consulting engineers

NRB

Transportation Assessment Report

including

Preliminary Travel Plan

(Appendix G)

DMURS Statement of Consistency

(Appendix H)

and

Stage 1 Road Safety/Quality Audit,

(Appendix I)

For

Proposed Residential Development

At

Glencarrig, Celbridge, Co. Kildare.

SUBMISSION ISSUE

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EXECUTIVE SUMMARY

NRB Consulting Engineers Ltd were appointed to address the Traffic/Transportation issues associated with a planning application for a residential development on zoned development lands at Glencarrig, Celbridge, Co Kildare.

The site is located within a short walk of Celbridge town centre, local amenities and schools, Hazelhatch & Celbridge Train Station and will also be serviced by high frequency Core Bus Connects Services. In these terms the site is ideally placed to both take advantage of and contribute to non-car modes of travel.

This Transportation Assessment (TA) has been prepared to address any Traffic/Transportation issues associated with the proposal, and specifically the capacity of the existing road network. The report also provides details of current and future public and alternative transport services in the area.

The Report has been prepared in accordance with the TII's Traffic & Transportation Assessment Guidelines and addresses the worst-case traffic impact of the proposal. This TA addresses the adequacy of the existing and improved local road network to safely and appropriately accommodate the worst-case vehicular demands with the development fully occupied, taking account of the existing transportation demands locally.

We commissioned and undertook new traffic surveys of the adjacent road network during March 2022, following lifting of the Covid19 Pandemic restrictions. The Traffic Data was then factored to selected Opening & Design year using TII Growth Rates. This traffic survey data formed the basis of the study.

The Transportation Assessment confirms that the established existing road network and the access junction are more than adequate to accommodate the worst-case traffic associated with the development. The assessment also confirms that the construction and full occupation of the residential development will have a negligible impact upon the operation of the adjacent road network.

In terms of number of transport alternatives easily available to Residents, it is considered that the proposed development is very highly sustainable indeed, in terms of current & future public and alternative transport accessibility.

The proximity of the development to documented future planned public transport services means that all residents will have viable alternatives to the private car for accessing the site and will not be reliant upon the car as a primary mode of travel.

Direct and high-quality pedestrian linkages are provided between the site and the existing pedestrian & cycling facilities on the surrounding road network. Improved pedestrian and cyclist infrastructure is provided on both on the R405 and on the L5062. It should be noted that the cyclist and pedestrian infrastructure has been designed in a 'best fit' arrangement so as to maintain, and avoid damage to, existing valuable mature trees. Whilst a dedicated pedestrian & cyclist route is provided in the N-S orientation on the L5062, and in an E-W orientation on the R405, the site boundary has been set back so as to facilitate further improved facilities if desired by KCC.

The layout of the proposed development seeks to maximise permeability and enhances legibility, and the design of appropriately sized blocks actively contributes to a highly permeable and accessible community for both pedestrians and cyclists.

The assessment includes a Preliminary Mobility Management Plan (MMP or Travel Plan) which is included as ***Appendix G***. We have also prepared a Statement of Consistency with DMURS and confirm that the internal layout is compliant with the requirements (Refer ***Appendix H***). An independent Stage 1 Road Safety/Quality Audit, together with the associated Designer Feedback form is included as ***Appendix I***.

Following our assessment and studies, we conclude that there are no adverse traffic/transportation capacity or operational safety issues associated with the construction and occupation of the proposed residential development which would prevent planning permission being granted.

1.0 INTRODUCTION

1.1 This Transportation Assessment (TA) has been prepared by NRB Consulting Engineers Ltd and addresses the Traffic / Transportation issues arising from the proposal to construct and occupy a total of 115 apartments and 22 houses with ancillary Crèche on the site at Hazelhatch Road, Celbridge, Co Kildare.

1.2 The proposed development is ideally located on the edge of the established Celbrige Residential areas, within easy access to Celbridge & Hazelhatch Train Station where commuter train services to/from Dublin City are readily available. A site location plan is included below as ***Figure 1.1***.

Figure 1.1 - Site Location in relation to Celbridge

1.3 In describing the Receiving Environment and the Proposed Future Environment, this report addresses the following aspects of the proposed development:

- Relatively Small Scale of the development **in Traffic terms** (conscious that the development constitutes primarily replacement residential development in a long-established area), with access via a simple priority junction onto the public road,

- Location of the development within Celbridge in close proximity to current and future high quality Public Transport Links,
- Traffic & Transportation impact,
- Capacity of the proposed vehicular accesses to accommodate the worst-case development traffic flows,
- Capacity of & Impact Upon the Existing Road Network,
- Adequacy and safety of the existing roads and junctions locally, within the area of influence,
- Highlights & identifies the current and future alternative transport services.

1.4 Recommendations contained within this Transportation Assessment are based on the following sources of information and industry-standard practices:

- The TII Traffic & Transport Assessment Guidelines,
- Design Manual for Urban Roads and Streets,
- Recent 2022 Weekday AM and PM Peak Classified Turning Movements Traffic Survey Data commissioned,
- TII Design Guidance,
- NTA Plans and Strategies,
- Our experience in assessing the impact of Developments of this Nature, and
- Site Visits and Observations.

1.5 The assessment includes a Preliminary Mobility Management Plan (MMP or Travel Plan) which is included as ***Appendix G***. We have also prepared a Statement of Consistency with DMURS and confirm that the internal layout is compliant with the requirements (Refer ***Appendix H***).

1.6 An independent Stage 1 Road Safety/Quality Audit, together with the associated Designer Feedback form is included as ***Appendix I***.

2.0 EXISTING CONDITIONS, DEVELOPMENT PROPOSALS & PARKING

2.1 The subject development site is located on the edge of the established residential neighbourhood south of Celbridge, just off the R405 Hazelhatch Road. An illustration of the proposed development extracted from the Architects Ground Floor Plan is included for reference below as ***Figure 2.1.***

Figure 2.1 – Ground Floor Layout Plan

2.2 The subject site is currently in use as a single residential dwelling with a very large landscaped garden & surrounds. It is bound immediately to the north and west by the established Hazelhatch Park residential housing estate. Adjacent undeveloped lands, currently in use for agricultural purposes, bounds the site to the south. The long established existing R405 Hazelhatch Road and the Local Road L5062 immediately bound the site along the eastern perimeter (all as depicted in the extract image above).

2.3 It is proposed to provide vehicular access to the site from the local road L5062, with the road widened and improved from the junction of the R405 to accommodate the increased traffic flow. The access junction will take the form of a simple priority controlled traditional T-Junction, and, as will be demonstrated herein, this will have way more than adequate capacity to accommodate the anticipated traffic movements.

2.4 The existing junction of the L5062 with the R405 Hazelhatch Road to the northeast takes the form of a simple priority T-Junction. Observation indicates that there are no capacity problems at the existing junction. In addition, whilst the local road meets the R405 at an irregular angle, this does not present a safety issue as evidenced by the absence of published accident statistics available on the RSA database. The analysis below also demonstrates that a dedicated right-turn lane is not required here to accommodate this development.

2.5 The section of the L5062 Local Road is a narrow single carriageway rural road bounded by hedgerows, and it is proposed to widen and improve it to serve the proposed site access.

2.6 The R405 Hazelhatch Road is a main arterial link between Celbridge Town Centre to Hazelhatch & Celbridge Train Station, and onwards to Newcastle and Citywest at the N7. It is a single carriageway 2-way road, currently subject to a 60kph speed restriction as it passes the site. It runs generally in a N-S orientation immediately east of the site.

2.7 The Traffic survey and assessment within ***Appendix D***, confirms that Hazelhatch Road carries a weekday AM Peak Hour 2-Way traffic flow of approximately 437 Passenger Car Units (PCUs) and a 2-way flow of 608 PCUs in the PM Peak Hour, measured just north of the L5062 Junction. In these terms, the road is considered moderately trafficked considering its link carrying capacity.

2.8 Hazelhatch Road is currently provided with a footpath and cycle lane on the western boundary for the full extent from Celbridge to Hazelhatch & Celbridge Railway Station and P&R Site. There is also an existing signalised pedestrian crossing near the GAA Club on the way to the railway station, to provide connectivity. An image showing the current status and provision on Hazelhatch Road south of the site is included below as ***Figure 2.2***

Figure 2.2 – Existing Hazelhatch Rd South of Site

2.9 The local road L5062 serving the site itself is very lightly trafficked indeed with a weekday AM Peak Hour 2-Way traffic flow of approximately 22 Passenger Car Units (PCUs) and a 2-way flow of 55 PCUs in the PM Peak Hour, measured just east of the proposed site access T Junction.

2.10 To set the above existing flows in context, roads of this nature have a traffic carrying or link capacity of between 1,200 and 1,500 PCUs per-direction per-hour. In these terms, this link capacity provides a context for the lightly traffic nature and classification of the existing flow as set out above. Of course, it should be remembered that the capacity or through-put of any road in an expanding edge-urban environment of this nature is generally determined by the capacity of the junctions. The network area of influence of the study includes these key nodal-junctions within the assessment.

2.11 A review of the Road Safety Authority (RSA) on-line database of reported road traffic accidents confirms that there have been no relevant accidents on the adjacent affected roads during the reported period 2005 to date, ie ones that are considered relevant or trends which will be affected by the proposed development. An extract from the RSA Database is included below as ***Figure 2.3.***

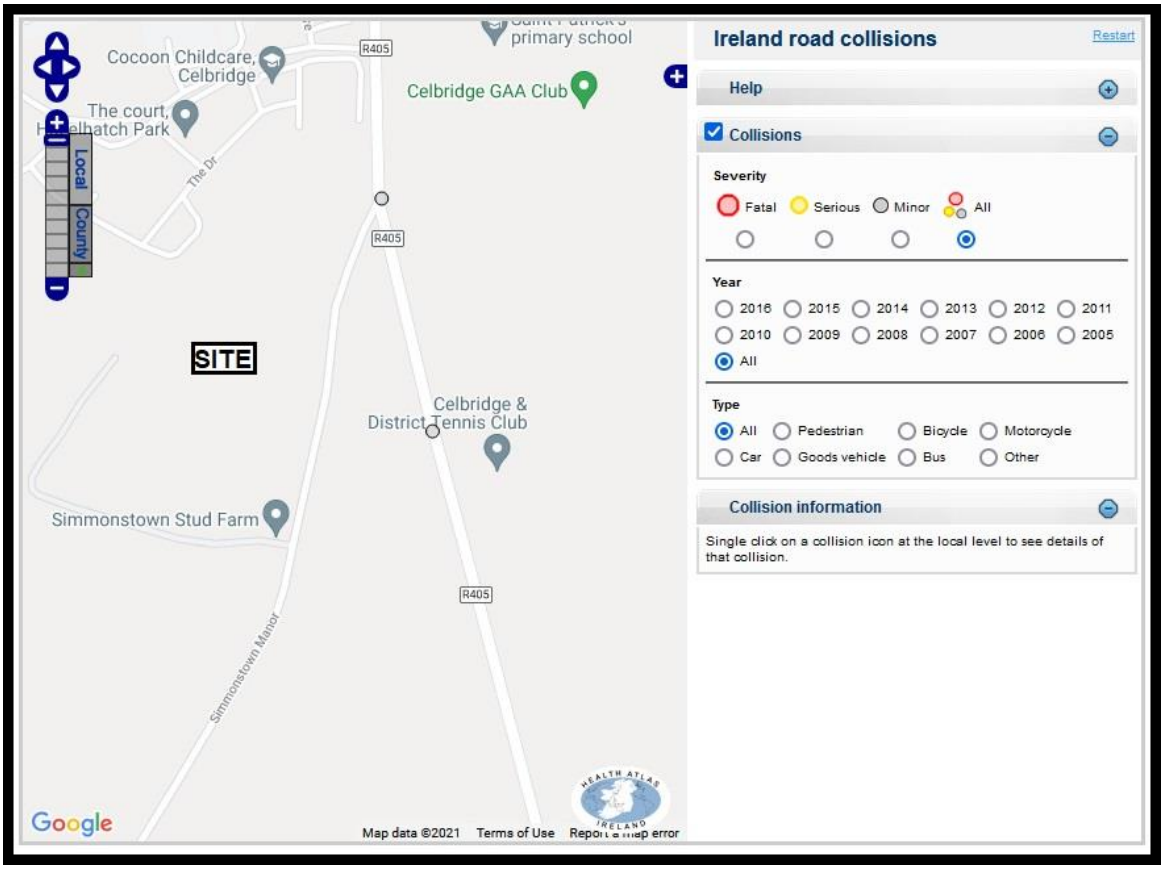


Figure 2.3 – RSA Accident Statistics Database Extract

2.12 The content of the individual Blocks is as set out on the detailed Plans and associated Architectural Schedule of Accommodation. These elements are clearly supported by bin storage, management, outdoor amenity space, landscaping and car/bicycle parking plus an ancillary Creche to serve the development which will not be a significant traffic generator in its own right.

2.13 The entire site has a total of 115 Apartments set out in 3 individual blocks with amenity space, servicing and supporting infrastructure arranged in traditional blocks, as illustrated in the Layout drawings included as ***Appendix A.*** There are a total of 22 No residential houses located to the south of the apartments.

2.14 The development includes secure bicycle parking, refuse management/residential storage areas & of course car parking within the dedicated areas. Car Parking Quantum is addressed further within the Parking Section of the Report below.

Bicycle Parking & Cycle Parking Quantum

2.15 The ***Bicycle Parking*** for the housing elements will clearly be contained within the demise of the individual properties. In terms of the apartment elements, the 'Sustainable Urban Housing: Design Standards for New Apartments Guidelines for Planning Authorities' states that 1 bicycle parking space per bedroom plus 1 visitor space per 2 units is a requirement. In this case there are a total of 115 No. apartments units (57 No. one bed units and 58 No. two bed units – a total of 173 Bedrooms). This translates to a requirement for 173 residential bicycle parking spaces and 57 visitor bicycle parking spaces, strictly applying the Guidelines – being a total requirement for a total of 230 spaces.

2.16 The New Apartments Guidelines also states that any deviation from these standards shall be at the discretion of the planning authority and shall be justified with respect to factors such as location, quality of facilities proposed, flexibility for future enhancement/enlargement, etc. For visitors, there are a total of 80 visitor spaces provided, with a total of 124 internal secure spaces for residents. With a total of 204 spaces therefore, this is generally consistent with the Apartment Guidelines but is considered appropriate in this location.

2.17 In terms of the **car parking** provision, the quantum for the apartments and housing are distinctly allocated here in separate areas. There are 81 No spaces provided at the apartments and 44 No provided at the houses, with 4 additional spaces dedicated to the Creche. The housing provision includes for both residents and visitor spaces, at 2 spaces per housing unit. This assessment therefore focuses on the apartment provision, **being a ratio of 0.7 spaces** per apartment.

2.18 The recently adopted 'Sustainable Urban Housing: Design Standards for New Apartments Guidelines for Planning Authorities', updates previous guidance in the context of greater evidence and knowledge of current and likely future housing demand in Ireland taking account of the Housing Agency National Statement on Housing Demand and Supply and projected need for additional housing supply out to 2020, the Government's action programme on housing and homelessness Rebuilding Ireland & National Planning Framework Ireland 2040.

2.19 These new guidelines address car parking and include an objective to 'Remove requirements for car-parking in certain circumstances where there are better mobility solutions and to reduce costs.' Under Car Parking (Section 4.18) the guidelines

acknowledge that the quantum of car parking, or the requirement for any such provision for apartment developments will vary, having regard to the types of location in cities and towns that may be suitable for apartment development, broadly based on proximity and accessibility criteria.

2.20 Under Section 4.19 the guidelines note that in larger scale and higher density developments, comprising wholly of apartments in more central locations that are well served by public transport, the default policy is for car parking provision to be wholly eliminated or substantially reduced. Specifically, Paragraph 4.19 states:

> ***"The Quantum of Car parking or the requirement for any such provision for apartment developments will vary having regard to the types of location in cities and towns that may be suitable for apartment development, broadly based on proximity and accessibility criteria"***.

2.21 It then goes on to identify the locational characteristics and features that warrant a reduction or elimination in provision of private car parking spaces (Paragraph 4.19):

> ***"Central and/or Accessible Urban Locations***
> ***In larger scale and higher density developments, comprising wholly of apartments in more central locations that are well served by public transport, the default policy is for car parking provision to be minimised, substantially reduced or wholly eliminated in certain circumstances. The policies above would be particularly applicable in highly accessible areas such as in or adjoining city cores or at a confluence of public transport systems such as rail and bus stations located in close proximity"***.

2.22 Section 4.21 describes **Intermediate Urban Locations**. In suburban/urban locations served by public transport or close to town centres or employment areas and particularly for housing schemes with more than 45 dwellings per hectare net (18 per acre), planning authorities must consider a reduced overall car parking standard and apply an appropriate maximum car parking standard. So even in Intermediate Urban Locations, the guidelines promote a reduced overall car parking standard.

2.23 These guidelines support the case for reduced car parking provision as part of this development supported by a strong central management regime intended to contribute to the capacity to establish and operate shared mobility measures.

