               | ONE HOUR             | 17:00                    | 18:30                     | 15                        |

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## Do-Something - DS 2023, AM

### Data Errors and Warnings

No errors or warnings

### Analysis Set Details

| ID | Name         | Network flow scaling factor (%) |
|----|--------------|---------------------------------|
| A1 | Do-Something | 100.000                         |

## Junction Network

### Junctions

| Junction                 | Name                 | Junction Type       | Junction Delay (s) | Junction LOS |
|--------------------------|----------------------|---------------------|--------------------|--------------|
| 1 - Clonminch Roundabout | Clonminch Roundabout | Standard Roundabout | 6.52               | A            |

### Junction Network Options

| Driving side | Lighting       |
|--------------|----------------|
| Left         | Normal/Unknown |

## Arms

### Arms

| Arm | Name         | Description |
|-----|--------------|-------------|
| A   | N52 East     |             |
| B   | N80          |             |
| C   | N52 West     |             |
| D   | Clonminch Rd |             |

### Capacity Options

| Arm              | Minimum capacity (PCU/hr) | Maximum capacity (PCU/hr) |
|------------------|---------------------------|---------------------------|
| A - N52 East     | 0.00                      | 99999.00                  |
| B - N80          | 0.00                      | 99999.00                  |
| C - N52 West     | 0.00                      | 99999.00                  |
| D - Clonminch Rd | 0.00                      | 99999.00                  |

### Roundabout Geometry

| Arm              | V - Approach road half-width (m) | E - Entry width (m) | F - Effective flare length (m) | R - Entry radius (m) | D - Inscribed circle diameter (m) | PHI - Conflict (entry) angle (deg) | Exit only |
|------------------|----------------------------------|---------------------|--------------------------------|----------------------|-----------------------------------|------------------------------------|-----------|
| A - N52 East     | 3.65                             | 6.95                | 6.2                            | 16.0                 | 50.0                              | 52.0                               |           |
| B - N80          | 3.30                             | 6.20                | 12.2                           | 35.0                 | 50.0                              | 55.0                               |           |
| C - N52 West     | 3.65                             | 5.67                | 17.2                           | 22.0                 | 50.0                              | 58.0                               |           |
| D - Clonminch Rd | 3.50                             | 5.80                | 7.4                            | 28.0                 | 50.0                              | 52.0                               |           |

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### Slope / Intercept / Capacity

#### Roundabout Slope and Intercept used in model

| Arm              | Final slope | Final Intercept (PCU/hr) |
|------------------|-------------|--------------------------|
| A - N52 East     | 0.516       | 1345.134                 |
| B - N80          | 0.533       | 1400.354                 |
| C - N52 West     | 0.527       | 1407.038                 |
| D - Clonminch Rd | 0.519       | 1321.961                 |

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

## Traffic Demand

### Demand Set Details

| ID | Scenario name | Time Period name | Traffic profile type | Model start time (HH:mm) | Model finish time (HH:mm) | Time segment length (min) |
|----|---------------|------------------|----------------------|--------------------------|---------------------------|---------------------------|
| D1 | DS 2023       | AM               | ONE HOUR             | 08:00                    | 09:30                     | 15                        |

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

### Demand overview (Traffic)

| Arm              | Linked arm | Use O-D data | Average Demand (PCU/hr) | Scaling Factor (%) |
|------------------|------------|--------------|-------------------------|--------------------|
| A - N52 East     |            | ✓            | 593.00                  | 100.000            |
| B - N80          |            | ✓            | 633.00                  | 100.000            |
| C - N52 West     |            | ✓            | 372.00                  | 100.000            |
| D - Clonminch Rd |            | ✓            | 236.00                  | 100.000            |

## Origin-Destination Data

### Demand (PCU/hr)

| From             | To           |         |              |                  |
|------------------|--------------|---------|--------------|------------------|
|                  | A - N52 East | B - N80 | C - N52 West | D - Clonminch Rd |
| A - N52 East     | 0.000        | 266.000 | 202.000      | 125.000          |
| B - N80          | 298.000      | 1.000   | 38.000       | 296.000          |
| C - N52 West     | 252.000      | 33.000  | 0.000        | 87.000           |
| D - Clonminch Rd | 49.000       | 138.000 | 48.000       | 1.000            |

## Vehicle Mix

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### Heavy Vehicle proportion

| From             | To           |         |              |                  |
|------------------|--------------|---------|--------------|------------------|
|                  | A - N52 East | B - N80 | C - N52 West | D - Clonminch Rd |
| A - N52 East     | 0            | 0       | 0            | 0                |
| B - N80          | 0            | 0       | 0            | 0                |
| C - N52 West     | 0            | 0       | 0            | 0                |
| D - Clonminch Rd | 0            | 0       | 0            | 0                |

## Results

### Results Summary for whole modelled period

| Arm              | Max RFC | Max delay (s) | Max Queue (PCU) | Max LOS |
|------------------|---------|---------------|-----------------|---------|
| A - N52 East     | 0.54    | 6.35          | 1.1             | A       |
| B - N80          | 0.59    | 7.45          | 1.4             | A       |
| C - N52 West     | 0.41    | 6.21          | 0.7             | A       |
| D - Clonminch Rd | 0.26    | 4.94          | 0.4             | A       |

### Main Results for each time segment

#### Main results: (08:00-08:15)

| Arm              | Total Demand (PCU/hr) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC   | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | LOS |
|------------------|-----------------------|---------------------------|-------------------|-------|---------------------|-----------------|-----------|-----|
| A - N52 East     | 446.44                | 165.65                    | 1259.66           | 0.354 | 444.26              | 0.5             | 4.403     | A   |
| B - N80          | 476.56                | 281.71                    | 1250.21           | 0.381 | 474.11              | 0.6             | 4.625     | A   |
| C - N52 West     | 280.06                | 540.05                    | 1122.70           | 0.249 | 278.74              | 0.3             | 4.260     | A   |
| D - Clonminch Rd | 177.67                | 437.50                    | 1094.86           | 0.162 | 176.90              | 0.2             | 3.918     | A   |

#### Main results: (08:15-08:30)

| Arm              | Total Demand (PCU/hr) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC   | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | LOS |
|------------------|-----------------------|---------------------------|-------------------|-------|---------------------|-----------------|-----------|-----|
| A - N52 East     | 533.09                | 198.44                    | 1242.74           | 0.429 | 532.30              | 0.7             | 5.062     | A   |
| B - N80          | 569.05                | 337.53                    | 1220.46           | 0.466 | 568.04              | 0.9             | 5.508     | A   |
| C - N52 West     | 334.42                | 647.04                    | 1066.37           | 0.314 | 333.93              | 0.5             | 4.912     | A   |
| D - Clonminch Rd | 212.16                | 524.15                    | 1049.88           | 0.202 | 211.92              | 0.3             | 4.295     | A   |

#### Main results: (08:30-08:45)

| Arm              | Total Demand (PCU/hr) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC   | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | LOS |
|------------------|-----------------------|---------------------------|-------------------|-------|---------------------|-----------------|-----------|-----|
| A - N52 East     | 652.91                | 242.91                    | 1219.80           | 0.535 | 651.34              | 1.1             | 6.314     | A   |
| B - N80          | 696.95                | 413.04                    | 1180.22           | 0.591 | 694.74              | 1.4             | 7.381     | A   |
| C - N52 West     | 409.58                | 791.43                    | 990.35            | 0.414 | 408.60              | 0.7             | 6.178     | A   |
| D - Clonminch Rd | 259.84                | 641.21                    | 989.11            | 0.263 | 259.43              | 0.4             | 4.932     | A   |

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**Main results: (08:45-09:00)**

| Arm              | Total Demand (PCU/hr) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC   | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | LOS |
|------------------|-----------------------|---------------------------|-------------------|-------|---------------------|-----------------|-----------|-----|
| A - N52 East     | 652.91                | 243.32                    | 1219.59           | 0.535 | 652.87              | 1.1             | 6.352     | A   |
| B - N80          | 696.95                | 413.96                    | 1179.73           | 0.591 | 696.89              | 1.4             | 7.452     | A   |
| C - N52 West     | 409.58                | 793.77                    | 989.12            | 0.414 | 409.56              | 0.7             | 6.211     | A   |
| D - Clonminch Rd | 259.84                | 642.95                    | 988.20            | 0.263 | 259.83              | 0.4             | 4.942     | A   |

**Main results: (09:00-09:15)**

| Arm              | Total Demand (PCU/hr) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC   | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | LOS |
|------------------|-----------------------|---------------------------|-------------------|-------|---------------------|-----------------|-----------|-----|
| A - N52 East     | 533.09                | 199.08                    | 1242.41           | 0.429 | 534.63              | 0.8             | 5.098     | A   |
| B - N80          | 569.05                | 338.95                    | 1219.71           | 0.467 | 571.23              | 0.9             | 5.569     | A   |
| C - N52 West     | 334.42                | 650.54                    | 1064.53           | 0.314 | 335.38              | 0.5             | 4.943     | A   |
| D - Clonminch Rd | 212.16                | 526.77                    | 1048.51           | 0.202 | 212.56              | 0.3             | 4.309     | A   |

**Main results: (09:15-09:30)**

| Arm              | Total Demand (PCU/hr) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC   | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | LOS |
|------------------|-----------------------|---------------------------|-------------------|-------|---------------------|-----------------|-----------|-----|
| A - N52 East     | 446.44                | 166.62                    | 1259.16           | 0.355 | 447.26              | 0.6             | 4.438     | A   |
| B - N80          | 476.56                | 283.58                    | 1249.22           | 0.381 | 477.61              | 0.6             | 4.673     | A   |
| C - N52 West     | 280.06                | 543.97                    | 1120.64           | 0.250 | 280.57              | 0.3             | 4.287     | A   |
| D - Clonminch Rd | 177.67                | 440.55                    | 1093.27           | 0.163 | 177.91              | 0.2             | 3.933     | A   |

## Do-Something - DS 2023, PM

**Data Errors and Warnings**

No errors or warnings

**Analysis Set Details**

| ID | Name         | Network flow scaling factor (%) |
|----|--------------|---------------------------------|
| A1 | Do-Something | 100.000                         |

## Junction Network

**Junctions**

| Junction                 | Name                 | Junction Type       | Junction Delay (s) | Junction LOS |
|--------------------------|----------------------|---------------------|--------------------|--------------|
| 1 - Clonminch Roundabout | Clonminch Roundabout | Standard Roundabout | 7.78               | A            |

**Junction Network Options**

[same as above]

## Arms

**Arms**

[same as above]

**Capacity Options**

[same as above]

**Roundabout 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) |
|----|---------------|------------------|----------------------|--------------------------|---------------------------|---------------------------|
| D2 | DS 2023       | PM               | ONE HOUR             | 17:00                    | 18:30                     | 15                        |

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

**Demand overview (Traffic)**

| Arm              | Linked arm | Use O-D data | Average Demand (PCU/hr) | Scaling Factor (%) |
|------------------|------------|--------------|-------------------------|--------------------|
| A - N52 East     |            | ✓            | 730.00                  | 100.000            |
| B - N80          |            | ✓            | 502.00                  | 100.000            |
| C - N52 West     |            | ✓            | 268.00                  | 100.000            |
| D - Clonminch Rd |            | ✓            | 480.00                  | 100.000            |

## Origin-Destination Data

**Demand (PCU/hr)**

| From             | To      | A - N52 East | B - N80 | C - N52 West | D - Clonminch Rd |
|------------------|---------|--------------|---------|--------------|------------------|
|                  |         | A - N52 East | 3.000   | 386.000      | 280.000          |
| B - N80          | 267.000 | 0.000        | 42.000  | 193.000      |                  |
| C - N52 West     | 196.000 | 39.000       | 0.000   | 33.000       |                  |
| D - Clonminch Rd | 159.000 | 246.000      | 73.000  | 2.000        |                  |

## Vehicle Mix

**Heavy Vehicle proportion**

| From             | To | A - N52 East | B - N80 | C - N52 West | D - Clonminch Rd |
|------------------|----|--------------|---------|--------------|------------------|
|                  |    | A - N52 East | 0       | 0            | 0                |
| B - N80          | 0  | 0            | 0       | 0            |                  |
| C - N52 West     | 0  | 0            | 0       | 0            |                  |
| D - Clonminch Rd | 0  | 0            | 0       | 0            |                  |

## Results

**Results Summary for whole modelled period**

| Arm              | Max RFC | Max delay (s) | Max Queue (PCU) | Max LOS |
|------------------|---------|---------------|-----------------|---------|
| A - N52 East     | 0.70    | 10.66         | 2.3             | B       |
| B - N80          | 0.48    | 5.98          | 0.9             | A       |
| C - N52 West     | 0.27    | 4.46          | 0.4             | A       |
| D - Clonminch Rd | 0.51    | 7.13          | 1.0             | A       |

**Main Results for each time segment**
**Main results: (17:00-17:15)**

| Arm              | Total Demand (PCU/hr) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC   | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | LOS |
|------------------|-----------------------|---------------------------|-------------------|-------|---------------------|-----------------|-----------|-----|
| A - N52 East     | 549.58                | 269.65                    | 1206.00           | 0.456 | 546.27              | 0.8             | 5.430     | A   |
| B - N80          | 377.93                | 313.59                    | 1233.22           | 0.306 | 376.18              | 0.4             | 4.192     | A   |
| C - N52 West     | 201.76                | 394.09                    | 1199.55           | 0.168 | 200.96              | 0.2             | 3.601     | A   |
| D - Clonminch Rd | 361.37                | 378.54                    | 1125.46           | 0.321 | 359.49              | 0.5             | 4.688     | A   |

**Main results: (17:15-17:30)**

| Arm              | Total Demand (PCU/hr) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC   | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | LOS |
|------------------|-----------------------|---------------------------|-------------------|-------|---------------------|-----------------|-----------|-----|
| A - N52 East     | 656.26                | 323.11                    | 1178.42           | 0.557 | 654.62              | 1.2             | 6.850     | A   |
| B - N80          | 451.29                | 375.79                    | 1200.07           | 0.376 | 450.65              | 0.6             | 4.799     | A   |
| C - N52 West     | 240.93                | 472.14                    | 1158.46           | 0.208 | 240.69              | 0.3             | 3.821     | A   |
| D - Clonminch Rd | 431.51                | 453.43                    | 1086.59           | 0.397 | 430.78              | 0.7             | 5.484     | A   |

**Main results: (17:30-17:45)**

| Arm              | Total Demand (PCU/hr) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC   | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | LOS |
|------------------|-----------------------|---------------------------|-------------------|-------|---------------------|-----------------|-----------|-----|
| A - N52 East     | 803.74                | 395.30                    | 1141.17           | 0.704 | 799.51              | 2.3             | 10.407    | B   |
| B - N80          | 552.71                | 459.10                    | 1155.67           | 0.478 | 551.48              | 0.9             | 5.946     | A   |
| C - N52 West     | 295.07                | 577.63                    | 1102.91           | 0.268 | 294.67              | 0.4             | 4.452     | A   |
| D - Clonminch Rd | 528.49                | 554.99                    | 1033.87           | 0.511 | 526.98              | 1.0             | 7.080     | A   |

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

| Arm              | Total Demand (PCU/hr) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC   | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | LOS |
|------------------|-----------------------|---------------------------|-------------------|-------|---------------------|-----------------|-----------|-----|
| A - N52 East     | 803.74                | 396.34                    | 1140.63           | 0.705 | 803.57              | 2.3             | 10.664    | B   |
| B - N80          | 552.71                | 461.24                    | 1154.53           | 0.479 | 552.69              | 0.9             | 5.981     | A   |
| C - N52 West     | 295.07                | 579.10                    | 1102.14           | 0.268 | 295.07              | 0.4             | 4.460     | A   |
| D - Clonminch Rd | 528.49                | 556.00                    | 1033.34           | 0.511 | 528.46              | 1.0             | 7.129     | A   |

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

| Arm              | Total Demand (PCU/hr) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC   | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | LOS |
|------------------|-----------------------|---------------------------|-------------------|-------|---------------------|-----------------|-----------|-----|
| A - N52 East     | 656.26                | 324.69                    | 1177.61           | 0.557 | 660.49              | 1.3             | 7.016     | A   |
| B - N80          | 451.29                | 378.90                    | 1198.41           | 0.377 | 452.50              | 0.6             | 4.835     | A   |
| C - N52 West     | 240.93                | 474.35                    | 1157.29           | 0.208 | 241.33              | 0.3             | 3.933     | A   |
| D - Clonminch Rd | 431.51                | 455.00                    | 1085.77           | 0.397 | 433.00              | 0.7             | 5.529     | A   |

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

| Arm              | Total Demand (PCU/hr) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC   | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | LOS |
|------------------|-----------------------|---------------------------|-------------------|-------|---------------------|-----------------|-----------|-----|
| A - N52 East     | 549.58                | 271.57                    | 1205.01           | 0.456 | 551.31              | 0.8             | 5.523     | A   |
| B - N80          | 377.93                | 316.38                    | 1231.74           | 0.307 | 378.59              | 0.4             | 4.224     | A   |
| C - N52 West     | 201.76                | 396.75                    | 1198.15           | 0.168 | 202.01              | 0.2             | 3.613     | A   |
| D - Clonminch Rd | 361.37                | 380.76                    | 1124.31           | 0.321 | 362.12              | 0.5             | 4.727     | A   |

## Do-Something - DS 2028, AM

### Data Errors and Warnings

*No errors or warnings*

### Analysis Set Details

| ID | Name         | Network flow scaling factor (%) |
|----|--------------|---------------------------------|
| A1 | Do-Something | 100.000                         |

## Junction Network

### Junctions

| Junction                 | Name                 | Junction Type       | Junction Delay (s) | Junction LOS |
|--------------------------|----------------------|---------------------|--------------------|--------------|
| 1 - Clonminch Roundabout | Clonminch Roundabout | Standard Roundabout | 7.84               | A            |

### Junction Network Options

*[same as above]*

## Arms

### Arms

*[same as above]*

### Capacity Options

*[same as above]*

### Roundabout 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) |
|----|---------------|------------------|----------------------|--------------------------|---------------------------|---------------------------|
| D3 | DS 2028       | AM               | ONE HOUR             | 08:00                    | 09:30                     | 15                        |

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

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### Demand overview (Traffic)

| Arm              | Linked arm | Use O-D data | Average Demand (PCU/hr) | Scaling Factor (%) |
|------------------|------------|--------------|-------------------------|--------------------|
| A - N52 East     |            | ✓            | 642.00                  | 100.000            |
| B - N80          |            | ✓            | 702.00                  | 100.000            |
| C - N52 West     |            | ✓            | 403.00                  | 100.000            |
| D - Clonminch Rd |            | ✓            | 298.00                  | 100.000            |

## Origin-Destination Data

### Demand (PCU/hr)

|      |                  | To           |         |              |                  |  |
|------|------------------|--------------|---------|--------------|------------------|--|
|      |                  | A - N52 East | B - N80 | C - N52 West | D - Clonminch Rd |  |
| From | A - N52 East     | 0.000        | 282.000 | 214.000      | 146.000          |  |
|      | B - N80          | 316.000      | 1.000   | 41.000       | 344.000          |  |
|      | C - N52 West     | 267.000      | 35.000  | 0.000        | 101.000          |  |
|      | D - Clonminch Rd | 62.000       | 174.000 | 61.000       | 1.000            |  |

## Vehicle Mix

### Heavy Vehicle proportion

|      |                  | To           |         |              |                  |  |
|------|------------------|--------------|---------|--------------|------------------|--|
|      |                  | A - N52 East | B - N80 | C - N52 West | D - Clonminch Rd |  |
| From | A - N52 East     | 0            | 0       | 0            | 0                |  |
|      | B - N80          | 0            | 0       | 0            | 0                |  |
|      | C - N52 West     | 0            | 0       | 0            | 0                |  |
|      | D - Clonminch Rd | 0            | 0       | 0            | 0                |  |

## Results

### Results Summary for whole modelled period

| Arm              | Max RFC | Max delay (s) | Max Queue (PCU) | Max LOS |
|------------------|---------|---------------|-----------------|---------|
| A - N52 East     | 0.59    | 7.44          | 1.4             | A       |
| B - N80          | 0.67    | 9.47          | 2.0             | A       |
| C - N52 West     | 0.47    | 7.27          | 0.9             | A       |
| D - Clonminch Rd | 0.34    | 5.62          | 0.5             | A       |

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### Main Results for each time segment

#### Main results: (08:00-08:15)

| Arm              | Total Demand (PCU/hr) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC   | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | LOS |
|------------------|-----------------------|---------------------------|-------------------|-------|---------------------|-----------------|-----------|-----|
| A - N52 East     | 483.33                | 203.81                    | 1239.97           | 0.390 | 480.80              | 0.6             | 4.727     | A   |
| B - N80          | 528.50                | 316.07                    | 1231.90           | 0.429 | 525.53              | 0.7             | 5.075     | A   |
| C - N52 West     | 303.40                | 604.92                    | 1088.65           | 0.279 | 301.86              | 0.4             | 4.568     | A   |
| D - Clonminch Rd | 224.35                | 463.52                    | 1081.35           | 0.207 | 223.31              | 0.3             | 4.190     | A   |

#### Main results: (08:15-08:30)

| Arm              | Total Demand (PCU/hr) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC   | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | LOS |
|------------------|-----------------------|---------------------------|-------------------|-------|---------------------|-----------------|-----------|-----|
| A - N52 East     | 577.14                | 244.19                    | 1219.14           | 0.473 | 576.12              | 0.9             | 5.589     | A   |
| B - N80          | 631.08                | 378.72                    | 1198.51           | 0.527 | 629.67              | 1.1             | 6.313     | A   |
| C - N52 West     | 362.29                | 724.81                    | 1025.42           | 0.353 | 361.66              | 0.5             | 5.419     | A   |
| D - Clonminch Rd | 267.90                | 555.36                    | 1033.67           | 0.259 | 267.55              | 0.3             | 4.697     | A   |

#### Main results: (08:30-08:45)

| Arm              | Total Demand (PCU/hr) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC   | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | LOS |
|------------------|-----------------------|---------------------------|-------------------|-------|---------------------|-----------------|-----------|-----|
| A - N52 East     | 706.86                | 298.85                    | 1190.94           | 0.594 | 704.68              | 1.4             | 7.369     | A   |
| B - N80          | 772.92                | 463.28                    | 1153.44           | 0.671 | 769.42              | 2.0             | 9.290     | A   |
| C - N52 West     | 443.71                | 885.83                    | 940.65            | 0.472 | 442.36              | 0.9             | 7.208     | A   |
| D - Clonminch Rd | 328.10                | 678.94                    | 969.52            | 0.338 | 327.47              | 0.5             | 5.600     | A   |

#### Main results: (08:45-09:00)

| Arm              | Total Demand (PCU/hr) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC   | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | LOS |
|------------------|-----------------------|---------------------------|-------------------|-------|---------------------|-----------------|-----------|-----|
| A - N52 East     | 706.86                | 299.46                    | 1190.62           | 0.594 | 706.80              | 1.4             | 7.437     | A   |
| B - N80          | 772.92                | 464.60                    | 1152.74           | 0.671 | 772.79              | 2.0             | 9.466     | A   |
| C - N52 West     | 443.71                | 889.49                    | 938.72            | 0.473 | 443.68              | 0.9             | 7.271     | A   |
| D - Clonminch Rd | 328.10                | 681.45                    | 968.22            | 0.339 | 328.09              | 0.5             | 5.623     | A   |

#### Main results: (09:00-09:15)

| Arm              | Total Demand (PCU/hr) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC   | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | LOS |
|------------------|-----------------------|---------------------------|-------------------|-------|---------------------|-----------------|-----------|-----|
| A - N52 East     | 577.14                | 245.14                    | 1218.65           | 0.474 | 579.29              | 0.9             | 5.651     | A   |
| B - N80          | 631.08                | 380.70                    | 1197.45           | 0.527 | 634.57              | 1.1             | 6.436     | A   |
| C - N52 West     | 362.29                | 730.15                    | 1022.61           | 0.354 | 363.63              | 0.6             | 5.473     | A   |
| D - Clonminch Rd | 267.90                | 559.05                    | 1031.76           | 0.260 | 268.52              | 0.4             | 4.722     | A   |

#### Main results: (09:15-09:30)

| Arm              | Total Demand (PCU/hr) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC   | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | LOS |
|------------------|-----------------------|---------------------------|-------------------|-------|---------------------|-----------------|-----------|-----|
| A - N52 East     | 483.33                | 205.12                    | 1239.30           | 0.390 | 484.39              | 0.6             | 4.776     | A   |
| B - N80          | 528.50                | 318.37                    | 1230.67           | 0.429 | 529.98              | 0.8             | 5.150     | A   |
| C - N52 West     | 303.40                | 609.94                    | 1085.90           | 0.279 | 304.05              | 0.4             | 4.607     | A   |
| D - Clonminch Rd | 224.35                | 467.17                    | 1079.45           | 0.208 | 224.71              | 0.3             | 4.214     | A   |

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## Do-Something - DS 2028, PM

### Data Errors and Warnings

*No errors or warnings*

### Analysis Set Details

| ID | Name         | Network flow scaling factor (%) |
|----|--------------|---------------------------------|
| A1 | Do-Something | 100.000                         |

## Junction Network

### Junctions

| Junction                 | Name                 | Junction Type       | Junction Delay (s) | Junction LOS |
|--------------------------|----------------------|---------------------|--------------------|--------------|
| 1 - Clonminch Roundabout | Clonminch Roundabout | Standard Roundabout | 10.46              | B            |

### Junction Network Options

*[same as above]*

## Arms

### Arms

*[same as above]*

### Capacity Options

*[same as above]*

### Roundabout 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) |
|----|---------------|------------------|----------------------|--------------------------|---------------------------|---------------------------|
| D4 | DS 2028       | PM               | ONE HOUR             | 17:00                    | 18:30                     | 15                        |

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

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### Demand overview (Traffic)

| Arm              | Linked arm | Use O-D data | Average Demand (PCU/hr) | Scaling Factor (%) |
|------------------|------------|--------------|-------------------------|--------------------|
| A - N52 East     |            | ✓            | 791.00                  | 100.000            |
| B - N80          |            | ✓            | 579.00                  | 100.000            |
| C - N52 West     |            | ✓            | 292.00                  | 100.000            |
| D - Clonminch Rd |            | ✓            | 577.00                  | 100.000            |

## Origin-Destination Data

### Demand (PCU/hr)

|      |                  | To           |         |              |                  |
|------|------------------|--------------|---------|--------------|------------------|
|      |                  | A - N52 East | B - N80 | C - N52 West | D - Clonminch Rd |
| From | A - N52 East     | 4.000        | 410.000 | 297.000      | 80.000           |
|      | B - N80          | 283.000      | 0.000   | 44.000       | 252.000          |
|      | C - N52 West     | 207.000      | 42.000  | 0.000        | 43.000           |
|      | D - Clonminch Rd | 191.000      | 295.000 | 88.000       | 3.000            |

## Vehicle Mix

### Heavy Vehicle proportion

|      |                  | To           |         |              |                  |
|------|------------------|--------------|---------|--------------|------------------|
|      |                  | A - N52 East | B - N80 | C - N52 West | D - Clonminch Rd |
| From | A - N52 East     | 0            | 0       | 0            | 0                |
|      | B - N80          | 0            | 0       | 0            | 0                |
|      | C - N52 West     | 0            | 0       | 0            | 0                |
|      | D - Clonminch Rd | 0            | 0       | 0            | 0                |

## Results

### Results Summary for whole modelled period

| Arm              | Max RFC | Max delay (s) | Max Queue (PCU) | Max LOS |
|------------------|---------|---------------|-----------------|---------|
| A - N52 East     | 0.79    | 15.45         | 3.6             | C       |
| B - N80          | 0.57    | 7.40          | 1.3             | A       |
| C - N52 West     | 0.31    | 4.96          | 0.4             | A       |
| D - Clonminch Rd | 0.63    | 9.46          | 1.6             | A       |

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### Main Results for each time segment

#### Main results: (17:00-17:15)

| Arm              | Total Demand (PCU/hr) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC   | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | LOS |
|------------------|-----------------------|---------------------------|-------------------|-------|---------------------|-----------------|-----------|-----|
| A - N52 East     | 595.51                | 320.39                    | 1179.82           | 0.505 | 591.48              | 1.0             | 6.078     | A   |
| B - N80          | 435.90                | 353.01                    | 1212.21           | 0.360 | 433.67              | 0.6             | 4.611     | A   |
| C - N52 West     | 219.83                | 465.78                    | 1161.81           | 0.189 | 218.90              | 0.2             | 3.814     | A   |
| D - Clonminch Rd | 434.40                | 401.63                    | 1113.48           | 0.390 | 431.86              | 0.6             | 5.263     | A   |

#### Main results: (17:15-17:30)

| Arm              | Total Demand (PCU/hr) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC   | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | LOS |
|------------------|-----------------------|---------------------------|-------------------|-------|---------------------|-----------------|-----------|-----|
| A - N52 East     | 711.09                | 383.94                    | 1147.03           | 0.620 | 708.74              | 1.6             | 8.169     | A   |
| B - N80          | 520.51                | 423.00                    | 1174.91           | 0.443 | 519.59              | 0.8             | 5.485     | A   |
| C - N52 West     | 262.50                | 558.06                    | 1113.22           | 0.236 | 262.20              | 0.3             | 4.229     | A   |
| D - Clonminch Rd | 518.71                | 481.14                    | 1072.20           | 0.484 | 517.55              | 0.9             | 6.477     | A   |

#### Main results: (17:30-17:45)

| Arm              | Total Demand (PCU/hr) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC   | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | LOS |
|------------------|-----------------------|---------------------------|-------------------|-------|---------------------|-----------------|-----------|-----|
| A - N52 East     | 870.91                | 469.29                    | 1102.99           | 0.790 | 863.32              | 3.5             | 14.572    | B   |
| B - N80          | 637.49                | 515.59                    | 1125.57           | 0.566 | 635.51              | 1.3             | 7.317     | A   |
| C - N52 West     | 321.50                | 682.18                    | 1047.87           | 0.307 | 320.97              | 0.4             | 4.949     | A   |
| D - Clonminch Rd | 635.29                | 588.69                    | 1016.37           | 0.625 | 632.49              | 1.6             | 9.309     | A   |

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

| Arm              | Total Demand (PCU/hr) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC   | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | LOS |
|------------------|-----------------------|---------------------------|-------------------|-------|---------------------|-----------------|-----------|-----|
| A - N52 East     | 870.91                | 471.17                    | 1102.02           | 0.790 | 870.38              | 3.6             | 15.450    | C   |
| B - N80          | 637.49                | 519.41                    | 1123.53           | 0.567 | 637.43              | 1.3             | 7.403     | A   |
| C - N52 West     | 321.50                | 684.72                    | 1046.53           | 0.307 | 321.49              | 0.4             | 4.964     | A   |
| D - Clonminch Rd | 635.29                | 590.11                    | 1015.64           | 0.626 | 635.20              | 1.6             | 9.457     | A   |

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

| Arm              | Total Demand (PCU/hr) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC   | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | LOS |
|------------------|-----------------------|---------------------------|-------------------|-------|---------------------|-----------------|-----------|-----|
| A - N52 East     | 711.09                | 386.70                    | 1145.61           | 0.621 | 718.88              | 1.7             | 8.583     | A   |
| B - N80          | 520.51                | 428.51                    | 1171.98           | 0.444 | 522.47              | 0.8             | 5.560     | A   |
| C - N52 West     | 262.50                | 561.82                    | 1111.24           | 0.236 | 263.02              | 0.3             | 4.246     | A   |
| D - Clonminch Rd | 518.71                | 483.30                    | 1071.08           | 0.484 | 521.49              | 1.0             | 6.584     | A   |

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

| Arm              | Total Demand (PCU/hr) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC   | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | LOS |
|------------------|-----------------------|---------------------------|-------------------|-------|---------------------|-----------------|-----------|-----|
| A - N52 East     | 595.51                | 323.08                    | 1178.43           | 0.505 | 598.06              | 1.0             | 6.231     | A   |
| B - N80          | 435.90                | 356.77                    | 1210.21           | 0.360 | 436.86              | 0.6             | 4.660     | A   |
| C - N52 West     | 219.83                | 469.44                    | 1159.88           | 0.190 | 220.14              | 0.2             | 3.831     | A   |
| D - Clonminch Rd | 434.40                | 404.27                    | 1112.10           | 0.391 | 435.62              | 0.6             | 5.330     | A   |

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## Do-Something - DS 2038, AM

### Data Errors and Warnings

No errors or warnings

### Analysis Set Details

| ID | Name         | Network flow scaling factor (%) |
|----|--------------|---------------------------------|
| A1 | Do-Something | 100.000                         |

## Junction Network

### Junctions

| Junction                 | Name                 | Junction Type       | Junction Delay (s) | Junction LOS |
|--------------------------|----------------------|---------------------|--------------------|--------------|
| 1 - Clonminch Roundabout | Clonminch Roundabout | Standard Roundabout | 8.71               | A            |

### Junction Network Options

[same as above]

## Arms

### Arms

[same as above]

### Capacity Options

[same as above]

### Roundabout 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) |
|----|---------------|------------------|----------------------|--------------------------|---------------------------|---------------------------|
| DS | DS 2038       | AM               | ONE HOUR             | 08:00                    | 09:30                     | 15                        |

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

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### Demand overview (Traffic)

| Arm              | Linked arm | Use O-D data | Average Demand (PCU/hr) | Scaling Factor (%) |
|------------------|------------|--------------|-------------------------|--------------------|
| A - N52 East     |            | ✓            | 673.00                  | 100.000            |
| B - N80          |            | ✓            | 736.00                  | 100.000            |
| C - N52 West     |            | ✓            | 423.00                  | 100.000            |
| D - Clonminch Rd |            | ✓            | 309.00                  | 100.000            |

## Origin-Destination Data

### Demand (PCU/hr)

|      |                  | To           |         |              |                  |
|------|------------------|--------------|---------|--------------|------------------|
|      |                  | A - N52 East | B - N80 | C - N52 West | D - Clonminch Rd |
| From | A - N52 East     | 0.000        | 296.000 | 225.000      | 152.000          |
|      | B - N80          | 332.000      | 1.000   | 43.000       | 360.000          |
|      | C - N52 West     | 281.000      | 37.000  | 0.000        | 105.000          |
|      | D - Clonminch Rd | 64.000       | 181.000 | 63.000       | 1.000            |

## Vehicle Mix

### Heavy Vehicle proportion

|      |                  | To           |         |              |                  |
|------|------------------|--------------|---------|--------------|------------------|
|      |                  | A - N52 East | B - N80 | C - N52 West | D - Clonminch Rd |
| From | A - N52 East     | 0            | 0       | 0            | 0                |
|      | B - N80          | 0            | 0       | 0            | 0                |
|      | C - N52 West     | 0            | 0       | 0            | 0                |
|      | D - Clonminch Rd | 0            | 0       | 0            | 0                |

## Results

### Results Summary for whole modelled period

| Arm              | Max RFC | Max delay (s) | Max Queue (PCU) | Max LOS |
|------------------|---------|---------------|-----------------|---------|
| A - N52 East     | 0.63    | 8.11          | 1.7             | A       |
| B - N80          | 0.71    | 10.84         | 2.4             | B       |
| C - N52 West     | 0.51    | 7.98          | 1.0             | A       |
| D - Clonminch Rd | 0.36    | 5.90          | 0.6             | A       |

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### Main Results for each time segment

#### Main results: (08:00-08:15)

| Arm              | Total Demand (PCU/hr) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC   | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | LOS |
|------------------|-----------------------|---------------------------|-------------------|-------|---------------------|-----------------|-----------|-----|
| A - N52 East     | 506.67                | 212.03                    | 1235.73           | 0.410 | 503.92              | 0.7             | 4,900     | A   |
| B - N80          | 554.10                | 330.24                    | 1224.35           | 0.453 | 550.83              | 0.8             | 5,320     | A   |
| C - N52 West     | 318.46                | 633.21                    | 1073.65           | 0.297 | 316.78              | 0.4             | 4,746     | A   |
| D - Clonminch Rd | 232.63                | 487.37                    | 1068.97           | 0.218 | 231.53              | 0.3             | 4,294     | A   |

#### Main results: (08:15-08:30)

| Arm              | Total Demand (PCU/hr) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC   | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | LOS |
|------------------|-----------------------|---------------------------|-------------------|-------|---------------------|-----------------|-----------|-----|
| A - N52 East     | 605.01                | 254.04                    | 1214.06           | 0.498 | 603.84              | 1.0             | 5,889     | A   |
| B - N80          | 661.65                | 395.72                    | 1189.45           | 0.556 | 659.99              | 1.2             | 6,777     | A   |
| C - N52 West     | 380.27                | 758.71                    | 1007.58           | 0.377 | 379.54              | 0.6             | 5,728     | A   |
| D - Clonminch Rd | 277.78                | 583.94                    | 1018.84           | 0.273 | 277.40              | 0.4             | 4,853     | A   |

#### Main results: (08:30-08:45)

| Arm              | Total Demand (PCU/hr) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC   | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | LOS |
|------------------|-----------------------|---------------------------|-------------------|-------|---------------------|-----------------|-----------|-----|
| A - N52 East     | 740.99                | 310.87                    | 1184.73           | 0.625 | 738.38              | 1.6             | 8,021     | A   |
| B - N80          | 810.35                | 483.94                    | 1142.43           | 0.709 | 805.89              | 2.3             | 10,556    | B   |
| C - N52 West     | 465.73                | 926.67                    | 919.14            | 0.507 | 464.09              | 1.0             | 7,883     | A   |
| D - Clonminch Rd | 340.22                | 713.52                    | 951.58            | 0.358 | 339.50              | 0.6             | 5,874     | A   |

#### Main results: (08:45-09:00)

| Arm              | Total Demand (PCU/hr) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC   | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | LOS |
|------------------|-----------------------|---------------------------|-------------------|-------|---------------------|-----------------|-----------|-----|
| A - N52 East     | 740.99                | 311.57                    | 1184.37           | 0.626 | 740.91              | 1.7             | 8,114     | A   |
| B - N80          | 810.35                | 485.50                    | 1141.60           | 0.710 | 810.16              | 2.4             | 10,844    | B   |
| C - N52 West     | 465.73                | 931.26                    | 916.73            | 0.508 | 465.68              | 1.0             | 7,978     | A   |
| D - Clonminch Rd | 340.22                | 716.64                    | 949.95            | 0.358 | 340.20              | 0.6             | 5,903     | A   |

#### Main results: (09:00-09:15)

| Arm              | Total Demand (PCU/hr) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC   | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | LOS |
|------------------|-----------------------|---------------------------|-------------------|-------|---------------------|-----------------|-----------|-----|
| A - N52 East     | 605.01                | 255.12                    | 1213.50           | 0.499 | 607.59              | 1.0             | 5,968     | A   |
| B - N80          | 661.65                | 398.04                    | 1188.21           | 0.557 | 666.12              | 1.3             | 6,954     | A   |
| C - N52 West     | 380.27                | 765.34                    | 1004.09           | 0.379 | 381.89              | 0.6             | 5,802     | A   |
| D - Clonminch Rd | 277.78                | 588.48                    | 1016.48           | 0.273 | 278.49              | 0.4             | 4,882     | A   |

#### Main results: (09:15-09:30)

| Arm              | Total Demand (PCU/hr) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC   | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | LOS |
|------------------|-----------------------|---------------------------|-------------------|-------|---------------------|-----------------|-----------|-----|
| A - N52 East     | 506.67                | 213.44                    | 1235.01           | 0.410 | 507.89              | 0.7             | 4,958     | A   |
| B - N80          | 554.10                | 332.77                    | 1223.00           | 0.453 | 555.86              | 0.8             | 5,411     | A   |
| C - N52 West     | 318.46                | 638.85                    | 1070.68           | 0.297 | 319.21              | 0.4             | 4,796     | A   |
| D - Clonminch Rd | 232.63                | 491.47                    | 1066.84           | 0.218 | 233.02              | 0.3             | 4,319     | A   |

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## Do-Something - DS 2038, PM

### Data Errors and Warnings

No errors or warnings

### Analysis Set Details

| ID | Name         | Network flow scaling factor (%) |
|----|--------------|---------------------------------|
| A1 | Do-Something | 100.000                         |

## Junction Network

### Junctions

| Junction                 | Name                 | Junction Type       | Junction Delay (s) | Junction LOS |
|--------------------------|----------------------|---------------------|--------------------|--------------|
| 1 - Clonminch Roundabout | Clonminch Roundabout | Standard Roundabout | 12.56              | B            |

### Junction Network Options

[same as above]

## Arms

### Arms

[same as above]

### Capacity Options

[same as above]

### Roundabout 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) |
|----|---------------|------------------|----------------------|--------------------------|---------------------------|---------------------------|
| D6 | DS 2038       | PM               | ONE HOUR             | 17:00                    | 18:30                     | 15                        |

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

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### Demand overview (Traffic)

| Arm              | Linked arm | Use O-D data | Average Demand (PCU/hr) | Scaling Factor (%) |
|------------------|------------|--------------|-------------------------|--------------------|
| A - N52 East     |            | ✓            | 830.00                  | 100.000            |
| B - N80          |            | ✓            | 606.00                  | 100.000            |
| C - N52 West     |            | ✓            | 306.00                  | 100.000            |
| D - Clonminch Rd |            | ✓            | 602.00                  | 100.000            |

## Origin-Destination Data

### Demand (PCU/hr)

| From             | To      | A - N52 East | B - N80 | C - N52 West | D - Clonminch Rd |
|------------------|---------|--------------|---------|--------------|------------------|
|                  |         | A - N52 East | 4,000   | 431,000      | 312,000          |
| B - N80          | 298,000 | 0,000        | 46,000  | 262,000      |                  |
| C - N52 West     | 218,000 | 44,000       | 0,000   | 44,000       |                  |
| D - Clonminch Rd | 199,000 | 308,000      | 92,000  | 3,000        |                  |

## Vehicle Mix

### Heavy Vehicle proportion

| From             | To | A - N52 East | B - N80 | C - N52 West | D - Clonminch Rd |
|------------------|----|--------------|---------|--------------|------------------|
|                  |    | A - N52 East | 0       | 0            | 0                |
| B - N80          | 0  | 0            | 0       | 0            |                  |
| C - N52 West     | 0  | 0            | 0       | 0            |                  |
| D - Clonminch Rd | 0  | 0            | 0       | 0            |                  |

## Results

### Results Summary for whole modelled period

| Arm              | Max RFC | Max delay (s) | Max Queue (PCU) | Max LOS |
|------------------|---------|---------------|-----------------|---------|
| A - N52 East     | 0.84    | 19.88         | 4.8             | C       |
| B - N80          | 0.60    | 8.11          | 1.5             | A       |
| C - N52 West     | 0.33    | 5.19          | 0.5             | A       |
| D - Clonminch Rd | 0.66    | 10.67         | 1.9             | B       |

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### Main Results for each time segment

#### Main results: (17:00-17:15)

| Arm              | Total Demand (PCU/hr) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC   | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | LOS |
|------------------|-----------------------|---------------------------|-------------------|-------|---------------------|-----------------|-----------|-----|
| A - N52 East     | 624.87                | 334.53                    | 1172.52           | 0.533 | 620.37              | 1.1             | 6,469     | A   |
| B - N80          | 456.23                | 369.31                    | 1203.52           | 0.379 | 453.81              | 0.6             | 4,786     | A   |
| C - N52 West     | 230.37                | 486.63                    | 1150.83           | 0.200 | 229.38              | 0.2             | 3,903     | A   |
| D - Clonminch Rd | 453.22                | 422.54                    | 1102.62           | 0.411 | 450.45              | 0.7             | 5,497     | A   |

#### Main results: (17:15-17:30)

| Arm              | Total Demand (PCU/hr) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC   | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | LOS |
|------------------|-----------------------|---------------------------|-------------------|-------|---------------------|-----------------|-----------|-----|
| A - N52 East     | 746.15                | 400.89                    | 1138.29           | 0.656 | 743.24              | 1.9             | 9,045     | A   |
| B - N80          | 544.78                | 442.48                    | 1164.53           | 0.468 | 543.73              | 0.9             | 5,790     | A   |
| C - N52 West     | 275.09                | 583.05                    | 1100.06           | 0.250 | 274.76              | 0.3             | 4,360     | A   |
| D - Clonminch Rd | 541.19                | 506.21                    | 1059.19           | 0.511 | 539.83              | 1.0             | 6,913     | A   |

#### Main results: (17:30-17:45)

| Arm              | Total Demand (PCU/hr) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC   | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | LOS |
|------------------|-----------------------|---------------------------|-------------------|-------|---------------------|-----------------|-----------|-----|
| A - N52 East     | 913.85                | 489.74                    | 1092.44           | 0.837 | 902.98              | 4.6             | 18,038    | C   |
| B - N80          | 667.22                | 538.13                    | 1113.55           | 0.599 | 664.84              | 1.5             | 7,980     | A   |
| C - N52 West     | 336.91                | 712.31                    | 1032.01           | 0.326 | 336.31              | 0.5             | 5,170     | A   |
| D - Clonminch Rd | 662.81                | 619.24                    | 1000.51           | 0.662 | 659.33              | 1.9             | 10,445    | B   |

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

| Arm              | Total Demand (PCU/hr) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC   | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | LOS |
|------------------|-----------------------|---------------------------|-------------------|-------|---------------------|-----------------|-----------|-----|
| A - N52 East     | 913.85                | 492.06                    | 1091.24           | 0.837 | 912.79              | 4.8             | 19,882    | C   |
| B - N80          | 667.22                | 543.38                    | 1110.76           | 0.601 | 667.13              | 1.5             | 8,111     | A   |
| C - N52 West     | 336.91                | 715.47                    | 1030.34           | 0.327 | 336.90              | 0.5             | 5,191     | A   |
| D - Clonminch Rd | 662.81                | 620.92                    | 999.64            | 0.663 | 662.68              | 1.9             | 10,672    | B   |

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

| Arm              | Total Demand (PCU/hr) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC   | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | LOS |
|------------------|-----------------------|---------------------------|-------------------|-------|---------------------|-----------------|-----------|-----|
| A - N52 East     | 746.15                | 404.26                    | 1136.55           | 0.657 | 757.61              | 2.0             | 9,772     | A   |
| B - N80          | 544.78                | 450.15                    | 1180.44           | 0.469 | 547.14              | 0.9             | 5,891     | A   |
| C - N52 West     | 275.09                | 587.74                    | 1097.59           | 0.251 | 275.68              | 0.3             | 4,384     | A   |
| D - Clonminch Rd | 541.19                | 508.74                    | 1057.87           | 0.512 | 544.66              | 1.1             | 7,063     | A   |

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

| Arm              | Total Demand (PCU/hr) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC   | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | LOS |
|------------------|-----------------------|---------------------------|-------------------|-------|---------------------|-----------------|-----------|-----|
| A - N52 East     | 624.87                | 337.53                    | 1170.98           | 0.534 | 628.09              | 1.2             | 6,671     | A   |
| B - N80          | 456.23                | 373.68                    | 1201.20           | 0.380 | 457.34              | 0.6             | 4,846     | A   |
| C - N52 West     | 230.37                | 490.73                    | 1148.67           | 0.201 | 230.71              | 0.3             | 3,922     | A   |
| D - Clonminch Rd | 453.22                | 425.46                    | 1101.11           | 0.412 | 454.64              | 0.7             | 5,582     | A   |

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| Junctions 9   |  |
|---|--|
| ARCADY 9 - Roundabout Module  |  |
| Version: 9.0.0.4211 []  |  |
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Filename: Clonminch Roundabout Sensitivity Analysis Do Something.j9

Path: G:\2018\p180002\calcs\arcady

Report generation date: 10/08/2021 16:06:07

- »Sensitivity Analysis - DS 2038, AM
- »Sensitivity Analysis - DS 2038, PM

### Summary of junction performance

|                                | AM          |           |         | PM          |           |         |
|--------------------------------|-------------|-----------|---------|-------------|-----------|---------|
|                                | Queue (PCU) | Delay (s) | RFC LOS | Queue (PCU) | Delay (s) | RFC LOS |
| Sensitivity Analysis - DS 2038 |             |           |         |             |           |         |
| A - N52 East                   | 2.3         | 10.98     | 0.70 B  | 12.4        | 48.82     | 0.95 E  |
| B - N80                        | 4.4         | 18.04     | 0.82 C  | 3.8         | 16.48     | 0.80 C  |
| C - N52 West                   | 1.4         | 10.17     | 0.58 B  | 0.7         | 6.73      | 0.41 A  |
| D - Clonminch Rd               | 1.2         | 8.51      | 0.56 A  | 5.7         | 25.11     | 0.86 D  |

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

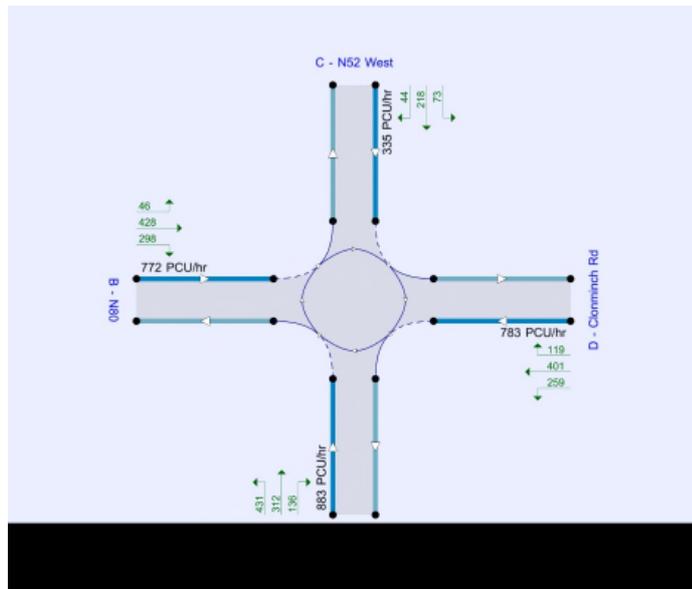
### File summary

#### File Description

|             |                                   |
|-------------|-----------------------------------|
| Title       | Clonminch Residential Development |
| Location    | Clonminch, Tullamore.             |
| Site number |                                   |
| Date        | 22/06/2020                        |
| Version     |                                   |
| Status      | Pre-Planning                      |
| Identifier  | DSG                               |
| Client      |                                   |
| Jobnumber   | 180002                            |
| Enumerator  | HEADOFFICE'gild                   |
| 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

| Calculate Queue Percentiles | Calculate residual capacity | RFC Threshold | Average Delay threshold (s) | Queue threshold (PCU) |
|-----------------------------|-----------------------------|---------------|-----------------------------|-----------------------|
|                             |                             | 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) |
|---------------|------------------|----------------------|--------------------------|---------------------------|---------------------------|
| DS 2038       | AM               | ONE HOUR             | 08:00                    | 09:30                     | 15                        |
| DS 2038       | PM               | ONE HOUR             | 17:00                    | 18:30                     | 15                        |

## Sensitivity Analysis - DS 2038, AM

### Data Errors and Warnings

No errors or warnings

### Analysis Set Details

| ID | Name                 | Network flow scaling factor (%) |
|----|----------------------|---------------------------------|
| A1 | Sensitivity Analysis | 100.000                         |

## Junction Network

### Junctions

| Junction                 | Name                 | Junction Type       | Junction Delay (s) | Junction LOS |
|--------------------------|----------------------|---------------------|--------------------|--------------|
| 1 - Clonminch Roundabout | Clonminch Roundabout | Standard Roundabout | 12.71              | B            |

### Junction Network Options

| Driving side | Lighting       |
|--------------|----------------|
| Left         | Normal/unknown |

## Arms

### Arms

| Arm | Name         | Description |
|-----|--------------|-------------|
| A   | N52 East     |             |
| B   | N80          |             |
| C   | N52 West     |             |
| D   | Clonminch Rd |             |

### Capacity Options

| Arm              | Minimum capacity (PCU/hr) | Maximum capacity (PCU/hr) |
|------------------|---------------------------|---------------------------|
| A - N52 East     | 0.00                      | 99999.00                  |
| B - N80          | 0.00                      | 99999.00                  |
| C - N52 West     | 0.00                      | 99999.00                  |
| D - Clonminch Rd | 0.00                      | 99999.00                  |

### Roundabout Geometry

| Arm              | V - Approach road half-width (m) | E - Entry width (m) | I - Effective flare length (m) | R - Entry radius (m) | D - Inscribed circle diameter (m) | PHI - Conflict (entry) angle (deg) | Exit only |
|------------------|----------------------------------|---------------------|--------------------------------|----------------------|-----------------------------------|------------------------------------|-----------|
| A - N52 East     | 3.65                             | 6.95                | 6.2                            | 16.0                 | 50.0                              | 52.0                               |           |
| B - N80          | 3.30                             | 6.20                | 12.2                           | 35.0                 | 50.0                              | 55.0                               |           |
| C - N52 West     | 3.65                             | 5.67                | 17.2                           | 22.0                 | 50.0                              | 58.0                               |           |
| D - Clonminch Rd | 3.50                             | 5.80                | 7.4                            | 28.0                 | 50.0                              | 52.0                               |           |

### Slope / Intercept / Capacity

#### Roundabout Slope and Intercept used in model

| Arm              | Final slope | Final Intercept (PCU/hr) |
|------------------|-------------|--------------------------|
| A - N52 East     | 0.516       | 1345.134                 |
| B - N80          | 0.533       | 1400.354                 |
| C - N52 West     | 0.527       | 1407.038                 |
| D - Clonminch Rd | 0.519       | 1321.961                 |

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

## Traffic Demand

### Demand Set Details

| ID | Scenario name | Time Period name | Traffic profile type | Model start time (HH:mm) | Model finish time (HH:mm) | Time segment length (min) |
|----|---------------|------------------|----------------------|--------------------------|---------------------------|---------------------------|
| D1 | DS 2038       | AM               | ONE HOUR             | 08:00                    | 09:30                     | 15                        |

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

### Demand overview (Traffic)

| Arm              | Linked arm | Use O-D data | Average Demand (PCU/hr) | Scaling Factor (%) |
|------------------|------------|--------------|-------------------------|--------------------|
| A - N52 East     |            | ✓            | 709.00                  | 100.000            |
| B - N80          |            | ✓            | 820.00                  | 100.000            |
| C - N52 West     |            | ✓            | 448.00                  | 100.000            |
| D - Clonminch Rd |            | ✓            | 479.00                  | 100.000            |

## Origin-Destination Data

### Demand (PCU/hr)

|      |                  | To           |         |              |                  |
|------|------------------|--------------|---------|--------------|------------------|
|      |                  | A - N52 East | B - N80 | C - N52 West | D - Clonminch Rd |
| From | A - N52 East     | 0.000        | 296.000 | 225.000      | 188.000          |
|      | B - N80          | 332.000      | 1.000   | 43.000       | 444.000          |
|      | C - N52 West     | 281.000      | 37.000  | 0.000        | 130.000          |
|      | D - Clonminch Rd | 99.000       | 280.000 | 98.000       | 2.000            |

## Vehicle Mix

### Heavy Vehicle proportion

|  | From             | To           |         |              |                  |
|--|------------------|--------------|---------|--------------|------------------|
|  |                  | A - N52 East | B - N80 | C - N52 West | D - Clonminch Rd |
|  | A - N52 East     | 0            | 0       | 0            | 0                |
|  | B - N80          | 0            | 0       | 0            | 0                |
|  | C - N52 West     | 0            | 0       | 0            | 0                |
|  | D - Clonminch Rd | 0            | 0       | 0            | 0                |

## Results

### Results Summary for whole modelled period

| Arm              | Max RFC | Max delay (s) | Max Queue (PCU) | Max LOS |
|------------------|---------|---------------|-----------------|---------|
| A - N52 East     | 0.70    | 10.98         | 2.3             | B       |
| B - N80          | 0.82    | 18.04         | 4.4             | C       |
| C - N52 West     | 0.58    | 10.17         | 1.4             | B       |
| D - Clonminch Rd | 0.56    | 8.51          | 1.2             | A       |

### Main Results for each time segment

#### Main results: (08:00-08:15)

| Arm              | Total Demand (PCU/hr) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC   | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | LOS |
|------------------|-----------------------|---------------------------|-------------------|-------|---------------------|-----------------|-----------|-----|
| A - N52 East     | 533.77                | 312.93                    | 1183.67           | 0.451 | 530.52              | 0.8             | 5.494     | A   |
| B - N80          | 617.34                | 383.90                    | 1195.75           | 0.516 | 613.13              | 1.1             | 6.135     | A   |
| C - N52 West     | 337.28                | 723.15                    | 1026.30           | 0.329 | 335.34              | 0.5             | 5.195     | A   |
| D - Clonminch Rd | 360.62                | 487.02                    | 1069.15           | 0.337 | 358.60              | 0.5             | 5.052     | A   |

#### Main results: (08:15-08:30)

| Arm              | Total Demand (PCU/hr) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC   | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | LOS |
|------------------|-----------------------|---------------------------|-------------------|-------|---------------------|-----------------|-----------|-----|
| A - N52 East     | 637.38                | 375.00                    | 1151.65           | 0.553 | 635.75              | 1.2             | 6.955     | A   |
| B - N80          | 737.16                | 460.05                    | 1155.17           | 0.638 | 734.49              | 1.7             | 8.502     | A   |
| C - N52 West     | 402.74                | 866.35                    | 950.91            | 0.424 | 401.78              | 0.7             | 6.543     | A   |
| D - Clonminch Rd | 430.61                | 583.47                    | 1019.08           | 0.423 | 429.74              | 0.7             | 6.100     | A   |

#### Main results: (08:30-08:45)

| Arm              | Total Demand (PCU/hr) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC   | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | LOS |
|------------------|-----------------------|---------------------------|-------------------|-------|---------------------|-----------------|-----------|-----|
| A - N52 East     | 780.62                | 458.45                    | 1108.59           | 0.704 | 776.34              | 2.3             | 10.697    | B   |
| B - N80          | 902.84                | 561.92                    | 1100.88           | 0.820 | 893.15              | 4.1             | 16.599    | C   |
| C - N52 West     | 493.26                | 1054.36                   | 851.92            | 0.579 | 490.80              | 1.3             | 9.901     | A   |
| D - Clonminch Rd | 527.39                | 711.08                    | 952.84            | 0.553 | 525.42              | 1.2             | 8.383     | A   |

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## Sensitivity Analysis - DS 2038, PM

### Data Errors and Warnings

No errors or warnings

### Analysis Set Details

| ID | Name                 | Network flow scaling factor (%) |
|----|----------------------|---------------------------------|
| A1 | Sensitivity Analysis | 100.000                         |

## Junction Network

### Junctions

| Junction                 | Name                 | Junction Type       | Junction Delay (s) | Junction LOS |
|--------------------------|----------------------|---------------------|--------------------|--------------|
| 1 - Clonminch Roundabout | Clonminch Roundabout | Standard Roundabout | 28.04              | D            |

### Junction Network Options

[same as above]

## Arms

### Arms

[same as above]

### Capacity Options

[same as above]

### Roundabout 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) |
|----|---------------|------------------|----------------------|--------------------------|---------------------------|---------------------------|
| D2 | DS 2038       | PM               | ONE HOUR             | 17:00                    | 18:30                     | 15                        |

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

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### Main results: (08:45-09:00)

| Arm              | Total Demand (PCU/hr) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC   | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | LOS |
|------------------|-----------------------|---------------------------|-------------------|-------|---------------------|-----------------|-----------|-----|
| A - N52 East     | 780.62                | 460.16                    | 1107.71           | 0.705 | 780.43              | 2.3             | 10.982    | B   |
| B - N80          | 902.84                | 564.70                    | 1099.39           | 0.821 | 902.00              | 4.4             | 18.045    | C   |
| C - N52 West     | 493.26                | 1063.84                   | 846.92            | 0.582 | 493.13              | 1.4             | 10.168    | B   |
| D - Clonminch Rd | 527.39                | 716.34                    | 950.11            | 0.555 | 527.32              | 1.2             | 8.510     | A   |

### Main results: (09:00-09:15)

| Arm              | Total Demand (PCU/hr) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC   | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | LOS |
|------------------|-----------------------|---------------------------|-------------------|-------|---------------------|-----------------|-----------|-----|
| A - N52 East     | 637.38                | 377.54                    | 1150.34           | 0.554 | 641.67              | 1.3             | 7.134     | A   |
| B - N80          | 737.16                | 464.09                    | 1153.01           | 0.639 | 747.30              | 1.8             | 9.085     | A   |
| C - N52 West     | 402.74                | 880.06                    | 943.69            | 0.427 | 405.22              | 0.8             | 6.715     | A   |
| D - Clonminch Rd | 430.61                | 591.11                    | 1015.12           | 0.424 | 432.56              | 0.7             | 6.199     | A   |