2.24 In terms of the stated Policy, the subject site meets all the requirements for significantly reducing or eliminating the provision of Private Car Parking, under the headings:

High Density Development	✓
Comprising Wholly of Apartments	✓
Central Location	✓
Well Served by Public Transport	✓
Rail/Bus in Close Proximity	✓

2.25 The National Apartment Guidance states (Paragraph 4.23):

> ***"For all types of location, where it is sought to eliminate or reduce car parking provision, it is necessary to ensure, where possible, the provision of an appropriate number of drop off, service, visitor parking spaces and parking for the mobility impaired. Provision is also to be made for alternative mobility solutions including facilities for car sharing club vehicles and cycle parking and secure storage. It is also a requirement to demonstrate specific measures that enable car parking provision to be reduced or avoided".***

2.26 For the proposed development, given the mix of units, it is anticipated that there will be an associated lower car ownership & dependency for this nature of scheme. Given the slightly restricted number of spaces being provided, the entire scheme will be actively marketed and promoted as a "***Reduced Car Dependency***" scheme, and this will be communicated from the outset as part of sales and marketing. The development will also be managed on an on-going basis to ensure that the Reduced Car Dependency nature of the development is continually promoted and enhanced.

2.27 The development will be managed and operated by a Management Company. Car parking will not be an automatic entitlement with the apartments but spaces will be available to rent and purchase. Renting/sales of parking will be allocated to residents mainly on a first come first served basis by the Management Company and will be continually managed by the Management.

2.28 Some parking spaces will be reserved for visitors with other car parking spaces allocated for rent/sale to larger units. The allocation of car parking spaces will reviewed/renewed on an annual/ongoing basis to suit demand.

2.29 In terms of ***specific measures*** to enable car parking provision to be reduced to the level proposed, with a parking ratio of 0.7, the specific measures are:

- The Active Management and Marketing of the Development from the outset as Reduced Car Dependency',
- Restricted Dedicated Car Parking is intended to be provided to Residents and will be specifically associated with specific private sales or rental properties (and same will be Specified in associated Rental Agreements),
- The Location within walking/cycling distance of both Celbridge Town Centre and also Hazelhatch & Celbridge Railway Stations,
- Footpath & Cycle links to same,
- Copious Cycle Parking and Cycle Storage (Refer Above),
- On site Security and Management by permanent staff and CCTV that will ensure the car parking areas are monitored and policed, with a clamping system in operation, so that the car parking restrictions are closely controlled and enforced, and
- Implementation of a working Mobility Management Plan.

Electric Vehicle Charging Spaces

2.30 Clearly all of the in-curtilage residential housing parking is adaptable to facilitate EV Charging as required by future occupants within their private demise. For the remainder of the parking spaces provided, they will all be 'ducted' to facilitate the retro-fitting of EV charging. For the apartments, whilst all spaces will be ducted to allow the retro-fitting to EV, 20% of the provided parking will be dedicated to EV from the outset, in accordance with best practice and with National Guidance.

2.31 In the case of a residential development of the nature proposed, with specific spaces likely dedicated to specific apartments or houses, it is considered appropriate to facilitate the retrofitting of spaces, based on demand following occupation, rather than dedicated EV spaces being dedicated to apartments or houses and provided from the outset.

2.32 The entire car park of the subject scheme can and will therefore be ducted to accept future cabling to serve a charging point for every car space as demanded. Conduits or ducting will be run underground from the front of the spaces where charging points can be mounted, to the housing or apartment units. Where residents of individual units request a charging point to be installed, the relevant charging point will be pre-wired back to their home electricity meter in the designated meter location. The socket point at the space will have a lockable cover on it so that only that resident may use the power point. This provision around the entire parking area will allow charging points to be installed at any of the car parking spaces with minimum works as and when required.

3.0 TRIP GENERATION, ASSIGNMENT & DISTRIBUTION

3.1 In terms of assessing Car Traffic and the impact of same on the local road network, the Trip Rate Information Computer System database is ordinarily used to ascertain vehicular trip generation associated with the use of any particular site. This represents industry standard practice for Transportation Assessments in Ireland, and the use of TRICS is specifically recommended and referenced within the TII Guidelines. We have included as ***Appendix C*** the TRICS output for traditional Residential Housing, Residential Apartments and a Creche, and this provides a robust estimation of traffic as illustrated in ***Table 3.1*** below.

3.2 Given that the development comprises a mix of units which will have lower car ownership and usage, supported by restricted car parking provision, it is anticipated that the traffic generation will be less than the housing and apartments selected from within the database. The scheme includes a small ancillary Creche to serve the development which will not be a significant traffic generator in its own right, generating external traffic movements that are considered negligible in the context of the local roads (but included nonetheless).

3.3 The following Table summarises the Output from the TRICS database, the output from which is included herein as ***Appendix C*** for comparison purposes.

Table 3.1: TRICS Data Summary, Proposed Scheme

115 No Apartments	**Arrivals (PCUs)**		**Departures (PCUs)**		**Total 2-Way Vehicular Traffic Generated**
Network Hour	**Per Unit**	**115 No**	**Per Unit**	**115 No**	
Weekday AM Peak Hr 8-9	0.060	7	0.196	23	30
Weekday PM Peak Hr 5-6	0.173	20	0.087	10	30
22 No Houses	**Arrivals (PCUs)**		**Departures (PCUs)**		**Total 2-Way Vehicular Traffic Generated**
Network Hour	**Per Unit**	**22 No**	**Per Unit**	**22 No**	
Weekday AM Peak Hr 8-9	0.144	3	0.369	8	11
Weekday PM Peak Hr 5-6	0.342	8	0.179	4	12
250m² Creche	**Arrivals (PCUs)**		**Departures (PCUs)**		**Total 2-Way Vehicular Traffic Generated**
Network Hour	**100m²**	**Dev**	**100m²**	**Dev**	
Weekday AM Peak Hr 8-9	3.455	9	2.813	7	16
Weekday PM Peak Hr 5-6	2.540	6	3.183	8	14
TOTAL DEVELOPMENT TRAFFIC GENERATED ('CAR EQUIVALENTS')					
Network Hour	**Arrivals (PCUs)**		**Departures (PCUs)**		2-Way Flow
Weekday AM Peak Hr 8-9	19		38		57
Weekday PM Peak Hr 5-6	34		22		56

3.4 In the case of residential apartments and houses, the application of TRICS in this case specifically excludes the effect of Shared Visits and quantifies the volumes of traffic on an individual basis with the traffic assigned as 100% primary trips. In addition, we have assigned traffic to Creche as if it were a stand-alone facility, whilst in reality it will most unlikely generate external traffic - in these terms the assessment can be considered further robust.

3.5 Therefore, we consider that the use of TRICS in the methodology adopted is Robust and Onerous and the Trip Rates applied and used provide for a robust reflection of the expected worst-case traffic generated by the proposed development. This is particularly the case for the subject site where there is a restricted residential car parking provision, which further limits trip generation.

3.6 Notwithstanding, in light of observation of existing capacity conditions, the use of higher Trip Rates, if required, would have no impact upon the conclusions of the study. This is particularly the case given the low traffic impact associated with the development.

Assessment Methodology

3.7 We have used hand assignment techniques based on the observed movements, with the worst-case traffic assigned to the roads based on the observed established traffic patterns, being the industry standard methodology. The standard methodology applied was to firstly ascertain the base background traffic conditions for both the weekday AM and weekday PM Commuter Peak periods. To this end we commissioned and undertook an updated 2022 Traffic Survey of the existing affected roads and junctions in order to establish base background traffic conditions.

3.8 Details of the traffic surveys are included as ***Appendix B*** and are reproduced as commuter peak hour flows as ***Appendix D.***

3.9 We then used the TII PE-PAG-02017 Project Appraisal Guidelines for National Roads Unit 5.3 (Travel Demand Projections, Table 6.2: Central Growth Rates: Annual Growth Factors, County Kildare), to establish projected occupation/opening year 2024 and design year 2039 traffic conditions 15 years following opening on the local road network. The worst-case traffic based on the content of ***Table 3.1*** above was then applied in order to establish Opening Year and Design Year Traffic Conditions with the proposed development in place and fully occupied. This is all included in the calculations included herein as ***Appendix D***.

3.10 It should be noted that we have selected an opening year of 2024 as being reasonable and appropriate. However, in our experience, varying the opening year and design year by 1-3 years, if required for whatever reason, would have no significant impact upon the conclusions of the study. In addition, given the favourable results reported in this study, if required to apply higher background traffic conditions for any reason we would not anticipate any changes to the conclusions. Traffic growth factors for future year assessments were calculated from data obtained in the TII PE-PAG-02017 Project Appraisal Guidelines for National Roads Unit 5.3 which provides the recommended method of predicting future year traffic growth on Roads.

3.11 Calculations of the relevant growth factors are included in ***Table 3.2*** below (based on tabulated 'Central Growth' for County Kildare). It should be noted that any requirement to use different or higher growth factors will also have no implications for the conclusions of the study.

Table 3.2: Traffic Growth Rates, TII Travel Demand Projections Unit 5.3

Year	to Year	Table 6.2:
2022	2024	1.039
2024	2039	1.204

4.0 TRAFFIC IMPACT - TRAFFIC CAPACITY RESULTS

4.1 The TII Traffic and Transport Assessment Guidelines set out a strict mechanism for assessment of developments of this nature and determining whether further assessment is indeed required. This Guideline requires a **Threshold Assessment** of the impact on the local roads to be provided in order to determine whether further, more detailed modelling and assessment of particular critical junctions is necessary.

4.2 We have assessed the impact of the proposed development with a wide area of influence included. The professional guidance referenced above sets out specific increases in traffic volume associated with new development, which, when breached, requires further detailed analysis to be undertaken. The recommendation is that, if the expected increase is **5%** for networks that are considered heavily trafficked or congested, then further analysis is warranted. In this case, given the location, for robustness, the 5% threshold has been applied.

4.3 In this regard, it is demonstrated herein that the proposed completion and full occupation of the development, with relatively low volumes of vehicular traffic added to a busy network, will not result in any significant or noticeable level of new trips on the local roads.

4.4 Our assessment confirms that the absolute worst case traffic increases on the adjacent road network junctions, with the entire development open and occupied, undertaken in accordance with Guidelines, is as summarised below as ***Table 4.1***.

Table 4.1: All of the Proposed Development Open & Occupied - Threshold Assessment, Worst-Case Impact - AM & PM Peak Hours 2024

Assessed Road or Junction	Traffic Increase %		COMMENT
	AM Pk Hr	PM Pk Hr	
Site Access Junction from L5062	NA	NA	**Junction Assessed Herein**
L5062/R405 Hazelhatch Rd Junction	7.2%	6.6%	>5% Due to low traffic flow, therefore **Junction Assessed Herein**
Hazelhatch Pk/Hazelhatch Rd Junction	3.9%	3.9%	<5% No Further Assessment Required
Shinkeen Rd/Hazelhatch Rd Junction	4.3%	4.4%	<5% No Further Assessment Required
Newtown Rd/Hazelhatch Rd Junction	1.5%	1.4%	<5% No Further Assessment Required
R405 Main St/Hazelhatch Rd Junction	1.6%	1.4%	<5% No Further Assessment Required
R403 Dublin Rd/Shinkeen Rd Junction	1.3%	1.7%	<5% No Further Assessment Required
R405 Roundabout to south at Hazelhatch Railway Station	1.8%	1.4%	<5% No Further Assessment Required

4.5 Apart from the Site Access and the main adjacent R405 Hazelhatch Rd Junction, these worst-case traffic increases are below the Guideline and industry standard level above which further assessment is required, in accordance with the Guidelines.

4.6 To set these increased levels of traffic in context, the day-to-day variation in traffic volume (due to day-of-week or weather conditions for example) is accepted as being 10%, so, in this context alone, increases of less than 5% will go entirely unnoticed and this underscores the negligible impact of the proposed development traffic.

4.7 As the threshold is exceeded, we have undertaken traffic modelling of the proposed access T-Junction and the L5062/Hazelhatch Rd Junction for weekday AM and PM Periods (2024 Opening Year and 2039 Design Year +15) purely to confirm & demonstrate adequate capacity exists to accommodate the increased traffic associated with the development.

Junction Capacity Modelling

4.8 We have used the TII-approved software package 'Junctions 9' PiCADY' (**P**riority **I**ntersection **C**apacity **A**nd **D**ela**y**) software package (as part of the TRL Package 'Junction 9') to assess the capacity of the junctions. PiCADY produces results based on a ratio of flow to capacity (RFC) and queue length. An RFC greater that 1.00 indicates that a junction is operating at or above capacity, with 0.85 considered to be the optimum RFC value.

4.9 We have appended the detailed computer simulation model results for the proposed site access and the adjacent junction in ***Appendix E*** and ***Appendix F***.

4.10 We have undertaken the detailed assessment of the capacity of junctions with the entire subject development in place and fully occupied. The detailed output of the models is as summarised below as ***Table 4.2*** and ***Table 4.3:***

Table 4.2: Site Access PiCADY Results, Weekday AM/PM Peak Hours - 2024 & 2039

Modelled Scenario	*Period Mean Max Q (PCUs)*	*Period Max RFC*
Opening Year 2024 AM Peak Hr 8-9	0.1	0.06
Opening Year 2024 PM Peak Hr 5-6	0.1	0.06
Design Year 2039 AM Peak Hr 8-9	0.1	0.06
Design Year 2039 PM Peak Hr 5-6	0.1	0.06

Table 4.3: Hazelhatch Rd/L5062 T-Junction, Weekday AM/PM Peak Hours - 2024 & 2039

Modelled Scenario	*Period Mean Max Q (PCUs)*	*Period Max RFC*
Opening Year 2024 AM Peak Hr 8-9	0.2	0.16
Opening Year 2024 PM Peak Hr 5-6	0.2	0.15
Design Year 2039 AM Peak Hr 8-9	0.2	0.18
Design Year 2039 PM Peak Hr 5-6	0.2	0.18

4.11 The results of the modelling clearly show that all junctions will have way more than adequate capacity to accommodate the worst-case traffic associated with the fully complete and occupied scheme, in opening and design years, conscious of the very small increases in traffic associated with the subject development. This also demonstrates that, with an RFC less than 0.18 and a mean maximum queue less than 1 car in 2039, a right turn lane is **not** required at the Hazelhatch Rd/L5062 T-Junction. The unnecessary introduction of right turn lanes for intended right turners has the effect of increasing road crossing widths and also inducing higher passing traffic speeds, and the use of right turn lanes in urban or urban edge environments is actually in conflict with DMURS, which seeks to reduce traffic speeds through good design.

4.12 The analysis undertaken confirms that there is adequate capacity in the existing and proposed junctions to accommodate the worst-case traffic projections without any concerns arising in terms of increased Traffic Congestion or indeed adverse Traffic Safety.

5.0 ALTERNATIVE TRANSPORT

5.1 A preliminary development Mobility Management Plan (MMP) has been prepared and is included as ***Appendix G***. This Section of the TA Report includes extracts from the MMP that summarises the current and planned Alternative Transport modes serving the site.

Cycling and Walking Facilities

5.2 At present, pedestrian/cycle traffic at/to the existing site is served by an extensive network of footpaths and some cycle lanes/facilities, all as set out on the NTAs plans, with an extract below as ***Figure 5.1***

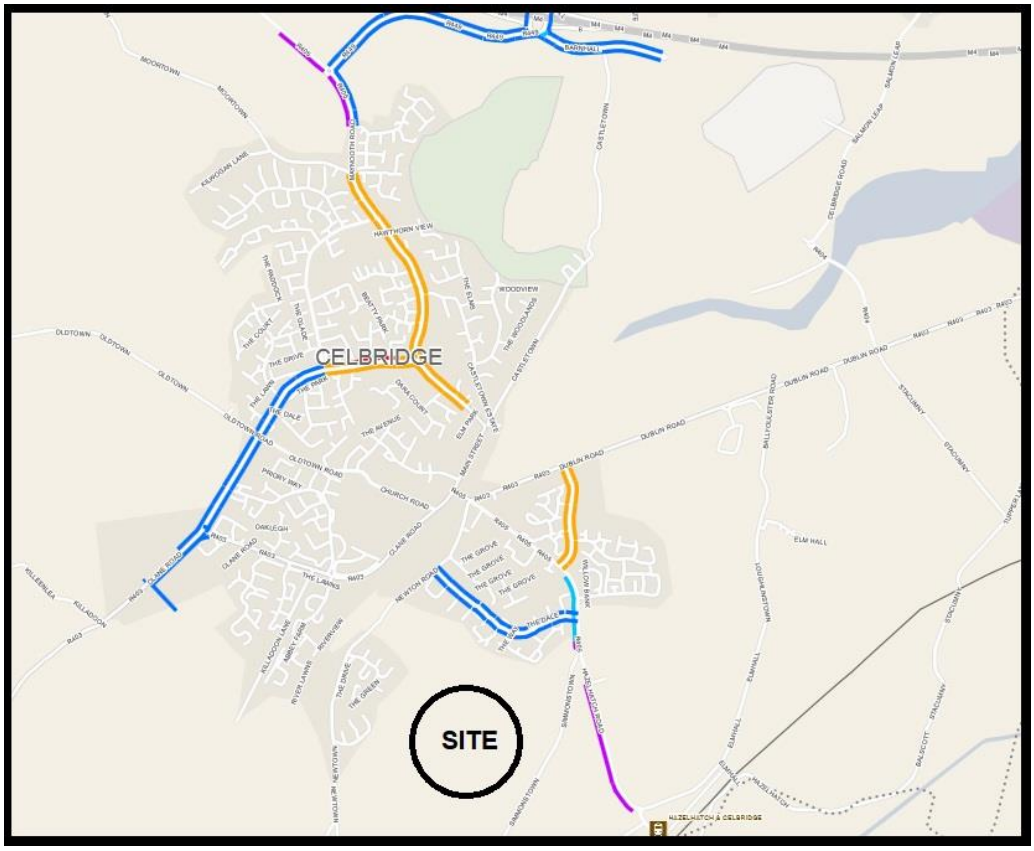


Figure 5.1 – Existing Cycle Facilities Serving Site, NTA Document

5.3 An extract from the Plan showing the Drawing Legend that applies to the above is as included below as ***Figure 5.2***

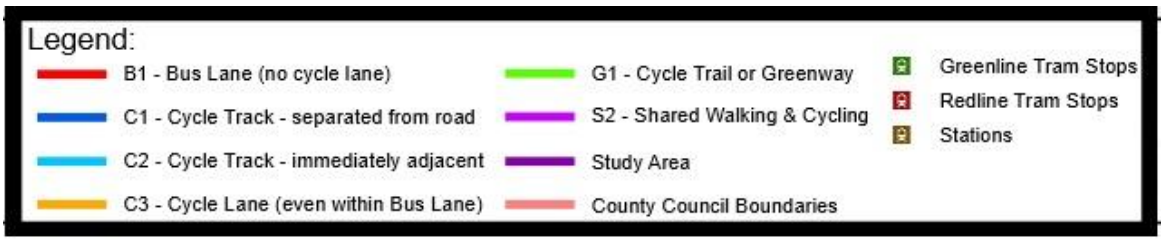


Figure 5.2 – Legend/Key from NTA Plans

5.4 The facility currently provided is best illustrated as ***Figure 5.3*** below.

Figure 5.3 – Existing Facilities on Hazelhatch Rd

5.5 The cycle facilities within the local area are ever improving, and of course the nature of Celbridge (with major colleges and employers nearby) is that the GDA cycle network will be rolled out as the nature of the environment changes. There is clearly scope to provide the facilities to create the plan as set out in the NTA's GDA Cycle Network Plan for this area of Kildare. An extract from the plan is This is as illustrated in ***Figure 5.4*** below.