### Main results: (09:15-09:30)

| Arm              | Total Demand (PCU/hr) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC   | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | LOS |
|------------------|-----------------------|---------------------------|-------------------|-------|---------------------|-----------------|-----------|-----|
| A - N52 East     | 533.77                | 315.51                    | 1182.34           | 0.451 | 535.50              | 0.8             | 5.579     | A   |
| B - N80          | 617.34                | 387.41                    | 1193.88           | 0.517 | 620.27              | 1.1             | 6.307     | A   |
| C - N52 West     | 337.28                | 731.25                    | 1022.04           | 0.330 | 338.31              | 0.5             | 5.274     | A   |
| D - Clonminch Rd | 360.62                | 492.03                    | 1066.55           | 0.338 | 361.54              | 0.5             | 5.112     | A   |

### Demand overview (Traffic)

| Arm              | Linked arm | Use O-D data | Average Demand (PCU/hr) | Scaling Factor (%) |
|------------------|------------|--------------|-------------------------|--------------------|
| A - N52 East     |            | ✓            | 883.00                  | 100.000            |
| B - N80          |            | ✓            | 772.00                  | 100.000            |
| C - N52 West     |            | ✓            | 335.00                  | 100.000            |
| D - Clonminch Rd |            | ✓            | 783.00                  | 100.000            |

## Origin-Destination Data

### Demand (PCU/hr)

|  | From             | To           |         |              |                  |
|--|------------------|--------------|---------|--------------|------------------|
|  |                  | A - N52 East | B - N80 | C - N52 West | D - Clonminch Rd |
|  | A - N52 East     | 4.000        | 431.000 | 312.000      | 136.000          |
|  | B - N80          | 298.000      | 0.000   | 46.000       | 428.000          |
|  | C - N52 West     | 218.000      | 44.000  | 0.000        | 73.000           |
|  | D - Clonminch Rd | 259.000      | 401.000 | 119.000      | 4.000            |

## Vehicle Mix

### Heavy Vehicle proportion

|  | From             | To           |         |              |                  |
|--|------------------|--------------|---------|--------------|------------------|
|  |                  | A - N52 East | B - N80 | C - N52 West | D - Clonminch Rd |
|  | A - N52 East     | 0            | 0       | 0            | 0                |
|  | B - N80          | 0            | 0       | 0            | 0                |
|  | C - N52 West     | 0            | 0       | 0            | 0                |
|  | D - Clonminch Rd | 0            | 0       | 0            | 0                |

## Results

### Results Summary for whole modelled period

| Arm              | Max RFC | Max delay (s) | Max Queue (PCU) | Max LOS |
|------------------|---------|---------------|-----------------|---------|
| A - N52 East     | 0.95    | 48.82         | 12.4            | E       |
| B - N80          | 0.80    | 16.48         | 3.8             | C       |
| C - N52 West     | 0.41    | 6.73          | 0.7             | A       |
| D - Clonminch Rd | 0.86    | 25.11         | 5.7             | D       |

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**Main Results for each time segment**
**Main results: (17:00-17:15)**

| Arm              | Total Demand (PCU/hr) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC   | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | LOS |
|------------------|-----------------------|---------------------------|-------------------|-------|---------------------|-----------------|-----------|-----|
| A - N52 East     | 664.77                | 424.43                    | 1126.14           | 0.590 | 659.12              | 1.4             | 7.626     | A   |
| B - N80          | 581.20                | 429.29                    | 1171.56           | 0.496 | 577.32              | 1.0             | 6.021     | A   |
| C - N52 West     | 252.21                | 650.41                    | 1064.60           | 0.237 | 250.97              | 0.3             | 4.418     | A   |
| D - Clonminch Rd | 589.48                | 422.12                    | 1102.84           | 0.535 | 584.97              | 1.1             | 6.894     | A   |

**Main results: (17:15-17:30)**

| Arm              | Total Demand (PCU/hr) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC   | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | LOS |
|------------------|-----------------------|---------------------------|-------------------|-------|---------------------|-----------------|-----------|-----|
| A - N52 East     | 793.80                | 508.44                    | 1082.79           | 0.733 | 788.96              | 2.6             | 12.052    | B   |
| B - N80          | 694.01                | 513.94                    | 1126.44           | 0.616 | 691.62              | 1.6             | 8.233     | A   |
| C - N52 West     | 301.16                | 779.08                    | 996.85            | 0.302 | 300.67              | 0.4             | 5.168     | A   |
| D - Clonminch Rd | 703.90                | 505.70                    | 1059.45           | 0.664 | 700.74              | 1.9             | 9.946     | A   |

**Main results: (17:30-17:45)**

| Arm              | Total Demand (PCU/hr) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC   | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | LOS |
|------------------|-----------------------|---------------------------|-------------------|-------|---------------------|-----------------|-----------|-----|
| A - N52 East     | 972.20                | 616.29                    | 1027.15           | 0.947 | 942.62              | 10.0            | 34.428    | D   |
| B - N80          | 849.99                | 615.84                    | 1072.13           | 0.793 | 842.08              | 3.5             | 15.146    | C   |
| C - N52 West     | 368.84                | 945.69                    | 909.13            | 0.406 | 367.86              | 0.7             | 6.638     | A   |
| D - Clonminch Rd | 862.10                | 617.02                    | 1001.66           | 0.861 | 848.71              | 5.3             | 21.841    | C   |

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

| Arm              | Total Demand (PCU/hr) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC   | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | LOS |
|------------------|-----------------------|---------------------------|-------------------|-------|---------------------|-----------------|-----------|-----|
| A - N52 East     | 972.20                | 624.22                    | 1023.05           | 0.950 | 962.61              | 12.4            | 48.824    | E   |
| B - N80          | 849.99                | 627.91                    | 1065.70           | 0.798 | 849.16              | 3.8             | 16.484    | C   |
| C - N52 West     | 368.84                | 955.58                    | 903.92            | 0.408 | 368.80              | 0.7             | 6.727     | A   |
| D - Clonminch Rd | 862.10                | 620.58                    | 999.82            | 0.862 | 860.38              | 5.7             | 25.108    | D   |

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

| Arm              | Total Demand (PCU/hr) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC   | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | LOS |
|------------------|-----------------------|---------------------------|-------------------|-------|---------------------|-----------------|-----------|-----|
| A - N52 East     | 793.80                | 520.47                    | 1076.58           | 0.737 | 831.59              | 3.0             | 16.708    | C   |
| B - N80          | 694.01                | 538.54                    | 1113.33           | 0.623 | 702.24              | 1.7             | 8.924     | A   |
| C - N52 West     | 301.16                | 795.91                    | 987.99            | 0.305 | 302.13              | 0.4             | 5.255     | A   |
| D - Clonminch Rd | 703.90                | 511.13                    | 1056.64           | 0.666 | 718.44              | 2.1             | 11.072    | B   |

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

| Arm              | Total Demand (PCU/hr) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC   | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | LOS |
|------------------|-----------------------|---------------------------|-------------------|-------|---------------------|-----------------|-----------|-----|
| A - N52 East     | 664.77                | 430.07                    | 1123.23           | 0.592 | 670.71              | 1.5             | 8.056     | A   |
| B - N80          | 581.20                | 436.49                    | 1167.72           | 0.498 | 583.97              | 1.0             | 6.195     | A   |
| C - N52 West     | 252.21                | 658.54                    | 1060.31           | 0.238 | 252.72              | 0.3             | 4.460     | A   |
| D - Clonminch Rd | 589.48                | 426.10                    | 1100.77           | 0.536 | 593.04              | 1.2             | 7.141     | A   |

APPENDIX D  
TRANSYT Output Files

**TRANSYT 15**

Version: 15.5.2.7994  
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+44 (0)1344 379777 software@trl.co.uk www.trlsoftware.co.uk

The users of this computer program for the solution of an engineering problem are in no way relieved of their responsibility for the correctness of the solution

Results are NOT up to date. You should run the file and then refresh this report.

Filename: Site Access Junction.t15  
Path: G:\2018\p180002\calcs\transyt\planning Feb 2021  
Report generation date: 10/08/2021 16:46:41

- »A1 - 2023 AM : D1 - 2023 AM Peak Hour\* :
- »A2 - 2023 PM : D2 - 2023 PM Peak Hour\* :
- »A3 - 2028 AM : D3 - 2028 AM Peak Hour\* :
- »A4 - 2028 PM : D4 - 2028 PM Peak Hour\* :
- »A5 - 2038 AM : D5 - 2038 AM Peak Hour\* :
- »A6 - 2038 PM : D6 - 2038 PM Peak Hour\* :
- »A7 - 2038 AM SA : D7 - 2038 AM Peak Hour SA\* :
- »A8 - 2038 PM SA : D8 - 2038 PM Peak Hour SA\* :

**File summary**

| File description |   |
|------------------|---|
| File title       | Residential Development at Clonminch Road |
| Location         | Site Access                               |
| Site number      | 2   |
| UTCR region      |   |
| Driving side     | Left                                      |
| Date             | 19/02/2021                                |
| Version          |   |
| Status           | Planning                                  |
| Identifier       |   |
| Client           | Steinfors Investments Fund                |
| Job number       | 180002                                    |
| Enumerator       | HEADOFFICE\mckennam                       |
| 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 |
|---------------------------|-------------------------|---------------------|------------------------------|----------------------------------|---|--|------------------------------|---|----------------------------|----------------------------------|-------------------------------------|------------------------|----------------------------|
|                           |                         |                     | ✓                            |                                  | ✓                                       | ✓  | ✓                            | ✓   | ✓                          | ✓                                | ✓                                   |                        |                            |

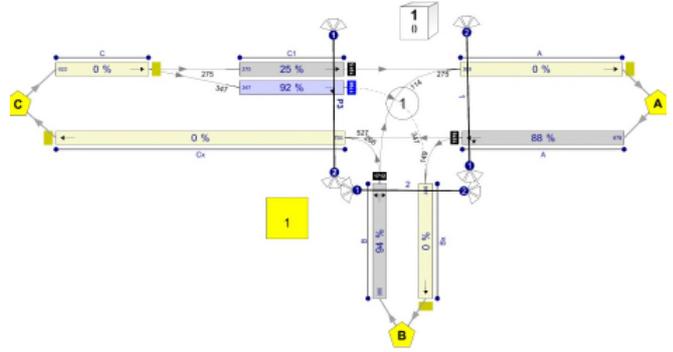
**Units**

| 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 |
|------------|-------------|----------------|--------------------|-----------------|------------|---------------------|-----------------------|------------|---------------------|-------------------|---------------------|
| £          | km/h        | 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 - 2023 AM  
D1 - 2023 AM Peak Hour\***

**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 signalized PRC | Item with worst unsignalized PRC | Item with worst over PR |
|-------------------|---------------------|---------------------|------------------------------|------------------------|------------------------------|---------------------------------|-----------------|-----------------------|-------------------------------|---------------------------------------|--------------------------------|----------------------------------|-------------------------|
| 1                 | 10/08/2021 16:46:12 | 10/08/2021 16:46:12 | 08:45                        | 90                     | 31.88                        | 1.91                            | 38.41           | C1/1                  | 0                             | 0                                     | C1/1                           | Ax/1                             | C1/1                    |

**Analysis Set Details**

| Name    | Description | Demand set | Include in report | Locked |
|---------|-------------|------------|-------------------|--------|
| 2023 AM |             | D1         | ✓                 |        |

**Demand Set Details**

| Name              | Description | Composite | Demand sets | Start time (HH:mm) | Locked |
|-------------------|-------------|-----------|-------------|--------------------|--------|
| 2023 AM Peak Hour |             |           |             | 08:45              |        |

**Arms and Traffic Streams**

**Arms**

| Arm | Name       | Description | Traffic node |
|-----|------------|-------------|--------------|
| A   | (untitled) |             | 1            |
| Ax  | (untitled) |             |              |
| B   | (untitled) |             | 1            |
| Bx  | (untitled) |             |              |
| C   | (untitled) |             | 1            |
| Cx  | (untitled) |             |              |
| C1  | (untitled) |             | 1            |

**Traffic Streams**

| Arm | Traffic Stream | Name       | Description | Auto length | Length (m) | Has Saturation Flow | Saturation flow source | Saturation flow (PCU/hr) | Is signal controlled | Is give way | Traffic type | Allow Nearside Turn On Red |
|-----|----------------|------------|-------------|-------------|------------|---------------------|------------------------|--------------------------|----------------------|-------------|--------------|----------------------------|
| A   | 1              | (untitled) |             |             | 200.00     | ✓                   | Sum of lanes           | 1976                     | ✓                    |             | Normal       |                            |
| Ax  | 1              | (untitled) |             |             | 100.00     |                     |                        |                          |                      |             | Normal       |                            |
| B   | 1              | (untitled) |             |             | 200.00     | ✓                   | Sum of lanes           | 1712                     | ✓                    |             | Normal       |                            |
| Bx  | 1              | (untitled) |             |             | 100.00     |                     |                        |                          |                      |             | Normal       |                            |
| C   | 1              | (untitled) |             |             | 200.00     |                     |                        |                          |                      |             | Normal       |                            |
| Cx  | 1              | (untitled) |             |             | 100.00     |                     |                        |                          |                      |             | Normal       |                            |
| C1  | 1              | (untitled) |             |             | 23.00      | ✓                   | Sum of lanes           | 1915                     | ✓                    |             | Normal       |                            |
| C1  | 2              | (untitled) |             |             | 23.00      | ✓                   | Sum of lanes           | 1798                     | ✓                    | ✓           | Normal       |                            |

**Lanes**

| Arm | Traffic Stream | Lane | Name       | Description | Use RR67 | Surface condition | Site quality factor | Gradient (%) | Width (m) | Use connector turning radius | Proportion that turn (%) | Turning radius (m) | Nearside lane | Saturation flow (PCU/hr) |
|-----|----------------|------|------------|-------------|----------|-------------------|---------------------|--------------|-----------|------------------------------|--------------------------|--------------------|---------------|--------------------------|
| A   | 1              | 1    | (untitled) |             | ✓        | N/A               | N/A                 | 0            | 3.00      |                              | 20                       | 7.50               |               | 1976                     |
| Ax  | 1              | 1    | (untitled) |             |          |                   |                     |              |           |                              |                          |                    |               |                          |
| B   | 1              | 1    | (untitled) |             | ✓        | N/A               | N/A                 | 0            | 3.00      |                              | 100                      | 7.50               |               | 1712                     |
| Bx  | 1              | 1    | (untitled) |             |          |                   |                     |              |           |                              |                          |                    |               |                          |
| C   | 1              | 1    | (untitled) |             |          |                   |                     |              |           |                              |                          |                    |               |                          |
| Cx  | 1              | 1    | (untitled) |             |          |                   |                     |              |           |                              |                          |                    |               |                          |
| C1  | 1              | 1    | (untitled) |             | ✓        | N/A               | N/A                 | 0            | 3.00      |                              | 0                        | 100.00             | ✓             | 1915                     |
| C1  | 2              | 1    | (untitled) |             | ✓        | N/A               | N/A                 | 0            | 3.00      |                              | 100                      | 10.50              |               | 1798                     |

**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 |
|-----|----------------|----------------|-------------------------------|--------------------------------|-------------------------------|----------------------------------|-------------------------|-----------------|--------------------------------|
| A   | 1              | NetworkDefault | 100                           | 100                            | 100                           |                                  | 0.00                    |                 |                                |
| Ax  | 1              | NetworkDefault | 100                           | 100                            | 100                           |                                  | 0.00                    |                 |                                |
| B   | 1              | NetworkDefault | 100                           | 100                            | 100                           |                                  | 0.00                    |                 |                                |
| Bx  | 1              | NetworkDefault | 100                           | 100                            | 100                           |                                  | 0.00                    |                 |                                |
| C   | 1              | NetworkDefault | 100                           | 100                            | 100                           |                                  | 0.00                    |                 |                                |
| Cx  | 1              | NetworkDefault | 100                           | 100                            | 100                           |                                  | 0.00                    |                 |                                |
| C1  | 1              | Flare          | 100                           | 100                            | 100                           |                                  | 0.00                    |                 |                                |
| C1  | 2              | Flare          | 100                           | 100                            | 100                           |                                  | 0.00                    |                 |                                |

**Modelling - Advanced**

| Arm   | Traffic Stream | Initial queue (PCU) | Type of Vehicle-in-Service | Vehicle-in-Service | Type of random parameter | Random parameter | Auto cycle time | Cycle time |
|-------|----------------|---------------------|----------------------------|--------------------|--------------------------|------------------|-----------------|------------|
| (ALL) | (ALL)          | 0.00                | NetworkDefault             | Not-Included       | NetworkDefault           | 0.50             | ✓               | 90         |

**Normal traffic - Modelling**

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

**Normal traffic - Advanced**

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

**Flows**

| Arm | Traffic Stream | Total Flow (PCU/hr) | Normal Flow (PCU/hr) |
|-----|----------------|---------------------|----------------------|
| A   | 1              | 223                 | 223                  |
| Ax  | 1              | 485                 | 485                  |
| B   | 1              | 28                  | 28                   |
| Bx  | 1              | 17                  | 17                   |
| C   | 1              | 484                 | 484                  |
| Cx  | 1              | 239                 | 239                  |
| C1  | 1              | 474                 | 474                  |
| C1  | 2              | 10                  | 10                   |

**Signals**

| Arm | Traffic Stream | Controller stream | Phase | Second phase enabled |
|-----|----------------|-------------------|-------|----------------------|
| A   | 1              | 1                 | D     |                      |
| B   | 1              | 1                 | A     |                      |
| C   | 1              | 1                 | C     |                      |
| C1  | 2              | 1                 | B     |                      |

### Pedestrian Crossings

#### Pedestrian Crossings

| Crossing | Name       | Description | Traffic node | Allow walk on red | Crossing type | Length (m) | Cruise time (seconds) | Cruise speed (kph) |
|----------|------------|-------------|--------------|-------------------|---------------|------------|-----------------------|--------------------|
| P1       | (untitled) |             |              |                   | Farside       | 9.00       | 6.00                  | 5.40               |
| P2       | (untitled) |             |              |                   | Farside       | 6.40       | 4.27                  | 5.40               |
| P3       | (untitled) |             |              |                   | Farside       | 9.00       | 6.00                  | 5.40               |

#### Pedestrian Crossings - Signals

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

#### Pedestrian Crossings - Sides

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

#### Pedestrian Crossings - Modelling

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

### Signal Timings

Network Default: 90s cycle time; 90 steps

#### Controller Stream

| Controller stream | Name       | Description | Use sequence | Cycle time source | Cycle time (s) |
|-------------------|------------|-------------|--------------|-------------------|----------------|
| 1                 | (untitled) |             | 1            | NetworkDefault    | 90             |

#### Controller Stream - Properties

| Controller stream | Manufacturer name | Type | Model number | (Telephone) Line Number | Site number | Grid reference | Gaining delay type |
|-------------------|-------------------|------|--------------|-------------------------|-------------|----------------|--------------------|
| 1                 | Unspecified       |      |              |                         |             |                | Absolute           |

#### Controller Stream - Optimisation

| Controller stream | Allow offset optimisation           | Allow green split optimisation      | Optimisation level | Auto redistribute                   | Enable stage constraint |
|-------------------|-------------------------------------|-------------------------------------|--------------------|-------------------------------------|-------------------------|
| 1                 | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |                    | <input checked="" type="checkbox"/> |                         |

#### 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) | 7                 | 300               | 0                               | 0                             | Traffic          |                   |
|                   | B     | (untitled) | 5                 | 300               | 0                               | 0                             | Indicative arrow |                   |
|                   | C     | (untitled) | 5                 | 300               | 0                               | 0                             | Traffic          |                   |
|                   | D     | (untitled) | 7                 | 300               | 0                               | 0                             | Traffic          |                   |
|                   | E     | (untitled) | 6                 | 300               | 0                               | 0                             | Pedestrian       | 0                 |

#### Library Stages

| Controller stream | Library stage | Phases in stage | User stage minimum (s) |
|-------------------|---------------|-----------------|------------------------|
| 1                 | 1             | A               | 1                      |
|                   | 2             | C, D, B         | 1                      |
|                   | 3             | C, B            | 1                      |
|                   | 4             | E               | 1                      |

### Lossing / Gaining Phase Delays

| Controller stream | Delay | Type    | Phase | From stage | To stage | Relative delay |
|-------------------|-------|---------|-------|------------|----------|----------------|
| 1                 | 1     | Lossing | C     | 1          | 2        | 20             |

### Stage Sequences

| Controller stream | Sequence | Name       | Multiple cycling | Stage IDs  | Stage ends    |
|-------------------|----------|------------|------------------|------------|---------------|
| 1                 | 1        | (untitled) | Single           | 1, 2, 3, 4 | 2, 63, 64, 77 |

### Intergreen Matrix for Controller Stream 1

|      |   | To |   |   |   |   |
|------|---|----|---|---|---|---|
|      |   | A  | B | C | D | E |
| From | A | 5  | 5 | 5 | 7 |   |
|      | B |    |   |   |   | 7 |
|      | C | 5  |   |   |   | 7 |
|      | D | 5  |   |   |   | 7 |
|      | E | 8  | 8 | 8 | 8 |   |

### Interstage Matrix for Controller Stream 1

|      |   | To |   |   |   |
|------|---|----|---|---|---|
|      |   | 1  | 2 | 3 | 4 |
| From | 1 | 0  | 5 | 5 | 7 |
|      | 2 | 5  | 0 | 0 | 7 |
|      | 3 | 5  | 0 | 0 | 7 |
|      | 4 | 8  | 8 | 8 | 0 |

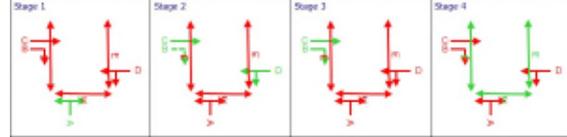
### Resultant Stages

| 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               | <input checked="" type="checkbox"/> | 1                | A                    | 85              | 2             | 7                  | 1                      | 7                 |
|                   | 2               | <input checked="" type="checkbox"/> | 2                | C,D,B                | 7               | 63            | 56                 | 1                      | 7                 |
|                   | 3               | <input checked="" type="checkbox"/> | 3                | C,B                  | 63              | 64            | 1                  | 1                      | 1                 |
|                   | 4               | <input checked="" type="checkbox"/> | 4                | E                    | 71              | 77            | 6                  | 1                      | 6                 |

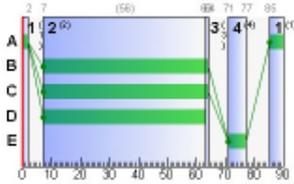
### Resultant Phase Green Periods

| Controller stream | Phase | Green period | Is base green period                | Start time (s) | End time (s) | Duration (s) |
|-------------------|-------|--------------|-------------------------------------|----------------|--------------|--------------|
| 1                 | A     | 1            | <input checked="" type="checkbox"/> | 85             | 2            | 7            |
|                   | B     | 1            | <input checked="" type="checkbox"/> | 7              | 64           | 57           |
|                   | C     | 1            | <input checked="" type="checkbox"/> | 7              | 64           | 57           |
|                   | D     | 1            | <input checked="" type="checkbox"/> | 7              | 63           | 56           |
|                   | E     | 1            | <input checked="" type="checkbox"/> | 71             | 77           | 6            |

### Stage Sequence Diagram for Controller Stream 1



### Phase Timings Diagram for Controller Stream 1



### Traffic Stream Results

#### Traffic Stream Results: Vehicle summary

| Time Segment | Arm | Traffic Stream | Degree of saturation (%) | Practical reserve capacity (%) | Calculated flow entering (PCU/hr) | Calculated sat flow (PCU/hr) | Actual green flow (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) |
|--------------|-----|----------------|--------------------------|--------------------------------|-----------------------------------|------------------------------|---------------------------------|------------------------|----------------------|----------------------|-----------------------------------|-----------------------------------|------------------------------|
| 08:45-09:45  | A   | 1              | 18                       | 392                            | 229                               | 1976                         | 56                              | 7.17                   | 2.37                 | 6.83                 | 6.48                              | 1.15                              | 7.63                         |
|              |     | Ax             | 0                        | Unrestricted                   | 485                               | Unrestricted                 | 90                              | 0.00                   | 0.00                 | 0.00                 | 0.00                              | 0.00                              | 0.00                         |
|              | B   | 1              | 18                       | 389                            | 28                                | 1712                         | 7                               | 40.71                  | 0.67                 | 1.92                 | 4.50                              | 0.33                              | 4.83                         |
|              |     | Bx             | 0                        | Unrestricted                   | 17                                | Unrestricted                 | 90                              | 0.00                   | 0.00                 | 0.00                 | 0.00                              | 0.00                              | 0.00                         |
|              | C   | 1              | 0                        | Unrestricted                   | 484                               | Unrestricted                 | 90                              | 0.52                   | 1.48                 | 4.25                 | 1.00                              | 0.60                              | 1.60                         |
|              |     | Cx             | 0                        | Unrestricted                   | 239                               | Unrestricted                 | 90                              | 0.00                   | 0.00                 | 0.00                 | 0.00                              | 0.00                              | 0.00                         |
| C1           | 1   | 38             | 134                      | 474                            | 1915                              | 57                           | 7.95                            | 4.10                   | 102.61               | 14.87                | 2.40                              | 17.28                             |                              |
|              | 2   | 1              | 7117                     | 10                             | 1244                              | 57                           | 7.89                            | 0.08                   | 2.11                 | 0.31                 | 0.04                              | 0.35                              |                              |

#### Traffic Stream Results: Flows and signals

| Time Segment | Arm | Traffic Stream | Calculated flow entering (PCU/hr) | Calculated flow out (PCU/hr) | Flow discrepancy (PCU/hr) | Adjusted flow warning | Calculated sat flow (PCU/hr) | Calculated capacity (PCU/hr) | Degree of saturation (%) | DOS Threshold exceeded | Practical reserve capacity (%) | Mean modulus of error | Actual green (s per cycle) | Effective green (s per cycle) |
|--------------|-----|----------------|-----------------------------------|------------------------------|---------------------------|-----------------------|------------------------------|------------------------------|--------------------------|------------------------|--------------------------------|-----------------------|----------------------------|-------------------------------|
| 08:45-09:45  | A   | 1              | 229                               | 229                          | 0                         |                       | 1976                         | 1251                         | 18                       |                        | 392                            | 0.00                  | 56                         | 57                            |
|              |     | Ax             | 1                                 | 485                          | 485                       | 0                     | Unrestricted                 | Unrestricted                 | 0                        |                        |                                | Unrestricted          | 0.61                       | 90                            |
|              | B   | 1              | 28                                | 28                           | 0                         |                       | 1712                         | 152                          | 18                       |                        | 389                            | 0.00                  | 7                          | 8                             |
|              |     | Bx             | 1                                 | 17                           | 17                        | 0                     | Unrestricted                 | Unrestricted                 | 0                        |                        | Unrestricted                   | 0.65                  | 90                         | 90                            |
|              | C   | 1              | 484                               | 484                          | 0                         |                       | Unrestricted                 | Unrestricted                 | 0                        |                        | Unrestricted                   | 0.00                  | 90                         | 90                            |
|              |     | Cx             | 1                                 | 239                          | 239                       | 0                     | Unrestricted                 | Unrestricted                 | 0                        |                        | Unrestricted                   | 0.59                  | 90                         | 90                            |
| C1           | 1   | 474            | 474                               | 0                            |                           | 1915                  | 1234                         | 38                           |                          | 134                    | 0.17                           | 57                    | 58                         |                               |
|              | 2   | 10             | 10                                | 0                            |                           | 1244                  | 802                          | 1                            |                          | 7117                   | 0.17                           | 57                    | 58                         |                               |

#### Traffic Stream Results: Stops and delays

| Time Segment | Arm | Traffic Stream | Mean Cruise Time per Veh (s) | Mean Delay per Veh (s) | Uniform delay (PCU/hr) | Random plus oversat delay (PCU/hr) | Unweighted cost of delay (£ per hr) | Weighted cost of delay (£ per hr) | Mean stops per Veh (%) | Uniform stops (Stops per hr) | Random stops (Stops per hr) | Unweighted cost of stops (£ per hr) | Weighted cost of stops (£ per hr) |
|--------------|-----|----------------|------------------------------|------------------------|------------------------|------------------------------------|-------------------------------------|-----------------------------------|------------------------|------------------------------|-----------------------------|-------------------------------------|-----------------------------------|
| 08:45-09:45  | A   | 1              | 24.00                        | 7.17                   | 0.44                   | 0.02                               | 6.48                                | 6.48                              | 39.89                  | 90.53                        | 0.82                        | 1.15                                | 1.15                              |
|              |     | Ax             | 1                            | 12.00                  | 0.00                   | 0.00                               | 0.00                                | 0.00                              | 0.00                   | 0.00                         | 0.00                        | 0.00                                | 0.00                              |
|              | B   | 1              | 24.00                        | 40.71                  | 0.30                   | 0.02                               | 4.50                                | 4.50                              | 93.84                  | 25.45                        | 0.82                        | 0.33                                | 0.33                              |
|              |     | Bx             | 1                            | 12.00                  | 0.00                   | 0.00                               | 0.00                                | 0.00                              | 0.00                   | 0.00                         | 0.00                        | 0.00                                | 0.00                              |
|              | C   | 1              | 24.00                        | 0.52                   | 0.07                   | 0.00                               | 1.00                                | 1.00                              | 9.88                   | 47.83                        | 0.00                        | 0.60                                | 0.60                              |
|              |     | Cx             | 1                            | 12.00                  | 0.00                   | 0.00                               | 0.00                                | 0.00                              | 0.00                   | 0.00                         | 0.00                        | 0.00                                | 0.00                              |
| C1           | 1   | 2.76           | 7.95                         | 0.93                   | 0.12                   | 14.87                              | 14.87                               | 40.44                             | 186.91                 | 4.77                         | 2.40                        | 2.40                                |                                   |
|              | 2   | 2.76           | 7.89                         | 0.02                   | 0.00                   | 0.31                               | 0.31                                | 33.77                             | 3.37                   | 0.00                         | 0.04                        | 0.04                                |                                   |

# A2 - 2023 PM D2 - 2023 PM Peak Hour\*

## 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 (E 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 signalized PRC | Item with worst unsignalized PRC | Item with worst over PR |
|-------------------|---------------------|---------------------|------------------------------|------------------------|------------------------------|---------------------------------|-----------------|-----------------------|-------------------------------|---------------------------------------|--------------------------------|----------------------------------|-------------------------|
| 2                 | 10/08/2021 16:46:12 | 10/08/2021 16:46:13 | 17:00                        | 90                     | 33.34                        | 2.03                            | 38.67           | A/1                   | 0                             | 0                                     | A/1                            | Ax/1                             | A/                      |

### Analysis Set Details

| Name    | Description | Demand set | Include in report | Locked |
|---------|-------------|------------|-------------------|--------|
| 2023 PM |             | D2         | ✓                 |        |

### Demand Set Details

| Name              | Description | Composite | Demand sets | Start time (HH:mm) | Locked |
|-------------------|-------------|-----------|-------------|--------------------|--------|
| 2023 PM Peak Hour |             |           |             | 17:00              |        |

## Arms and Traffic Streams

### Arms

| Arm | Name       | Description | Traffic node |
|-----|------------|-------------|--------------|
| A   | (untitled) |             | 1            |
| Ax  | (untitled) |             |              |
| B   | (untitled) |             | 1            |
| Bx  | (untitled) |             |              |
| C   | (untitled) |             | 1            |
| Cx  | (untitled) |             |              |
| C1  | (untitled) |             | 1            |

### Traffic Streams

| Arm | Traffic Stream | Name       | Description | Auto length | Length (m) | Has Saturation Flow | Saturation flow source | Saturation flow (PCU/hr) | Is signal controlled | Is give way | Traffic type | Allow Nearside Turn On Red |
|-----|----------------|------------|-------------|-------------|------------|---------------------|------------------------|--------------------------|----------------------|-------------|--------------|----------------------------|
| A   | 1              | (untitled) |             |             | 200.00     | ✓                   | Sum of lanes           | 1976                     | ✓                    |             | Normal       |                            |
| Ax  | 1              | (untitled) |             |             | 100.00     |                     |                        |                          |                      |             | Normal       |                            |
| B   | 1              | (untitled) |             |             | 200.00     | ✓                   | Sum of lanes           | 1712                     | ✓                    |             | Normal       |                            |
| Bx  | 1              | (untitled) |             |             | 100.00     |                     |                        |                          |                      |             | Normal       |                            |
| C   | 1              | (untitled) |             |             | 200.00     |                     |                        |                          |                      |             | Normal       |                            |
| Cx  | 1              | (untitled) |             |             | 100.00     |                     |                        |                          |                      |             | Normal       |                            |
| C1  | 1              | (untitled) |             |             | 23.00      | ✓                   | Sum of lanes           | 1915                     | ✓                    |             | Normal       |                            |
| C1  | 2              | (untitled) |             |             | 23.00      | ✓                   | Sum of lanes           | 1798                     | ✓                    | ✓           | Normal       |                            |

## Lanes

| Arm | Traffic Stream | Lane | Name       | Description | Use RR67 | Surface condition | Site quality factor | Gradient (%) | Width (m) | Use connector turning radius | Proportion that turn (%) | Turning radius (m) | Nearside lane | Saturation flow (PCU/hr) |
|-----|----------------|------|------------|-------------|----------|-------------------|---------------------|--------------|-----------|------------------------------|--------------------------|--------------------|---------------|--------------------------|
| A   | 1              | 1    | (untitled) |             | ✓        | N/A               | N/A                 | 0            | 3.00      |                              | 20                       | 7.50               |               | 1976                     |
| Ax  | 1              | 1    | (untitled) |             |          |                   |                     |              |           |                              |                          |                    |               |                          |
| B   | 1              | 1    | (untitled) |             | ✓        | N/A               | N/A                 | 0            | 3.00      |                              | 100                      | 7.50               |               | 1712                     |
| Bx  | 1              | 1    | (untitled) |             |          |                   |                     |              |           |                              |                          |                    |               |                          |
| C   | 1              | 1    | (untitled) |             |          |                   |                     |              |           |                              |                          |                    |               |                          |
| Cx  | 1              | 1    | (untitled) |             |          |                   |                     |              |           |                              |                          |                    |               |                          |
| C1  | 1              | 1    | (untitled) |             | ✓        | N/A               | N/A                 | 0            | 3.00      |                              | 0                        | 100.00             | ✓             | 1915                     |
| C1  | 2              | 1    | (untitled) |             | ✓        | N/A               | N/A                 | 0            | 3.00      |                              | 100                      | 10.50              |               | 1798                     |

## 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 |
|-----|----------------|----------------|-------------------------------|--------------------------------|-------------------------------|----------------------------------|-------------------------|-----------------|--------------------------------|
| A   | 1              | NetworkDefault | 100                           | 100                            | 100                           |                                  | 0.00                    |                 |                                |
| Ax  | 1              | NetworkDefault | 100                           | 100                            | 100                           |                                  | 0.00                    |                 |                                |
| B   | 1              | NetworkDefault | 100                           | 100                            | 100                           |                                  | 0.00                    |                 |                                |
| Bx  | 1              | NetworkDefault | 100                           | 100                            | 100                           |                                  | 0.00                    |                 |                                |
| C   | 1              | NetworkDefault | 100                           | 100                            | 100                           |                                  | 0.00                    |                 |                                |
| Cx  | 1              | NetworkDefault | 100                           | 100                            | 100                           |                                  | 0.00                    |                 |                                |
| C1  | 1              | Flare          | 100                           | 100                            | 100                           |                                  | 0.00                    |                 |                                |
| C1  | 2              | Flare          | 100                           | 100                            | 100                           |                                  | 0.00                    |                 |                                |

## Modelling - Advanced

| Arm   | Traffic Stream | Initial queue (PCU) | Type of Vehicle-in-Service | Vehicle-in-Service | Type of random parameter | Random parameter | Auto cycle time | Cycle time |
|-------|----------------|---------------------|----------------------------|--------------------|--------------------------|------------------|-----------------|------------|
| (ALL) | (ALL)          | 0.00                | NetworkDefault             | Not-Included       | NetworkDefault           | 0.50             | ✓               | 90         |

## Normal traffic - Modelling

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

## Normal traffic - Advanced

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

## Flows

| Arm | Traffic Stream | Total Flow (PCU/hr) | Normal Flow (PCU/hr) |
|-----|----------------|---------------------|----------------------|
| A   | 1              | 484                 | 484                  |
| Ax  | 1              | 254                 | 254                  |
| B   | 1              | 24                  | 24                   |
| Bx  | 1              | 38                  | 38                   |
| C   | 1              | 274                 | 274                  |
| Cx  | 1              | 490                 | 490                  |
| C1  | 1              | 247                 | 247                  |
| C1  | 2              | 27                  | 27                   |

## Signals

| Arm | Traffic Stream | Controller stream | Phase | Second phase enabled |
|-----|----------------|-------------------|-------|----------------------|
| A   | 1              | 1                 | D     |                      |
| B   | 1              | 1                 | A     |                      |
| C   | 1              | 1                 | C     |                      |
| C1  | 2              | 1                 | B     |                      |

## Pedestrian Crossings

### Pedestrian Crossings

| Crossing | Name       | Description | Traffic node | Allow walk on red | Crossing type | Length (m) | Cruise time (seconds) | Cruise speed (kph) |
|----------|------------|-------------|--------------|-------------------|---------------|------------|-----------------------|--------------------|
| P1       | (untitled) |             |              |                   | Farside       | 9.00       | 6.00                  | 5.40               |
| P2       | (untitled) |             |              |                   | Farside       | 6.40       | 4.27                  | 5.40               |
| P3       | (untitled) |             |              |                   | Farside       | 9.00       | 6.00                  | 5.40               |

### Pedestrian Crossings - Signals

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

### Pedestrian Crossings - Sides

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

### Pedestrian Crossings - Modelling

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

## Signal Timings

Network Default: 90s cycle time; 90 steps

### Controller Stream

| Controller stream | Name       | Description | Use sequence | Cycle time source | Cycle time (s) |
|-------------------|------------|-------------|--------------|-------------------|----------------|
| 1                 | (untitled) |             | 1            | NetworkDefault    | 90             |

### Controller Stream - Properties

| Controller stream | Manufacturer name | Type | Model number | (Telephone) Line Number | Site number | Grid reference | Gaining delay type |
|-------------------|-------------------|------|--------------|-------------------------|-------------|----------------|--------------------|
| 1                 | Unspecified       |      |              |                         |             |                | Absolute           |

### Controller Stream - Optimisation

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

## Phases

| Controller stream | Phase | Name       | Minimum green (s) | Maximum green (s) | Relative start displacement (s) | Relative end displacement (s) | Type             | Blackout Time (s) |
|-------------------|-------|------------|-------------------|-------------------|---------------------------------|-------------------------------|------------------|-------------------|
| 1                 | A     | (untitled) | 7                 | 300               | 0                               | 0                             | Traffic          |                   |
|                   | B     | (untitled) | 5                 | 300               | 0                               | 0                             | Indicative arrow |                   |
|                   | C     | (untitled) | 5                 | 300               | 0                               | 0                             | Traffic          |                   |
|                   | D     | (untitled) | 7                 | 300               | 0                               | 0                             | Traffic          |                   |
|                   | E     | (untitled) | 6                 | 300               | 0                               | 0                             | Pedestrian       | 0                 |

## Library Stages

| Controller stream | Library stage | Phases in stage | User stage minimum (s) |
|-------------------|---------------|-----------------|------------------------|
| 1                 | 1             | A               | 1                      |
|                   | 2             | C, D, B         | 1                      |
|                   | 3             | C, B            | 1                      |
|                   | 4             | E               | 1                      |

## Losing / Gaining Phase Delays

| Controller stream | Delay | Type   | Phase | From stage | To stage | Relative delay |
|-------------------|-------|--------|-------|------------|----------|----------------|
| 1                 | 1     | Losing | C     | 1          | 2        | 20             |

## Stage Sequences

| Controller stream | Sequence | Name       | Multiple cycling | Stage IDs  | Stage ends    |
|-------------------|----------|------------|------------------|------------|---------------|
| 1                 | 1        | (untitled) | Single           | 1, 2, 3, 4 | 2, 63, 64, 77 |

## Intergreen Matrix for Controller Stream 1

|      |   | To |   |   |   |   |
|------|---|----|---|---|---|---|
|      |   | A  | B | C | D | E |
| From | A | 5  | 5 | 5 | 7 |   |
|      | B |    |   |   |   | 7 |
|      | C | 5  |   |   |   | 7 |
|      | D | 5  |   |   |   | 7 |
|      | E | 8  | 8 | 8 | 8 |   |

## Interstage Matrix for Controller Stream 1

|      |   | To |   |   |   |
|------|---|----|---|---|---|
|      |   | 1  | 2 | 3 | 4 |
| From | 1 | 0  | 5 | 5 | 7 |
|      | 2 | 5  | 0 | 0 | 7 |
|      | 3 | 5  | 0 | 0 | 7 |
|      | 4 | 8  | 8 | 8 | 0 |

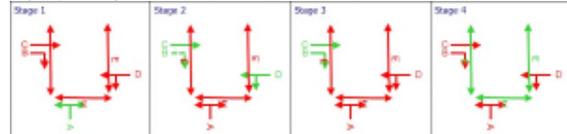
## Resultant Stages

| 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                    | 85              | 2             | 7                  | 1                      | 7                 |
|                   | 2               | ✓             | 2                | C,D,B                | 7               | 63            | 56                 | 1                      | 7                 |
|                   | 3               | ✓             | 3                | C,B                  | 63              | 64            | 1                  | 1                      | 1                 |
|                   | 4               | ✓             | 4                | E                    | 71              | 77            | 6                  | 1                      | 6                 |

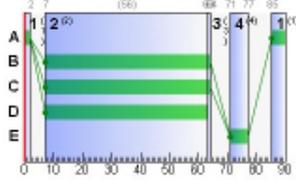
## Resultant Phase Green Periods

| Controller stream | Phase | Green period | Is base green period | Start time (s) | End time (s) | Duration (s) |
|-------------------|-------|--------------|----------------------|----------------|--------------|--------------|
| 1                 | A     | 1            | ✓                    | 85             | 2            | 7            |
|                   | B     | 1            | ✓                    | 7              | 64           | 57           |
|                   | C     | 1            | ✓                    | 7              | 64           | 57           |
|                   | D     | 1            | ✓                    | 7              | 63           | 56           |
|                   | E     | 1            | ✓                    | 71             | 77           | 6            |

## Stage Sequence Diagram for Controller Stream 1



Phase Timings Diagram for Controller Stream 1



Traffic Stream Results: Queues and blocking

| Time Segment | Arm | Traffic Stream | Initial queue (PCU) | Mean max queue (PCU) | Max queue storage (PCU) | Utilised storage (%) | Average storage excess queue (PCU) | Average limit excess queue (PCU) | Excess queue penalty (£ per hr) | Max end of green queue (PCU) | Max end of red queue (PCU) | Wasted time starvation (£ per cycle) | Wasted time blocking back (£ per cycle) | Wasted time total (£ per cycle) | Estimated blocking |  |
|--------------|-----|----------------|---------------------|----------------------|-------------------------|----------------------|------------------------------------|----------------------------------|---------------------------------|------------------------------|----------------------------|--------------------------------------|---|---------------------------------|--------------------|--|
| 17:00-18:00  | A   | 1              | 0.00                | 5.90                 | 34.78                   | 16.97                | 0.00                               | 0.00                             | 0.00                            | 0.12                         | 4.56                       | 0.00                                 | 0.00                                    | 0.00                            |                    |  |
|              |     | Ax             | 1                   | 0.00                 | 0.00                    | 17.39                | 0.00                               | 0.00                             | 0.00                            |                              |                            |                                      | 23.00                                   | 0.00                            | 23.00              |  |
|              | B   | 1              | 0.00                | 0.57                 | 34.78                   | 1.63                 | 0.00                               | 0.00                             | 0.00                            | 0.01                         | 0.56                       | 6.00                                 | 0.00                                    | 6.00                            |                    |  |
|              |     | Bx             | 1                   | 0.00                 | 0.00                    | 17.39                | 0.00                               | 0.00                             | 0.00                            |                              |                            |                                      | 80.00                                   | 0.00                            | 80.00              |  |
|              | C   | 1              | 0.00                | 0.08                 | 34.78                   | 0.22                 | 0.00                               | 0.00                             | 0.00                            |                              |                            |                                      | 0.00                                    | 1.00                            | 1.00               |  |
|              |     | Cx             | 1                   | 0.00                 | 0.00                    | 17.39                | 0.00                               | 0.00                             | 0.00                            |                              |                            |                                      | 18.00                                   | 0.00                            | 18.00              |  |
|              | C1  | 1              | 0.00                | 2.22                 | 4.00                    | 55.51                | 0.00                               | 0.00                             | 0.00                            | 0.03                         | 2.22                       | 0.00                                 | 0.00                                    | 0.00                            | 0.00               |  |
|              |     | 2              | 0.00                | 0.33                 | 4.00                    | 8.29                 | 0.00                               | 0.00                             | 0.00                            | 0.00                         | 0.24                       | 43.00                                | 0.00                                    | 43.00                           |                    |  |

Traffic Stream Results

Traffic Stream Results: Vehicle summary

| Time Segment | Arm | Traffic Stream | Degree of saturation (%) | Practical reserve capacity (%) | Calculated flow entering (PCU/hr) | Calculated sat flow (PCU/hr) | Actual green (£ per cycle) | Mean Delay per Veh (£) | Mean max queue (PCU) | Utilised storage (%) | Weighted cost of delay (£ per hr) | Weighted cost of stops (£ per hr) | Performance Index (£ per hr) |
|--------------|-----|----------------|--------------------------|--------------------------------|-----------------------------------|------------------------------|----------------------------|------------------------|----------------------|----------------------|-----------------------------------|-----------------------------------|------------------------------|
| 17:00-18:00  | A   | 1              | 39                       | 133                            | 484                               | 1976                         | 56                         | 8.92                   | 5.90                 | 16.97                | 17.03                             | 2.86                              | 19.89                        |
|              |     | Ax             | 1                        | 0                              | Unrestricted                      | 254                          | Unrestricted               | 90                     | 0.00                 | 0.00                 | 0.00                              | 0.00                              | 0.00                         |
|              | B   | 1              | 16                       | 471                            | 24                                | 1712                         | 7                          | 40.15                  | 0.57                 | 1.63                 | 3.80                              | 0.28                              | 4.08                         |
|              |     | Bx             | 1                        | 0                              | Unrestricted                      | 38                           | Unrestricted               | 90                     | 0.00                 | 0.00                 | 0.00                              | 0.00                              | 0.00                         |
|              | C   | 1              | 0                        | Unrestricted                   | 274                               | Unrestricted                 | 90                         | 0.01                   | 0.08                 | 0.22                 | 0.01                              | 0.02                              | 0.03                         |
|              |     | Cx             | 1                        | 0                              | Unrestricted                      | 490                          | Unrestricted               | 90                     | 0.00                 | 0.00                 | 0.00                              | 0.00                              | 0.00                         |
|              | C1  | 1              | 20                       | 350                            | 247                               | 1915                         | 57                         | 6.89                   | 2.22                 | 55.51                | 6.72                              | 1.20                              | 7.92                         |
|              |     | 2              | 6                        | 1528                           | 27                                | 758                          | 57                         | 11.75                  | 0.33                 | 8.29                 | 1.25                              | 0.17                              | 1.42                         |

Traffic Stream Results: Flows and signals

| Time Segment | Arm | Traffic Stream | Calculated flow entering (PCU/hr) | Calculated flow out (PCU/hr) | Flow discrepancy (PCU/hr) | Adjusted flow warning | Calculated sat flow (PCU/hr) | Calculated capacity (PCU/hr) | Degree of saturation (%) | DOS Threshold exceeded | Practical reserve capacity (%) | Mean modulus of error | Actual green (£ per cycle) | Effective green (£ per cycle) |
|--------------|-----|----------------|-----------------------------------|------------------------------|---------------------------|-----------------------|------------------------------|------------------------------|--------------------------|------------------------|--------------------------------|-----------------------|----------------------------|-------------------------------|
| 17:00-18:00  | A   | 1              | 484                               | 484                          | 0                         |                       | 1976                         | 1251                         | 39                       |                        | 133                            | 0.00                  | 56                         | 57                            |
|              |     | Ax             | 1                                 | 254                          | 254                       | 0                     |                              | Unrestricted                 | Unrestricted             | 0                      |                                | Unrestricted          | 0.60                       | 90                            |
|              | B   | 1              | 24                                | 24                           | 0                         |                       | 1712                         | 152                          | 16                       |                        | 471                            | 0.00                  | 7                          | 8                             |
|              |     | Bx             | 1                                 | 38                           | 38                        | 0                     |                              | Unrestricted                 | Unrestricted             | 0                      |                                | Unrestricted          | 0.69                       | 90                            |
|              | C   | 1              | 274                               | 274                          | 0                         |                       | Unrestricted                 | Unrestricted                 | 0                        |                        | Unrestricted                   | 0.00                  | 90                         | 90                            |
|              |     | Cx             | 1                                 | 490                          | 490                       | 0                     |                              | Unrestricted                 | Unrestricted             | 0                      |                                | Unrestricted          | 0.62                       | 90                            |
|              | C1  | 1              | 247                               | 247                          | 0                         |                       | 1915                         | 1234                         | 20                       |                        | 350                            | 0.01                  | 57                         | 58                            |
|              |     | 2              | 27                                | 27                           | 0                         |                       | 758                          | 488                          | 6                        |                        | 1528                           | 0.01                  | 57                         | 58                            |

Traffic Stream Results: Stops and delays

| Time Segment | Arm | Traffic Stream | Mean Cruise Time per Veh (s) | Mean Delay per Veh (s) | Uniform delay (PCU-hr/hr) | Random plus oversat delay (PCU-hr/hr) | Unweighted cost of delay (£ per hr) | Weighted cost of delay (£ per hr) | Mean stops per Veh (%) | Uniform stops (Stops per hr) | Random stops (Stops per hr) | Unweighted cost of stops (£ per hr) | Weighted cost of stops (£ per hr) |
|--------------|-----|----------------|------------------------------|------------------------|---------------------------|---------------------------------------|-------------------------------------|-----------------------------------|------------------------|------------------------------|-----------------------------|-------------------------------------|-----------------------------------|
| 17:00-18:00  | A   | 1              | 24.00                        | 8.92                   | 1.08                      | 0.12                                  | 17.03                               | 17.03                             | 47.09                  | 223.07                       | 4.86                        | 2.86                                | 2.86                              |
|              |     | Ax             | 1                            | 12.00                  | 0.00                      | 0.00                                  | 0.00                                | 0.00                              | 0.00                   | 0.00                         | 0.00                        | 0.00                                | 0.00                              |
|              | B   | 1              | 24.00                        | 40.15                  | 0.25                      | 0.01                                  | 3.80                                | 3.80                              | 93.35                  | 21.82                        | 0.59                        | 0.28                                | 0.28                              |
|              |     | Bx             | 1                            | 12.00                  | 0.00                      | 0.00                                  | 0.00                                | 0.00                              | 0.00                   | 0.00                         | 0.00                        | 0.00                                | 0.00                              |
|              | C   | 1              | 24.00                        | 0.01                   | 0.00                      | 0.00                                  | 0.01                                | 0.01                              | 0.61                   | 1.67                         | 0.00                        | 0.02                                | 0.02                              |
|              |     | Cx             | 1                            | 12.00                  | 0.00                      | 0.00                                  | 0.00                                | 0.00                              | 0.00                   | 0.00                         | 0.00                        | 0.00                                | 0.00                              |
|              | C1  | 1              | 2.76                         | 6.89                   | 0.45                      | 0.03                                  | 6.72                                | 6.72                              | 38.76                  | 94.73                        | 1.00                        | 1.20                                | 1.20                              |
|              |     | 2              | 2.76                         | 11.75                  | 0.09                      | 0.00                                  | 1.25                                | 1.25                              | 50.02                  | 13.44                        | 0.06                        | 0.17                                | 0.17                              |

A3 - 2028 AM  
D3 - 2028 AM Peak Hour\*

Summary

Data Errors and Warnings

No errors or warnings

Run Summary

| Analysis set used | Run start time      | Run finish time     | Modelling start time (HH:mm) | Network Cycle Time (s) | Performance Index (£ per hr) | Total network delay (PCU-hr/hr) | Highest DOS (%) | Item with highest DOS | Number of oversaturated items | Percentage of oversaturated items (%) | Item with worst signalised PRC | Item with worst unsignalised PRC | Item with worst over PR |
|-------------------|---------------------|---------------------|------------------------------|------------------------|------------------------------|---------------------------------|-----------------|-----------------------|-------------------------------|---------------------------------------|--------------------------------|----------------------------------|-------------------------|
| 3                 | 10/08/2021 16:46:13 | 10/08/2021 16:46:14 | 08:45                        | 90                     | 59.98                        | 3.75                            | 52.57           | B/1                   | 0                             | 0                                     | B/1                            | Ax/1                             | B/1                     |

Analysis Set Details

| Name    | Description | Demand set | Include in report | Locked |
|---------|-------------|------------|-------------------|--------|
| 2028 AM |             | D3         | ✓                 |        |

Demand Set Details

| Name              | Description | Composite | Demand sets | Start time (HH:mm) | Locked |
|-------------------|-------------|-----------|-------------|--------------------|--------|
| 2028 AM Peak Hour |             |           |             | 08:45              |        |

Arms and Traffic Streams

Arms

| Arm | Name       | Description | Traffic node |
|-----|------------|-------------|--------------|
| A   | (untitled) |             | 1            |
| Ax  | (untitled) |             |              |
| B   | (untitled) |             | 1            |
| Bx  | (untitled) |             |              |
| C   | (untitled) |             | 1            |
| Cx  | (untitled) |             |              |
| C1  | (untitled) |             | 1            |

Traffic Streams

| Arm | Traffic Stream | Name       | Description | Auto length | Length (m) | Has Saturation Flow | Saturation flow source | Saturation flow (PCU/hr) | Is signal controlled | Is give way | Traffic type | Allow Nearside Turn On Red |
|-----|----------------|------------|-------------|-------------|------------|---------------------|------------------------|--------------------------|----------------------|-------------|--------------|----------------------------|
| A   | 1              | (untitled) |             |             | 200.00     | ✓                   | Sum of lanes           | 1976                     | ✓                    |             | Normal       |                            |
| Ax  | 1              | (untitled) |             |             | 100.00     |                     |                        |                          |                      |             | Normal       |                            |
| B   | 1              | (untitled) |             |             | 200.00     | ✓                   | Sum of lanes           | 1712                     | ✓                    |             | Normal       |                            |
| Bx  | 1              | (untitled) |             |             | 100.00     |                     |                        |                          |                      |             | Normal       |                            |
| C   | 1              | (untitled) |             |             | 200.00     |                     |                        |                          |                      |             | Normal       |                            |
| Cx  | 1              | (untitled) |             |             | 100.00     |                     |                        |                          |                      |             | Normal       |                            |
| C1  | 1              | (untitled) |             |             | 23.00      | ✓                   | Sum of lanes           | 1915                     | ✓                    |             | Normal       |                            |
|     | 2              | (untitled) |             |             | 23.00      | ✓                   | Sum of lanes           | 1798                     | ✓                    | ✓           | Normal       |                            |

Lanes

| Arm | Traffic Stream | Lane | Name       | Description | Use RRE? | Surface condition | Site quality factor | Gradient (%) | Width (m) | Use connector turning radius | Proportion that turn (%) | Turning radius (m) | Nearside lane | Saturation flow (PCU/hr) |
|-----|----------------|------|------------|-------------|----------|-------------------|---------------------|--------------|-----------|------------------------------|--------------------------|--------------------|---------------|--------------------------|
| A   | 1              | 1    | (untitled) |             | ✓        | N/A               | N/A                 | 0            | 3.00      |                              | 20                       | 7.50               |               | 1976                     |
| Ax  | 1              | 1    | (untitled) |             |          |                   |                     |              |           |                              |                          |                    |               |                          |
| B   | 1              | 1    | (untitled) |             | ✓        | N/A               | N/A                 | 0            | 3.00      |                              | 100                      | 7.50               |               | 1712                     |
| Bx  | 1              | 1    | (untitled) |             |          |                   |                     |              |           |                              |                          |                    |               |                          |
| C   | 1              | 1    | (untitled) |             |          |                   |                     |              |           |                              |                          |                    |               |                          |
| Cx  | 1              | 1    | (untitled) |             |          |                   |                     |              |           |                              |                          |                    |               |                          |
| C1  | 1              | 1    | (untitled) |             | ✓        | N/A               | N/A                 | 0            | 3.00      |                              | 0                        | 100.00             | ✓             | 1915                     |
|     | 2              | 1    | (untitled) |             | ✓        | N/A               | N/A                 | 0            | 3.00      |                              | 100                      | 10.50              |               | 1798                     |

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 |
|-----|----------------|----------------|-------------------------------|--------------------------------|-------------------------------|----------------------------------|-------------------------|-----------------|--------------------------------|
| A   | 1              | NetworkDefault | 100                           | 100                            | 100                           |                                  | 0.00                    |                 |                                |
| Ax  | 1              | NetworkDefault | 100                           | 100                            | 100                           |                                  | 0.00                    |                 |                                |
| B   | 1              | NetworkDefault | 100                           | 100                            | 100                           |                                  | 0.00                    |                 |                                |
| Bx  | 1              | NetworkDefault | 100                           | 100                            | 100                           |                                  | 0.00                    |                 |                                |
| C   | 1              | NetworkDefault | 100                           | 100                            | 100                           |                                  | 0.00                    |                 |                                |
| Cx  | 1              | NetworkDefault | 100                           | 100                            | 100                           |                                  | 0.00                    |                 |                                |
| C1  | 1              | Flare          | 100                           | 100                            | 100                           |                                  | 0.00                    |                 |                                |
|     | 2              | Flare          | 100                           | 100                            | 100                           |                                  | 0.00                    |                 |                                |

Modelling - Advanced

| Arm   | Traffic Stream | Initial queue (PCU) | Type of Vehicle-in-Service | Vehicle-in-Service | Type of random parameter | Random parameter | Auto cycle time | Cycle time |
|-------|----------------|---------------------|----------------------------|--------------------|--------------------------|------------------|-----------------|------------|
| (ALL) | (ALL)          | 0.00                | NetworkDefault             | Not-Included       | NetworkDefault           | 0.50             | ✓               | 90         |

Normal traffic - Modelling

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

Normal traffic - Advanced

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

Flows

| Arm | Traffic Stream | Total Flow (PCU/hr) | Normal Flow (PCU/hr) |
|-----|----------------|---------------------|----------------------|
| A   | 1              | 277                 | 277                  |
| Ax  | 1              | 547                 | 547                  |
| B   | 1              | 110                 | 110                  |
| Bx  | 1              | 105                 | 105                  |
| C   | 1              | 566                 | 566                  |
| Cx  | 1              | 301                 | 301                  |
| C1  | 1              | 503                 | 503                  |
|     | 2              | 63                  | 63                   |

Signals

| Arm | Traffic Stream | Controller stream | Phase | Second phase enabled |
|-----|----------------|-------------------|-------|----------------------|
| A   | 1              | 1                 | D     |                      |
| B   | 1              | 1                 | A     |                      |
|     | 1              | 1                 | C     |                      |
| C1  | 1              | 1                 | B     |                      |
|     | 2              | 1                 | B     |                      |

**Pedestrian Crossings**

**Pedestrian Crossings**

| Crossing | Name       | Description | Traffic node | Allow walk on red | Crossing type | Length (m) | Cruise time (seconds) | Cruise speed (kph) |
|----------|------------|-------------|--------------|-------------------|---------------|------------|-----------------------|--------------------|
| P1       | (untitled) |             |              |                   | Farside       | 9.00       | 6.00                  | 5.40               |
| P2       | (untitled) |             |              |                   | Farside       | 6.40       | 4.27                  | 5.40               |
| P3       | (untitled) |             |              |                   | Farside       | 9.00       | 6.00                  | 5.40               |

**Pedestrian Crossings - Signals**

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

**Pedestrian Crossings - Sides**

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

**Pedestrian Crossings - Modelling**

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

**Signal Timings**

Network Default: 90s cycle time; 90 steps

**Controller Stream**

| Controller stream | Name       | Description | Use sequence | Cycle time source | Cycle time (s) |
|-------------------|------------|-------------|--------------|-------------------|----------------|
| 1                 | (untitled) |             | 1            | NetworkDefault    | 90             |

**Controller Stream - Properties**

| Controller stream | Manufacturer name | Type | Model number | (Telephone) Line Number | Site number | Grid reference | Gaining delay type |
|-------------------|-------------------|------|--------------|-------------------------|-------------|----------------|--------------------|
| 1                 | Unspecified       |      |              |                         |             |                | Absolute           |

**Controller Stream - Optimisation**

| Controller stream | Allow offset optimisation           | Allow green split optimisation      | Optimisation level       | Auto redistribute                   | Enable stage constraint |
|-------------------|-------------------------------------|-------------------------------------|--------------------------|-------------------------------------|-------------------------|
| 1                 | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | Offsets And Green Splits | <input checked="" type="checkbox"/> |                         |