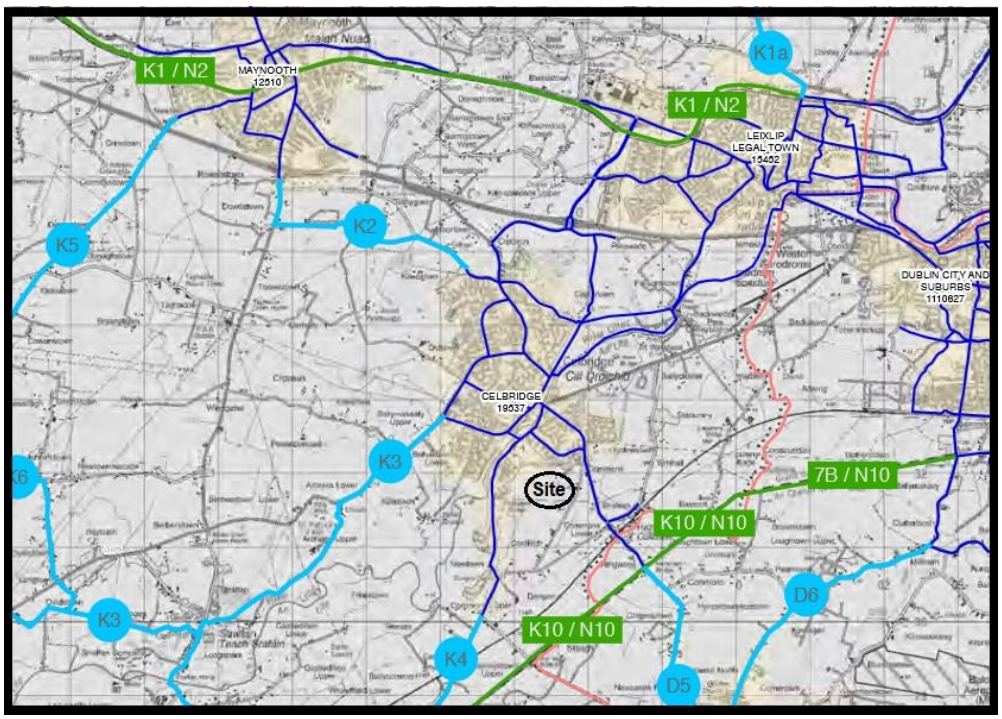


Figure 5.4 – NTA's Inter-Urban Cycle Network, Showing Site

5.6 The site is clearly linked to the overall GDA Cycle Network Plan by way of the K10/N10 Greenway as shown above and as illustrated in the GDA extract included below as ***Figure 5.5***. This demonstrates the cyclist permeability of the location to the overall Dublin City Area

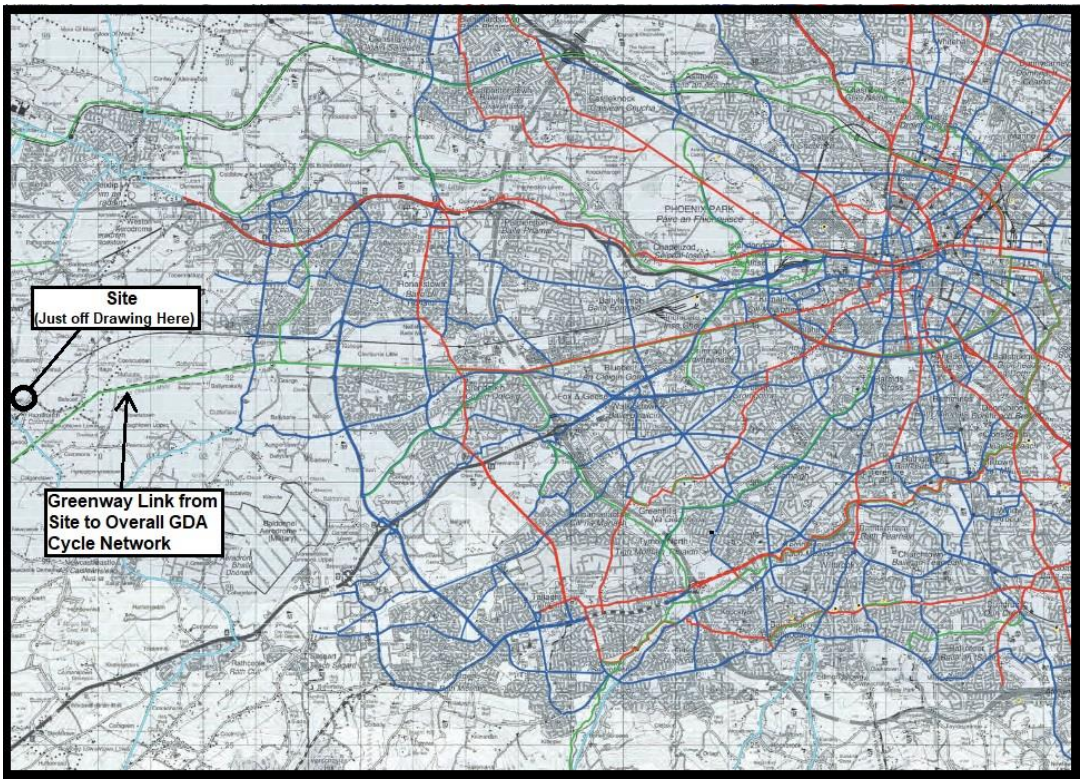


Figure 5.5 – NTA's GDA Cycle Network Plan Showing Site Proximity

5.7 The key to cycle accessibility is convenient safe links, with secure and carefully sited cycle parking. Cycling is ideal for shorter journeys. The provision of cycle parking for the site is addressed in more detail within ***Section 2.0*** of the ***TA Report***.

5.8 For journeys greater than 8km, it is recognised that a modal shift to cycling could be achievable for some, but not all, and options such as public transport and car sharing should be considered. Journeys up to 8km could be undertaken by bicycle and journeys up to 3-4km could be undertaken by walking or cycling.

5.9 To illustrate the extent of the GDA accessible by both Bicycle (8km) and on foot (2km) we have included below approximate 'Iso-Distance Mapping' for an 8km and 2km Radius from the site. These illustrate the extent of the employment, retail, and schools within sustainable travel distance of the site, as ***Figure 5.6*** and ***Figure 5.7***. In these terms, residents would not have a requirement to own a car, supporting sustainable living.

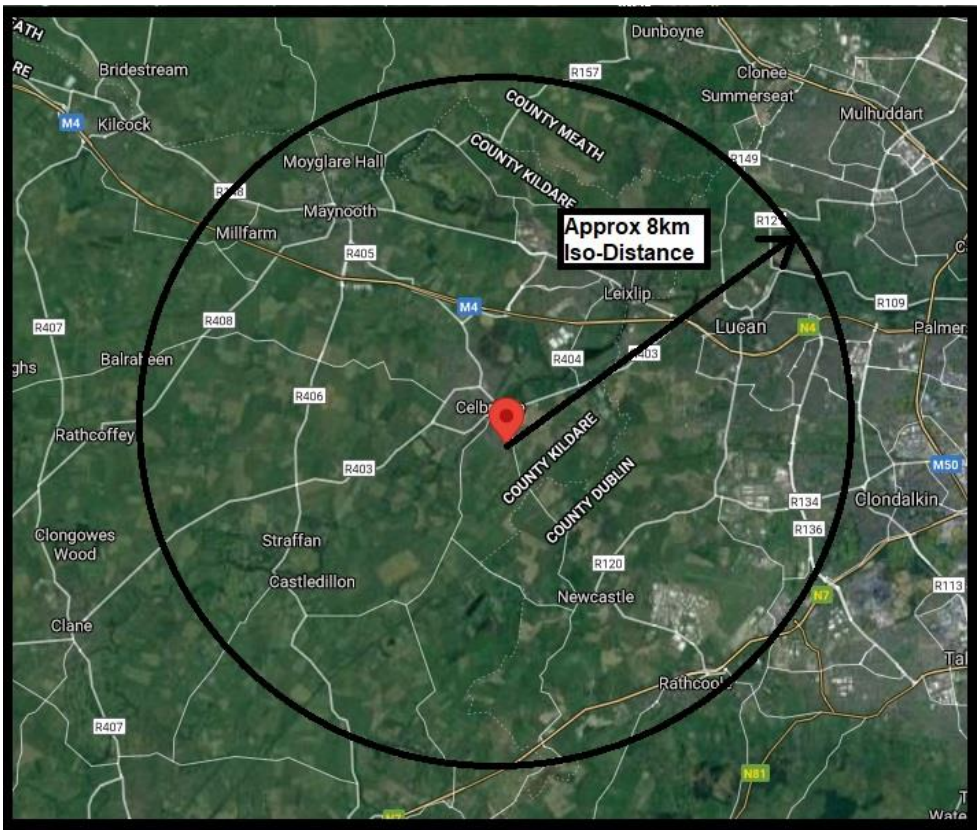


Figure 5.6 – 8km Radius Iso-Distance of the Subject Site (Cycle)

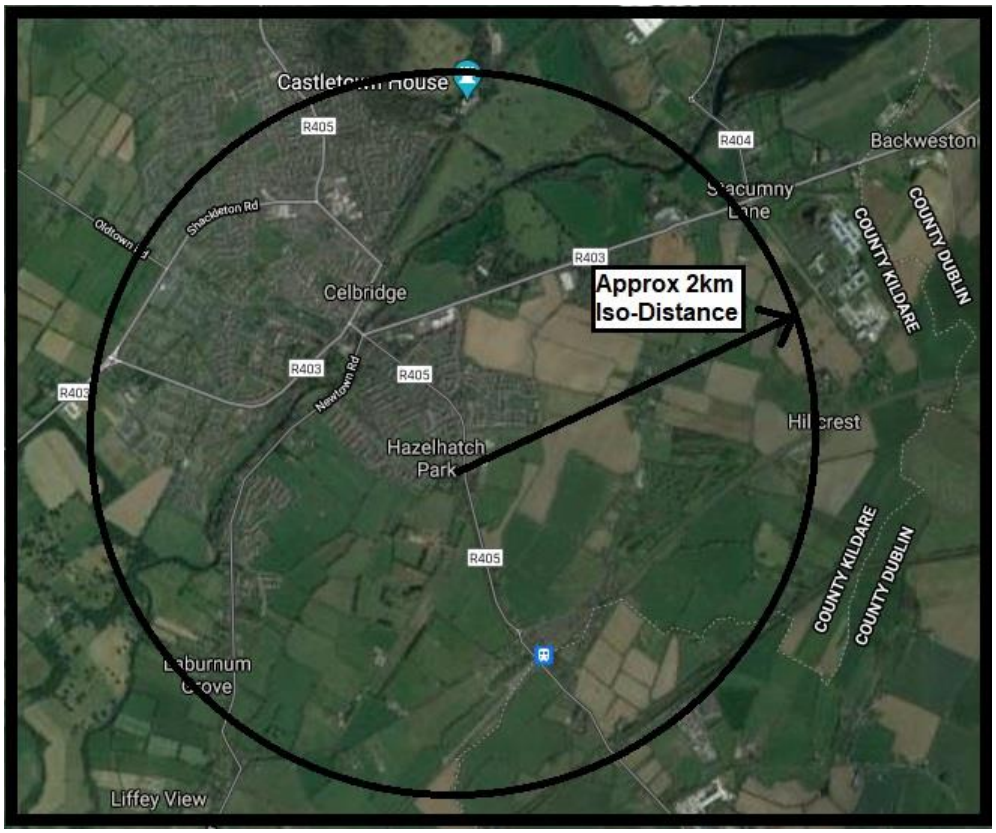


Figure 5.7 – 2km Radius Iso-Distance of the Subject Site (Walk)

5.10 The proposed site clearly can support sustainable living in terms of cycle and walking accessibility to schools, employment, and services as set out above.

5.11 Bicycle sharing facilities are becoming ever more popular with the Dublin Bikes and BleeperBike initiatives spreading ever further throughout the City and into Suburbs such as Celbridge. These facilities offer a bicycle sharing alternative mode of transport.

Cycle Parking

5.12 Given the clear accessibility of the location as demonstrated above, it is anticipated that a significant number of residents can be encouraged to cycle to work and school etc. with the safe links and secure parking which are in place (and that is reflected in the provision of a total of 204 dedicated cycle parking spaces.

5.13 The Kildare Development Plan and NTA Policy Documents vision is to cultivate a cycling culture, through the implementation of appropriate infrastructure and promotional measures, which positively encourages all members of the community to cycle at all life stages and abilities as a mode of sustainable transport that delivers environmental, health and economic benefits to both the individual and the community.

COMMUTER RAIL ACCESSIBILITY

5.14 The site is located within a very short walk or cycle distance of Hazelhatch/Celbridge Railway Station, which has an excellent commuter rail service to/from the city. Ibn addition of course there is an excellent Park and Ride facility at the Station.

5.15 The proximity to the Railway Station, being a 13 minute walk or 4 minute cycle, is illustrated in ***Figure 5.8*** below.

Figure 5.8 – Proximity to Railway Station

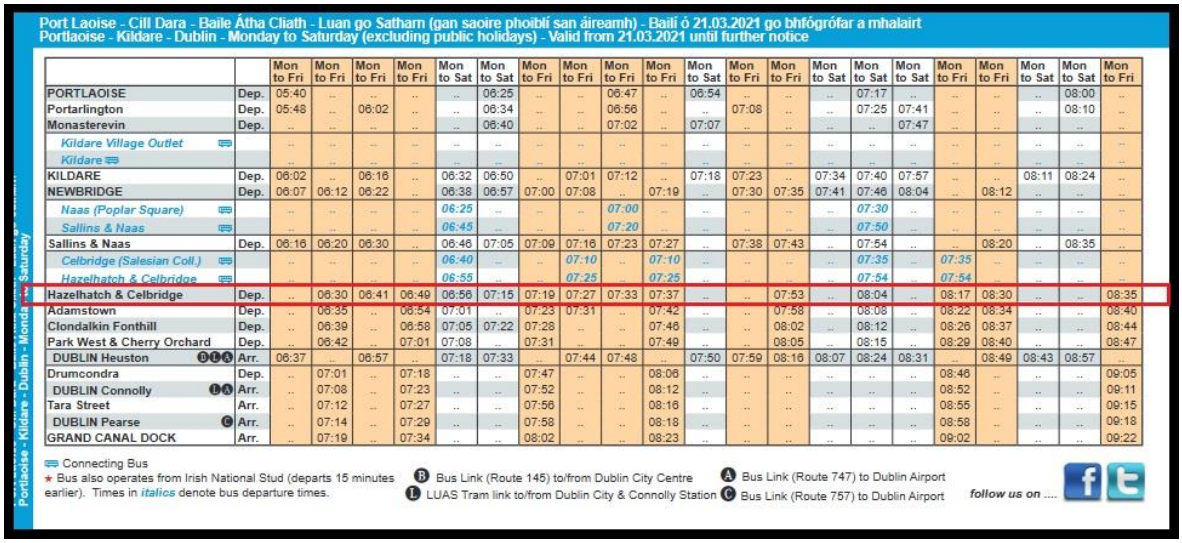
5.16 In terms of the frequency and availability of commuter services, extracts from the Timetable for both the weekday AM and PM peak periods are included below as ***Figure 5.9*** and ***Figure 5.10***.