**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) | 7                 | 300               | 0                               | 0                             | Traffic          |                   |
|                   | B          | (untitled) | 5                 | 300               | 0                               | 0                             | Indicative arrow |                   |
|                   | C          | (untitled) | 5                 | 300               | 0                               | 0                             | Traffic          |                   |
|                   | D          | (untitled) | 7                 | 300               | 0                               | 0                             | Traffic          |                   |
| E                 | (untitled) | 6          | 300               | 0                 | 0                               | Pedestrian                    | 0                |                   |

**Library Stages**

| Controller stream | Library stage | Phases in stage | User stage minimum (s) |
|-------------------|---------------|-----------------|------------------------|
| 1                 | 1             | A               | 1                      |
|                   | 2             | C, D, B         | 1                      |
|                   | 3             | C, B            | 1                      |
|                   | 4             | E               | 1                      |

**Losing / Gaining Phase Delays**

| Controller stream | Delay | Type   | Phase | From stage | To stage | Relative delay |
|-------------------|-------|--------|-------|------------|----------|----------------|
| 1                 | 1     | Losing | C     | 1          | 2        | 20             |

**Stage Sequences**

| Controller stream | Sequence | Name       | Multiple cycling | Stage IDs  | Stage ends    |
|-------------------|----------|------------|------------------|------------|---------------|
| 1                 | 1        | (untitled) | Single           | 1, 2, 3, 4 | 5, 63, 64, 77 |

**Intergreen Matrix for Controller Stream 1**

|      |   | To |   |   |   |   |
|------|---|----|---|---|---|---|
|      |   | A  | B | C | D | E |
| From | A | 5  | 5 | 5 | 7 |   |
|      | B | 5  |   |   |   | 7 |
|      | C | 5  |   |   |   | 7 |
|      | D | 5  |   |   |   | 7 |
|      | E | 8  | 8 | 8 | 8 |   |

**Interstage Matrix for Controller Stream 1**

|      |   | To |   |   |   |
|------|---|----|---|---|---|
|      |   | 1  | 2 | 3 | 4 |
| From | 1 | 0  | 5 | 5 | 7 |
|      | 2 | 5  | 0 | 0 | 7 |
|      | 3 | 5  | 0 | 0 | 7 |
|      | 4 | 8  | 8 | 8 | 0 |

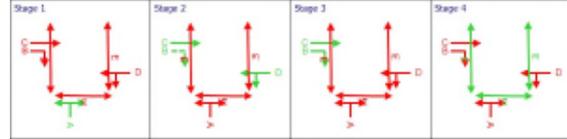
**Resultant Stages**

| 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               | <input checked="" type="checkbox"/> | 1                | A                    | 85              | 5             | 10                 | 1                      | 7                 |
|                   | 2               | <input checked="" type="checkbox"/> | 2                | C,D,B                | 10              | 63            | 53                 | 1                      | 7                 |
|                   | 3               | <input checked="" type="checkbox"/> | 3                | C,B                  | 63              | 64            | 1                  | 1                      | 1                 |
|                   | 4               | <input checked="" type="checkbox"/> | 4                | E                    | 71              | 77            | 6                  | 1                      | 6                 |

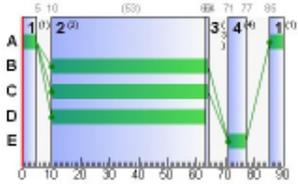
**Resultant Phase Green Periods**

| Controller stream | Phase | Green period | Is base green period                | Start time (s) | End time (s) | Duration (s) |
|-------------------|-------|--------------|-------------------------------------|----------------|--------------|--------------|
| 1                 | A     | 1            | <input checked="" type="checkbox"/> | 85             | 5            | 10           |
|                   | B     | 1            | <input checked="" type="checkbox"/> | 10             | 64           | 54           |
|                   | C     | 1            | <input checked="" type="checkbox"/> | 10             | 64           | 54           |
|                   | D     | 1            | <input checked="" type="checkbox"/> | 10             | 63           | 53           |
|                   | E     | 1            | <input checked="" type="checkbox"/> | 71             | 77           | 6            |

**Stage Sequence Diagram for Controller Stream 1**



**Phase Timings Diagram for Controller Stream 1**



**Traffic Stream Results**

**Traffic Stream Results: Vehicle summary**

| Time Segment | Arm | Traffic Stream | Degree of saturation (%) | Practical reserve capacity (%) | Calculated flow entering (PCU/hr) | Calculated sat flow (PCU/hr) | Actual green flow (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) |
|--------------|-----|----------------|--------------------------|--------------------------------|-----------------------------------|------------------------------|---------------------------------|------------------------|----------------------|----------------------|-----------------------------------|-----------------------------------|------------------------------|
| 08:45-09:45  | A   | 1              | 23                       | 285                            | 277                               | 1976                         | 53                              | 8.84                   | 3.19                 | 9.17                 | 9.66                              | 1.55                              | 11.21                        |
|              |     | Ax             | 0                        | Unrestricted                   | 547                               | Unrestricted                 | 90                              | 0.00                   | 0.00                 | 0.00                 | 0.00                              | 0.00                              | 0.00                         |
|              | B   | 1              | 53                       | 71                             | 110                               | 1712                         | 10                              | 46.45                  | 2.85                 | 8.20                 | 20.16                             | 1.41                              | 21.56                        |
|              |     | Bx             | 1                        | 0                              | Unrestricted                      | 105                          | Unrestricted                    | 90                     | 0.00                 | 0.00                 | 0.00                              | 0.00                              | 0.00                         |
|              | C   | 1              | 0                        | Unrestricted                   | 566                               | Unrestricted                 | 90                              | 1.51                   | 3.14                 | 9.04                 | 3.37                              | 1.32                              | 4.69                         |
|              |     | Cx             | 1                        | 0                              | Unrestricted                      | 301                          | Unrestricted                    | 90                     | 0.00                 | 0.00                 | 0.00                              | 0.00                              | 0.00                         |
|              | C1  | 1              | 43                       | 109                            | 503                               | 1915                         | 54                              | 8.93                   | 4.16                 | 104.04               | 17.73                             | 2.10                              | 19.82                        |
|              |     | 2              | 9                        | 892                            | 63                                | 1137                         | 54                              | 9.69                   | 0.53                 | 13.30                | 2.41                              | 0.28                              | 2.69                         |

**Traffic Stream Results: Flows and signals**

| Time Segment | Arm | Traffic Stream | Calculated flow entering (PCU/hr) | Calculated flow out (PCU/hr) | Flow discrepancy (PCU/hr) | Adjusted flow warning | Calculated sat flow (PCU/hr) | Calculated capacity (PCU/hr) | Degree of saturation (%) | DOS Threshold exceeded | Practical reserve capacity (%) | Mean modulus of error | Actual green (s per cycle) | Effective green (s per cycle) |
|--------------|-----|----------------|-----------------------------------|------------------------------|---------------------------|-----------------------|------------------------------|------------------------------|--------------------------|------------------------|--------------------------------|-----------------------|----------------------------|-------------------------------|
| 08:45-09:45  | A   | 1              | 277                               | 277                          | 0                         |                       | 1976                         | 1186                         | 23                       |                        | 285                            | 0.00                  | 53                         | 54                            |
|              |     | Ax             | 1                                 | 547                          | 547                       | 0                     | Unrestricted                 | Unrestricted                 | 0                        |                        |                                | Unrestricted          | 0.60                       | 90                            |
|              | B   | 1              | 110                               | 110                          | 0                         |                       | 1712                         | 209                          | 53                       |                        | 71                             | 0.00                  | 10                         | 11                            |
|              |     | Bx             | 1                                 | 105                          | 105                       | 0                     | Unrestricted                 | Unrestricted                 | 0                        |                        | Unrestricted                   | 0.72                  | 90                         | 90                            |
|              | C   | 1              | 566                               | 566                          | 0                         | Unrestricted          | Unrestricted                 | 0                            |                          | Unrestricted           | 0.00                           | 90                    | 90                         |                               |
|              |     | Cx             | 1                                 | 301                          | 301                       | 0                     | Unrestricted                 | Unrestricted                 | 0                        |                        | Unrestricted                   | 0.64                  | 90                         | 90                            |
|              | C1  | 1              | 503                               | 503                          | 0                         |                       | 1915                         | 1170                         | 43                       |                        | 109                            | 0.30                  | 54                         | 55                            |
|              |     | 2              | 63                                | 63                           | 0                         |                       | 1137                         | 695                          | 9                        |                        | 892                            | 0.30                  | 54                         | 55                            |

**Traffic Stream Results: Stops and delays**

| Time Segment | Arm | Traffic Stream | Mean Cruise Time per Veh (s) | Mean Delay per Veh (s) | Uniform delay (PCU/hr) | Random plus oversat delay (PCU/hr) | Unweighted cost of delay (£ per hr) | Weighted cost of delay (£ per hr) | Mean stops per Veh (%) | Uniform stops (Stops per hr) | Random stops (Stops per hr) | Unweighted cost of stops (£ per hr) | Weighted cost of stops (£ per hr) |
|--------------|-----|----------------|------------------------------|------------------------|------------------------|------------------------------------|-------------------------------------|-----------------------------------|------------------------|------------------------------|-----------------------------|-------------------------------------|-----------------------------------|
| 08:45-09:45  | A   | 1              | 24.00                        | 8.84                   | 0.64                   | 0.04                               | 9.66                                | 9.66                              | 44.69                  | 122.36                       | 1.42                        | 1.55                                | 1.55                              |
|              |     | Ax             | 1                            | 12.00                  | 0.00                   | 0.00                               | 0.00                                | 0.00                              | 0.00                   | 0.00                         | 0.00                        | 0.00                                | 0.00                              |
|              | B   | 1              | 24.00                        | 46.45                  | 1.13                   | 0.29                               | 20.16                               | 20.16                             | 102.14                 | 101.18                       | 11.17                       | 1.41                                | 1.41                              |
|              |     | Bx             | 1                            | 12.00                  | 0.00                   | 0.00                               | 0.00                                | 0.00                              | 0.00                   | 0.00                         | 0.00                        | 0.00                                | 0.00                              |
|              | C   | 1              | 24.00                        | 1.51                   | 0.24                   | 0.00                               | 3.37                                | 3.37                              | 16.64                  | 105.49                       | 0.00                        | 1.32                                | 1.32                              |
|              |     | Cx             | 1                            | 12.00                  | 0.00                   | 0.00                               | 0.00                                | 0.00                              | 0.00                   | 0.00                         | 0.00                        | 0.00                                | 0.00                              |
|              | C1  | 1              | 2.76                         | 8.93                   | 1.09                   | 0.16                               | 17.73                               | 17.73                             | 33.28                  | 160.97                       | 6.45                        | 2.10                                | 2.10                              |
|              |     | 2              | 2.76                         | 9.69                   | 0.17                   | 0.00                               | 2.41                                | 2.41                              | 35.67                  | 22.29                        | 0.18                        | 0.28                                | 0.28                              |

# A4 - 2028 PM D4 - 2028 PM Peak Hour\*

## 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 (E 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 signalized PRC | Item with worst unsignalized PRC | Item with worst over PR |
|-------------------|---------------------|---------------------|------------------------------|------------------------|------------------------------|---------------------------------|-----------------|-----------------------|-------------------------------|---------------------------------------|--------------------------------|----------------------------------|-------------------------|
| 4                 | 10/08/2021 16:46:14 | 10/08/2021 16:46:14 | 17:00                        | 90                     | 70.72                        | 4.45                            | 57.83           | B/1                   | 0                             | 0                                     | B/1                            | Ax/1                             | B/1                     |

### Analysis Set Details

| Name    | Description | Demand set | Include in report | Locked |
|---------|-------------|------------|-------------------|--------|
| 2028 PM |             | D4         | ✓                 |        |

### Demand Set Details

| Name              | Description | Composite | Demand sets | Start time (HH:mm) | Locked |
|-------------------|-------------|-----------|-------------|--------------------|--------|
| 2028 PM Peak Hour |             |           |             | 17:00              |        |

## Arms and Traffic Streams

### Arms

| Arm | Name       | Description | Traffic node |
|-----|------------|-------------|--------------|
| A   | (untitled) |             | 1            |
| Ax  | (untitled) |             |              |
| B   | (untitled) |             | 1            |
| Bx  | (untitled) |             |              |
| C   | (untitled) |             | 1            |
| Cx  | (untitled) |             |              |
| C1  | (untitled) |             | 1            |

### Traffic Streams

| Arm | Traffic Stream | Name       | Description | Auto length | Length (m) | Has Saturation Flow | Saturation flow source | Saturation flow (PCU/hr) | Is signal controlled | Is give way | Traffic type | Allow Nearside Turn On Red |
|-----|----------------|------------|-------------|-------------|------------|---------------------|------------------------|--------------------------|----------------------|-------------|--------------|----------------------------|
| A   | 1              | (untitled) |             |             | 200.00     | ✓                   | Sum of lanes           | 1976                     | ✓                    |             | Normal       |                            |
| Ax  | 1              | (untitled) |             |             | 100.00     |                     |                        |                          |                      |             | Normal       |                            |
| B   | 1              | (untitled) |             |             | 200.00     | ✓                   | Sum of lanes           | 1712                     | ✓                    |             | Normal       |                            |
| Bx  | 1              | (untitled) |             |             | 100.00     |                     |                        |                          |                      |             | Normal       |                            |
| C   | 1              | (untitled) |             |             | 200.00     |                     |                        |                          |                      |             | Normal       |                            |
| Cx  | 1              | (untitled) |             |             | 100.00     |                     |                        |                          |                      |             | Normal       |                            |
| C1  | 1              | (untitled) |             |             | 23.00      | ✓                   | Sum of lanes           | 1915                     | ✓                    |             | Normal       |                            |
| C1  | 2              | (untitled) |             |             | 23.00      | ✓                   | Sum of lanes           | 1798                     | ✓                    | ✓           | Normal       |                            |

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## Lanes

| Arm | Traffic Stream | Lane | Name       | Description | Use RR67 | Surface condition | Site quality factor | Gradient (%) | Width (m) | Use connector turning radius | Proportion that turn (%) | Turning radius (m) | Nearside lane | Saturation flow (PCU/hr) |
|-----|----------------|------|------------|-------------|----------|-------------------|---------------------|--------------|-----------|------------------------------|--------------------------|--------------------|---------------|--------------------------|
| A   | 1              | 1    | (untitled) |             | ✓        | N/A               | N/A                 | 0            | 3.00      |                              | 20                       | 7.50               |               | 1976                     |
| B   | 1              | 1    | (untitled) |             | ✓        | N/A               | N/A                 | 0            | 3.00      |                              | 100                      | 7.50               |               | 1712                     |
| Cx  | 1              | 1    | (untitled) |             |          |                   |                     |              |           |                              |                          |                    |               |                          |
| C   | 1              | 1    | (untitled) |             |          |                   |                     |              |           |                              |                          |                    |               |                          |
| Cx  | 1              | 1    | (untitled) |             |          |                   |                     |              |           |                              |                          |                    |               |                          |
| C1  | 1              | 1    | (untitled) |             | ✓        | N/A               | N/A                 | 0            | 3.00      |                              | 0                        | 100.00             | ✓             | 1915                     |
| C1  | 2              | 1    | (untitled) |             | ✓        | N/A               | N/A                 | 0            | 3.00      |                              | 100                      | 10.50              |               | 1798                     |

## 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 |
|-----|----------------|----------------|-------------------------------|--------------------------------|-------------------------------|----------------------------------|-------------------------|-----------------|--------------------------------|
| A   | 1              | NetworkDefault | 100                           | 100                            | 100                           |                                  | 0.00                    |                 |                                |
| Ax  | 1              | NetworkDefault | 100                           | 100                            | 100                           |                                  | 0.00                    |                 |                                |
| B   | 1              | NetworkDefault | 100                           | 100                            | 100                           |                                  | 0.00                    |                 |                                |
| Bx  | 1              | NetworkDefault | 100                           | 100                            | 100                           |                                  | 0.00                    |                 |                                |
| C   | 1              | NetworkDefault | 100                           | 100                            | 100                           |                                  | 0.00                    |                 |                                |
| Cx  | 1              | NetworkDefault | 100                           | 100                            | 100                           |                                  | 0.00                    |                 |                                |
| C1  | 1              | Flare          | 100                           | 100                            | 100                           |                                  | 0.00                    |                 |                                |
| C1  | 2              | Flare          | 100                           | 100                            | 100                           |                                  | 0.00                    |                 |                                |

## Modelling - Advanced

| Arm   | Traffic Stream | Initial queue (PCU) | Type of Vehicle-in-Service | Vehicle-in-Service | Type of random parameter | Random parameter | Auto cycle time | Cycle time |
|-------|----------------|---------------------|----------------------------|--------------------|--------------------------|------------------|-----------------|------------|
| (ALL) | (ALL)          | 0.00                | NetworkDefault             | Not-Included       | NetworkDefault           | 0.50             | ✓               | 90         |

## Normal traffic - Modelling

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

## Normal traffic - Advanced

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

## Flows

| Arm | Traffic Stream | Total Flow (PCU/hr) | Normal Flow (PCU/hr) |
|-----|----------------|---------------------|----------------------|
| A   | 1              | 545                 | 545                  |
| Ax  | 1              | 298                 | 298                  |
| B   | 1              | 121                 | 121                  |
| Bx  | 1              | 143                 | 143                  |
| C   | 1              | 362                 | 362                  |
| Cx  | 1              | 587                 | 587                  |
| C1  | 1              | 262                 | 262                  |
| C1  | 2              | 100                 | 100                  |

## Signals

| Arm | Traffic Stream | Controller stream | Phase | Second phase enabled |
|-----|----------------|-------------------|-------|----------------------|
| A   | 1              | 1                 | D     |                      |
| B   | 1              | 1                 | A     |                      |
| C   | 1              | 1                 | C     |                      |
| C1  | 2              | 1                 | B     |                      |

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## Pedestrian Crossings

### Pedestrian Crossings

| Crossing | Name       | Description | Traffic node | Allow walk on red | Crossing type | Length (m) | Cruise time (seconds) | Cruise speed (kph) |
|----------|------------|-------------|--------------|-------------------|---------------|------------|-----------------------|--------------------|
| P1       | (untitled) |             |              |                   | Farside       | 9.00       | 6.00                  | 5.40               |
| P2       | (untitled) |             |              |                   | Farside       | 6.40       | 4.27                  | 5.40               |
| P3       | (untitled) |             |              |                   | Farside       | 9.00       | 6.00                  | 5.40               |

### Pedestrian Crossings - Signals

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

### Pedestrian Crossings - Sides

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

### Pedestrian Crossings - Modelling

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

## Signal Timings

Network Default: 90s cycle time; 90 steps

### Controller Stream

| Controller stream | Name       | Description | Use sequence | Cycle time source | Cycle time (s) |
|-------------------|------------|-------------|--------------|-------------------|----------------|
| 1                 | (untitled) |             | 1            | NetworkDefault    | 90             |

### Controller Stream - Properties

| Controller stream | Manufacturer name | Type | Model number | (Telephone) Line Number | Site number | Grid reference | Gaining delay type |
|-------------------|-------------------|------|--------------|-------------------------|-------------|----------------|--------------------|
| 1                 | Unspecified       |      |              |                         |             |                | Absolute           |

### Controller Stream - Optimisation

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

### Phases

| Controller stream | Phase | Name       | Minimum green (s) | Maximum green (s) | Relative start displacement (s) | Relative end displacement (s) | Type             | Blackout Time (s) |
|-------------------|-------|------------|-------------------|-------------------|---------------------------------|-------------------------------|------------------|-------------------|
| 1                 | A     | (untitled) | 7                 | 300               | 0                               | 0                             | Traffic          |                   |
| 1                 | B     | (untitled) | 5                 | 300               | 0                               | 0                             | Indicative arrow |                   |
| 1                 | C     | (untitled) | 5                 | 300               | 0                               | 0                             | Traffic          |                   |
| 1                 | D     | (untitled) | 7                 | 300               | 0                               | 0                             | Traffic          |                   |
| 1                 | E     | (untitled) | 6                 | 300               | 0                               | 0                             | Pedestrian       | 0                 |

### Library Stages

| Controller stream | Library stage | Phases in stage | User stage minimum (s) |
|-------------------|---------------|-----------------|------------------------|
| 1                 | 1             | A               | 1                      |
| 1                 | 2             | C, D, B         | 1                      |
| 1                 | 3             | C, B            | 1                      |
| 1                 | 4             | E               | 1                      |

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## Losing / Gaining Phase Delays

| Controller stream | Delay | Type   | Phase | From stage | To stage | Relative delay |
|-------------------|-------|--------|-------|------------|----------|----------------|
| 1                 | 1     | Losing | C     | 1          | 2        | 20             |

## Stage Sequences

| Controller stream | Sequence | Name       | Multiple cycling | Stage IDs  | Stage ends    |
|-------------------|----------|------------|------------------|------------|---------------|
| 1                 | 1        | (untitled) | Single           | 1, 2, 3, 4 | 5, 63, 64, 77 |

## Intergreen Matrix for Controller Stream 1

|      |   | To |   |   |   |   |
|------|---|----|---|---|---|---|
|      |   | A  | B | C | D | E |
| From | A | 5  | 5 | 5 | 7 |   |
|      | B |    |   |   | 7 |   |
|      | C | 5  |   |   | 7 |   |
|      | D | 5  |   |   | 7 |   |
|      | E | 8  | 8 | 8 | 8 |   |

## Interstage Matrix for Controller Stream 1

|      |   | To |   |   |   |
|------|---|----|---|---|---|
|      |   | 1  | 2 | 3 | 4 |
| From | 1 | 0  | 5 | 5 | 7 |
|      | 2 | 5  | 0 | 0 | 7 |
|      | 3 | 5  | 0 | 0 | 7 |
|      | 4 | 8  | 8 | 8 | 0 |

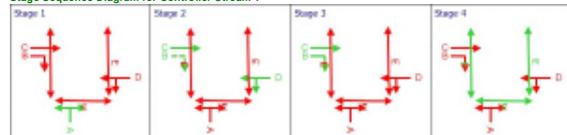
## Resultant Stages

| 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                    | 85              | 5             | 10                 | 1                      | 7                 |
| 1                 | 2               | ✓             | 2                | C, D, B              | 10              | 63            | 53                 | 1                      | 7                 |
| 1                 | 3               | ✓             | 3                | C, B                 | 63              | 64            | 1                  | 1                      | 1                 |
| 1                 | 4               | ✓             | 4                | E                    | 71              | 77            | 6                  | 1                      | 6                 |

## Resultant Phase Green Periods

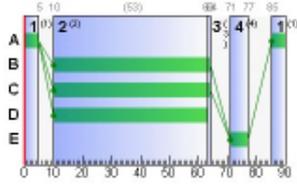
| Controller stream | Phase | Green period | Is base green period | Start time (s) | End time (s) | Duration (s) |
|-------------------|-------|--------------|----------------------|----------------|--------------|--------------|
| 1                 | A     | 1            | ✓                    | 85             | 5            | 10           |
| 1                 | B     | 1            | ✓                    | 10             | 64           | 54           |
| 1                 | C     | 1            | ✓                    | 10             | 64           | 54           |
| 1                 | D     | 1            | ✓                    | 10             | 63           | 53           |
| 1                 | E     | 1            | ✓                    | 71             | 77           | 6            |

## Stage Sequence Diagram for Controller Stream 1



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Phase Timings Diagram for Controller Stream 1



Traffic Stream Results

Traffic Stream Results: Vehicle summary

| Time Segment | Arm | Traffic Stream | Degree of saturation (%) | Practical reserve capacity (%) | Calculated flow entering (PCU/hr) | Calculated sat flow (PCU/hr) | Actual green (s per cycle) | Mean Delay per Veh (s) | Mean max queue (PCU) | Utilised storage (%) | Weighted cost of delay (£ per hr) | Weighted cost of stops (£ per hr) | Performance Index (£ per hr) |
|--------------|-----|----------------|--------------------------|--------------------------------|-----------------------------------|------------------------------|----------------------------|------------------------|----------------------|----------------------|-----------------------------------|-----------------------------------|------------------------------|
| 17:00-18:00  | A   | 1              | 46                       | 96                             | 545                               | 1976                         | 53                         | 11.23                  | 7.61                 | 21.89                | 24.15                             | 3.70                              | 27.85                        |
|              |     | Ax             | 1                        | 0                              | Unrestricted                      | 298                          | Unrestricted               | 90                     | 0.00                 | 0.00                 | 0.00                              | 0.00                              | 0.00                         |
|              | B   | 1              | 58                       | 56                             | 121                               | 1712                         | 10                         | 48.85                  | 3.24                 | 9.33                 | 23.32                             | 1.59                              | 24.90                        |
|              |     | Bx             | 1                        | 0                              | Unrestricted                      | 143                          | Unrestricted               | 90                     | 0.00                 | 0.00                 | 0.00                              | 0.00                              | 0.00                         |
|              | C   | 1              | 0                        | Unrestricted                   | 362                               | Unrestricted                 | 90                         | 0.03                   | 0.20                 | 0.58                 | 0.05                              | 0.06                              | 0.11                         |
|              |     | Cx             | 1                        | 0                              | Unrestricted                      | 587                          | Unrestricted               | 90                     | 0.00                 | 0.00                 | 0.00                              | 0.00                              | 0.00                         |
|              | C1  | 1              | 22                       | 302                            | 262                               | 1915                         | 54                         | 8.31                   | 2.58                 | 64.49                | 8.59                              | 1.41                              | 9.99                         |
|              |     | 2              | 26                       | 244                            | 100                               | 626                          | 54                         | 17.93                  | 1.44                 | 35.97                | 7.07                              | 0.80                              | 7.87                         |

Traffic Stream Results: Flows and signals

| Time Segment | Arm | Traffic Stream | Calculated flow entering (PCU/hr) | Calculated flow out (PCU/hr) | Flow discrepancy (PCU/hr) | Adjusted flow warning | Calculated sat flow (PCU/hr) | Calculated capacity (PCU/hr) | Degree of saturation (%) | DOS Threshold exceeded | Practical reserve capacity (%) | Mean modulus of error | Actual green (s per cycle) | Effective green (s per cycle) |
|--------------|-----|----------------|-----------------------------------|------------------------------|---------------------------|-----------------------|------------------------------|------------------------------|--------------------------|------------------------|--------------------------------|-----------------------|----------------------------|-------------------------------|
| 17:00-18:00  | A   | 1              | 545                               | 545                          | 0                         |                       | 1976                         | 1186                         | 46                       |                        | 96                             | 0.00                  | 53                         | 54                            |
|              |     | Ax             | 1                                 | 298                          | 298                       | 0                     |                              | Unrestricted                 | Unrestricted             | 0                      |                                | Unrestricted          | 0.59                       | 90                            |
|              | B   | 1              | 121                               | 121                          | 0                         |                       | 1712                         | 209                          | 58                       |                        | 56                             | 0.00                  | 10                         | 11                            |
|              |     | Bx             | 1                                 | 143                          | 143                       | 0                     |                              | Unrestricted                 | Unrestricted             | 0                      |                                | Unrestricted          | 0.77                       | 90                            |
|              | C   | 1              | 362                               | 362                          | 0                         |                       | Unrestricted                 | Unrestricted                 | 0                        |                        | Unrestricted                   | 0.00                  | 90                         | 90                            |
|              |     | Cx             | 1                                 | 587                          | 587                       | 0                     |                              | Unrestricted                 | Unrestricted             | 0                      |                                | Unrestricted          | 0.59                       | 90                            |
|              | C1  | 1              | 262                               | 262                          | 0                         |                       | 1915                         | 1170                         | 22                       |                        | 302                            | 0.03                  | 54                         | 55                            |
|              |     | 2              | 100                               | 100                          | 0                         |                       | 626                          | 383                          | 26                       |                        | 244                            | 0.03                  | 54                         | 55                            |

Traffic Stream Results: Stops and delays

| Time Segment | Arm | Traffic Stream | Mean Cruise Time per Veh (s) | Mean Delay per Veh (s) | Uniform delay (PCU-hr/hr) | Random plus oversat delay (PCU-hr/hr) | Unweighted cost of delay (£ per hr) | Weighted cost of delay (£ per hr) | Mean stops per Veh (%) | Uniform stops (Stops per hr) | Random stops (Stops per hr) | Unweighted cost of stops (£ per hr) | Weighted cost of stops (£ per hr) |
|--------------|-----|----------------|------------------------------|------------------------|---------------------------|---------------------------------------|-------------------------------------|-----------------------------------|------------------------|------------------------------|-----------------------------|-------------------------------------|-----------------------------------|
| 17:00-18:00  | A   | 1              | 24.00                        | 11.23                  | 1.51                      | 0.20                                  | 24.15                               | 24.15                             | 54.09                  | 287.00                       | 7.78                        | 3.70                                | 3.70                              |
|              |     | Ax             | 1                            | 12.00                  | 0.00                      | 0.00                                  | 0.00                                | 0.00                              | 0.00                   | 0.00                         | 0.00                        | 0.00                                | 0.00                              |
|              | B   | 1              | 24.00                        | 48.85                  | 1.25                      | 0.39                                  | 23.32                               | 23.32                             | 104.51                 | 111.42                       | 15.03                       | 1.59                                | 1.59                              |
|              |     | Bx             | 1                            | 12.00                  | 0.00                      | 0.00                                  | 0.00                                | 0.00                              | 0.00                   | 0.00                         | 0.00                        | 0.00                                | 0.00                              |
|              | C   | 1              | 24.00                        | 0.03                   | 0.00                      | 0.00                                  | 0.05                                | 0.05                              | 1.40                   | 5.06                         | 0.00                        | 0.06                                | 0.06                              |
|              |     | Cx             | 1                            | 12.00                  | 0.00                      | 0.00                                  | 0.00                                | 0.00                              | 0.00                   | 0.00                         | 0.00                        | 0.00                                | 0.00                              |
|              | C1  | 1              | 2.76                         | 8.31                   | 0.57                      | 0.03                                  | 8.59                                | 8.59                              | 42.77                  | 110.77                       | 1.29                        | 1.41                                | 1.41                              |
|              |     | 2              | 2.76                         | 17.93                  | 0.45                      | 0.05                                  | 7.07                                | 7.07                              | 63.76                  | 61.93                        | 1.84                        | 0.80                                | 0.80                              |

A5 - 2038 AM  
D5 - 2038 AM Peak Hour\*

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 (s 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 PRG | Item with worst unsignalised PRG | Item with worst over PR |
|-------------------|---------------------|---------------------|------------------------------|------------------------|------------------------------|---------------------------------|-----------------|-----------------------|-------------------------------|---------------------------------------|--------------------------------|----------------------------------|-------------------------|
| 5                 | 10/08/2021 16:46:14 | 10/08/2021 16:46:15 | 08:45                        | 90                     | 62.50                        | 3.91                            | 52.57           | B/1                   | 0                             | 0                                     | B/1                            | Ax/1                             | B/1                     |

Analysis Set Details

| Name    | Description | Demand set | Include in report | Locked |
|---------|-------------|------------|-------------------|--------|
| 2038 AM |             | D5         | ✓                 |        |

Demand Set Details

| Name              | Description | Composite | Demand sets | Start time (HH:mm) | Locked |
|-------------------|-------------|-----------|-------------|--------------------|--------|
| 2038 AM Peak Hour |             |           |             | 08:45              |        |

Arms and Traffic Streams

Arms

| Arm | Name       | Description | Traffic mode |
|-----|------------|-------------|--------------|
| A   | (untitled) |             | 1            |
| Ax  | (untitled) |             |              |
| B   | (untitled) |             | 1            |
| Bx  | (untitled) |             |              |
| C   | (untitled) |             | 1            |
| Cx  | (untitled) |             |              |
| C1  | (untitled) |             | 1            |

Traffic Streams

| Arm | Traffic Stream | Name       | Description | Auto length | Length (m) | Has Saturation Flow | Saturation flow source | Saturation flow (PCU/hr) | Is signal controlled | Is give way | Traffic type | Allow Nearside Turn On Red |
|-----|----------------|------------|-------------|-------------|------------|---------------------|------------------------|--------------------------|----------------------|-------------|--------------|----------------------------|
| A   | 1              | (untitled) |             |             | 200.00     | ✓                   | Sum of lanes           | 1976                     | ✓                    |             | Normal       |                            |
| Ax  | 1              | (untitled) |             |             | 100.00     |                     |                        |                          |                      |             | Normal       |                            |
| B   | 1              | (untitled) |             |             | 200.00     | ✓                   | Sum of lanes           | 1712                     | ✓                    |             | Normal       |                            |
| Bx  | 1              | (untitled) |             |             | 100.00     |                     |                        |                          |                      |             | Normal       |                            |
| C   | 1              | (untitled) |             |             | 200.00     |                     |                        |                          |                      |             | Normal       |                            |
| Cx  | 1              | (untitled) |             |             | 100.00     |                     |                        |                          |                      |             | Normal       |                            |
| C1  | 1              | (untitled) |             |             | 23.00      | ✓                   | Sum of lanes           | 1915                     | ✓                    |             | Normal       |                            |
|     | 2              | (untitled) |             |             | 23.00      | ✓                   | Sum of lanes           | 1798                     | ✓                    | ✓           | Normal       |                            |

Traffic Stream Results: Queues and blocking

| Time Segment | Arm | Traffic Stream | Initial queue (PCU) | Mean max queue (PCU) | Max queue storage (PCU) | Utilised storage (%) | Average storage excess queue (PCU) | Average limit excess queue (PCU) | Excess queue penalty (£ per hr) | Max end of green queue (PCU) | Max end of red queue (PCU) | Wasted time starvation (s per cycle) | Wasted time blocking back (s per cycle) | Wasted time total (s per cycle) | Estimated blocking |  |
|--------------|-----|----------------|---------------------|----------------------|-------------------------|----------------------|------------------------------------|----------------------------------|---------------------------------|------------------------------|----------------------------|--------------------------------------|---|---------------------------------|--------------------|--|
| 17:00-18:00  | A   | 1              | 0.00                | 7.61                 | 34.78                   | 21.89                | 0.00                               | 0.00                             | 0.00                            | 0.20                         | 5.65                       | 0.00                                 | 0.00                                    | 0.00                            |                    |  |
|              |     | Ax             | 1                   | 0.00                 | 0.00                    | 17.39                | 0.00                               | 0.00                             | 0.00                            | 0.00                         |                            |                                      | 16.00                                   | 0.00                            | 16.00              |  |
|              | B   | 1              | 0.00                | 3.24                 | 34.78                   | 9.33                 | 0.00                               | 0.00                             | 0.00                            | 0.39                         | 3.04                       | 0.00                                 | 0.00                                    | 0.00                            |                    |  |
|              |     | Bx             | 1                   | 0.00                 | 0.00                    | 17.39                | 0.00                               | 0.00                             | 0.00                            | 0.00                         |                            |                                      | 33.00                                   | 0.00                            | 33.00              |  |
|              | C   | 1              | 0.00                | 0.20                 | 34.78                   | 0.58                 | 0.00                               | 0.00                             | 0.00                            | 0.00                         |                            |                                      | 0.00                                    | 2.00                            | 2.00               |  |
|              |     | Cx             | 1                   | 0.00                 | 0.00                    | 17.39                | 0.00                               | 0.00                             | 0.00                            | 0.00                         |                            |                                      | 13.00                                   | 0.00                            | 13.00              |  |
|              | C1  | 1              | 0.00                | 2.58                 | 4.00                    | 64.49                | 0.00                               | 0.00                             | 0.00                            | 0.03                         | 2.58                       | 0.00                                 | 0.00                                    | 0.00                            | 0.00               |  |
|              |     | 2              | 0.00                | 1.44                 | 4.00                    | 35.97                | 0.00                               | 0.00                             | 0.00                            | 0.05                         | 1.02                       | 0.00                                 | 0.00                                    | 0.00                            | 0.00               |  |

Lanes

| Arm | Traffic Stream | Lane | Name       | Description | Use RR67 | Surface condition | Site quality factor | Gradient (%) | Width (m) | Use connector turning radius | Proportion that turn (%) | Turning radius (m) | Nearside lane | Saturation flow (PCU/hr) |
|-----|----------------|------|------------|-------------|----------|-------------------|---------------------|--------------|-----------|------------------------------|--------------------------|--------------------|---------------|--------------------------|
| A   | 1              | 1    | (untitled) |             | ✓        | N/A               | N/A                 | 0            | 3.00      |                              | 20                       | 7.50               |               | 1976                     |
| Ax  | 1              | 1    | (untitled) |             |          |                   |                     |              |           |                              |                          |                    |               |                          |
| B   | 1              | 1    | (untitled) |             | ✓        | N/A               | N/A                 | 0            | 3.00      |                              | 100                      | 7.50               |               | 1712                     |
| Bx  | 1              | 1    | (untitled) |             |          |                   |                     |              |           |                              |                          |                    |               |                          |
| C   | 1              | 1    | (untitled) |             |          |                   |                     |              |           |                              |                          |                    |               |                          |
| Cx  | 1              | 1    | (untitled) |             |          |                   |                     |              |           |                              |                          |                    |               |                          |
| C1  | 1              | 1    | (untitled) |             | ✓        | N/A               | N/A                 | 0            | 3.00      |                              | 0                        | 100.00             | ✓             | 1915                     |
|     | 2              | 1    | (untitled) |             | ✓        | N/A               | N/A                 | 0            | 3.00      |                              | 100                      | 10.50              |               | 1798                     |

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 |
|-----|----------------|----------------|-------------------------------|--------------------------------|-------------------------------|----------------------------------|-------------------------|-----------------|--------------------------------|
| A   | 1              | NetworkDefault | 100                           | 100                            | 100                           |                                  | 0.00                    |                 |                                |
| Ax  | 1              | NetworkDefault | 100                           | 100                            | 100                           |                                  | 0.00                    |                 |                                |
| B   | 1              | NetworkDefault | 100                           | 100                            | 100                           |                                  | 0.00                    |                 |                                |
| Bx  | 1              | NetworkDefault | 100                           | 100                            | 100                           |                                  | 0.00                    |                 |                                |
| C   | 1              | NetworkDefault | 100                           | 100                            | 100                           |                                  | 0.00                    |                 |                                |
| Cx  | 1              | NetworkDefault | 100                           | 100                            | 100                           |                                  | 0.00                    |                 |                                |
| C1  | 1              | Flare          | 100                           | 100                            | 100                           |                                  | 0.00                    |                 |                                |
|     | 2              | Flare          | 100                           | 100                            | 100                           |                                  | 0.00                    |                 |                                |

Modelling - Advanced

| Arm   | Traffic Stream | Initial queue (PCU) | Type of Vehicle-in-Service | Vehicle-in-Service | Type of random parameter | Random parameter | Auto cycle time | Cycle time |
|-------|----------------|---------------------|----------------------------|--------------------|--------------------------|------------------|-----------------|------------|
| (ALL) | (ALL)          | 0.00                | NetworkDefault             | Not-Included       | NetworkDefault           | 0.50             | ✓               | 90         |

Normal traffic - Modelling

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

Normal traffic - Advanced

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

Flows

| Arm | Traffic Stream | Total Flow (PCU/hr) | Normal Flow (PCU/hr) |
|-----|----------------|---------------------|----------------------|
| A   | 1              | 289                 | 289                  |
| Ax  | 1              | 572                 | 572                  |
| B   | 1              | 110                 | 110                  |
| Bx  | 1              | 105                 | 105                  |
| C   | 1              | 591                 | 591                  |
| Cx  | 1              | 313                 | 313                  |
| C1  | 1              | 528                 | 528                  |
|     | 2              | 63                  | 63                   |

Signals

| Arm | Traffic Stream | Controller stream | Phase | Second phase enabled |
|-----|----------------|-------------------|-------|----------------------|
| A   | 1              | 1                 | D     |                      |
| B   | 1              | 1                 | A     |                      |
| C   | 1              | 1                 | C     |                      |
| C1  | 1              | 1                 | B     |                      |
|     | 2              | 1                 | B     |                      |

### Pedestrian Crossings

#### Pedestrian Crossings

| Crossing | Name       | Description | Traffic node | Allow walk on red | Crossing type | Length (m) | Cruise time (seconds) | Cruise speed (kph) |
|----------|------------|-------------|--------------|-------------------|---------------|------------|-----------------------|--------------------|
| P1       | (untitled) |             |              |                   | Farside       | 9.00       | 6.00                  | 5.40               |
| P2       | (untitled) |             |              |                   | Farside       | 6.40       | 4.27                  | 5.40               |
| P3       | (untitled) |             |              |                   | Farside       | 9.00       | 6.00                  | 5.40               |

#### Pedestrian Crossings - Signals

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

#### Pedestrian Crossings - Sides

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

#### Pedestrian Crossings - Modelling

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

### Signal Timings

Network Default: 90s cycle time; 90 steps

#### Controller Stream

| Controller stream | Name       | Description | Use sequence | Cycle time source | Cycle time (s) |
|-------------------|------------|-------------|--------------|-------------------|----------------|
| 1                 | (untitled) |             | 1            | NetworkDefault    | 90             |

#### Controller Stream - Properties

| Controller stream | Manufacturer name | Type | Model number | (Telephone) Line Number | Site number | Grid reference | Gaining delay type |
|-------------------|-------------------|------|--------------|-------------------------|-------------|----------------|--------------------|
| 1                 | Unspecified       |      |              |                         |             |                | Absolute           |

#### Controller Stream - Optimisation

| Controller stream | Allow offset optimisation           | Allow green split optimisation      | Optimisation level | Auto redistribute                   | Enable stage constraint |
|-------------------|-------------------------------------|-------------------------------------|--------------------|-------------------------------------|-------------------------|
| 1                 | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |                    | <input checked="" type="checkbox"/> |                         |

#### 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) | 7                 | 300               | 0                               | 0                             | Traffic          |                   |
|                   | B     | (untitled) | 5                 | 300               | 0                               | 0                             | Indicative arrow |                   |
|                   | C     | (untitled) | 5                 | 300               | 0                               | 0                             | Traffic          |                   |
|                   | D     | (untitled) | 7                 | 300               | 0                               | 0                             | Traffic          |                   |
|                   | E     | (untitled) | 6                 | 300               | 0                               | 0                             | Pedestrian       | 0                 |

#### Library Stages

| Controller stream | Library stage | Phases in stage | User stage minimum (s) |
|-------------------|---------------|-----------------|------------------------|
| 1                 | 1             | A               | 1                      |
|                   | 2             | C, D, B         | 1                      |
|                   | 3             | C, B            | 1                      |
|                   | 4             | E               | 1                      |

### Losing / Gaining Phase Delays

| Controller stream | Delay | Type   | Phase | From stage | To stage | Relative delay |
|-------------------|-------|--------|-------|------------|----------|----------------|
| 1                 | 1     | Losing | C     | 1          | 2        | 20             |

### Stage Sequences

| Controller stream | Sequence | Name       | Multiple cycling | Stage IDs  | Stage ends    |
|-------------------|----------|------------|------------------|------------|---------------|
| 1                 | 1        | (untitled) | Single           | 1, 2, 3, 4 | 5, 63, 64, 77 |

### Intergreen Matrix for Controller Stream 1

|      |   | To |   |   |   |   |
|------|---|----|---|---|---|---|
|      |   | A  | B | C | D | E |
| From | A | 5  | 5 | 5 | 7 |   |
|      | B | 5  |   |   |   | 7 |
|      | C | 5  |   |   |   | 7 |
|      | D | 5  |   |   |   | 7 |
|      | E | 8  | 8 | 8 | 8 |   |

### Interstage Matrix for Controller Stream 1

|      |   | To |   |   |   |
|------|---|----|---|---|---|
|      |   | 1  | 2 | 3 | 4 |
| From | 1 | 0  | 5 | 5 | 7 |
|      | 2 | 5  | 0 | 0 | 7 |
|      | 3 | 5  | 0 | 0 | 7 |
|      | 4 | 8  | 8 | 8 | 0 |

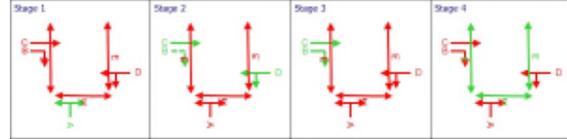
### Resultant Stages

| 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               | <input checked="" type="checkbox"/> | 1                | A                    | 85              | 5             | 10                 | 1                      | 7                 |
|                   | 2               | <input checked="" type="checkbox"/> | 2                | C,D,B                | 10              | 63            | 53                 | 1                      | 7                 |
|                   | 3               | <input checked="" type="checkbox"/> | 3                | C,B                  | 63              | 64            | 1                  | 1                      | 1                 |
|                   | 4               | <input checked="" type="checkbox"/> | 4                | E                    | 71              | 77            | 6                  | 1                      | 6                 |

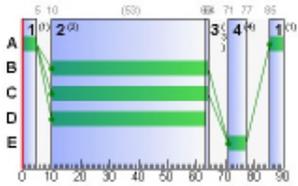
### Resultant Phase Green Periods

| Controller stream | Phase | Green period | Is base green period                | Start time (s) | End time (s) | Duration (s) |
|-------------------|-------|--------------|-------------------------------------|----------------|--------------|--------------|
| 1                 | A     | 1            | <input checked="" type="checkbox"/> | 85             | 5            | 10           |
|                   | B     | 1            | <input checked="" type="checkbox"/> | 10             | 64           | 54           |
|                   | C     | 1            | <input checked="" type="checkbox"/> | 10             | 64           | 54           |
|                   | D     | 1            | <input checked="" type="checkbox"/> | 10             | 63           | 53           |
|                   | E     | 1            | <input checked="" type="checkbox"/> | 71             | 77           | 6            |

### Stage Sequence Diagram for Controller Stream 1



### Phase Timings Diagram for Controller Stream 1



### Traffic Stream Results

#### Traffic Stream Results: Vehicle summary

| Time Segment | Arm | Traffic Stream | Degree of saturation (%) | Practical reserve capacity (%) | Calculated flow entering (PCU/hr) | Calculated sat flow (PCU/hr) | Actual green flow (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) |
|--------------|-----|----------------|--------------------------|--------------------------------|-----------------------------------|------------------------------|---------------------------------|------------------------|----------------------|----------------------|-----------------------------------|-----------------------------------|------------------------------|
| 08:45-09:45  | A   | 1              | 24                       | 269                            | 289                               | 1976                         | 53                              | 8.93                   | 3.41                 | 9.81                 | 10.18                             | 1.64                              | 11.82                        |
|              |     | Ax             | 0                        | Unrestricted                   | 572                               | Unrestricted                 | 90                              | 0.00                   | 0.00                 | 0.00                 | 0.00                              | 0.00                              | 0.00                         |
|              | B   | 1              | 53                       | 71                             | 110                               | 1712                         | 10                              | 46.45                  | 2.85                 | 8.20                 | 20.16                             | 1.41                              | 21.56                        |
|              |     | Bx             | 1                        | 0                              | Unrestricted                      | 105                          | Unrestricted                    | 90                     | 0.00                 | 0.00                 | 0.00                              | 0.00                              | 0.00                         |
|              | C   | 1              | 0                        | Unrestricted                   | 591                               | Unrestricted                 | 90                              | 1.85                   | 3.45                 | 9.91                 | 4.30                              | 1.56                              | 5.87                         |
|              |     | Cx             | 1                        | 0                              | Unrestricted                      | 313                          | Unrestricted                    | 90                     | 0.00                 | 0.00                 | 0.00                              | 0.00                              | 0.00                         |
|              | C1  | 1              | 45                       | 99                             | 528                               | 1915                         | 54                              | 8.87                   | 4.18                 | 104.62               | 18.48                             | 2.11                              | 20.59                        |
|              |     | 2              | 9                        | 869                            | 63                                | 1110                         | 54                              | 9.57                   | 0.52                 | 12.95                | 2.38                              | 0.28                              | 2.66                         |

#### Traffic Stream Results: Flows and signals

| Time Segment | Arm | Traffic Stream | Calculated flow entering (PCU/hr) | Calculated flow out (PCU/hr) | Flow discrepancy (PCU/hr) | Adjusted flow warning | Calculated sat flow (PCU/hr) | Calculated capacity (PCU/hr) | Degree of saturation (%) | DOS Threshold exceeded | Practical reserve capacity (%) | Mean modulus of error | Actual green (s per cycle) | Effective green (s per cycle) |
|--------------|-----|----------------|-----------------------------------|------------------------------|---------------------------|-----------------------|------------------------------|------------------------------|--------------------------|------------------------|--------------------------------|-----------------------|----------------------------|-------------------------------|
| 08:45-09:45  | A   | 1              | 289                               | 289                          | 0                         |                       | 1976                         | 1186                         | 24                       |                        | 269                            | 0.00                  | 53                         | 54                            |
|              |     | Ax             | 1                                 | 572                          | 572                       | 0                     | Unrestricted                 | Unrestricted                 | 0                        |                        |                                | Unrestricted          | 0.61                       | 90                            |
|              | B   | 1              | 110                               | 110                          | 0                         |                       | 1712                         | 209                          | 53                       |                        | 71                             | 0.00                  | 10                         | 11                            |
|              |     | Bx             | 1                                 | 105                          | 105                       | 0                     | Unrestricted                 | Unrestricted                 | 0                        |                        |                                | Unrestricted          | 0.72                       | 90                            |
|              | C   | 1              | 591                               | 591                          | 0                         | Unrestricted          | Unrestricted                 | 0                            |                          |                        | Unrestricted                   | 0.00                  | 90                         | 90                            |
|              |     | Cx             | 1                                 | 313                          | 313                       | 0                     | Unrestricted                 | Unrestricted                 | 0                        |                        |                                | Unrestricted          | 0.63                       | 90                            |
|              | C1  | 1              | 528                               | 528                          | 0                         |                       | 1915                         | 1170                         | 45                       |                        | 99                             | 0.33                  | 54                         | 55                            |
|              |     | 2              | 63                                | 63                           | 0                         |                       | 1110                         | 678                          | 9                        |                        | 869                            | 0.33                  | 54                         | 55                            |

#### Traffic Stream Results: Stops and delays

| Time Segment | Arm | Traffic Stream | Mean Cruise Time per Veh (s) | Mean Delay per Veh (s) | Uniform delay (PCU/hr) | Random plus oversat delay (PCU/hr) | Unweighted cost of delay (£ per hr) | Weighted cost of delay (£ per hr) | Mean stops per Veh (%) | Uniform stops (Stops per hr) | Random stops (Stops per hr) | Unweighted cost of stops (£ per hr) | Weighted cost of stops (£ per hr) |
|--------------|-----|----------------|------------------------------|------------------------|------------------------|------------------------------------|-------------------------------------|-----------------------------------|------------------------|------------------------------|-----------------------------|-------------------------------------|-----------------------------------|
| 08:45-09:45  | A   | 1              | 24.00                        | 8.93                   | 0.68                   | 0.04                               | 10.18                               | 10.18                             | 45.35                  | 129.50                       | 1.57                        | 1.64                                | 1.64                              |
|              |     | Ax             | 1                            | 12.00                  | 0.00                   | 0.00                               | 0.00                                | 0.00                              | 0.00                   | 0.00                         | 0.00                        | 0.00                                | 0.00                              |
|              | B   | 1              | 24.00                        | 46.45                  | 1.13                   | 0.29                               | 20.16                               | 20.16                             | 102.14                 | 101.18                       | 11.17                       | 1.41                                | 1.41                              |
|              |     | Bx             | 1                            | 12.00                  | 0.00                   | 0.00                               | 0.00                                | 0.00                              | 0.00                   | 0.00                         | 0.00                        | 0.00                                | 0.00                              |
|              | C   | 1              | 24.00                        | 1.85                   | 0.30                   | 0.00                               | 4.30                                | 4.30                              | 21.09                  | 124.66                       | 0.00                        | 1.56                                | 1.56                              |
|              |     | Cx             | 1                            | 12.00                  | 0.00                   | 0.00                               | 0.00                                | 0.00                              | 0.00                   | 0.00                         | 0.00                        | 0.00                                | 0.00                              |
|              | C1  | 1              | 2.76                         | 8.87                   | 1.12                   | 0.19                               | 18.48                               | 18.48                             | 31.88                  | 160.97                       | 7.38                        | 2.11                                | 2.11                              |
|              |     | 2              | 2.76                         | 9.57                   | 0.16                   | 0.00                               | 2.38                                | 2.38                              | 35.24                  | 22.01                        | 0.19                        | 0.28                                | 0.28                              |

# A6 - 2038 PM D6 - 2038 PM Peak Hour\*

## 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 (E 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 signalized PRC | Item with worst unsignalized PRC | Item with worst over PR |
|-------------------|---------------------|---------------------|------------------------------|------------------------|------------------------------|---------------------------------|-----------------|-----------------------|-------------------------------|---------------------------------------|--------------------------------|----------------------------------|-------------------------|
| 6                 | 10/08/2021 16:46:15 | 10/08/2021 16:46:17 | 17:00                        | 90                     | 73.74                        | 4.64                            | 57.83           | B/1                   | 0                             | 0                                     | B/1                            | Ax/1                             | B/1                     |

### Analysis Set Details

| Name    | Description | Demand set | Include in report | Locked |
|---------|-------------|------------|-------------------|--------|
| 2038 PM |             | D6         | ✓                 |        |

### Demand Set Details

| Name              | Description | Composite | Demand sets | Start time (HH:mm) | Locked |
|-------------------|-------------|-----------|-------------|--------------------|--------|
| 2038 PM Peak Hour |             |           |             | 17:00              |        |

## Arms and Traffic Streams

### Arms

| Arm | Name       | Description | Traffic node |
|-----|------------|-------------|--------------|
| A   | (untitled) |             | 1            |
| Ax  | (untitled) |             |              |
| B   | (untitled) |             | 1            |
| Bx  | (untitled) |             |              |
| C   | (untitled) |             | 1            |
| Cx  | (untitled) |             |              |
| C1  | (untitled) |             | 1            |

### Traffic Streams

| Arm | Traffic Stream | Name       | Description | Auto length | Length (m) | Has Saturation Flow | Saturation flow source | Saturation flow (PCU/hr) | Is signal controlled | Is give way | Traffic type | Allow Nearside Turn On Red |
|-----|----------------|------------|-------------|-------------|------------|---------------------|------------------------|--------------------------|----------------------|-------------|--------------|----------------------------|
| A   | 1              | (untitled) |             |             | 200.00     | ✓                   | Sum of lanes           | 1976                     | ✓                    |             | Normal       |                            |
| Ax  | 1              | (untitled) |             |             | 100.00     |                     |                        |                          |                      |             | Normal       |                            |
| B   | 1              | (untitled) |             |             | 200.00     | ✓                   | Sum of lanes           | 1712                     | ✓                    |             | Normal       |                            |
| Bx  | 1              | (untitled) |             |             | 100.00     |                     |                        |                          |                      |             | Normal       |                            |
| C   | 1              | (untitled) |             |             | 200.00     |                     |                        |                          |                      |             | Normal       |                            |
| Cx  | 1              | (untitled) |             |             | 100.00     |                     |                        |                          |                      |             | Normal       |                            |
| C1  | 1              | (untitled) |             |             | 23.00      | ✓                   | Sum of lanes           | 1915                     | ✓                    |             | Normal       |                            |
| C1  | 2              | (untitled) |             |             | 23.00      | ✓                   | Sum of lanes           | 1798                     | ✓                    | ✓           | Normal       |                            |

## Lanes

| Arm | Traffic Stream | Lane | Name       | Description | Use RR67 | Surface condition | Site quality factor | Gradient (%) | Width (m) | Use connector turning radius | Proportion that turn (%) | Turning radius (m) | Nearside lane | Saturation flow (PCU/hr) |
|-----|----------------|------|------------|-------------|----------|-------------------|---------------------|--------------|-----------|------------------------------|--------------------------|--------------------|---------------|--------------------------|
| A   | 1              | 1    | (untitled) |             | ✓        | N/A               | N/A                 | 0            | 3.00      |                              | 20                       | 7.50               |               | 1976                     |
| Ax  | 1              | 1    | (untitled) |             |          |                   |                     |              |           |                              |                          |                    |               |                          |
| B   | 1              | 1    | (untitled) |             | ✓        | N/A               | N/A                 | 0            | 3.00      |                              | 100                      | 7.50               |               | 1712                     |
| Bx  | 1              | 1    | (untitled) |             |          |                   |                     |              |           |                              |                          |                    |               |                          |
| C   | 1              | 1    | (untitled) |             |          |                   |                     |              |           |                              |                          |                    |               |                          |
| Cx  | 1              | 1    | (untitled) |             |          |                   |                     |              |           |                              |                          |                    |               |                          |
| C1  | 1              | 1    | (untitled) |             | ✓        | N/A               | N/A                 | 0            | 3.00      |                              | 0                        | 100.00             | ✓             | 1915                     |
| C1  | 2              | 1    | (untitled) |             | ✓        | N/A               | N/A                 | 0            | 3.00      |                              | 100                      | 10.50              |               | 1798                     |

## 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 |
|-----|----------------|----------------|-------------------------------|--------------------------------|-------------------------------|----------------------------------|-------------------------|-----------------|--------------------------------|
| A   | 1              | NetworkDefault | 100                           | 100                            | 100                           |                                  | 0.00                    |                 |                                |
| Ax  | 1              | NetworkDefault | 100                           | 100                            | 100                           |                                  | 0.00                    |                 |                                |
| B   | 1              | NetworkDefault | 100                           | 100                            | 100                           |                                  | 0.00                    |                 |                                |
| Bx  | 1              | NetworkDefault | 100                           | 100                            | 100                           |                                  | 0.00                    |                 |                                |
| C   | 1              | NetworkDefault | 100                           | 100                            | 100                           |                                  | 0.00                    |                 |                                |
| Cx  | 1              | NetworkDefault | 100                           | 100                            | 100                           |                                  | 0.00                    |                 |                                |
| C1  | 1              | Flare          | 100                           | 100                            | 100                           |                                  | 0.00                    |                 |                                |
| C1  | 2              | Flare          | 100                           | 100                            | 100                           |                                  | 0.00                    |                 |                                |

## Modelling - Advanced

| Arm   | Traffic Stream | Initial queue (PCU) | Type of Vehicle-in-Service | Vehicle-in-Service | Type of random parameter | Random parameter | Auto cycle time | Cycle time |
|-------|----------------|---------------------|----------------------------|--------------------|--------------------------|------------------|-----------------|------------|
| (ALL) | (ALL)          | 0.00                | NetworkDefault             | Not-Included       | NetworkDefault           | 0.50             | ✓               | 90         |

## Normal traffic - Modelling

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

## Normal traffic - Advanced

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

## Flows

| Arm | Traffic Stream | Total Flow (PCU/hr) | Normal Flow (PCU/hr) |
|-----|----------------|---------------------|----------------------|
| A   | 1              | 570                 | 570                  |
| Ax  | 1              | 311                 | 311                  |
| B   | 1              | 121                 | 121                  |
| Bx  | 1              | 143                 | 143                  |
| C   | 1              | 375                 | 375                  |
| Cx  | 1              | 612                 | 612                  |
| C1  | 1              | 275                 | 275                  |
| C1  | 2              | 100                 | 100                  |

## Signals

| Arm | Traffic Stream | Controller stream | Phase | Second phase enabled |
|-----|----------------|-------------------|-------|----------------------|
| A   | 1              | 1                 | D     |                      |
| B   | 1              | 1                 | A     |                      |
| C   | 1              | 1                 | C     |                      |
| C1  | 2              | 1                 | B     |                      |

## Pedestrian Crossings

### Pedestrian Crossings

| Crossing | Name       | Description | Traffic node | Allow walk on red | Crossing type | Length (m) | Cruise time (seconds) | Cruise speed (kph) |
|----------|------------|-------------|--------------|-------------------|---------------|------------|-----------------------|--------------------|
| P1       | (untitled) |             |              |                   | Farside       | 9.00       | 6.00                  | 5.40               |
| P2       | (untitled) |             |              |                   | Farside       | 6.40       | 4.27                  | 5.40               |
| P3       | (untitled) |             |              |                   | Farside       | 9.00       | 6.00                  | 5.40               |

### Pedestrian Crossings - Signals

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

### Pedestrian Crossings - Sides

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

### Pedestrian Crossings - Modelling

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

## Signal Timings

Network Default: 90s cycle time; 90 steps

### Controller Stream

| Controller stream | Name       | Description | Use sequence | Cycle time source | Cycle time (s) |
|-------------------|------------|-------------|--------------|-------------------|----------------|
| 1                 | (untitled) |             | 1            | NetworkDefault    | 90             |

### Controller Stream - Properties

| Controller stream | Manufacturer name | Type | Model number | (Telephone) Line Number | Site number | Grid reference | Gaining delay type |
|-------------------|-------------------|------|--------------|-------------------------|-------------|----------------|--------------------|
| 1                 | Unspecified       |      |              |                         |             |                | Absolute           |

### Controller Stream - Optimisation

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

### Phases

| Controller stream | Phase | Name       | Minimum green (s) | Maximum green (s) | Relative start displacement (s) | Relative end displacement (s) | Type             | Blackout Time (s) |
|-------------------|-------|------------|-------------------|-------------------|---------------------------------|-------------------------------|------------------|-------------------|
| 1                 | A     | (untitled) | 7                 | 300               | 0                               | 0                             | Traffic          |                   |
|                   | B     | (untitled) | 5                 | 300               | 0                               | 0                             | Indicative arrow |                   |
|                   | C     | (untitled) | 5                 | 300               | 0                               | 0                             | Traffic          |                   |
|                   | D     | (untitled) | 7                 | 300               | 0                               | 0                             | Traffic          |                   |
|                   | E     | (untitled) | 6                 | 300               | 0                               | 0                             | Pedestrian       | 0                 |