Baile Átha Cliath - Cill Dara - Port Laoise - Luan go Satharn (gan saoire phoibli san áireamh) - Bailí ó 21.03.2021 go bhfógrófar a mhalairt
Dublin - Kildare - Portlaoise - Monday to Saturday (excluding public holidays) - Valid from 21.03.2021 until further notice

		Mon to Sat	Mon to Fri	Mon to Sat	Mon to Sat	Mon to Sat	Mon to Sat	Mon to Fri	Mon to Sat	Mon to Fri	Mon to Sat	Mon to Fri	Mon to Sat	Mon to Sat	Mon to Sat	Mon to Fri	Mon to Fri	Mon to Fri	Mon to Sat	Mon to Sat
GRAND CANAL DOCK	Dep	..	15:20	..	..	..	..	16:28	..	16:41	..	16:59	..	..	..	17:32	..	18:00	..	..
DUBLIN Pearse C	Dep	..	15:23	..	..	..	..	16:31	..	16:44	..	17:02	..	..	..	17:35	..	18:03	..	..
Tara Street	Dep	..	15:25	..	..	..	..	16:33	..	16:47	..	17:04	..	..	..	17:37	..	18:05	..	..
DUBLIN Connolly LA	Dep	..	15:29	..	..	..	..	16:37	..	16:52	..	17:08	..	..	..	17:42	..	18:09	..	..
Drumcondra	Dep	..	15:35	..	..	..	..	16:43	..	16:57	..	17:13	..	..	..	17:47	..	18:14	..	..
DUBLIN Heuston BLA	Dep	15:35	..	16:20	16:25	16:30	16:40	..	17:10	..	17:25	..	17:27	17:30	17:35	..	18:05	..	18:25	18:30
Park West & Cherry Orchard	Dep	..	15:53	16:28	..	..	..	17:01	..	17:15	..	17:30	17:35	..	..	18:03	18:13	18:32	18:35	..
Clondalkin Fonthill	Dep	..	15:56	16:31	..	..	..	17:05	..	17:18	..	17:33	17:39	..	..	18:07	18:16	18:35	18:39	..
Adamstown	Dep	..	16:01	16:36	..	..	..	17:10	..	17:23	..	17:38	17:44	..	..	18:12	18:21	18:41	18:44	..
Hazelhatch & Celbridge	Arr	..	16:05	16:40	..	..	16:53	17:16	..	17:27	..	17:44	17:48	..	..	18:16	18:25	18:46	18:48	..
Hazelhatch & Celbridge		..	..	..	..	..	*16:55*	..	..	..	..	*17:50*	*17:50*	..	..	*18:30*	*18:30*	*19:00*	*19:00*	..
Celbridge (Salesian Coll.)		..	..	..	..	..	*17:10*	..	..	..	..	*18:05*	*18:05*	..	..	*18:45*	*18:45*	*19:15*	*19:15*	..
Sallins & Naas	Dep	..	..	16:51	..	..	17:03	..	..	17:37	..	..	17:57	17:46	17:52	18:25	18:36	..	18:58	..
Sallins & Naas		..	..	*16:55*	..	..	*17:05*	..	..	..	..	..	..	..	*17:55*	*18:28*	..	..	*19:00*	..
Naas (Poplar Square)		..	..	*17:20*	..	..	*17:30*	..	..	..	..	..	..	..	*18:20*	*18:50*	..	..	*19:20*	..
NEWBRIDGE	Arr	..	..	16:59	..	16:51	..	..	17:33	17:45	..	..	18:05	17:55	..	18:34	18:44	..	19:05	..
KILDARE	Arr	..	..	17:09	..	17:02	17:20	..	17:44	..	17:54	..	18:15	..	18:09	..	18:55	..	19:16	..
Kildare		..	..	*17:10*	..	..	*17:30*	..	..	..	*18:10*	..	..	..	..	..	..	..	..	..
Kildare Village Outlet		..	..	*17:20*	..	..	*17:40*	..	..	..	*18:20*	..	..	..	..	..	..	..	..	..
Monasterevin	Dep	..	..	17:18	16:59	..	..	..	17:51	..	..	..	18:23	..	..	..	..	..	19:25	19:06
Portarlington	Dep	16:17	..	17:24	17:05	..	..	..	17:59	..	18:05	..	18:30	18:13	..	..	19:06	..	19:30	19:15
PORTLAOISE	Arr	..	..	17:34	17:15	..	..	..	..	..	18:15	..	18:39	..	..	..	19:16	..	19:40	..

Connecting Bus
* Bus also operates to Irish National Stud (arrives 10 minutes later)
Times in *italics* denote bus departure times.
B Bus Link (Route 145) to/from Dublin City Centre
L LUAS Tram link to/from Dublin City & Connolly Station
A Bus Link (Route 747) to Dublin Airport
C Bus Link (Route 757) to Dublin Airport
follow us on ....

Figure 5.9 – Train Timetable Weekday PM Arrivals



Port Laoise - Cill Dara - Baile Átha Cliath - Luan go Satharn (gan saoire phoiblí san áireamh) - Bailí ó 21.03.2021 go bhfógrófar a mhalairt
Portlaoise - Kildare - Dublin - Monday to Saturday (excluding public holidays) - Valid from 21.03.2021 until further notice

Portlaoise - Kildare - Dublin - Monday to Saturday

		Mon to Fri	Mon to Fri	Mon to Fri	Mon to Fri	Mon to Sat	Mon to Sat	Mon to Fri	Mon to Fri	Mon to Fri	Mon to Fri	Mon to Sat	Mon to Fri	Mon to Fri	Mon to Sat	Mon to Sat	Mon to Sat	Mon to Fri	Mon to Fri	Mon to Sat	Mon to Sat	Mon to Fri
PORTLAOISE	Dep.	05:40	..	..	..	..	06:25	..	..	06:47	..	06:54	..	..	..	07:17	..	..	..	..	08:00	..
Portarlington	Dep.	05:48	..	06:02	..	..	06:34	..	..	06:56	..	..	07:08	..	..	07:25	07:41	..	..	..	08:10	..
Monasterevin	Dep.	..	..	..	..	..	06:40	..	..	07:02	..	07:07	..	..	..	..	07:47	..	..	..	..	..
Kildare Village Outlet		..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Kildare		..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
KILDARE	Dep.	06:02	..	06:16	..	06:32	06:50	..	07:01	07:12	..	07:18	07:23	..	07:34	07:40	07:57	..	..	08:11	08:24	..
NEWBRIDGE	Dep.	06:07	06:12	06:22	..	06:38	06:57	07:00	07:08	..	07:19	..	07:30	07:35	07:41	07:46	08:04	..	08:12	..	..	..
Naas (Poplar Square)		..	..	..	..	*06:25*	..	..	..	*07:00*	..	..	..	..	..	*07:30*	..	..	..	..	..	..
Sallins & Naas		..	..	..	..	*06:45*	..	..	..	*07:20*	..	..	..	..	..	*07:50*	..	..	..	..	..	..
Sallins & Naas	Dep.	06:16	06:20	06:30	..	06:46	07:05	07:09	07:16	07:23	07:27	..	07:38	07:43	..	07:54	..	..	08:20	..	08:35	..
Celbridge (Salesian Coll.)		..	..	..	..	*06:40*	..	..	*07:10*	..	*07:10*	..	..	..	..	*07:35*	..	*07:35*	..	..	..	..
Hazelhatch & Celbridge		..	..	..	..	*06:55*	..	..	*07:25*	..	*07:25*	..	..	..	..	*07:54*	..	*07:54*	..	..	..	..
Hazelhatch & Celbridge	Dep.	..	06:30	06:41	06:49	06:56	07:15	07:19	07:27	07:33	07:37	..	..	07:53	..	08:04	..	08:17	08:30	..	..	08:35
Adamstown	Dep.	..	06:35	..	06:54	07:01	..	07:23	07:31	..	07:42	..	..	07:58	..	08:08	..	08:22	08:34	..	..	08:40
Clondalkin Fonthill	Dep.	..	06:39	..	06:58	07:05	07:22	07:28	..	..	07:46	..	..	08:02	..	08:12	..	08:26	08:37	..	..	08:44
Park West & Cherry Orchard	Dep.	..	06:42	..	07:01	07:08	..	07:31	..	..	07:49	..	..	08:05	..	08:15	..	08:29	08:40	..	..	08:47
DUBLIN Heuston ❶❷❸	Arr.	06:37	..	06:57	..	07:18	07:33	..	07:44	07:48	..	07:50	07:59	08:16	08:07	08:24	08:31	..	08:49	08:43	08:57	..
Drumcondra	Dep.	..	07:01	..	07:18	..	..	07:47	..	..	08:06	..	..	..	..	..	..	08:48	..	..	..	09:05
DUBLIN Connolly ❶❹	Arr.	..	07:08	..	07:23	..	..	07:52	..	..	08:12	..	..	..	..	..	..	08:52	..	..	..	09:11
Tara Street	Arr.	..	07:12	..	07:27	..	..	07:56	..	..	08:16	..	..	..	..	..	..	08:55	..	..	..	09:15
DUBLIN Pearse Ⓒ	Arr.	..	07:14	..	07:29	..	..	07:58	..	..	08:18	..	..	..	..	..	..	08:58	..	..	..	09:18
GRAND CANAL DOCK	Arr.	..	07:19	..	07:34	..	..	08:02	..	..	08:23	..	..	..	..	..	..	09:02	..	..	..	09:22

Connecting Bus
★ Bus also operates from Irish National Stud (departs 15 minutes earlier). Times in *italics* denote bus departure times.
Ⓑ Bus Link (Route 145) to/from Dublin City Centre
Ⓛ LUAS Tram link to/from Dublin City & Connolly Station
Ⓐ Bus Link (Route 747) to Dublin Airport
Ⓒ Bus Link (Route 757) to Dublin Airport
follow us on ....

Figure 5.10 – Train Timetable Weekday AM Departures

5.17 It is quite clear from the above that the site will benefit from easy access by rail to/from Dublin City Centre and intermediate stations, and transport links within the City and to other national destinations.

BUS ACCESSIBILITY

5.18 The development is well placed to take advantage of service currently serving Celbridge town centre. The #67 Dublin Bus Service to/from Merrion Square serves Celbridge Town Centre and provides a link to Maynooth and Maynooth Train Station. The proximity of the site to Celbridge Bus Stops for the existing #67 service, some 1km north of the site, is illustrated in ***Figure 5.11*** below

Figure 5.11 – Site Proximity to Dublin Bus Service #67

5.19 In terms of **Future Planned Services**, the NTA have recently published details of the overall bus network for the GDA, including Celbridge - showing Spine Routes, Feeder and Orbital Routes. An extract from the NTA Plans showing the site location is included below as ***Figure 5.12***

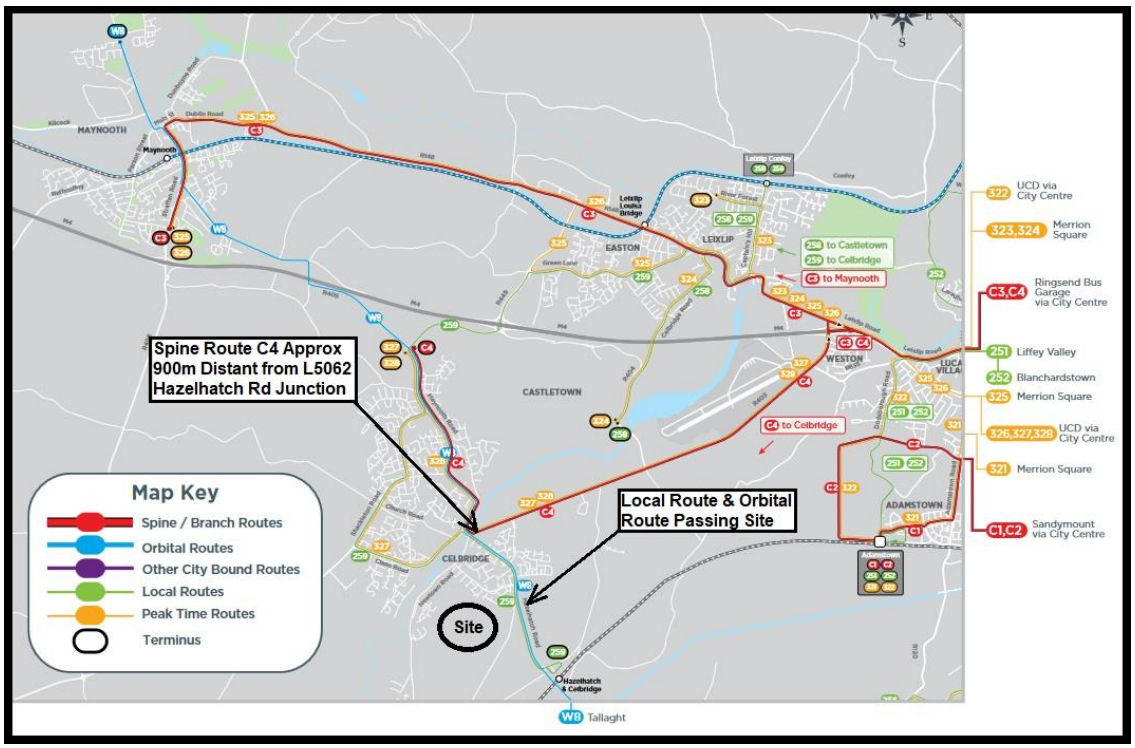


Figure 5.12 – Site Proximity to Core Bus Connects Plans

5.20 This future network shows that the site's accessibility to bus services will be further enhanced, with a high frequency and permeable service to be provided via the 'Main Spine Routes' C4 just north of the site, with a local and feeder route planned to pass the site on Hazelhatch Road.

MAINLINE BUS AND RAIL

5.21 Hazelhatch is of course on the main Dublin-Cork and Dublin-Limerick Train Service lines. And of course, with the high frequency existing Bus and Rail Service, and with the proposed improved services to/from the city, the site is therefore also within easy reach of the mainline Nationwide Bus & Train Services - trains via Connolly & Heuston Stations and Buses via Busarus Terminus.

TAXI ACCESSIBILITY

5.22 In terms of taxis, modern communication devices (e.g., 'FreeNow' and 'Lynk') now allow taxis to be ordered on a demand-basis, without any requirement for formal taxi ranks or dedicated taxi holding areas.

WALKING

5.23 The permeability locally for walking by residents is addressed above – and of course, being within close proximity to the Celbridge town centre this means that schools, services and employment destinations are within an easy and acceptable walk-commute of the site.

5.24 In these terms we believe that walking will represent the most popular mode of home-work-home and home-school-home travel for residents of the Apartments.

5.25 With ease of accessibility by Bus and Rail, and in particular with the high frequency existing rail services, and with the clear accessibility for walking and cycling as demonstrated above, it is therefore considered that the proposed development is highly sustainable in terms of public transport accessibility. The proximity of the development to existing public transport services, and planned improved services, means that end occupiers/residents will have viable alternatives to the private car for accessing the site and will not be reliant whatsoever upon the car as a primary mode of travel

6.0 CONCLUSIONS

6.1 This Transportation Assessment Report assesses the traffic & transportation impact of the proposal to construct and occupy a planning application for a residential housing and apartment development (with ancillary creche) on suitably zoned development lands at Glencarrig, Celbridge, Co Kildare.

6.2 This Report has been prepared in accordance with the TII Traffic & Transport Assessment Guidelines and is based on industry-standard Trip Generation Rates established using the most up to date version of the TRICS Database. The impact of the development traffic on the local roads has been modelled and assessed, based on a traffic survey/vehicle turning movement survey during normal school period in 2022. Appropriate TII Recommended annual traffic growth factors have been applied to establish selected opening year and design year traffic conditions.

6.3 The assessment includes a Preliminary MMP/Travel Plan for the site which is included as ***Appendix G***. This MMP highlights the current & future alternative transport accessibility of the site. The proximity of the development to existing public transport services, and planned improved services, means that end occupiers/residents will have viable alternatives to the private car for accessing the site and will not be reliant whatsoever upon the car as a primary mode of travel.

6.4 We have also included a Statement of Consistency with DMURS as ***Appendix H***. An independent Stage 1 Road Safety Audit has been undertaken, together with the Designer Feedback, and is included as ***Appendix I***.

6.5 An assessment of Car Parking and Bicycle Parking quantum and design provided has been undertaken, and the provision is generally consistent with the requirements of the National Apartment Guidelines and best sustainability practices.

6.6 This report demonstrates that the proposed Development will have an absolutely negligible impact upon the established local traffic conditions and can easily be accommodated on the road network without any capacity concerns arising.

6.7 The assessment confirms that the proposed access junction is of more than adequate capacity to accommodate the worst-case traffic associated with the proposed development during the selected year of opening and the design year 15 years following opening.

6.8 Direct and high-quality pedestrian linkages are provided between the site and the existing pedestrian & cycling facilities on the surrounding road network. Improved pedestrian and cyclist infrastructure is provided on both on the R405 and on the L5062. It should be noted that the cyclist and pedestrian infrastructure has been designed in a 'best fit' arrangement so as to maintain, and avoid damage to, existing valuable mature trees. Whilst a dedicated pedestrian & cyclist route is provided in the N-S orientation on the L5062, and in an E-W orientation on the R405, the site boundary has been set back so as to facilitate further improved facilities if desired by KCC

6.9 It is considered that there are no significant Operational Traffic Safety or Road Capacity issues, affecting the established road network, or Transportation issues, that prevent a positive determination of the application.