### Library Stages

| Controller stream | Library stage | Phases in stage | User stage minimum (s) |
|-------------------|---------------|-----------------|------------------------|
| 1                 | 1             | A               | 1                      |
|                   | 2             | C, D, B         | 1                      |
|                   | 3             | C, B            | 1                      |
|                   | 4             | E               | 1                      |

## Losing / Gaining Phase Delays

| Controller stream | Delay | Type   | Phase | From stage | To stage | Relative delay |
|-------------------|-------|--------|-------|------------|----------|----------------|
| 1                 | 1     | Losing | C     | 1          | 2        | 20             |

## Stage Sequences

| Controller stream | Sequence | Name       | Multiple cycling | Stage IDs  | Stage ends    |
|-------------------|----------|------------|------------------|------------|---------------|
| 1                 | 1        | (untitled) | Single           | 1, 2, 3, 4 | 5, 63, 64, 77 |

## Intergreen Matrix for Controller Stream 1

|      |   | To |   |   |   |   |
|------|---|----|---|---|---|---|
|      |   | A  | B | C | D | E |
| From | A | 5  | 5 | 5 | 7 |   |
|      | B |    |   |   |   | 7 |
|      | C | 5  |   |   |   | 7 |
|      | D | 5  |   |   |   | 7 |
|      | E | 8  | 8 | 8 | 8 | 8 |

## Interstage Matrix for Controller Stream 1

|      |   | To |   |   |   |
|------|---|----|---|---|---|
|      |   | 1  | 2 | 3 | 4 |
| From | 1 | 0  | 5 | 5 | 7 |
|      | 2 | 5  | 0 | 0 | 7 |
|      | 3 | 5  | 0 | 0 | 7 |
|      | 4 | 8  | 8 | 8 | 0 |

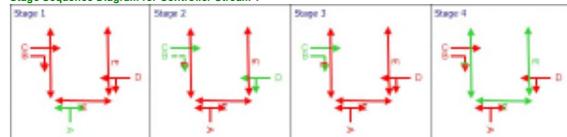
## Resultant Stages

| 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                    | 85              | 5             | 10                 | 1                      | 7                 |
|                   | 2               | ✓             | 2                | C, D, B              | 10              | 63            | 53                 | 1                      | 7                 |
|                   | 3               | ✓             | 3                | C, B                 | 63              | 64            | 1                  | 1                      | 1                 |
|                   | 4               | ✓             | 4                | E                    | 71              | 77            | 6                  | 1                      | 6                 |

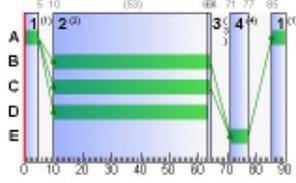
## Resultant Phase Green Periods

| Controller stream | Phase | Green period | Is base green period | Start time (s) | End time (s) | Duration (s) |
|-------------------|-------|--------------|----------------------|----------------|--------------|--------------|
| 1                 | A     | 1            | ✓                    | 85             | 5            | 10           |
|                   | B     | 1            | ✓                    | 10             | 64           | 54           |
|                   | C     | 1            | ✓                    | 10             | 64           | 54           |
|                   | D     | 1            | ✓                    | 10             | 63           | 53           |
|                   | E     | 1            | ✓                    | 71             | 77           | 6            |

## Stage Sequence Diagram for Controller Stream 1



Phase Timings Diagram for Controller Stream 1



Traffic Stream Results

Traffic Stream Results: Vehicle summary

| Time Segment | Arm | Traffic Stream | Degree of saturation (%) | Practical reserve capacity (%) | Calculated flow entering (PCU/hr) | Calculated sat flow (PCU/hr) | Actual green (s per cycle) | Mean Delay per Veh (s) | Mean max queue (PCU) | Utilised storage (%) | Weighted cost of delay (£ per hr) | Weighted cost of stops (£ per hr) | Performance Index (£ per hr) |
|--------------|-----|----------------|--------------------------|--------------------------------|-----------------------------------|------------------------------|----------------------------|------------------------|----------------------|----------------------|-----------------------------------|-----------------------------------|------------------------------|
| 17:00-18:00  | A   | 1              | 48                       | 87                             | 570                               | 1976                         | 53                         | 11.52                  | 8.14                 | 23.40                | 25.91                             | 3.95                              | 29.86                        |
|              |     | Ax             | 1                        | 0                              | Unrestricted                      | 311                          | Unrestricted               | 90                     | 0.00                 | 0.00                 | 0.00                              | 0.00                              | 0.00                         |
|              | B   | 1              | 58                       | 56                             | 121                               | 1712                         | 10                         | 48.85                  | 3.24                 | 9.33                 | 23.32                             | 1.59                              | 24.90                        |
|              |     | Bx             | 1                        | 0                              | Unrestricted                      | 143                          | Unrestricted               | 90                     | 0.00                 | 0.00                 | 0.00                              | 0.00                              | 0.00                         |
|              | C   | 1              | 0                        | Unrestricted                   | 375                               | Unrestricted                 | 90                         | 0.03                   | 0.21                 | 0.60                 | 0.05                              | 0.07                              | 0.12                         |
|              |     | Cx             | 1                        | 0                              | Unrestricted                      | 612                          | Unrestricted               | 90                     | 0.00                 | 0.00                 | 0.00                              | 0.00                              | 0.00                         |
|              | C1  | 1              | 23                       | 283                            | 275                               | 1915                         | 54                         | 8.39                   | 2.71                 | 67.74                | 9.11                              | 1.48                              | 10.59                        |
|              |     | 2              | 28                       | 222                            | 100                               | 585                          | 54                         | 18.92                  | 1.47                 | 36.77                | 7.46                              | 0.82                              | 8.28                         |

Traffic Stream Results: Flows and signals

| Time Segment | Arm | Traffic Stream | Calculated flow entering (PCU/hr) | Calculated flow out (PCU/hr) | Flow discrepancy (PCU/hr) | Adjusted flow warning | Calculated sat flow (PCU/hr) | Calculated capacity (PCU/hr) | Degree of saturation (%) | DOS Threshold exceeded | Practical reserve capacity (%) | Mean modulus of error | Actual green (s per cycle) | Effective green (s per cycle) |
|--------------|-----|----------------|-----------------------------------|------------------------------|---------------------------|-----------------------|------------------------------|------------------------------|--------------------------|------------------------|--------------------------------|-----------------------|----------------------------|-------------------------------|
| 17:00-18:00  | A   | 1              | 570                               | 570                          | 0                         |                       | 1976                         | 1186                         | 48                       |                        | 87                             | 0.00                  | 53                         | 54                            |
|              |     | Ax             | 1                                 | 311                          | 311                       | 0                     |                              | Unrestricted                 | Unrestricted             | 0                      |                                | Unrestricted          | 0.59                       | 90                            |
|              | B   | 1              | 121                               | 121                          | 0                         |                       | 1712                         | 209                          | 58                       |                        | 56                             | 0.00                  | 10                         | 11                            |
|              |     | Bx             | 1                                 | 143                          | 143                       | 0                     |                              | Unrestricted                 | Unrestricted             | 0                      |                                | Unrestricted          | 0.78                       | 90                            |
|              | C   | 1              | 375                               | 375                          | 0                         |                       | Unrestricted                 | Unrestricted                 | 0                        |                        | Unrestricted                   | 0.00                  | 90                         | 90                            |
|              |     | Cx             | 1                                 | 612                          | 612                       | 0                     |                              | Unrestricted                 | Unrestricted             | 0                      |                                | Unrestricted          | 0.59                       | 90                            |
|              | C1  | 1              | 275                               | 275                          | 0                         |                       | 1915                         | 1170                         | 23                       |                        | 283                            | 0.03                  | 54                         | 55                            |
|              |     | 2              | 100                               | 100                          | 0                         |                       |                              |                              | 28                       |                        | 222                            | 0.03                  | 54                         | 55                            |

Traffic Stream Results: Stops and delays

| Time Segment | Arm | Traffic Stream | Mean Cruise Time per Veh (s) | Mean Delay per Veh (s) | Uniform delay (PCU-hr/hr) | Random plus oversat delay (PCU-hr/hr) | Unweighted cost of delay (£ per hr) | Weighted cost of delay (£ per hr) | Mean stops per Veh (%) | Uniform stops (Stops per hr) | Random stops (Stops per hr) | Unweighted cost of stops (£ per hr) | Weighted cost of stops (£ per hr) |
|--------------|-----|----------------|------------------------------|------------------------|---------------------------|---------------------------------------|-------------------------------------|-----------------------------------|------------------------|------------------------------|-----------------------------|-------------------------------------|-----------------------------------|
| 17:00-18:00  | A   | 1              | 24.00                        | 11.52                  | 1.60                      | 0.22                                  | 25.91                               | 25.91                             | 55.20                  | 305.81                       | 8.85                        | 3.95                                | 3.95                              |
|              |     | Ax             | 1                            | 12.00                  | 0.00                      | 0.00                                  | 0.00                                | 0.00                              | 0.00                   | 0.00                         | 0.00                        | 0.00                                | 0.00                              |
|              | B   | 1              | 24.00                        | 48.85                  | 1.25                      | 0.39                                  | 23.32                               | 23.32                             | 104.51                 | 111.42                       | 15.03                       | 1.59                                | 1.59                              |
|              |     | Bx             | 1                            | 12.00                  | 0.00                      | 0.00                                  | 0.00                                | 0.00                              | 0.00                   | 0.00                         | 0.00                        | 0.00                                | 0.00                              |
|              | C   | 1              | 24.00                        | 0.03                   | 0.00                      | 0.00                                  | 0.05                                | 0.05                              | 1.40                   | 5.25                         | 0.00                        | 0.07                                | 0.07                              |
|              |     | Cx             | 1                            | 12.00                  | 0.00                      | 0.00                                  | 0.00                                | 0.00                              | 0.00                   | 0.00                         | 0.00                        | 0.00                                | 0.00                              |
|              | C1  | 1              | 2.76                         | 8.39                   | 0.61                      | 0.04                                  | 9.11                                | 9.11                              | 42.90                  | 116.54                       | 1.44                        | 1.48                                | 1.48                              |
|              |     | 2              | 2.76                         | 18.92                  | 0.47                      | 0.05                                  | 7.46                                | 7.46                              | 65.52                  | 63.37                        | 2.15                        | 0.82                                | 0.82                              |

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A7 - 2038 AM SA  
D7 - 2038 AM Peak Hour SA\*

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 signalized PRC | Item with worst unsignalized PRC | Item with worst over PR |
|-------------------|---------------------|---------------------|------------------------------|------------------------|------------------------------|---------------------------------|-----------------|-----------------------|-------------------------------|---------------------------------------|--------------------------------|----------------------------------|-------------------------|
| 7                 | 10/08/2021 16:46:16 | 10/08/2021 16:46:20 | 08:45                        | 170                    | 154.96                       | 9.83                            | 74.86           | B/1                   | 0                             | 0                                     | B/1                            | Ax/1                             | B/1                     |

Analysis Set Details

| Name       | Description | Demand set | Include in report | Locked |
|------------|-------------|------------|-------------------|--------|
| 2038 AM SA |             | D7         | ✓                 |        |

Demand Set Details

| Name                 | Description | Composite | Demand sets | Start time (HH:mm) | Locked |
|----------------------|-------------|-----------|-------------|--------------------|--------|
| 2038 AM Peak Hour SA |             |           |             | 08:45              |        |

Arms and Traffic Streams

Arms

| Arm | Name       | Description | Traffic node |
|-----|------------|-------------|--------------|
| A   | (untitled) |             | 1            |
| Ax  | (untitled) |             |              |
| B   | (untitled) |             | 1            |
| Bx  | (untitled) |             |              |
| C   | (untitled) |             | 1            |
| Cx  | (untitled) |             |              |
| C1  | (untitled) |             | 1            |

Traffic Streams

| Arm | Traffic Stream | Name       | Description | Auto length | Length (m) | Has Saturation Flow | Saturation flow source | Saturation flow (PCU/hr) | Is signal controlled | Is give way | Traffic type | Allow Nearside Turn On Red |
|-----|----------------|------------|-------------|-------------|------------|---------------------|------------------------|--------------------------|----------------------|-------------|--------------|----------------------------|
| A   | 1              | (untitled) |             |             | 200.00     | ✓                   | Sum of lanes           | 1976                     | ✓                    |             | Normal       |                            |
| Ax  | 1              | (untitled) |             |             | 100.00     |                     |                        |                          |                      |             | Normal       |                            |
| B   | 1              | (untitled) |             |             | 200.00     | ✓                   | Sum of lanes           | 1712                     | ✓                    |             | Normal       |                            |
| Bx  | 1              | (untitled) |             |             |            |                     |                        |                          |                      |             | Normal       |                            |
| C   | 1              | (untitled) |             |             | 200.00     |                     |                        |                          |                      |             | Normal       |                            |
| Cx  | 1              | (untitled) |             |             | 100.00     |                     |                        |                          |                      |             | Normal       |                            |
| C1  | 1              | (untitled) |             |             | 23.00      | ✓                   | Sum of lanes           | 1915                     | ✓                    |             | Normal       |                            |
|     | 2              | (untitled) |             |             | 23.00      | ✓                   | Sum of lanes           | 1798                     | ✓                    | ✓           | Normal       |                            |

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Traffic Stream Results: Queues and blocking

| Time Segment | Arm | Traffic Stream | Initial queue (PCU) | Mean max queue (PCU) | Max queue storage (PCU) | Utilised storage (%) | Average storage excess queue (PCU) | Average limit excess queue (PCU) | Excess queue penalty (£ per hr) | Max end of green queue (PCU) | Max end of red queue (PCU) | Wasted time starvation (s per cycle) | Wasted time blocking back (s per cycle) | Wasted time total (s per cycle) | Estimated blocking |  |
|--------------|-----|----------------|---------------------|----------------------|-------------------------|----------------------|------------------------------------|----------------------------------|---------------------------------|------------------------------|----------------------------|--------------------------------------|---|---------------------------------|--------------------|--|
| 17:00-18:00  | A   | 1              | 0.00                | 8.14                 | 34.78                   | 23.40                | 0.00                               | 0.00                             | 0.00                            | 0.22                         | 5.92                       | 0.00                                 | 0.00                                    | 0.00                            |                    |  |
|              |     | Ax             | 1                   | 0.00                 | 0.00                    | 17.39                | 0.00                               | 0.00                             | 0.00                            | 0.00                         |                            |                                      | 16.00                                   | 0.00                            | 16.00              |  |
|              | B   | 1              | 0.00                | 3.24                 | 34.78                   | 9.33                 | 0.00                               | 0.00                             | 0.00                            | 0.39                         | 3.04                       | 0.00                                 | 0.00                                    | 0.00                            |                    |  |
|              |     | Bx             | 1                   | 0.00                 | 0.00                    | 17.39                | 0.00                               | 0.00                             | 0.00                            |                              |                            |                                      | 33.00                                   | 0.00                            | 33.00              |  |
|              | C   | 1              | 0.00                | 0.21                 | 34.78                   | 0.60                 | 0.00                               | 0.00                             | 0.00                            |                              |                            |                                      | 0.00                                    | 2.00                            | 2.00               |  |
|              |     | Cx             | 1                   | 0.00                 | 0.00                    | 17.39                | 0.00                               | 0.00                             | 0.00                            |                              |                            |                                      | 13.00                                   | 0.00                            | 13.00              |  |
|              | C1  | 1              | 0.00                | 2.71                 | 4.00                    | 67.74                | 0.00                               | 0.00                             | 0.00                            | 0.04                         | 2.71                       | 0.00                                 | 0.00                                    | 0.00                            | 0.00               |  |
|              |     | 2              | 0.00                | 1.47                 | 4.00                    | 36.77                | 0.00                               | 0.00                             | 0.00                            | 0.05                         | 1.03                       | 0.00                                 | 0.00                                    | 0.00                            | 0.00               |  |

Lanes

| Arm | Traffic Stream | Lane | Name       | Description | Use RR67 | Surface condition | Site quality factor | Gradient (%) | Width (m) | Use connector turning radius | Proportion that turn (%) | Turning radius (m) | Nearside lane | Saturation flow (PCU/hr) |
|-----|----------------|------|------------|-------------|----------|-------------------|---------------------|--------------|-----------|------------------------------|--------------------------|--------------------|---------------|--------------------------|
| A   | 1              | 1    | (untitled) |             | ✓        | N/A               | N/A                 | 0            | 3.00      |                              |                          |                    |               | 1976                     |
| Ax  | 1              | 1    | (untitled) |             |          |                   |                     |              |           |                              |                          |                    |               |                          |
| B   | 1              | 1    | (untitled) |             | ✓        | N/A               | N/A                 | 0            | 3.00      |                              | 100                      | 7.50               |               | 1712                     |
| Bx  | 1              | 1    | (untitled) |             |          |                   |                     |              |           |                              |                          |                    |               |                          |
| C   | 1              | 1    | (untitled) |             |          |                   |                     |              |           |                              |                          |                    |               |                          |
| Cx  | 1              | 1    | (untitled) |             |          |                   |                     |              |           |                              |                          |                    |               |                          |
| C1  | 1              | 1    | (untitled) |             | ✓        | N/A               | N/A                 | 0            | 3.00      |                              | 0                        | 100.00             | ✓             | 1915                     |
|     | 2              | 1    | (untitled) |             | ✓        | N/A               | N/A                 | 0            | 3.00      |                              | 100                      | 10.50              |               | 1798                     |

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 |
|-----|----------------|----------------|-------------------------------|--------------------------------|-------------------------------|----------------------------------|-------------------------|-----------------|--------------------------------|
| A   | 1              | NetworkDefault | 100                           | 100                            | 100                           |                                  | 0.00                    |                 |                                |
| Ax  | 1              | NetworkDefault | 100                           | 100                            | 100                           |                                  | 0.00                    |                 |                                |
| B   | 1              | NetworkDefault | 100                           | 100                            | 100                           |                                  | 0.00                    |                 |                                |
| Bx  | 1              | NetworkDefault | 100                           | 100                            | 100                           |                                  | 0.00                    |                 |                                |
| C   | 1              | NetworkDefault | 100                           | 100                            | 100                           |                                  | 0.00                    |                 |                                |
| Cx  | 1              | NetworkDefault | 100                           | 100                            | 100                           |                                  | 0.00                    |                 |                                |
| C1  | 1              | Flare          | 100                           | 100                            | 100                           |                                  | 0.00                    |                 |                                |
|     | 2              | Flare          | 100                           | 100                            | 100                           |                                  | 0.00                    |                 |                                |

Modelling - Advanced

| Arm   | Traffic Stream | Initial queue (PCU) | Type of Vehicle-in-Service | Vehicle-in-Service | Type of random parameter | Random parameter | Auto cycle time | Cycle time |
|-------|----------------|---------------------|----------------------------|--------------------|--------------------------|------------------|-----------------|------------|
| (ALL) | (ALL)          | 0.00                | NetworkDefault             | Not-Included       | NetworkDefault           | 0.50             | ✓               | 170        |

Normal traffic - Modelling

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

Normal traffic - Advanced

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

Flows

| Arm | Traffic Stream | Total Flow (PCU/hr) | Normal Flow (PCU/hr) |
|-----|----------------|---------------------|----------------------|
| A   | 1              | 385                 | 385                  |
| Ax  | 1              | 685                 | 685                  |
| B   | 1              | 392                 | 392                  |
| Bx  | 1              | 345                 | 345                  |
| C   | 1              | 735                 | 735                  |
| Cx  | 1              | 482                 | 482                  |
| C1  | 1              | 528                 | 528                  |
|     | 2              | 207                 | 207                  |

Signals

| Arm | Traffic Stream | Controller stream | Phase | Second phase enabled |
|-----|----------------|-------------------|-------|----------------------|
| A   | 1              | 1                 | D     |                      |
| B   | 1              | 1                 | A     |                      |
|     | 1              | 1                 | C     |                      |
| C1  | 2              | 1                 | B     |                      |

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### Pedestrian Crossings

#### Pedestrian Crossings

| Crossing | Name       | Description | Traffic node | Allow walk on red | Crossing type | Length (m) | Cruise time (seconds) | Cruise speed (kph) |
|----------|------------|-------------|--------------|-------------------|---------------|------------|-----------------------|--------------------|
| P1       | (untitled) |             |              |                   | Farside       | 9.00       | 6.00                  | 5.40               |
| P2       | (untitled) |             |              |                   | Farside       | 6.40       | 4.27                  | 5.40               |
| P3       | (untitled) |             |              |                   | Farside       | 9.00       | 6.00                  | 5.40               |

#### Pedestrian Crossings - Signals

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

#### Pedestrian Crossings - Sides

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

#### Pedestrian Crossings - Modelling

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

### Signal Timings

Network Default: 170s cycle time; 170 steps

#### Controller Stream

| Controller stream | Name       | Description | Use sequence | Cycle time source | Cycle time (s) |
|-------------------|------------|-------------|--------------|-------------------|----------------|
| 1                 | (untitled) |             | 1            | NetworkDefault    | 170            |

#### Controller Stream - Properties

| Controller stream | Manufacturer name | Type | Model number | (Telephone) Line Number | Site number | Grid reference | Gaining delay type |
|-------------------|-------------------|------|--------------|-------------------------|-------------|----------------|--------------------|
| 1                 | Unspecified       |      |              |                         |             |                | Absolute           |

#### Controller Stream - Optimisation

| Controller stream | Allow offset optimisation           | Allow green split optimisation      | Optimisation level | Auto redistribute                   | Enable stage constraint |
|-------------------|-------------------------------------|-------------------------------------|--------------------|-------------------------------------|-------------------------|
| 1                 | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |                    | <input checked="" type="checkbox"/> |                         |

#### 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) | 7                 | 300               | 0                               | 0                             | Traffic          |                   |
|                   | B     | (untitled) | 5                 | 300               | 0                               | 0                             | Indicative arrow |                   |
|                   | C     | (untitled) | 5                 | 300               | 0                               | 0                             | Traffic          |                   |
|                   | D     | (untitled) | 7                 | 300               | 0                               | 0                             | Traffic          |                   |
|                   | E     | (untitled) | 6                 | 300               | 0                               | 0                             | Pedestrian       | 0                 |

#### Library Stages

| Controller stream | Library stage | Phases in stage | User stage minimum (s) |
|-------------------|---------------|-----------------|------------------------|
| 1                 | 1             | A               | 1                      |
|                   | 2             | C, D, B         | 1                      |
|                   | 3             | C, B            | 1                      |
|                   | 4             | E               | 1                      |

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### Losing / Gaining Phase Delays

| Controller stream | Delay | Type   | Phase | From stage | To stage | Relative delay |
|-------------------|-------|--------|-------|------------|----------|----------------|
| 1                 | 1     | Losing | C     | 1          | 2        | 20             |

### Stage Sequences

| Controller stream | Sequence | Name       | Multiple cycling | Stage IDs           | Stage ends                    |
|-------------------|----------|------------|------------------|---------------------|-------------------------------|
| 1                 | 1        | (untitled) | Single           | 1, 2, 3, 4, 1, 2, 3 | 24, 80, 81, 94, 125, 161, 162 |

### Intergreen Matrix for Controller Stream 1

|      |   | To |   |   |   |   |
|------|---|----|---|---|---|---|
|      |   | A  | B | C | D | E |
| From | A | 5  | 5 | 5 | 7 |   |
|      | B | 5  |   |   |   | 7 |
|      | C | 5  |   |   |   | 7 |
|      | D | 5  |   |   |   | 7 |
|      | E | 8  | 8 | 8 | 8 |   |

### Interstage Matrix for Controller Stream 1

|      |   | To |   |   |   |
|------|---|----|---|---|---|
|      |   | 1  | 2 | 3 | 4 |
| From | 1 | 0  | 5 | 5 | 7 |
|      | 2 | 5  | 0 | 0 | 7 |
|      | 3 | 5  | 0 | 0 | 7 |
|      | 4 | 8  | 8 | 8 | 0 |

### Resultant Stages

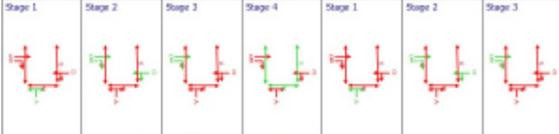
| Controller stream | Resultant Stage | Is base stage                       | Library Stage ID | Phases in this stage | Stage start (s) | Stage end (s) | Stage duration (s) | User stage minimum (s) | Stage minimum (s) |
|-------------------|-----------------|-------------------------------------|------------------|----------------------|-----------------|---------------|--------------------|------------------------|-------------------|
| 1                 | 1               | <input checked="" type="checkbox"/> | 1                | A                    | 167             | 24            | 27                 | 1                      | 7                 |
|                   | 2               | <input checked="" type="checkbox"/> | 2                | C,D,B                | 29              | 80            | 51                 | 1                      | 7                 |
|                   | 3               | <input checked="" type="checkbox"/> | 3                | C,B                  | 80              | 81            | 1                  | 1                      | 1                 |
|                   | 4               | <input checked="" type="checkbox"/> | 4                | E                    | 88              | 94            | 6                  | 1                      | 6                 |
|                   | 5               | <input checked="" type="checkbox"/> | 1                | A                    | 102             | 125           | 23                 | 1                      | 7                 |
|                   | 6               | <input checked="" type="checkbox"/> | 2                | C,D,B                | 130             | 161           | 31                 | 1                      | 7                 |
|                   | 7               | <input checked="" type="checkbox"/> | 3                | C,B                  | 161             | 162           | 1                  | 1                      | 1                 |

### Resultant Phase Green Periods

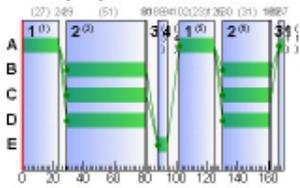
| Controller stream | Phase | Green period | Is base green period                | Start time (s) | End time (s) | Duration (s) |
|-------------------|-------|--------------|-------------------------------------|----------------|--------------|--------------|
| 1                 | A     | 1            | <input checked="" type="checkbox"/> | 102            | 125          | 23           |
|                   |       | 2            | <input checked="" type="checkbox"/> | 167            | 24           | 27           |
|                   | B     | 1            | <input checked="" type="checkbox"/> | 29             | 81           | 52           |
|                   |       | 2            | <input checked="" type="checkbox"/> | 130            | 162          | 32           |
|                   | C     | 1            | <input checked="" type="checkbox"/> | 29             | 81           | 52           |
|                   |       | 2            | <input checked="" type="checkbox"/> | 130            | 162          | 32           |
|                   | D     | 1            | <input checked="" type="checkbox"/> | 29             | 80           | 51           |
|                   |       | 2            | <input checked="" type="checkbox"/> | 130            | 161          | 31           |
|                   | E     | 1            | <input checked="" type="checkbox"/> | 88             | 94           | 6            |

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### Stage Sequence Diagram for Controller Stream 1



### Phase Timings Diagram for Controller Stream 1



### Traffic Stream Results

#### Traffic Stream Results: Vehicle summary

| Time Segment | Arm | Traffic Stream | Degree of saturation (%) | Practical reserve capacity (%) | Calculated flow entering (PCU/hr) | Calculated sat flow (PCU/hr) | Actual green (s per cycle) | Mean Delay per Veh (s) | Mean max queue (PCU) | Utilised storage (%) | Weighted cost of delay (£ per hr) | Weighted cost of stops (£ per hr) | Performance Index (£ per hr) |
|--------------|-----|----------------|--------------------------|--------------------------------|-----------------------------------|------------------------------|----------------------------|------------------------|----------------------|----------------------|-----------------------------------|-----------------------------------|------------------------------|
| 08:45-09:45  | A   | 1              | 39                       | 128                            | 385                               | 1976                         | 82                         | 14.97                  | 8.54                 | 18.82                | 22.74                             | 2.97                              | 25.71                        |
|              |     | Ax             | 0                        | Unrestricted                   | 685                               | Unrestricted                 | 170                        | 0.00                   | 0.00                 | 0.00                 | 0.00                              | 0.00                              | 0.00                         |
|              | B   | 1              | 75                       | 20                             | 392                               | 1712                         | 50                         | 38.99                  | 11.86                | 34.11                | 60.28                             | 4.86                              | 65.14                        |
|              |     | Bx             | 0                        | Unrestricted                   | 345                               | Unrestricted                 | 170                        | 0.00                   | 0.00                 | 0.00                 | 0.00                              | 0.00                              | 0.00                         |
|              | C   | 1              | 0                        | Unrestricted                   | 725                               | Unrestricted                 | 170                        | 4.41                   | 7.96                 | 22.89                | 12.78                             | 3.12                              | 15.30                        |
|              |     | Cx             | 0                        | Unrestricted                   | 482                               | Unrestricted                 | 170                        | 0.00                   | 0.00                 | 0.00                 | 0.00                              | 0.00                              | 0.00                         |
|              | C1  | 1              | 55                       | 65                             | 528                               | 1915                         | 84                         | 12.52                  | 4.33                 | 108.13               | 26.08                             | 2.31                              | 28.39                        |
|              |     | 2              | 50                       | 80                             | 207                               | 817                          | 84                         | 21.72                  | 3.11                 | 77.64                | 17.73                             | 2.10                              | 18.83                        |

#### Traffic Stream Results: Flows and signals

| Time Segment | Arm | Traffic Stream | Calculated flow entering (PCU/hr) | Calculated flow out (PCU/hr) | Flow discrepancy (PCU/hr) | Adjusted flow warning | Calculated sat flow (PCU/hr) | Calculated capacity (PCU/hr) | Degree of saturation (%) | DOS Threshold exceeded | Practical reserve capacity (%) | Mean modulus of error | Actual green (s per cycle) | Effective green (pe cycle) |
|--------------|-----|----------------|-----------------------------------|------------------------------|---------------------------|-----------------------|------------------------------|------------------------------|--------------------------|------------------------|--------------------------------|-----------------------|----------------------------|----------------------------|
| 08:45-09:45  | A   | 1              | 385                               | 385                          | 0                         |                       | 1976                         | 978                          | 39                       |                        | 128                            | 0.00                  | 82                         | 84                         |
|              |     | Ax             | 1                                 | 685                          | 685                       | 0                     |                              | Unrestricted                 | Unrestricted             |                        |                                | Unrestricted          | 0.57                       | 170                        |
|              | B   | 1              | 392                               | 392                          | 0                         |                       | 1712                         | 524                          | 75                       |                        | 20                             | 0.00                  | 50                         | 52                         |
|              |     | Bx             | 1                                 | 345                          | 345                       | 0                     |                              | Unrestricted                 | Unrestricted             |                        |                                | Unrestricted          | 0.91                       | 170                        |
|              | C   | 1              | 725                               | 725                          | 0                         |                       | Unrestricted                 | Unrestricted                 |                          |                        | Unrestricted                   | 0.00                  | 170                        | 17                         |
|              |     | Cx             | 1                                 | 482                          | 482                       | 0                     |                              | Unrestricted                 | Unrestricted             |                        |                                | Unrestricted          | 0.64                       | 170                        |
|              | C1  | 1              | 528                               | 528                          | 0                         |                       | 1915                         | 969                          | 55                       |                        | 65                             | 0.51                  | 84                         | 86                         |
|              |     | 2              | 207                               | 207                          | 0                         |                       | 817                          | 413                          | 50                       |                        | 80                             | 0.51                  | 84                         | 86                         |

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### Traffic Stream Results: Stops and delays

| Time Segment | Arm | Traffic Stream | Mean Cruise Time per Veh (s) | Mean Delay per Veh (s) | Uniform delay (PCU-hr/hr) | Random plus oversat delay (PCU-hr/hr) | Unweighted cost of delay (£ per hr) | Weighted cost of delay (£ per hr) | Mean stops per Veh (%) | Uniform stops (Stops per hr) | Random stops (Stops per hr) | Unweighted cost of stops (£ per hr) | Weighted cost of stops (£ per hr) |
|--------------|-----|----------------|------------------------------|------------------------|---------------------------|---------------------------------------|-------------------------------------|-----------------------------------|------------------------|------------------------------|-----------------------------|-------------------------------------|-----------------------------------|
| 08:45-09:45  | A   | 1              | 24.00                        | 14.97                  | 1.47                      | 0.13                                  | 22.74                               | 22.74                             | 61.61                  | 231.78                       | 5.41                        | 2.97                                | 2.97                              |
|              |     | Ax             | 1                            | 12.00                  | 0.00                      | 0.00                                  | 0.00                                | 0.00                              | 0.00                   | 0.00                         | 0.00                        | 0.00                                | 0.00                              |
|              | B   | 1              | 24.00                        | 38.99                  | 3.16                      | 1.08                                  | 60.28                               | 60.28                             | 98.78                  | 342.64                       | 44.60                       | 4.86                                | 4.86                              |
|              |     | Bx             | 1                            | 12.00                  | 0.00                      | 0.00                                  | 0.00                                | 0.00                              | 0.00                   | 0.00                         | 0.00                        | 0.00                                | 0.00                              |
|              | C   | 1              | 24.00                        | 4.41                   | 0.90                      | 0.00                                  | 12.78                               | 12.78                             | 33.81                  | 248.51                       | 0.00                        | 3.12                                | 3.12                              |
|              |     | Cx             | 1                            | 12.00                  | 0.00                      | 0.00                                  | 0.00                                | 0.00                              | 0.00                   | 0.00                         | 0.00                        | 0.00                                | 0.00                              |
|              | C1  | 1              | 2.76                         | 12.52                  | 1.51                      | 0.33                                  | 26.08                               | 26.08                             | 34.87                  | 170.44                       | 13.68                       | 2.31                                | 2.31                              |
|              |     | 2              | 2.76                         | 21.72                  | 1.00                      | 0.25                                  | 17.73                               | 17.73                             | 80.76                  | 156.75                       | 10.43                       | 2.10                                | 2.10                              |

### Traffic Stream Results: Queues and blocking

| Time Segment | Arm | Traffic Stream | Initial queue (PCU) | Mean max queue (PCU) | Max queue storage (PCU) | Utilised storage (%) | Average storage excess queue (PCU) | Average limit excess queue (PCU) | Excess queue penalty (£ per hr) | Max end of green queue (PCU) | Max end of red queue (PCU) | Wasted time starvation (£ per cycle) | Wasted time blocking back (£ per cycle) | Wasted time total (£ per cycle) | Estimated blocking |  |
|--------------|-----|----------------|---------------------|----------------------|-------------------------|----------------------|------------------------------------|----------------------------------|---------------------------------|------------------------------|----------------------------|--------------------------------------|---|---------------------------------|--------------------|--|
| 08:45-09:45  | A   | 1              | 0.00                | 6.54                 | 34.78                   | 18.82                | 0.00                               | 0.00                             | 0.00                            | 0.13                         | 5.37                       | 0.00                                 | 0.00                                    | 0.00                            |                    |  |
|              |     | Ax             | 1                   | 0.00                 | 0.00                    | 17.39                | 0.00                               | 0.00                             | 0.00                            | 0.00                         |                            |                                      | 13.00                                   | 0.00                            | 13.00              |  |
|              | B   | 1              | 0.00                | 11.86                | 34.78                   | 34.11                | 0.00                               | 0.00                             | 0.00                            | 1.08                         | 9.47                       | 0.00                                 | 0.00                                    | 0.00                            |                    |  |
|              |     | Bx             | 1                   | 0.00                 | 0.00                    | 17.39                | 0.00                               | 0.00                             | 0.00                            | 0.00                         |                            |                                      | 70.00                                   | 0.00                            | 70.00              |  |
|              | C   | 1              | 0.00                | 7.96                 | 34.78                   | 22.89                | 0.00                               | 0.00                             | 0.00                            | 0.00                         |                            |                                      | 0.00                                    | 62.00                           | 62.00              |  |
|              |     | Cx             | 1                   | 0.00                 | 0.00                    | 17.39                | 0.00                               | 0.00                             | 0.00                            | 0.00                         |                            |                                      | 16.00                                   | 0.00                            | 16.00              |  |
|              | C1  | 1              | 0.00                | 4.33                 | 4.00                    | 108.13               | 0.06                               | 0.00                             | 0.00                            | 0.33                         | 4.33                       | 0.00                                 | 0.00                                    | 0.00                            |                    |  |
|              |     | 2              | 0.00                | 3.11                 | 4.00                    | 77.64                | 0.00                               | 0.00                             | 0.00                            | 0.25                         | 1.82                       | 0.00                                 | 0.00                                    | 0.00                            |                    |  |

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# A8 - 2038 PM SA D8 - 2038 PM Peak Hour SA\*

## 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 (E 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 signalized PRC | Item with worst unsignalized PRC | Item with worst over PR |
|-------------------|---------------------|---------------------|------------------------------|------------------------|------------------------------|---------------------------------|-----------------|-----------------------|-------------------------------|---------------------------------------|--------------------------------|----------------------------------|-------------------------|
| 8                 | 10/08/2021 16:46:20 | 10/08/2021 16:46:23 | 17:00                        | 170                    | 434.03                       | 28.67                           | 94.33           | B/1                   | 2                             | 14                                    | B/1                            | Ax/1                             | B/1                     |

### Analysis Set Details

| Name       | Description | Demand set | Include in report                   | Locked                   |
|------------|-------------|------------|-------------------------------------|--------------------------|
| 2038 PM SA |             | D8         | <input checked="" type="checkbox"/> | <input type="checkbox"/> |

### Demand Set Details

| Name                 | Description | Composite | Demand sets | Start time (HH:MM) | Locked                   |
|----------------------|-------------|-----------|-------------|--------------------|--------------------------|
| 2038 PM Peak Hour SA |             |           |             | 17:00              | <input type="checkbox"/> |

## Arms and Traffic Streams

### Arms

| Arm | Name       | Description | Traffic node |
|-----|------------|-------------|--------------|
| A   | (untitled) |             | 1            |
| Ax  | (untitled) |             |              |
| B   | (untitled) |             | 1            |
| Bx  | (untitled) |             |              |
| C   | (untitled) |             | 1            |
| Cx  | (untitled) |             |              |
| C1  | (untitled) |             | 1            |

### Traffic Streams

| Arm | Traffic Stream | Name       | Description | Auto length | Length (m) | Has Saturation Flow                 | Saturation flow source | Saturation flow (PCU/hr) | Is signal controlled                | Is give way                         | Traffic type | Allow Nearside Turn On Red |
|-----|----------------|------------|-------------|-------------|------------|-------------------------------------|------------------------|--------------------------|-------------------------------------|-------------------------------------|--------------|----------------------------|
| A   | 1              | (untitled) |             |             | 200.00     | <input checked="" type="checkbox"/> | Sum of lanes           | 1976                     | <input checked="" type="checkbox"/> |                                     | Normal       |                            |
| Ax  | 1              | (untitled) |             |             | 100.00     |                                     |                        |                          |                                     |                                     | Normal       |                            |
| B   | 1              | (untitled) |             |             | 200.00     | <input checked="" type="checkbox"/> | Sum of lanes           | 1712                     | <input checked="" type="checkbox"/> |                                     | Normal       |                            |
| Bx  | 1              | (untitled) |             |             | 100.00     |                                     |                        |                          |                                     |                                     | Normal       |                            |
| C   | 1              | (untitled) |             |             | 200.00     |                                     |                        |                          |                                     |                                     | Normal       |                            |
| Cx  | 1              | (untitled) |             |             | 100.00     |                                     |                        |                          |                                     |                                     | Normal       |                            |
| C1  | 1              | (untitled) |             |             | 23.00      | <input checked="" type="checkbox"/> | Sum of lanes           | 1915                     | <input checked="" type="checkbox"/> |                                     | Normal       |                            |
| C1  | 2              | (untitled) |             |             | 23.00      | <input checked="" type="checkbox"/> | Sum of lanes           | 1798                     | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | Normal       |                            |

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## Lanes

| Arm | Traffic Stream | Lane | Name       | Description | Use RR67                            | Surface condition | Site quality factor | Gradient (%) | Width (m) | Use connector turning radius | Proportion that turn (%) | Turning radius (m) | Nearside lane                       | Saturation flow (PCU/hr) |
|-----|----------------|------|------------|-------------|-------------------------------------|-------------------|---------------------|--------------|-----------|------------------------------|--------------------------|--------------------|-------------------------------------|--------------------------|
| A   | 1              | 1    | (untitled) |             | <input checked="" type="checkbox"/> | N/A               | N/A                 | 0            | 3.00      |                              | 20                       | 7.50               |                                     | 1976                     |
| Ax  | 1              | 1    | (untitled) |             |                                     |                   |                     |              |           |                              |                          |                    |                                     |                          |
| B   | 1              | 1    | (untitled) |             | <input checked="" type="checkbox"/> | N/A               | N/A                 | 0            | 3.00      |                              | 100                      | 7.50               |                                     | 1712                     |
| Bx  | 1              | 1    | (untitled) |             |                                     |                   |                     |              |           |                              |                          |                    |                                     |                          |
| C   | 1              | 1    | (untitled) |             |                                     |                   |                     |              |           |                              |                          |                    |                                     |                          |
| Cx  | 1              | 1    | (untitled) |             |                                     |                   |                     |              |           |                              |                          |                    |                                     |                          |
| C1  | 1              | 1    | (untitled) |             | <input checked="" type="checkbox"/> | N/A               | N/A                 | 0            | 3.00      |                              | 0                        | 100.00             | <input checked="" type="checkbox"/> | 1915                     |
| C1  | 2              | 1    | (untitled) |             | <input checked="" type="checkbox"/> | N/A               | N/A                 | 0            | 3.00      |                              | 100                      | 10.50              |                                     | 1798                     |

## 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 |
|-----|----------------|----------------|-------------------------------|--------------------------------|-------------------------------|----------------------------------|-------------------------|-----------------|--------------------------------|
| A   | 1              | NetworkDefault | 100                           | 100                            | 100                           |                                  | 0.00                    |                 |                                |
| Ax  | 1              | NetworkDefault | 100                           | 100                            | 100                           |                                  | 0.00                    |                 |                                |
| B   | 1              | NetworkDefault | 100                           | 100                            | 100                           |                                  | 0.00                    |                 |                                |
| Bx  | 1              | NetworkDefault | 100                           | 100                            | 100                           |                                  | 0.00                    |                 |                                |
| C   | 1              | NetworkDefault | 100                           | 100                            | 100                           |                                  | 0.00                    |                 |                                |
| Cx  | 1              | NetworkDefault | 100                           | 100                            | 100                           |                                  | 0.00                    |                 |                                |
| C1  | 1              | Flare          | 100                           | 100                            | 100                           |                                  | 0.00                    |                 |                                |
| C1  | 2              | Flare          | 100                           | 100                            | 100                           |                                  | 0.00                    |                 |                                |

## Modelling - Advanced

| Arm   | Traffic Stream | Initial queue (PCU) | Type of Vehicle-in-Service | Vehicle-in-Service | Type of random parameter | Random parameter | Auto cycle time                     | Cycle time |
|-------|----------------|---------------------|----------------------------|--------------------|--------------------------|------------------|-------------------------------------|------------|
| (ALL) | (ALL)          | 0.00                | NetworkDefault             | Not-Included       | NetworkDefault           | 0.50             | <input checked="" type="checkbox"/> | 170        |

## Normal traffic - Modelling

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

## Normal traffic - Advanced

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

## Flows

| Arm | Traffic Stream | Total Flow (PCU/hr) | Normal Flow (PCU/hr) |
|-----|----------------|---------------------|----------------------|
| A   | 1              | 676                 | 676                  |
| Ax  | 1              | 389                 | 389                  |
| B   | 1              | 380                 | 380                  |
| Bx  | 1              | 496                 | 496                  |
| C   | 1              | 622                 | 622                  |
| Cx  | 1              | 793                 | 793                  |
| C1  | 1              | 275                 | 275                  |
| C1  | 2              | 347                 | 347                  |

## Signals

| Arm | Traffic Stream | Controller stream | Phase | Second phase enabled |
|-----|----------------|-------------------|-------|----------------------|
| A   | 1              | 1                 | D     |                      |
| B   | 1              | 1                 | A     |                      |
| C   | 1              | 1                 | C     |                      |
| C1  | 2              | 1                 | B     |                      |

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## Pedestrian Crossings

### Pedestrian Crossings

| Crossing | Name       | Description | Traffic node | Allow walk on red | Crossing type | Length (m) | Cruise time (seconds) | Cruise speed (kph) |
|----------|------------|-------------|--------------|-------------------|---------------|------------|-----------------------|--------------------|
| P1       | (untitled) |             |              |                   | Farside       | 9.00       | 6.00                  | 5.40               |
| P2       | (untitled) |             |              |                   | Farside       | 6.40       | 4.27                  | 5.40               |
| P3       | (untitled) |             |              |                   | Farside       | 9.00       | 6.00                  | 5.40               |

### Pedestrian Crossings - Signals

| Crossing | Controller stream | Phase | Second phase enabled     |
|----------|-------------------|-------|--------------------------|
| (ALL)    | 1                 | E     | <input type="checkbox"/> |

### 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                    |                 |                                |

## Signal Timings

Network Default: 170s cycle time; 170 steps

### Controller Stream

| Controller stream | Name       | Description | Use sequence | Cycle time source | Cycle time (s) |
|-------------------|------------|-------------|--------------|-------------------|----------------|
| 1                 | (untitled) |             | 1            | NetworkDefault    | 170            |

### Controller Stream - Properties

| Controller stream | Manufacturer name | Type | Model number | (Telephone) Line Number | Site number | Grid reference | Gaining delay type |
|-------------------|-------------------|------|--------------|-------------------------|-------------|----------------|--------------------|
| 1                 | Unspecified       |      |              |                         |             |                | Absolute           |

### Controller Stream - Optimisation

| Controller stream | Allow offset optimisation           | Allow green split optimisation      | Optimisation level | Auto redistribute                   | Enable stage constraint |
|-------------------|-------------------------------------|-------------------------------------|--------------------|-------------------------------------|-------------------------|
| 1                 | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |                    | <input checked="" type="checkbox"/> |                         |

### 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) | 7                 | 300               | 0                               | 0                             | Traffic          |                   |
|                   | B     | (untitled) | 5                 | 300               | 0                               | 0                             | Indicative arrow |                   |
|                   | C     | (untitled) | 5                 | 300               | 0                               | 0                             | Traffic          |                   |
|                   | D     | (untitled) | 7                 | 300               | 0                               | 0                             | Traffic          |                   |
|                   | E     | (untitled) | 6                 | 300               | 0                               | 0                             | Pedestrian       | 0                 |

### Library Stages

| Controller stream | Library stage | Phases in stage | User stage minimum (s) |
|-------------------|---------------|-----------------|------------------------|
| 1                 | 1             | A               | 1                      |
|                   | 2             | C, D, B         | 1                      |
|                   | 3             | C, B            | 1                      |
|                   | 4             | E               | 1                      |

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## Losing / Gaining Phase Delays

| Controller stream | Delay | Type   | Phase | From stage | To stage | Relative delay |
|-------------------|-------|--------|-------|------------|----------|----------------|
| 1                 | 1     | Losing | C     | 1          | 2        | 20             |

## Stage Sequences

| Controller stream | Sequence | Name       | Multiple cycling | Stage IDs           | Stage ends                    |
|-------------------|----------|------------|------------------|---------------------|-------------------------------|
| 1                 | 1        | (untitled) | Single           | 1, 2, 3, 4, 1, 2, 3 | 16, 59, 81, 94, 126, 157, 167 |

## Intergreen Matrix for Controller Stream 1

|      |   | To |   |   |   |   |
|------|---|----|---|---|---|---|
|      |   | A  | B | C | D | E |
| From | A | 5  | 5 | 5 | 7 |   |
|      | B |    |   |   | 7 |   |
|      | C | 5  |   |   | 7 |   |
|      | D | 5  |   |   | 7 |   |
|      | E | 8  | 8 | 8 | 8 |   |

## Interstage Matrix for Controller Stream 1

|      |   | To |   |   |   |
|------|---|----|---|---|---|
|      |   | 1  | 2 | 3 | 4 |
| From | 1 | 0  | 5 | 5 | 7 |
|      | 2 | 5  | 0 | 0 | 7 |
|      | 3 | 5  | 0 | 0 | 7 |
|      | 4 | 8  | 8 | 8 | 0 |

## Resultant Stages

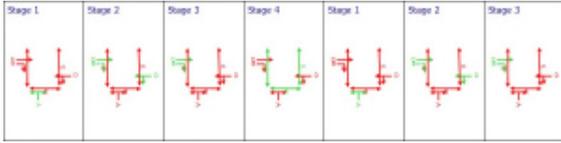
| Controller stream | Resultant Stage | Is base stage                       | Library Stage ID | Phases in this stage | Stage start (s) | Stage end (s) | Stage duration (s) | User stage minimum (s) | Stage minimum (s) |
|-------------------|-----------------|-------------------------------------|------------------|----------------------|-----------------|---------------|--------------------|------------------------|-------------------|
| 1                 | 1               | <input checked="" type="checkbox"/> | 1                | A                    | 2               | 16            | 14                 | 1                      | 7                 |
|                   | 2               | <input checked="" type="checkbox"/> | 2                | C,D,B                | 21              | 59            | 38                 | 1                      | 7                 |
|                   | 3               | <input checked="" type="checkbox"/> | 3                | C,B                  | 59              | 81            | 22                 | 1                      | 1                 |
|                   | 4               | <input checked="" type="checkbox"/> | 4                | E                    | 88              | 94            | 6                  | 1                      | 6                 |
|                   | 5               | <input checked="" type="checkbox"/> | 1                | A                    | 102             | 126           | 24                 | 1                      | 7                 |
|                   | 6               | <input checked="" type="checkbox"/> | 2                | C,D,B                | 131             | 157           | 26                 | 1                      | 7                 |
|                   | 7               | <input checked="" type="checkbox"/> | 3                | C,B                  | 157             | 167           | 10                 | 1                      | 1                 |

## Resultant Phase Green Periods

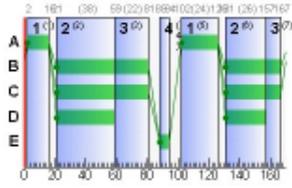
| Controller stream | Phase | Green period | Is base green period                | Start time (s) | End time (s) | Duration (s) |
|-------------------|-------|--------------|-------------------------------------|----------------|--------------|--------------|
| 1                 | A     | 1            | <input checked="" type="checkbox"/> | 102            | 126          | 24           |
|                   |       | 2            | <input checked="" type="checkbox"/> | 2              | 16           | 14           |
|                   | B     | 1            | <input checked="" type="checkbox"/> | 21             | 81           | 60           |
|                   |       | 2            | <input checked="" type="checkbox"/> | 131            | 167          | 36           |
|                   | C     | 1            | <input checked="" type="checkbox"/> | 21             | 81           | 60           |
|                   |       | 2            | <input checked="" type="checkbox"/> | 131            | 167          | 36           |
|                   | D     | 1            | <input checked="" type="checkbox"/> | 21             | 59           | 38           |
|                   |       | 2            | <input checked="" type="checkbox"/> | 131            | 157          | 26           |
|                   | E     | 1            | <input checked="" type="checkbox"/> | 88             | 94           | 6            |

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Stage Sequence Diagram for Controller Stream 1



Phase Timings Diagram for Controller Stream 1



Traffic Stream Results

Traffic Stream Results: Vehicle summary

| Time Segment | Arm | Traffic Stream | Degree of saturation (%) | Practical reserve capacity (%) | Calculated flow entering (PCU/hr) | Calculated sat flow (PCU/hr) | Actual green (s per cycle) | Mean Delay per Veh (s) | Mean max queue (PCU) | Utilised storage (%) | Weighted cost of delay (£ per hr) | Weighted cost of stops (£ per hr) | Performance Index (£ per hr) |
|--------------|-----|----------------|--------------------------|--------------------------------|-----------------------------------|------------------------------|----------------------------|------------------------|----------------------|----------------------|-----------------------------------|-----------------------------------|------------------------------|
| 17:00-18:00  | A   | 1              | 88                       | 2                              | 676                               | 1976                         | 64                         | 49.07                  | 22.54                | 64.80                | 130.83                            | 8.53                              | 139.37                       |
|              |     | Ax             | 0                        | Unrestricted                   | 389                               | Unrestricted                 | 170                        | 0.00                   | 0.00                 | 0.00                 | 0.00                              | 0.00                              | 0.00                         |
|              | B   | 1              | 94                       | -5                             | 380                               | 1712                         | 38                         | 83.56                  | 16.63                | 47.83                | 125.25                            | 6.93                              | 132.18                       |
|              |     | Bx             | 1                        | 0                              | Unrestricted                      | 496                          | Unrestricted               | 170                    | 0.00                 | 0.00                 | 0.00                              | 0.00                              | 0.00                         |
|              | C   | 1              | 0                        | Unrestricted                   | 622                               | Unrestricted                 | 170                        | 15.95                  | 11.75                | 33.78                | 39.14                             | 5.11                              | 44.25                        |
|              |     | Cx             | 1                        | 0                              | Unrestricted                      | 793                          | Unrestricted               | 170                    | 0.00                 | 0.00                 | 0.00                              | 0.00                              | 0.00                         |
|              | C1  | 1              | 25                       | 261                            | 1915                              | 96                           | 10.68                      | 3.21                   | 80.28                | 11.59                | 1.26                              | 12.85                             |                              |
|              |     | 2              | 92                       | -2                             | 347                               | 654                          | 96                         | 73.31                  | 8.01                 | 200.25               | 100.34                            | 5.04                              | 105.38                       |

Traffic Stream Results: Flows and signals

| Time Segment | Arm | Traffic Stream | Calculated flow entering (PCU/hr) | Calculated flow out (PCU/hr) | Flow discrepancy (PCU/hr) | Adjusted flow warning | Calculated sat flow (PCU/hr) | Calculated capacity (PCU/hr) | Degree of saturation (%) | DOS Threshold exceeded | Practical reserve capacity (%) | Mean modulus of error | Actual green (s per cycle) | Effective green (pe cycle) |    |
|--------------|-----|----------------|-----------------------------------|------------------------------|---------------------------|-----------------------|------------------------------|------------------------------|--------------------------|------------------------|--------------------------------|-----------------------|----------------------------|----------------------------|----|
| 17:00-18:00  | A   | 1              | 676                               | 676                          | 0                         |                       | 1976                         | 767                          | 88                       |                        | 2                              | 0.00                  | 64                         | 66                         |    |
|              |     | Ax             | 389                               | 389                          | 0                         |                       | Unrestricted                 | Unrestricted                 | 0                        |                        | ✓                              | Unrestricted          | 0.73                       | 170                        | 17 |
|              | B   | 1              | 380                               | 380                          | 0                         |                       | 1712                         | 403                          | 94                       |                        |                                | -5                    | 0.00                       | 38                         | 40 |
|              |     | Bx             | 496                               | 496                          | 0                         |                       | Unrestricted                 | Unrestricted                 | 0                        |                        |                                | Unrestricted          | 0.84                       | 170                        | 17 |
|              | C   | 1              | 622                               | 622                          | 0                         |                       | Unrestricted                 | Unrestricted                 | 0                        |                        |                                | Unrestricted          | 0.00                       | 170                        | 17 |
|              |     | Cx             | 793                               | 793                          | 0                         |                       | Unrestricted                 | Unrestricted                 | 0                        |                        |                                | Unrestricted          | 0.65                       | 170                        | 17 |
|              | C1  | 1              | 275                               | 275                          | 0                         |                       | 1915                         | 1104                         | 25                       |                        |                                | 261                   | 1.00                       | 96                         | 98 |
|              |     | 2              | 347                               | 347                          | 0                         |                       | 654                          | 377                          | 92                       |                        | ✓                              | -2                    | 1.00                       | 96                         | 98 |

Traffic Stream Results: Stops and delays

| Time Segment | Arm | Traffic Stream | Mean Cruise Time per Veh (s) | Mean Delay per Veh (s) | Uniform delay (PCU-hr/hr) | Random plus oversat delay (PCU-hr/hr) | Unweighted cost of delay (£ per hr) | Weighted cost of delay (£ per hr) | Mean stops per Veh (%) | Uniform stops (Stops per hr) | Random stops (Stops per hr) | Unweighted cost of stops (£ per hr) | Weighted cost of stops (£ per hr) |
|--------------|-----|----------------|------------------------------|------------------------|---------------------------|---------------------------------------|-------------------------------------|-----------------------------------|------------------------|------------------------------|-----------------------------|-------------------------------------|-----------------------------------|
| 17:00-18:00  | A   | 1              | 24.00                        | 49.07                  | 6.20                      | 3.01                                  | 130.83                              | 130.83                            | 100.65                 | 618.15                       | 62.27                       | 8.53                                | 8.53                              |
|              |     | Ax             | 12.00                        | 0.00                   | 0.00                      | 0.00                                  | 0.00                                | 0.00                              | 0.00                   | 0.00                         | 0.00                        | 0.00                                | 0.00                              |
|              | B   | 1              | 24.00                        | 83.56                  | 3.69                      | 5.13                                  | 125.25                              | 125.25                            | 145.48                 | 363.86                       | 188.95                      | 6.93                                | 6.93                              |
|              |     | Bx             | 12.00                        | 0.00                   | 0.00                      | 0.00                                  | 0.00                                | 0.00                              | 0.00                   | 0.00                         | 0.00                        | 0.00                                | 0.00                              |
|              | C   | 1              | 24.00                        | 15.95                  | 2.76                      | 0.00                                  | 39.14                               | 39.14                             | 65.47                  | 407.25                       | 0.00                        | 5.11                                | 5.11                              |
|              |     | Cx             | 12.00                        | 0.00                   | 0.00                      | 0.00                                  | 0.00                                | 0.00                              | 0.00                   | 0.00                         | 0.00                        | 0.00                                | 0.00                              |
|              | C1  | 1              | 2.76                         | 10.68                  | 0.77                      | 0.04                                  | 11.59                               | 11.59                             | 36.54                  | 98.73                        | 1.75                        | 1.26                                | 1.26                              |
|              |     | 2              | 2.76                         | 73.31                  | 3.06                      | 4.01                                  | 100.34                              | 100.34                            | 115.83                 | 322.01                       | 79.92                       | 5.04                                | 5.04                              |

Traffic Stream Results: Queues and blocking

| Time Segment | Arm | Traffic Stream | Initial queue (PCU) | Mean max queue (PCU) | Max queue storage (PCU) | Utilised storage (%) | Average excess queue (PCU) | Average limit excess queue (PCU) | Excess queue penalty (£ per hr) | Max end of green queue (PCU) | Max end of red queue (PCU) | Wasted time starvation (s per cycle) | Wasted time blocking back (s per cycle) | Wasted time total (s per cycle) | Estimated blocking |        |
|--------------|-----|----------------|---------------------|----------------------|-------------------------|----------------------|----------------------------|----------------------------------|---------------------------------|------------------------------|----------------------------|--------------------------------------|---|---------------------------------|--------------------|--------|
| 17:00-18:00  | A   | 1              | 0.00                | 22.54                | 34.78                   | 64.80                | 0.00                       | 0.00                             | 0.00                            | 6.59                         | 16.34                      | 0.00                                 | 0.00                                    | 0.00                            | 0.00               |        |
|              |     | Ax             | 0.00                | 0.00                 | 17.39                   | 0.00                 | 0.00                       | 0.00                             | 0.00                            | 0.00                         |                            |                                      | 45.00                                   | 0.00                            | 45.00              |        |
|              | B   | 1              | 0.00                | 16.63                | 34.78                   | 47.83                | 0.00                       | 0.00                             | 0.00                            | 5.13                         | 14.10                      | 0.00                                 | 0.00                                    | 0.00                            | 0.00               |        |
|              |     | Bx             | 0.00                | 0.00                 | 17.39                   | 0.00                 | 0.00                       | 0.00                             | 0.00                            | 0.00                         |                            |                                      | 50.00                                   | 0.00                            | 50.00              |        |
|              | C   | 1              | 0.00                | 11.75                | 34.78                   | 33.78                | 0.00                       | 0.00                             | 0.00                            | 0.00                         |                            |                                      | 0.00                                    | 0.00                            | 170.00             | 170.00 |
|              |     | Cx             | 0.00                | 0.00                 | 17.39                   | 0.00                 | 0.00                       | 0.00                             | 0.00                            | 0.00                         |                            |                                      | 36.00                                   | 0.00                            | 36.00              |        |
|              | C1  | 1              | 0.00                | 3.21                 | 4.00                    | 80.28                | 0.00                       | 0.00                             | 0.00                            | 0.04                         | 3.21                       | 53.00                                | 0.00                                    | 0.00                            | 53.00              |        |
|              |     | 2              | 0.00                | 8.01                 | 4.00                    | 200.25               | 3.07                       | 0.00                             | 0.00                            | 6.13                         | 8.01                       | 0.00                                 | 0.00                                    | 0.00                            | 0.00               |        |