APPENDICES - CONTENT

A	Proposed Development – Site Layout Plans & Drawings
B	2022 Weekday Classified Turning Movement Traffic Survey Output Data
C	TRICS Output Data – Residential Houses, Apartments & Creche
D	Traffic Calculations, Trip Distribution, Network Traffic Flow Diagrams & Projections Based on Traffic Surveys
E	Junction 9 PiCADY Output – L5062/Site Access Junction
F	Junction 9 PiCADY Output – Hazelhatch Rd/L5062 Junction
G	Preliminary Mobility Management Plan/Travel Plan
H	DMURS Statement of Consistency
I	Stage 1 Independent Road Safety/Quality Audit & Designer Feedback

APPENDIX A

Proposed Development
Site Layout/Plans & Drawings

NRB Consulting Engineers Ltd recommend that Road and land ownership boundaries are verified through Legal & Land searches by the Client.

This drawing is based upon drawing XPL_Site_210722, received 19/08/22. NRB Consulting Engineers Ltd shall not be liable for any inaccuracies or deficiencies.

REV	DATE	AMENDMENTS	DRAWN	CHK	APP

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Client

Project: Glencarrig, Celbridge
Co. Kildare

Title: Proposed Site Layout

Project No.: 21-082

Drawing No.: NRB-TA-001

Drawn: PB

Checked: ER 22/08/22

Approved: ER 22/08/22

Date: 21-Aug-22

Scale @ A3: 1:1000

Rev: B

NRB Consulting Engineers Ltd accept no responsibility for any unauthorised amendments to this drawing. Only figured dimensions to be worked to.

Purpose of Issue: ☐ Draft ☐ As Built ☐ Information ☐ Tender ☐ Approval ☐ Construction

NRB Consulting Engineers Ltd recommend that Road and land ownership boundaries are verified through Legal & Land searches by the Client.

This drawing is based upon drawing XPL_Site_210722, received 19/08/22. NRB Consulting Engineers Ltd shall not be liable for any inaccuracies or deficiencies.

REV	DATE	AMENDMENTS	DRAWN	CHK	APP

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Client

Project: Glencarrig, Celbridge
Co. Kildare

Title: Proposed Site Access
Sight Lines 01

Project No.: 21-082

Drawing No.: NRB-TA-002

Drawn: PB

Checked: ER 22/08/22

Approved: ER 22/08/22

Date: 21-Aug-22

Scale @ A3: 1:500

Rev: B

NRB Consulting Engineers Ltd accept no responsibility for any unauthorised amendments to this drawing. Only figured dimensions to be worked to.

Purpose of Issue: ☐ Draft ☐ As Built ☐ Information ☐ Tender ☐ Approval ☐ Construction

NRB Consulting Engineers Ltd recommend that Road and land ownership boundaries are verified through Legal & Land searches by the Client.

This drawing is based upon drawing XPL_Site_210722, received 19/08/22. NRB Consulting Engineers Ltd shall not be liable for any inaccuracies or deficiencies.

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Client		Project No. 21-082	Drawing No. NRB-TA-003
Project	Glencarrig, Celbridge Co. Kildare	Drawn PB / Checked ER 22/08/22	Approved ER 22/08/22
Title	Proposed Site Access Sight Lines 02	Date 21-Aug-22	Scale @ A3 1:500 / Rev B

NRB Consulting Engineers Ltd accept no responsibility for any unauthorised amendments to this drawing. Only figured dimensions to be worked to.

Purpose of Issue: ☐ Draft ☐ As Built ☐ Information ☐ Tender ☐ Approval ☐ Construction

NRB Consulting Engineers Ltd recommend that Road and land ownership boundaries are verified through Legal & Land searches by the Client.

This drawing is based upon drawing XPL_Site_210722, received 19/08/22. NRB Consulting Engineers Ltd shall not be liable for any inaccuracies or deficiencies.

REV	DATE	AMENDMENTS	DRAWN	CHK	APP

NRB Consulting Engineers Ltd
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Dundrum Road
Dundrum
Dublin 14

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Registered in Ireland No. 491679

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Client		Project No. 21-082	Drawing No. NRB-TA-004
Project	Glencarrig, Celbridge Co. Kildare	Drawn PB / Checked ER 22/08/22	Approved ER 22/08/22
Title	Autotracks of a Refuse Vehicle Within the Development	Date 21-Aug-22	Scale @ A3 1:500 / Rev B

NRB Consulting Engineers Ltd accept no responsibility for any unauthorised amendments to this drawing. Only figured dimensions to be worked to.

Purpose of Issue: ☐ Draft ☐ As Built ☐ Information ☐ Tender ☐ Approval ☐ Construction

NRB Consulting Engineers Ltd recommend that Road and land ownership boundaries are verified through Legal & Land searches by the Client.

This drawing is based upon drawing XPL_Site_210722, received 19/08/22. NRB Consulting Engineers Ltd shall not be liable for any inaccuracies or deficiencies.

REV	DATE	AMENDMENTS	DRAWN	CHK	APP

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Client

Project No. 21-082

Drawing No. NRB-TA-005

Project: Glencarrig, Celbridge
Co. Kildare

Drawn: PB

Checked: ER 22/08/22

Approved: ER 22/08/22

Title: Autotracks of a Fire Tender Within the Development

Date: 21-Aug-22

Scale @ A3: 1:500

Rev: B

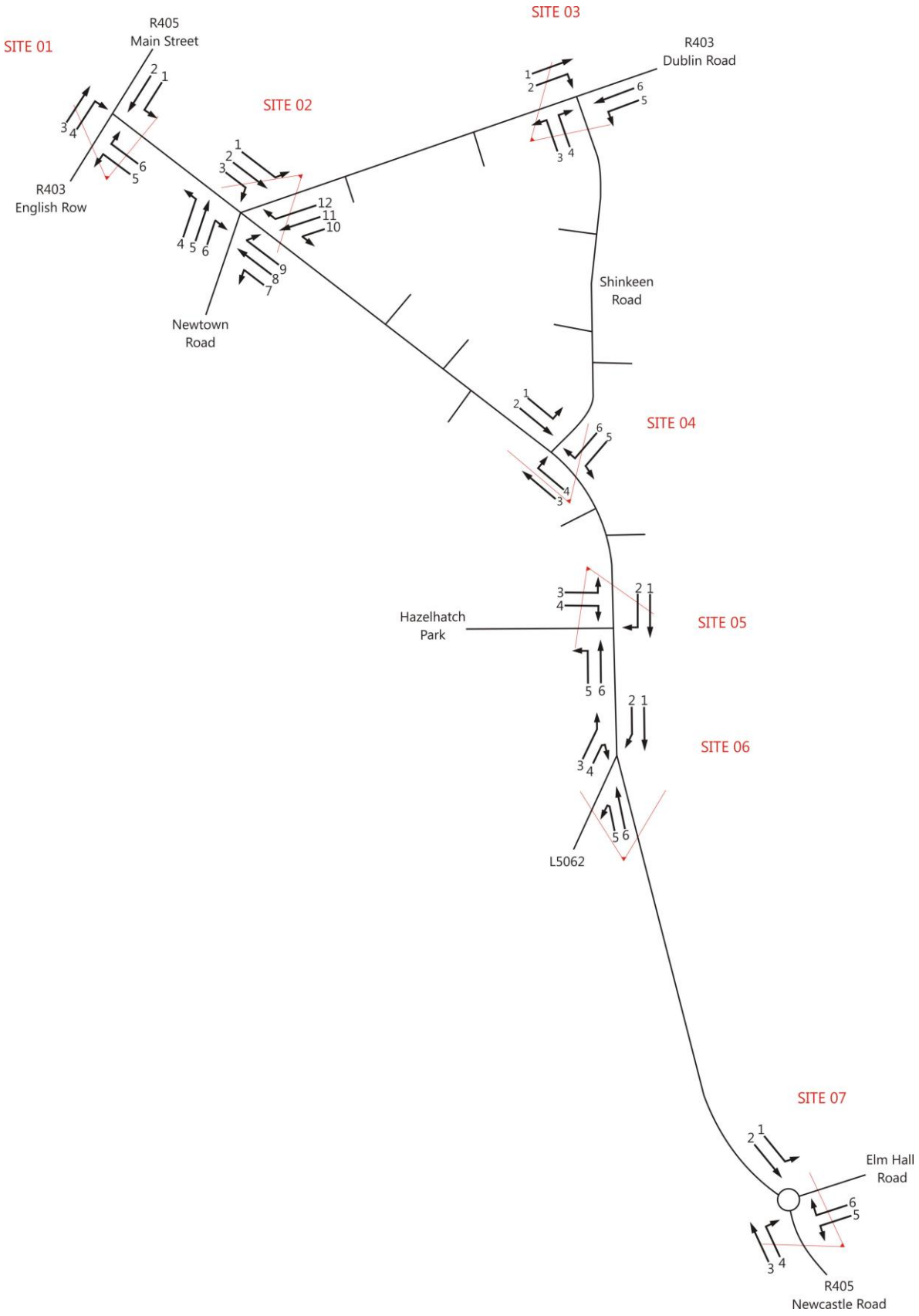
NRB Consulting Engineers Ltd accept no responsibility for any unauthorised amendments to this drawing. Only figured dimensions to be worked to.

Purpose of Issue: ☐ Draft ☐ Information ☐ Approval ☐ As Built ☐ Tender ☐ Construction

APPENDIX B

2022 - Weekday - Classified
Turning Movement Traffic Survey Output Data

Site Locations/Movement Numbering



Job number: TRA/22/085	Job Date: 24th March 2022	Drawing No: TRA/22/085-02	traffinomics.ie
Client: NRB	Job Day: Thursday	Survey details Key/Map	

TRAFFINOMICS LIMITED

HAZELHATCH II TRAFFIC COUNTS **MARCH 2022**

MANUAL CLASSIFIED JUNCTION TURNING COUNTS **TRA/22/085**

SITE: 01 DATE: 24th March 2022

LOCATION: R405 Main Street/R403 English Row/R403 Dublin Road DAY: Thursday

	MOVEMENT 1								MOVEMENT 2								MOVEMENT 3							
TIME	**PCL**	**MCL**	**CAR**	**LGV**	**HGV**	**BUS**	**TOT**	**PCU**	**PCL**	**MCL**	**CAR**	**LGV**	**HGV**	**BUS**	**TOT**	**PCU**	**PCL**	**MCL**	**CAR**	**LGV**	**HGV**	**BUS**	**TOT**	**PCU**
07:00	0	0	43	18	1	3	65	69	0	0	5	1	1	1	8	10	0	0	5	2	1	0	8	9
07:15	0	0	53	11	0	1	65	66	0	0	2	3	0	1	6	7	0	0	8	1	1	0	10	11
07:30	2	2	52	10	3	5	74	79	0	0	0	0	1	0	1	2	0	0	4	0	0	0	4	4
07:45	0	1	49	12	4	0	66	69	1	0	2	0	2	0	5	6	0	0	6	3	1	0	10	11
H/TOT	2	3	197	51	8	9	270	284	1	0	9	4	4	2	20	25	0	0	23	6	3	0	32	35
08:00	0	0	67	5	2	3	77	82	0	0	2	0	0	0	2	2	2	0	3	0	0	0	5	3
08:15	0	0	55	12	3	1	71	75	0	0	4	2	0	0	6	6	20	0	4	2	0	0	26	10
08:30	0	0	49	12	2	2	65	69	1	0	4	0	0	0	5	4	18	1	7	1	0	0	27	12
08:45	0	0	59	13	1	1	74	76	0	0	8	0	0	0	8	8	2	0	15	0	0	0	17	15
H/TOT	0	0	230	42	8	7	287	302	1	0	18	2	0	0	21	20	42	1	29	3	0	0	75	41
09:00	0	0	63	4	1	2	70	73	0	0	12	1	0	1	14	15	1	0	14	1	1	0	17	17
09:15	0	0	50	6	1	0	57	58	0	0	9	3	0	1	13	14	0	0	12	1	0	4	17	21
09:30	0	0	55	6	1	1	63	65	0	0	8	2	1	0	11	12	1	0	16	1	2	0	20	21
09:45	1	0	56	4	1	0	62	62	1	0	10	0	0	2	13	14	2	0	23	2	0	0	27	25
H/TOT	1	0	224	20	4	3	252	258	1	0	39	6	1	4	51	55	4	0	65	5	3	4	81	85
P/TOT	3	3	651	113	20	19	809	844	3	0	66	12	5	6	92	101	46	1	117	14	6	4	188	161

	MOVEMENT 1								MOVEMENT 2								MOVEMENT 3							
TIME	**PCL**	**MCL**	**CAR**	**LGV**	**HGV**	**BUS**	**TOT**	**PCU**	**PCL**	**MCL**	**CAR**	**LGV**	**HGV**	**BUS**	**TOT**	**PCU**	**PCL**	**MCL**	**CAR**	**LGV**	**HGV**	**BUS**	**TOT**	**PCU**
16:00	1	0	58	2	2	2	65	68	0	0	12	1	0	0	13	13	0	0	15	3	0	1	19	20
16:15	12	0	55	5	0	2	74	66	0	0	10	3	0	0	13	13	0	0	21	3	0	0	24	24
16:30	6	1	62	5	1	1	76	73	0	0	11	2	0	0	13	13	1	0	29	3	0	0	33	32
16:45	1	0	59	6	0	1	67	67	0	0	15	1	0	0	16	16	2	0	11	2	0	0	15	13
H/TOT	20	1	234	18	3	6	282	274	0	0	48	7	0	0	55	55	3	0	76	11	0	1	91	90
17:00	3	1	39	9	0	1	53	51	0	0	11	0	0	0	11	11	4	0	24	1	0	0	29	26
17:15	0	0	44	3	0	0	47	47	0	2	9	0	0	0	11	10	1	0	9	2	0	0	12	11
17:30	2	0	32	8	1	1	44	44	1	1	4	0	0	0	6	5	1	0	9	2	0	0	12	11
17:45	1	2	54	8	0	2	67	67	1	0	6	1	0	0	8	7	1	0	8	1	0	0	10	9
H/TOT	6	3	169	28	1	4	211	209	2	3	30	1	0	0	36	33	7	0	50	6	0	0	63	57
18:00	1	0	44	3	0	1	49	49	1	1	14	2	0	0	18	17	0	0	12	0	0	0	12	12
18:15	0	0	58	7	0	1	66	67	0	0	5	4	0	0	9	9	4	0	14	1	0	0	19	16
18:30	1	0	45	5	0	1	52	52	0	1	13	2	0	0	16	15	2	0	18	0	0	1	21	20
18:45	0	2	43	3	0	1	49	49	0	0	11	3	0	0	14	14	2	0	18	0	0	0	20	18
H/TOT	2	2	190	18	0	4	216	217	1	2	43	11	0	0	57	55	8	0	62	1	0	1	72	67
P/TOT	28	6	593	64	4	14	709	701	3	5	121	19	0	0	148	143	18	0	188	18	0	2	226	214

TRAFFINOMICS LIMITED

HAZELHATCH II TRAFFIC COUNTS **MARCH 2022**

MANUAL CLASSIFIED JUNCTION TURNING COUNTS **TRA/22/085**

SITE: 01 DATE: 24th March 2022

LOCATION: R405 Main Street/R403 English Row/R403 Dublin Road DAY: Thursday

	MOVEMENT 4								MOVEMENT 5								MOVEMENT 6							
TIME	PCL	MCL	CAR	LGV	HGV	BUS	TOT	PCU	PCL	MCL	CAR	LGV	HGV	BUS	TOT	PCU	PCL	MCL	CAR	LGV	HGV	BUS	TOT	PCU
07:00	0	2	86	13	3	2	106	110	0	0	11	6	2	0	19	21	1	1	21	3	1	0	27	27
07:15	0	2	71	14	1	2	90	92	0	0	23	1	3	2	29	34	0	0	24	8	1	3	36	40
07:30	2	1	136	17	5	5	166	174	0	0	25	3	1	2	31	34	1	0	30	7	2	3	43	47
07:45	1	1	97	19	4	3	125	131	0	0	40	6	1	5	52	58	7	0	37	4	1	0	49	44
H/TOT	3	6	390	63	13	12	487	506	0	0	99	16	7	9	131	147	9	1	112	22	5	6	155	158
08:00	1	0	98	12	5	1	117	122	2	0	54	5	1	9	71	79	2	0	57	7	2	3	71	74
08:15	0	1	118	11	1	5	136	141	2	0	66	6	0	2	76	76	1	0	49	7	2	2	61	64
08:30	1	0	95	4	0	4	104	107	2	0	78	6	2	3	91	94	6	0	57	4	1	2	70	68
08:45	0	0	101	7	3	2	113	118	0	0	71	10	2	0	83	85	2	0	61	4	3	0	70	71
H/TOT	2	1	412	34	9	12	470	489	6	0	269	27	5	14	321	335	11	0	224	22	8	7	272	278
09:00	2	1	86	10	2	0	101	101	0	1	44	8	2	5	60	66	1	0	64	6	1	2	74	76
09:15	0	0	81	8	1	7	97	105	0	0	48	8	4	0	60	64	0	0	53	6	1	1	61	63
09:30	0	1	59	7	3	4	74	80	0	0	27	9	1	3	40	44	0	0	60	4	2	1	67	70
09:45	1	0	54	5	0	0	60	59	0	0	39	4	2	1	46	49	1	0	60	7	4	1	73	77
H/TOT	3	2	280	30	6	11	332	345	0	1	158	29	9	9	206	223	2	0	237	23	8	5	275	286
P/TOT	8	9	1082	127	28	35	1289	1340	6	1	526	72	21	32	658	706	22	1	573	67	21	18	702	723

	MOVEMENT 4								MOVEMENT 5								MOVEMENT 6							
TIME	PCL	MCL	CAR	LGV	HGV	BUS	TOT	PCU	PCL	MCL	CAR	LGV	HGV	BUS	TOT	PCU	PCL	MCL	CAR	LGV	HGV	BUS	TOT	PCU
16:00	0	1	49	7	1	1	59	60	1	1	58	10	2	4	76	81	1	0	88	11	0	0	100	99
16:15	0	0	42	7	5	4	58	67	0	0	62	6	4	1	73	78	1	2	80	10	0	2	95	95
16:30	1	0	57	7	1	1	67	68	3	0	70	16	2	1	92	93	2	0	82	12	1	0	97	96
16:45	0	0	69	6	1	2	78	81	0	1	62	12	2	1	78	80	0	0	81	11	0	1	93	94
H/TOT	1	1	217	27	8	8	262	277	4	2	252	44	10	7	319	332	4	2	331	44	1	3	385	385
17:00	0	2	63	4	3	2	74	78	0	1	72	12	3	1	89	92	1	0	90	12	1	1	105	106
17:15	0	0	55	4	1	0	60	61	0	0	85	8	2	0	95	97	1	3	84	12	3	1	104	105
17:30	0	0	64	5	4	1	74	79	4	0	83	11	0	3	101	101	5	2	88	10	2	2	109	108
17:45	1	1	69	10	0	2	83	84	1	1	67	6	1	1	77	78	2	1	90	10	0	1	104	103
H/TOT	1	3	251	23	8	5	291	301	5	2	307	37	6	5	362	368	9	6	352	44	6	5	422	422
18:00	2	0	75	4	0	0	81	79	1	1	73	9	1	2	87	89	1	0	85	15	0	1	102	102
18:15	0	0	71	5	0	3	79	82	1	1	73	6	0	2	83	84	6	1	77	5	0	3	92	90
18:30	0	0	54	8	1	2	65	68	1	1	53	3	1	2	61	63	2	0	71	10	1	2	86	87
18:45	1	0	82	7	0	1	91	91	3	2	77	6	0	1	89	86	0	0	74	4	0	3	81	84
H/TOT	3	0	282	24	1	6	316	321	6	5	276	24	2	7	320	321	9	1	307	34	1	9	361	363
P/TOT	5	4	750	74	17	19	869	899	15	9	835	105	18	19	1001	1021	22	9	990	122	8	17	1168	1170

TRAFFINOMICS LIMITED

HAZELHATCH II TRAFFIC COUNTS **MARCH 2022**

MANUAL CLASSIFIED JUNCTION TURNING COUNTS **TRA/22/085**

SITE: 02 DATE: 24th March 2022

LOCATION: Newtown Road/R405 Newcastle Road/R403 Dublin Road DAY: Thursday

	MOVEMENT 1								MOVEMENT 2								MOVEMENT 3							
TIME	PCL	MCL	CAR	LGV	HGV	BUS	TOT	PCU	PCL	MCL	CAR	LGV	HGV	BUS	TOT	PCU	PCL	MCL	CAR	LGV	HGV	BUS	TOT	PCU
07:00	0	1	62	12	3	1	79	82	0	1	62	15	1	1	80	81	0	0	5	4	0	0	9	9
07:15	0	2	76	14	0	3	95	97	0	0	39	9	1	2	51	54	0	0	9	2	0	0	11	11
07:30	4	2	92	8	3	4	113	116	0	1	87	18	3	4	113	119	0	0	9	1	2	0	12	14
07:45	1	0	78	10	4	1	94	98	0	2	59	18	3	0	82	84	0	0	9	3	1	1	14	16
H/TOT	5	5	308	44	10	9	381	393	0	4	247	60	8	7	326	339	0	0	32	10	3	1	46	50
08:00	1	0	84	7	4	1	97	101	0	0	74	5	2	3	84	89	0	0	7	5	1	0	13	14
08:15	0	0	75	9	1	2	87	90	0	1	88	12	3	2	106	110	0	0	10	2	0	1	13	14
08:30	1	0	74	5	2	4	86	91	0	0	53	9	0	0	62	62	0	0	17	2	0	0	19	19
08:45	0	0	83	13	0	0	96	96	0	0	62	6	3	2	73	78	0	0	15	1	1	1	18	20
H/TOT	2	0	316	34	7	7	366	378	0	1	277	32	8	7	325	339	0	0	49	10	2	2	63	67
09:00	2	1	105	11	2	2	123	125	0	0	30	2	1	0	33	34	0	0	14	1	0	0	15	15
09:15	0	0	83	10	1	1	95	97	0	0	35	0	1	3	39	43	0	0	13	4	0	3	20	23
09:30	0	1	71	5	3	3	83	88	0	0	36	5	1	1	43	45	0	0	7	3	0	1	11	12
09:45	1	0	68	5	0	0	74	73	1	0	27	3	1	0	32	32	0	0	15	1	0	0	16	16
H/TOT	3	2	327	31	6	6	375	383	1	0	128	10	4	4	147	154	0	0	49	9	0	4	62	66
P/TOT	10	7	951	109	23	22	1122	1155	1	5	652	102	20	18	798	832	0	0	130	29	5	7	171	183

	MOVEMENT 1								MOVEMENT 2								MOVEMENT 3							
TIME	PCL	MCL	CAR	LGV	HGV	BUS	TOT	PCU	PCL	MCL	CAR	LGV	HGV	BUS	TOT	PCU	PCL	MCL	CAR	LGV	HGV	BUS	TOT	PCU
16:00	0	0	57	2	1	2	62	65	1	1	30	5	2	0	39	40	0	0	20	2	0	1	23	24
16:15	0	0	51	8	1	3	63	67	12	0	21	3	4	2	42	38	0	0	25	1	0	1	27	28
16:30	1	0	65	7	1	2	76	78	6	1	30	5	1	0	43	39	0	0	24	0	0	0	24	24
16:45	0	0	61	4	0	0	65	65	1	0	33	6	0	2	42	43	0	0	34	2	1	1	38	40
H/TOT	1	0	234	21	3	7	266	275	20	2	114	19	7	4	166	160	0	0	103	5	1	3	112	116
17:00	0	0	58	4	1	2	65	68	3	3	33	4	2	1	46	45	0	0	11	5	0	0	16	16
17:15	0	0	54	2	0	0	56	56	0	0	21	4	1	0	26	27	0	0	24	1	0	0	25	25
17:30	0	0	55	7	3	1	66	70	2	0	22	5	1	1	31	31	0	0	19	1	1	0	21	22
17:45	0	1	56	10	0	1	68	68	2	2	51	4	0	2	61	60	0	0	16	4	0	1	21	22
H/TOT	0	1	223	23	4	4	255	262	7	5	127	17	4	4	164	163	0	0	70	11	1	1	83	85
18:00	1	0	65	4	0	1	71	71	2	0	21	2	0	0	25	23	0	0	33	1	0	0	34	34
18:15	0	0	61	6	0	2	69	71	0	0	40	5	0	2	47	49	0	0	28	1	0	0	29	29
18:30	0	0	54	5	1	2	62	65	1	0	28	5	0	1	35	35	0	0	17	3	0	0	20	20
18:45	0	0	51	6	0	1	58	59	1	2	54	0	0	1	58	57	0	0	20	4	0	0	24	24
H/TOT	1	0	231	21	1	6	260	266	4	2	143	12	0	4	165	165	0	0	98	9	0	0	107	107
P/TOT	2	1	688	65	8	17	781	804	31	9	384	48	11	12	495	488	0	0	271	25	2	4	302	308

TRAFFINOMICS LIMITED

HAZELHATCH II TRAFFIC COUNTS **MARCH 2022**

MANUAL CLASSIFIED JUNCTION TURNING COUNTS **TRA/22/085**

SITE: 02 DATE: 24th March 2022

LOCATION: Newtown Road/R405 Newcastle Road/R403 Dublin Road DAY: Thursday

	MOVEMENT 4								MOVEMENT 5								MOVEMENT 6							
TIME	PCL	MCL	CAR	LGV	HGV	BUS	TOT	PCU	PCL	MCL	CAR	LGV	HGV	BUS	TOT	PCU	PCL	MCL	CAR	LGV	HGV	BUS	TOT	PCU
07:00	0	0	6	2	2	0	10	12	0	0	0	0	1	0	1	2	0	0	8	1	0	0	9	9
07:15	0	0	17	2	0	1	20	21	0	0	2	0	0	0	2	2	1	0	14	2	0	0	17	16
07:30	0	0	14	2	1	1	18	20	0	0	0	0	0	0	0	0	0	0	12	1	0	0	13	13
07:45	2	0	27	3	2	1	35	36	0	0	0	0	0	0	0	0	0	1	18	1	0	0	20	19
H/TOT	2	0	64	9	5	3	83	89	0	0	2	0	1	0	3	4	1	1	52	5	0	0	59	58
08:00	0	0	40	0	0	2	42	44	0	0	1	0	2	0	3	5	0	0	14	1	0	0	15	15
08:15	0	0	35	6	1	3	45	49	0	0	0	1	0	0	1	1	0	0	13	0	0	0	13	13
08:30	1	0	41	4	0	1	47	47	0	0	1	0	0	0	1	1	0	0	9	1	0	0	10	10
08:45	2	0	43	5	1	0	51	50	0	0	0	0	0	0	0	0	0	0	14	1	0	0	15	15
H/TOT	3	0	159	15	2	6	185	191	0	0	2	1	2	0	5	7	0	0	50	3	0	0	53	53
09:00	0	0	29	3	1	1	34	36	0	0	0	0	1	0	1	2	0	0	10	3	0	0	13	13
09:15	0	0	23	2	0	1	26	27	0	0	1	0	0	0	1	1	0	0	11	2	2	0	15	17
09:30	0	0	17	0	1	0	18	19	0	0	0	0	0	0	0	0	0	0	8	1	0	0	9	9
09:45	0	0	29	3	0	1	33	34	0	0	0	0	0	0	0	0	0	0	4	1	1	0	6	7
H/TOT	0	0	98	8	2	3	111	116	0	0	1	0	1	0	2	3	0	0	33	7	3	0	43	46
P/TOT	5	0	321	32	9	12	379	396	0	0	5	1	4	0	10	14	1	1	135	15	3	0	155	157

	MOVEMENT 4								MOVEMENT 5								MOVEMENT 6							
TIME	PCL	MCL	CAR	LGV	HGV	BUS	TOT	PCU	PCL	MCL	CAR	LGV	HGV	BUS	TOT	PCU	PCL	MCL	CAR	LGV	HGV	BUS	TOT	PCU
16:00	0	0	20	4	1	0	25	26	0	0	0	1	0	0	1	1	0	0	7	2	0	0	9	9
16:15	0	0	28	1	0	0	29	29	0	0	0	0	0	0	0	0	0	0	11	1	0	0	12	12
16:30	0	0	28	4	0	0	32	32	0	0	1	0	0	0	1	1	0	0	7	2	0	0	9	9
16:45	0	0	30	6	0	0	36	36	0	0	0	0	0	0	0	0	0	0	5	1	0	0	6	6
H/TOT	0	0	106	15	1	0	122	123	0	0	1	1	0	0	2	2	0	0	30	6	0	0	36	36
17:00	0	0	42	10	1	0	53	54	0	0	0	0	0	0	0	0	0	0	5	1	0	0	6	6
17:15	0	0	47	3	0	0	50	50	0	0	0	0	0	0	0	0	0	0	7	0	0	0	7	7
17:30	0	0	35	5	0	0	40	40	0	0	0	0	0	0	0	0	0	2	11	2	0	0	15	14
17:45	0	0	40	4	1	0	45	46	0	0	0	0	0	0	0	0	0	1	6	0	0	0	7	6
H/TOT	0	0	164	22	2	0	188	190	0	0	0	0	0	0	0	0	0	3	29	3	0	0	35	33
18:00	0	1	36	1	0	0	38	37	0	0	0	0	0	0	0	0	0	0	9	0	0	0	9	9
18:15	0	0	28	0	0	0	28	28	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	5
18:30	0	0	34	1	1	0	36	37	0	0	1	0	0	0	1	1	0	0	8	1	0	0	9	9
18:45	0	0	34	2	0	0	36	36	0	0	0	0	0	0	0	0	0	0	8	3	0	0	11	11
H/TOT	0	1	132	4	1	0	138	138	0	0	1	0	0	0	1	1	0	0	30	4	0	0	34	34
P/TOT	0	1	402	41	4	0	448	451	0	0	2	1	0	0	3	3	0	3	89	13	0	0	105	103

HAZELHATCH II TRAFFIC COUNTS **MARCH 2022**
MANUAL CLASSIFIED JUNCTION TURNING COUNTS **TRA/22/085**

SITE: 02 DATE: 24th March 2022

LOCATION: Newtown Road/R405 Newcastle Road/R403 Dublin Road DAY: Thursday

	MOVEMENT 7								MOVEMENT 8								MOVEMENT 9							
TIME	**PCL**	**MCL**	**CAR**	**LGV**	**HGV**	**BUS**	**TOT**	**PCU**	**PCL**	**MCL**	**CAR**	**LGV**	**HGV**	**BUS**	**TOT**	**PCU**	**PCL**	**MCL**	**CAR**	**LGV**	**HGV**	**BUS**	**TOT**	**PCU**
07:00	0	0	0	0	1	0	1	2	1	0	15	3	1	0	20	20	0	0	1	3	0	0	4	4
07:15	0	0	0	0	0	0	0	0	0	0	10	1	2	3	16	21	0	0	0	0	0	0	0	0
07:30	0	0	1	2	0	0	3	3	1	0	11	0	1	1	14	15	0	0	0	0	0	0	0	0
07:45	0	0	1	0	0	0	1	1	5	0	17	0	0	3	25	24	0	0	0	0	0	0	0	0
H/TOT	0	0	2	2	1	0	5	6	7	0	53	4	4	7	75	80	0	0	1	3	0	0	4	4
08:00	0	0	0	0	0	0	0	0	4	0	17	8	3	7	39	46	0	0	0	0	0	0	0	0
08:15	0	0	2	0	0	0	2	2	3	0	28	1	0	0	32	30	0	0	0	1	0	0	1	1
08:30	0	0	4	0	0	0	4	4	7	0	35	0	2	2	46	44	0	0	4	0	0	0	4	4
08:45	0	0	0	0	0	1	1	2	0	0	29	3	2	0	34	36	0	0	1	0	0	0	1	1
H/TOT	0	0	6	0	0	1	7	8	14	0	109	12	7	9	151	156	0	0	5	1	0	0	6	6
09:00	0	0	0	0	0	0	0	0	1	1	24	0	1	3	30	33	0	0	0	0	0	0	0	0
09:15	0	0	1	0	1	0	2	3	0	0	32	6	3	0	41	44	0	0	2	1	0	0	3	3
09:30	0	0	1	0	0	0	1	1	0	0	26	1	1	2	30	33	0	0	1	0	0	0	1	1
09:45	0	0	0	0	0	0	0	0	1	0	24	1	2	1	29	31	0	0	3	0	0	0	3	3
H/TOT	0	0	2	0	1	0	3	4	2	1	106	8	7	6	130	141	0	0	6	1	0	0	7	7
P/TOT	0	0	10	2	2	1	15	18	23	1	268	24	18	22	356	377	0	0	12	5	0	0	17	17

	MOVEMENT 7								MOVEMENT 8								MOVEMENT 9							
TIME	**PCL**	**MCL**	**CAR**	**LGV**	**HGV**	**BUS**	**TOT**	**PCU**	**PCL**	**MCL**	**CAR**	**LGV**	**HGV**	**BUS**	**TOT**	**PCU**	**PCL**	**MCL**	**CAR**	**LGV**	**HGV**	**BUS**	**TOT**	**PCU**
16:00	0	0	1	1	0	0	2	2	1	1	29	8	0	1	40	40	0	0	0	0	0	0	0	0
16:15	0	0	1	0	0	0	1	1	1	0	32	4	4	1	42	46	0	0	2	0	0	0	2	2
16:30	0	0	1	1	0	0	2	2	4	0	18	9	1	1	33	32	0	0	2	1	0	0	3	3
16:45	0	0	0	0	0	0	0	0	0	1	25	3	2	0	31	32	0	0	0	0	0	0	0	0
H/TOT	0	0	3	2	0	0	5	5	6	2	104	24	7	3	146	150	0	0	4	1	0	0	5	5
17:00	0	0	0	1	0	0	1	1	1	1	30	6	1	0	39	39	0	0	0	0	0	0	0	0
17:15	0	0	0	0	0	0	0	0	1	1	25	8	2	1	38	40	0	0	2	0	0	0	2	2
17:30	0	0	1	0	0	0	1	1	8	2	37	6	2	2	57	53	0	0	1	1	0	0	2	2
17:45	0	0	0	0	0	0	0	0	3	0	35	5	0	0	43	41	0	0	0	0	0	0	0	0
H/TOT	0	0	1	1	0	0	2	2	13	4	127	25	5	3	177	172	0	0	3	1	0	0	4	4
18:00	0	0	2	0	0	0	2	2	2	0	27	13	1	1	44	44	0	0	0	0	0	0	0	0
18:15	0	0	1	0	0	0	1	1	6	1	32	2	0	1	42	38	0	0	2	1	0	0	3	3
18:30	0	0	1	0	0	0	1	1	1	0	15	7	1	1	25	26	1	0	2	0	0	0	3	2
18:45	0	0	0	0	0	0	0	0	1	0	47	3	0	2	53	54	0	0	0	0	0	0	0	0
H/TOT	0	0	4	0	0	0	4	4	10	1	121	25	2	5	164	162	1	0	4	1	0	0	6	5
P/TOT	0	0	8	3	0	0	11	11	29	7	352	74	14	11	487	485	1	0	11	3	0	0	15	14

TRAFFINOMICS LIMITED

HAZELHATCH II TRAFFIC COUNTS **MARCH 2022**

MANUAL CLASSIFIED JUNCTION TURNING COUNTS **TRA/22/085**

SITE: 02 DATE: 24th March 2022

LOCATION: Newtown Road/R405 Newcastle Road/R403 Dublin Road DAY: Thursday

	MOVEMENT 10								MOVEMENT 11								MOVEMENT 12							
TIME	PCL	MCL	CAR	LGV	HGV	BUS	TOT	PCU	PCL	MCL	CAR	LGV	HGV	BUS	TOT	PCU	PCL	MCL	CAR	LGV	HGV	BUS	TOT	PCU
07:00	0	0	2	0	0	0	2	2	0	0	5	2	0	0	7	7	0	1	11	4	0	0	16	15
07:15	0	0	2	0	0	0	2	2	0	0	10	1	0	0	11	11	0	0	20	6	2	1	29	32
07:30	0	0	1	0	0	0	1	1	0	0	3	2	1	0	6	7	0	0	30	8	1	3	42	46
07:45	0	0	2	1	1	0	4	5	0	0	5	1	0	0	6	6	0	0	33	7	0	1	41	42
H/TOT	0	0	7	1	1	0	9	10	0	0	23	6	1	0	30	31	0	1	94	25	3	5	128	135
08:00	0	0	0	1	0	0	1	1	0	0	8	0	0	0	8	8	0	0	54	4	0	3	61	64
08:15	0	0	3	1	0	0	4	4	0	0	11	5	0	0	16	16	0	0	52	6	1	1	60	62
08:30	0	0	4	0	0	0	4	4	1	0	11	0	2	2	16	19	0	0	59	6	1	2	68	71
08:45	0	0	3	2	0	0	5	5	1	0	10	1	0	1	13	13	0	0	60	6	2	0	68	70
H/TOT	0	0	10	4	0	0	14	14	2	0	40	6	2	3	53	56	0	0	225	22	4	6	257	267
09:00	0	0	5	1	1	0	7	8	0	0	19	2	1	0	22	23	0	0	55	11	1	3	70	74
09:15	0	0	1	1	0	0	2	2	0	0	15	2	0	0	17	17	0	0	46	6	2	0	54	56
09:30	0	0	4	0	0	0	4	4	0	0	11	2	1	0	14	15	0	0	44	12	1	2	59	62
09:45	0	0	4	0	0	0	4	4	0	0	8	0	1	0	9	10	0	0	46	7	4	0	57	61
H/TOT	0	0	14	2	1	0	17	18	0	0	53	6	3	0	62	65	0	0	191	36	8	5	240	253
P/TOT	0	0	31	7	2	0	40	42	2	0	116	18	6	3	145	152	0	1	510	83	15	16	625	655

	MOVEMENT 10								MOVEMENT 11								MOVEMENT 12							
TIME	PCL	MCL	CAR	LGV	HGV	BUS	TOT	PCU	PCL	MCL	CAR	LGV	HGV	BUS	TOT	PCU	PCL	MCL	CAR	LGV	HGV	BUS	TOT	PCU
16:00	0	0	0	1	0	0	1	1	0	0	21	4	0	0	25	25	1	0	97	9	1	3	111	114
16:15	1	0	4	0	0	0	5	4	0	1	16	1	0	0	18	17	0	2	82	11	0	2	97	98
16:30	0	0	2	0	0	0	2	2	1	0	12	3	0	0	16	15	1	0	106	15	2	0	124	125
16:45	0	0	1	0	0	0	1	1	0	0	14	2	0	0	16	16	0	0	88	14	0	2	104	106
H/TOT	1	0	7	1	0	0	9	8	1	1	63	10	0	0	75	74	2	2	373	49	3	7	436	443
17:00	1	0	1	0	0	0	2	1	1	0	9	2	0	0	12	11	0	0	90	8	2	2	102	106
17:15	0	0	0	0	0	0	0	0	0	0	6	1	0	0	7	7	0	2	97	9	3	0	111	113
17:30	0	0	2	0	0	0	2	2	1	0	21	1	0	0	23	22	1	0	99	10	0	3	113	115
17:45	0	0	0	0	0	0	0	0	0	0	11	0	0	0	11	11	0	2	82	7	0	2	93	94
H/TOT	1	0	3	0	0	0	4	3	2	0	47	4	0	0	53	51	1	4	368	34	5	7	419	428
18:00	0	0	0	0	0	0	0	0	0	0	9	1	0	0	10	10	0	0	95	10	0	2	107	109
18:15	0	0	2	0	0	0	2	2	0	0	18	0	0	0	18	18	1	1	90	9	0	4	105	108
18:30	0	0	5	0	0	0	5	5	2	1	13	0	0	0	16	14	2	1	75	5	0	3	86	87
18:45	0	0	1	0	0	0	1	1	0	1	14	1	0	0	16	15	2	2	70	5	0	2	81	80
H/TOT	0	0	8	0	0	0	8	8	2	2	54	2	0	0	60	57	5	4	330	29	0	11	379	384
P/TOT	2	0	18	1	0	0	21	19	5	3	164	16	0	0	188	182	8	10	1071	112	8	25	1234	1255

TRAFFINOMICS LIMITED

HAZELHATCH II TRAFFIC COUNTS **MARCH 2022**

MANUAL CLASSIFIED JUNCTION TURNING COUNTS **TRA/22/085**

SITE: 03 DATE: 24th March 2022

LOCATION: R403 Dublin Road/Shinkeen Road DAY: Thursday

	MOVEMENT 1								MOVEMENT 2								MOVEMENT 3							
TIME	**PCL**	**MCL**	**CAR**	**LGV**	**HGV**	**BUS**	**TOT**	**PCU**	**PCL**	**MCL**	**CAR**	**LGV**	**HGV**	**BUS**	**TOT**	**PCU**	**PCL**	**MCL**	**CAR**	**LGV**	**HGV**	**BUS**	**TOT**	**PCU**
07:00	0	1	67	18	3	1	90	93	0	0	2	0	0	0	2	2	0	1	5	0	0	0	6	5
07:15	1	2	88	12	0	3	106	107	0	0	8	2	1	0	11	12	0	0	13	2	0	0	15	15
07:30	4	1	109	11	3	4	132	135	0	0	3	0	0	0	3	3	1	0	8	2	0	0	11	10
07:45	1	1	90	11	4	1	108	112	0	0	7	1	1	0	9	10	0	0	23	2	0	1	26	27
H/TOT	6	5	354	52	10	9	436	447	0	0	20	3	2	0	25	27	1	1	49	6	0	1	58	58
08:00	2	0	89	9	2	1	103	104	0	0	9	1	0	0	10	10	1	0	28	3	0	0	32	31
08:15	0	0	80	11	3	2	96	101	0	0	11	0	0	0	11	11	4	0	26	0	0	0	30	27
08:30	1	0	79	8	2	4	94	99	0	0	17	0	1	0	18	19	0	0	27	1	0	1	29	30
08:45	0	0	71	8	0	0	79	79	0	0	21	3	0	0	24	24	0	0	24	1	0	0	25	25
H/TOT	3	0	319	36	7	7	372	384	0	0	58	4	1	0	63	64	5	0	105	5	0	1	116	113
09:00	4	0	83	14	1	2	104	104	0	0	24	0	0	0	24	24	0	0	21	0	0	0	21	21
09:15	1	0	70	9	2	1	83	85	0	0	21	1	0	0	22	22	0	0	17	2	0	0	19	19
09:30	0	1	55	4	4	3	67	73	0	0	11	0	0	0	11	11	0	0	23	2	0	0	25	25
09:45	1	0	63	5	1	0	70	70	0	0	13	4	0	0	17	17	0	0	16	1	0	0	17	17
H/TOT	6	1	271	32	8	6	324	333	0	0	69	5	0	0	74	74	0	0	77	5	0	0	82	82
P/TOT	15	6	944	120	25	22	1132	1163	0	0	147	12	3	0	162	165	6	1	231	16	0	2	256	253

	MOVEMENT 1								MOVEMENT 2								MOVEMENT 3							
TIME	**PCL**	**MCL**	**CAR**	**LGV**	**HGV**	**BUS**	**TOT**	**PCU**	**PCL**	**MCL**	**CAR**	**LGV**	**HGV**	**BUS**	**TOT**	**PCU**	**PCL**	**MCL**	**CAR**	**LGV**	**HGV**	**BUS**	**TOT**	**PCU**
16:00	0	0	40	5	2	2	49	53	0	1	20	0	0	0	21	20	0	0	16	2	0	0	18	18
16:15	0	0	46	8	1	2	57	60	0	0	17	2	0	1	20	21	0	1	26	1	0	0	28	27
16:30	3	2	61	9	1	2	78	77	1	0	14	1	0	0	16	15	0	0	24	2	1	0	27	28
16:45	0	0	50	5	0	0	55	55	0	0	17	0	0	0	17	17	0	1	34	5	0	0	40	39
H/TOT	3	2	197	27	4	6	239	245	1	1	68	3	0	1	74	74	0	2	100	10	1	0	113	113
17:00	1	2	57	7	0	2	69	69	0	0	31	2	0	0	33	33	0	0	39	1	1	0	41	42
17:15	0	0	51	4	1	0	56	57	0	1	29	1	0	0	31	30	0	0	40	3	0	0	43	43
17:30	2	1	65	7	3	1	79	81	1	0	31	3	0	0	35	34	0	0	35	2	0	0	37	37
17:45	0	1	61	6	0	1	69	69	0	0	17	2	0	0	19	19	0	0	38	2	0	0	40	40
H/TOT	3	4	234	24	4	4	273	276	1	1	108	8	0	0	118	117	0	0	152	8	1	0	161	162
18:00	2	0	69	5	0	1	77	76	0	0	18	1	1	0	20	21	0	0	23	4	1	0	28	29
18:15	0	0	66	8	0	2	76	78	1	0	16	3	0	0	20	19	1	0	18	2	0	0	21	20
18:30	1	0	58	5	1	2	67	69	0	0	11	1	0	0	12	12	1	0	20	1	0	0	22	21
18:45	1	0	57	7	0	1	66	66	0	0	20	2	0	0	22	22	0	0	23	3	0	0	26	26
H/TOT	4	0	250	25	1	6	286	290	1	0	65	7	1	0	74	74	2	0	84	10	1	0	97	96
P/TOT	10	6	681	76	9	16	798	811	3	2	241	18	1	1	266	264	2	2	336	28	3	0	371	371

HAZELHATCH II TRAFFIC COUNTS **MARCH 2022**

MANUAL CLASSIFIED JUNCTION TURNING COUNTS **TRA/22/085**

SITE: 03 DATE: 24th March 2022

LOCATION: R403 Dublin Road/Shinkeen Road DAY: Thursday

	MOVEMENT 4								MOVEMENT 5								MOVEMENT 6							
TIME	**PCL**	**MCL**	**CAR**	**LGV**	**HGV**	**BUS**	**TOT**	**PCU**	**PCL**	**MCL**	**CAR**	**LGV**	**HGV**	**BUS**	**TOT**	**PCU**	**PCL**	**MCL**	**CAR**	**LGV**	**HGV**	**BUS**	**TOT**	**PCU**
07:00	0	0	34	4	0	1	39	40	0	0	6	1	0	1	8	9	0	0	16	4	1	0	21	22
07:15	0	0	38	6	1	0	45	46	0	0	5	0	0	0	5	5	0	0	28	7	2	1	38	41
07:30	1	0	49	5	1	1	57	58	0	0	9	2	1	0	12	13	0	0	22	12	1	1	36	38
07:45	0	0	41	6	0	0	47	47	0	0	8	4	0	2	14	16	0	0	36	7	1	0	44	45
H/TOT	1	0	162	21	2	2	188	191	0	0	28	7	1	3	39	43	0	0	102	30	5	2	139	146
08:00	0	0	46	4	0	2	52	54	0	0	17	0	1	2	20	23	0	0	41	8	0	4	53	57
08:15	0	1	64	2	1	2	70	72	0	0	19	3	1	1	24	26	0	0	48	11	1	0	60	61
08:30	0	0	42	1	1	1	45	47	1	0	28	1	0	1	31	31	4	0	45	8	3	2	62	64
08:45	0	0	55	4	0	1	60	61	0	0	24	1	1	1	27	29	1	0	59	8	3	2	73	77
H/TOT	0	1	207	11	2	6	227	234	1	0	88	5	3	5	102	109	5	0	193	35	7	8	248	259
09:00	0	0	29	4	0	1	34	35	0	0	27	4	0	0	31	31	0	0	57	11	1	4	73	78
09:15	1	0	33	2	1	1	38	39	0	1	12	0	0	1	14	14	0	0	54	6	2	0	62	64
09:30	0	0	25	1	0	1	27	28	0	0	12	0	0	0	12	12	0	0	32	11	2	2	47	51
09:45	0	0	23	2	0	0	25	25	0	0	13	1	0	1	15	16	0	0	57	7	6	2	72	80
H/TOT	1	0	110	9	1	3	124	127	0	1	64	5	0	2	72	73	0	0	200	35	11	8	254	273
P/TOT	2	1	479	41	5	11	539	553	1	1	180	17	4	10	213	226	5	0	495	100	23	18	641	678

	MOVEMENT 4								MOVEMENT 5								MOVEMENT 6							
TIME	**PCL**	**MCL**	**CAR**	**LGV**	**HGV**	**BUS**	**TOT**	**PCU**	**PCL**	**MCL**	**CAR**	**LGV**	**HGV**	**BUS**	**TOT**	**PCU**	**PCL**	**MCL**	**CAR**	**LGV**	**HGV**	**BUS**	**TOT**	**PCU**
16:00	0	0	24	0	0	0	24	24	0	0	25	4	0	0	29	29	1	1	86	12	0	2	102	103
16:15	0	0	26	6	0	0	32	32	0	0	38	3	0	2	43	45	2	1	72	9	0	2	86	86
16:30	0	0	32	6	0	2	40	42	1	0	24	2	0	0	27	26	4	0	89	12	1	0	106	104
16:45	0	0	17	3	0	0	20	20	1	0	32	3	0	2	38	39	0	0	81	9	0	2	92	94
H/TOT	0	0	99	15	0	2	116	118	2	0	119	12	0	4	137	139	7	2	328	42	1	6	386	386
17:00	0	0	29	5	0	2	36	38	0	0	25	8	1	0	34	35	3	1	92	9	4	2	111	114
17:15	3	0	38	5	0	0	46	44	0	0	34	7	0	1	42	43	2	1	79	10	0	1	93	92
17:30	0	0	40	1	0	1	42	43	0	1	26	2	0	1	30	30	3	0	72	5	0	2	82	82
17:45	1	0	33	4	0	0	38	37	1	0	37	6	0	0	44	43	1	1	89	2	0	2	95	96
H/TOT	4	0	140	15	0	3	162	162	1	1	122	23	1	2	150	152	9	3	332	26	4	7	381	383
18:00	0	0	24	1	0	1	26	27	0	0	29	2	1	1	33	35	1	0	72	11	0	4	88	91
18:15	1	0	29	0	0	0	30	29	0	0	30	5	0	1	36	37	0	1	84	9	0	3	97	99
18:30	0	0	29	2	0	2	33	35	1	0	23	5	0	0	29	28	2	2	70	7	1	3	85	86
18:45	0	0	25	3	0	0	28	28	0	0	31	3	1	3	38	42	1	2	88	7	0	2	100	100
H/TOT	1	0	107	6	0	3	117	119	1	0	113	15	2	5	136	142	4	5	314	34	1	12	370	377
P/TOT	5	0	346	36	0	8	395	399	4	1	354	50	3	11	423	433	20	10	974	102	6	25	1137	1146

TRAFFINOMICS LIMITED

HAZELHATCH II TRAFFIC COUNTS **MARCH 2022**

MANUAL CLASSIFIED JUNCTION TURNING COUNTS **TRA/22/085**

SITE: 04 DATE: 24th March 2022

LOCATION: R405 Newcastle Road/Shinkeen Road DAY: Thursday

	MOVEMENT 1								MOVEMENT 2								MOVEMENT 3							
TIME	**PCL**	**MCL**	**CAR**	**LGV**	**HGV**	**BUS**	**TOT**	**PCU**	**PCL**	**MCL**	**CAR**	**LGV**	**HGV**	**BUS**	**TOT**	**PCU**	**PCL**	**MCL**	**CAR**	**LGV**	**HGV**	**BUS**	**TOT**	**PCU**
07:00	0	0	1	1	0	0	2	2	1	1	60	13	2	1	78	80	0	0	12	2	2	1	17	20
07:15	0	0	2	0	0	0	2	2	0	1	68	11	1	2	83	85	0	0	11	2	3	2	18	23
07:30	0	0	1	0	0	0	1	1	3	1	78	9	3	4	98	102	4	0	21	4	0	1	30	28
07:45	0	0	6	0	0	0	6	6	1	3	70	15	2	0	91	90	5	0	20	5	0	4	34	34
H/TOT	0	0	10	1	0	0	11	11	5	6	276	48	8	7	350	357	9	0	64	13	5	8	99	105
08:00	0	0	5	0	0	0	5	5	3	0	70	10	4	3	90	95	2	0	25	6	1	4	38	41
08:15	0	0	1	0	0	0	1	1	0	0	93	15	3	2	113	118	3	0	32	4	0	1	40	39
08:30	0	0	10	1	0	0	11	11	1	0	76	4	0	0	81	80	8	0	32	0	3	1	44	42
08:45	0	0	5	0	0	0	5	5	1	0	63	7	1	2	74	76	1	0	35	1	0	1	38	38
H/TOT	0	0	21	1	0	0	22	22	5	0	302	36	8	7	358	369	14	0	124	11	4	7	160	160
09:00	0	0	6	1	0	0	7	7	0	0	53	5	3	0	61	64	0	0	21	1	1	4	27	32
09:15	0	0	4	0	0	0	4	4	1	0	39	6	2	3	51	55	2	0	38	7	3	0	50	51
09:30	0	0	5	0	0	0	5	5	0	0	27	6	0	1	34	35	0	0	13	1	1	1	16	18
09:45	0	0	5	0	0	0	5	5	0	0	31	2	1	0	34	35	0	0	22	2	2	0	26	28
H/TOT	0	0	20	1	0	0	21	21	1	0	150	19	6	4	180	189	2	0	94	11	7	5	119	129
P/TOT	0	0	51	3	0	0	54	54	11	6	728	103	22	18	888	916	25	0	282	35	16	20	378	394

	MOVEMENT 1								MOVEMENT 2								MOVEMENT 3							
TIME	**PCL**	**MCL**	**CAR**	**LGV**	**HGV**	**BUS**	**TOT**	**PCU**	**PCL**	**MCL**	**CAR**	**LGV**	**HGV**	**BUS**	**TOT**	**PCU**	**PCL**	**MCL**	**CAR**	**LGV**	**HGV**	**BUS**	**TOT**	**PCU**
16:00	0	0	2	1	0	0	3	3	2	0	33	4	1	0	40	39	0	2	45	12	5	1	65	70
16:15	1	0	5	2	0	0	8	7	5	0	32	1	4	2	44	46	1	0	37	10	0	1	49	49
16:30	1	0	2	0	0	0	3	2	2	0	26	4	1	0	33	32	3	1	45	11	2	1	63	63
16:45	0	0	5	0	0	0	5	5	0	0	49	6	0	2	57	59	0	0	60	7	1	1	69	71
H/TOT	2	0	14	3	0	0	19	17	9	0	140	15	6	4	174	177	4	3	187	40	8	4	246	253
17:00	0	0	2	0	0	0	2	2	1	2	36	5	2	1	47	48	3	1	43	10	1	0	58	56
17:15	0	0	4	0	0	0	4	4	2	0	30	3	0	0	35	33	8	0	57	8	1	1	75	71
17:30	0	0	3	0	0	0	3	3	1	0	28	3	1	0	33	33	3	2	66	6	3	1	81	81
17:45	0	0	2	0	0	0	2	2	1	1	59	3	0	2	66	67	3	0	51	5	0	1	60	59
H/TOT	0	0	11	0	0	0	11	11	5	3	153	14	3	3	181	181	17	3	217	29	5	3	274	267
18:00	0	0	5	0	0	0	5	5	2	1	34	3	0	0	40	38	0	0	36	10	1	1	48	50
18:15	0	0	7	0	0	0	7	7	2	0	40	4	0	2	48	48	2	1	55	6	1	0	65	64
18:30	0	0	5	0	0	0	5	5	0	0	33	3	0	1	37	38	2	1	45	3	0	2	53	53
18:45	0	0	1	0	0	0	1	1	0	2	76	2	0	1	81	81	1	0	57	3	1	1	63	64
H/TOT	0	0	18	0	0	0	18	18	4	3	183	12	0	4	206	205	5	2	193	22	3	4	229	231
P/TOT	2	0	43	3	0	0	48	46	18	6	476	41	9	11	561	563	26	8	597	91	16	11	749	750

HAZELHATCH II TRAFFIC COUNTS **MARCH 2022**
MANUAL CLASSIFIED JUNCTION TURNING COUNTS **TRA/22/085**

SITE: 04 DATE: 24th March 2022

LOCATION: R405 Newcastle Road/Shinkeen Road DAY: Thursday

	MOVEMENT 4								MOVEMENT 5								MOVEMENT 6							
TIME	**PCL**	**MCL**	**CAR**	**LGV**	**HGV**	**BUS**	**TOT**	**PCU**	**PCL**	**MCL**	**CAR**	**LGV**	**HGV**	**BUS**	**TOT**	**PCU**	**PCL**	**MCL**	**CAR**	**LGV**	**HGV**	**BUS**	**TOT**	**PCU**
07:00	0	0	17	2	0	1	20	21	0	0	7	1	0	1	9	10	0	0	3	0	0	0	3	3
07:15	1	0	33	5	0	0	39	38	0	0	9	2	1	0	12	13	0	0	0	0	0	0	0	0
07:30	0	0	32	5	1	1	39	41	0	0	14	1	0	0	15	15	0	0	0	0	0	0	0	0
07:45	1	0	44	2	0	1	48	48	0	0	7	4	1	1	13	15	0	0	3	0	0	0	3	3
H/TOT	2	0	126	14	1	3	146	148	0	0	37	8	2	2	49	53	0	0	6	0	0	0	6	6
08:00	0	0	49	4	1	2	56	59	0	0	19	2	1	0	22	23	0	0	0	0	0	0	0	0
08:15	0	0	58	3	0	1	62	63	0	0	21	3	0	4	28	32	0	0	5	0	0	0	5	5
08:30	0	0	44	1	0	2	47	49	1	0	45	0	0	1	47	47	0	0	7	0	1	0	8	9
08:45	0	0	49	4	0	1	54	55	0	0	25	4	0	1	30	31	0	0	0	0	0	0	0	0
H/TOT	0	0	200	12	1	6	219	226	1	0	110	9	1	6	127	133	0	0	12	0	1	0	13	14
09:00	0	0	35	6	0	1	42	43	0	0	33	5	0	0	38	38	0	0	0	0	0	0	0	0
09:15	0	1	43	4	0	1	49	49	0	1	18	2	0	1	22	22	0	0	2	0	0	0	2	2
09:30	0	0	29	3	1	1	34	36	0	0	18	0	0	0	18	18	0	0	2	0	0	0	2	2
09:45	0	0	22	2	0	0	24	24	0	0	13	3	0	1	17	18	0	0	2	1	0	0	3	3
H/TOT	0	1	129	15	1	3	149	152	0	1	82	10	0	2	95	96	0	0	6	1	0	0	7	7
P/TOT	2	1	455	41	3	12	514	527	1	1	229	27	3	10	271	283	0	0	24	1	1	0	26	27

	MOVEMENT 4								MOVEMENT 5								MOVEMENT 6							
TIME	**PCL**	**MCL**	**CAR**	**LGV**	**HGV**	**BUS**	**TOT**	**PCU**	**PCL**	**MCL**	**CAR**	**LGV**	**HGV**	**BUS**	**TOT**	**PCU**	**PCL**	**MCL**	**CAR**	**LGV**	**HGV**	**BUS**	**TOT**	**PCU**
16:00	0	0	38	2	0	0	40	40	0	0	22	5	0	0	27	27	0	0	4	0	0	0	4	4
16:15	0	1	32	6	0	0	39	38	1	0	30	2	0	3	36	38	0	0	4	0	0	0	4	4
16:30	0	0	36	7	1	2	46	49	1	0	29	2	0	0	32	31	0	0	4	0	0	0	4	4
16:45	0	1	46	6	1	0	54	54	0	1	29	1	0	2	33	34	0	0	2	0	0	0	2	2
H/TOT	0	2	152	21	2	2	179	182	2	1	110	10	0	5	128	131	0	0	14	0	0	0	14	14
17:00	0	0	55	10	1	2	68	71	0	0	31	8	1	0	40	41	0	0	6	0	0	0	6	6
17:15	2	0	52	7	0	1	62	61	0	1	46	6	0	1	54	54	0	0	2	1	0	0	3	3
17:30	0	0	59	2	1	0	62	63	0	1	42	4	0	1	48	48	0	0	1	0	0	0	1	1
17:45	1	0	50	6	0	1	58	58	1	0	35	3	0	0	39	38	0	0	4	0	0	0	4	4
H/TOT	3	0	216	25	2	4	250	254	1	2	154	21	1	2	181	182	0	0	13	1	0	0	14	14
18:00	0	0	30	8	0	1	39	40	0	0	35	4	1	1	41	43	0	0	2	0	0	0	2	2
18:15	1	0	35	2	1	0	39	39	0	0	30	2	0	2	34	36	0	0	6	1	0	0	7	7
18:30	0	0	32	3	0	2	37	39	1	0	38	2	0	0	41	40	0	0	3	0	0	0	3	3
18:45	0	0	42	4	0	0	46	46	0	0	33	9	1	2	45	48	0	0	1	0	0	0	1	1
H/TOT	1	0	139	17	1	3	161	164	1	0	136	17	2	5	161	167	0	0	12	1	0	0	13	13
P/TOT	4	2	507	63	5	9	590	600	4	3	400	48	3	12	470	480	0	0	39	2	0	0	41	41

TRAFFINOMICS LIMITED

HAZELHATCH II TRAFFIC COUNTS **MARCH 2022**

MANUAL CLASSIFIED JUNCTION TURNING COUNTS **TRA/22/085**

SITE: 05 DATE: 24th March 2022

LOCATION: R405 Newcastle Road/Hazelhatch Park DAY: Thursday

	MOVEMENT 1								MOVEMENT 2								MOVEMENT 3							
TIME	PCL	MCL	CAR	LGV	HGV	BUS	TOT	PCU	PCL	MCL	CAR	LGV	HGV	BUS	TOT	PCU	PCL	MCL	CAR	LGV	HGV	BUS	TOT	PCU
07:00	1	1	64	16	1	2	85	87	0	0	2	0	0	0	2	2	0	0	7	2	0	0	9	9
07:15	1	0	81	10	2	2	96	99	0	0	3	0	1	0	4	5	0	0	19	2	0	0	21	21
07:30	3	1	89	14	3	2	112	114	0	0	10	0	0	1	11	12	0	0	21	1	0	0	22	22
07:45	3	2	83	14	1	2	105	104	0	0	7	2	1	0	10	11	0	0	23	0	0	2	25	27
H/TOT	8	4	317	54	7	8	398	404	0	0	22	2	2	1	27	30	0	0	70	5	0	2	77	79
08:00	4	0	77	9	4	1	95	97	0	0	15	1	1	1	18	20	2	0	38	5	1	0	46	45
08:15	3	0	99	17	3	4	126	131	0	0	16	2	1	1	20	22	0	0	42	1	0	1	44	45
08:30	9	0	96	5	0	0	110	103	1	0	18	0	0	0	19	18	2	0	30	1	0	0	33	31
08:45	5	0	92	8	1	4	110	111	0	0	18	1	0	0	19	19	0	0	29	5	1	1	36	38
H/TOT	21	0	364	39	8	9	441	441	1	0	67	4	2	2	76	79	4	0	139	12	2	2	159	160
09:00	2	0	71	6	3	0	82	83	0	0	30	1	0	0	31	31	0	0	24	3	0	0	27	27
09:15	1	1	50	5	1	4	62	66	0	0	12	0	0	0	12	12	0	1	17	2	0	0	20	19
09:30	0	0	31	5	0	1	37	38	0	0	18	1	0	0	19	19	0	0	23	1	1	0	25	26
09:45	1	0	32	4	1	1	39	40	0	0	11	1	0	0	12	12	0	0	10	1	0	0	11	11
H/TOT	4	1	184	20	5	6	220	227	0	0	71	3	0	0	74	74	0	1	74	7	1	0	83	83
P/TOT	33	5	865	113	20	23	1059	1073	1	0	160	9	4	3	177	183	4	1	283	24	3	4	319	322

	MOVEMENT 1								MOVEMENT 2								MOVEMENT 3							
TIME	PCL	MCL	CAR	LGV	HGV	BUS	TOT	PCU	PCL	MCL	CAR	LGV	HGV	BUS	TOT	PCU	PCL	MCL	CAR	LGV	HGV	BUS	TOT	PCU
16:00	1	0	31	6	1	0	39	39	0	0	23	1	0	0	24	24	0	0	14	2	0	0	16	16
16:15	0	0	39	3	4	3	49	56	4	0	22	3	0	0	29	26	0	0	19	2	0	0	21	21
16:30	4	0	28	2	1	2	37	37	0	0	26	4	0	0	30	30	0	0	21	2	0	0	23	23
16:45	0	0	41	5	0	3	49	52	0	1	21	4	0	0	26	25	0	0	17	3	0	0	20	20
H/TOT	5	0	139	16	6	8	174	184	4	1	92	12	0	0	109	105	0	0	71	9	0	0	80	80
17:00	1	2	40	6	2	2	53	55	0	0	24	3	0	0	27	27	0	0	28	1	0	0	29	29
17:15	0	1	41	7	0	1	50	50	0	0	34	5	1	0	40	41	2	0	20	1	0	0	23	21
17:30	4	0	41	2	1	0	48	46	0	0	31	5	0	0	36	36	0	0	29	0	1	0	30	31
17:45	0	1	60	8	0	3	72	74	0	1	28	1	0	0	30	29	0	0	17	4	0	0	21	21
H/TOT	5	4	182	23	3	6	223	226	0	1	117	14	1	0	133	133	2	0	94	6	1	0	103	102
18:00	5	0	51	4	0	1	61	58	0	0	26	3	0	0	29	29	0	0	13	2	0	0	15	15
18:15	0	0	31	5	0	3	39	42	0	0	24	1	0	0	25	25	2	0	17	1	0	0	20	18
18:30	2	0	46	3	0	1	52	51	0	0	22	3	0	0	25	25	0	0	20	1	0	0	21	21
18:45	2	0	80	2	0	3	87	88	0	0	18	3	0	0	21	21	0	0	25	1	0	0	26	26
H/TOT	9	0	208	14	0	8	239	240	0	0	90	10	0	0	100	100	2	0	75	5	0	0	82	80
P/TOT	19	4	529	53	9	22	636	649	4	2	299	36	1	0	342	339	4	0	240	20	1	0	265	263

HAZELHATCH II TRAFFIC COUNTS **MARCH 2022**

MANUAL CLASSIFIED JUNCTION TURNING COUNTS **TRA/22/085**

SITE: 05 DATE: 24th March 2022

LOCATION: R405 Newcastle Road/Hazelhatch Park DAY: Thursday

	MOVEMENT 4								MOVEMENT 5								MOVEMENT 6							
TIME	PCL	MCL	CAR	LGV	HGV	BUS	TOT	PCU	PCL	MCL	CAR	LGV	HGV	BUS	TOT	PCU	PCL	MCL	CAR	LGV	HGV	BUS	TOT	PCU
07:00	0	0	12	0	0	0	12	12	0	0	1	0	0	0	1	1	0	0	19	3	2	2	26	30
07:15	0	0	10	2	0	1	13	14	0	0	2	0	0	0	2	2	0	0	21	4	3	1	29	33
07:30	0	0	18	5	0	0	23	23	0	0	4	0	0	0	4	4	3	0	31	7	1	2	44	45
07:45	0	0	14	2	0	1	17	18	0	0	2	0	0	1	3	4	2	0	29	5	1	3	40	42
H/TOT	0	0	54	9	0	2	65	67	0	0	9	0	0	1	10	11	5	0	100	19	7	8	139	150
08:00	1	0	17	2	0	0	20	19	0	0	2	0	0	0	2	2	0	0	30	4	0	6	40	46
08:15	0	0	9	1	0	0	10	10	0	0	5	0	0	0	5	5	1	0	39	7	0	1	48	48
08:30	1	0	20	0	1	0	22	22	1	0	5	1	0	0	7	6	1	0	39	2	2	3	47	51
08:45	0	0	20	0	1	0	21	22	0	0	16	1	0	0	17	17	0	0	60	1	0	1	62	63
H/TOT	2	0	66	3	2	0	73	73	1	0	28	2	0	0	31	30	2	0	168	14	2	11	197	208
09:00	0	0	21	1	0	0	22	22	0	0	4	0	0	0	4	4	1	0	39	4	1	5	50	55
09:15	0	0	3	0	0	0	3	3	0	0	10	0	0	0	10	10	0	0	64	9	3	1	77	81
09:30	0	0	7	1	0	0	8	8	0	0	2	1	0	0	3	3	0	0	19	2	1	2	24	27
09:45	2	0	3	0	0	0	5	3	0	0	3	1	0	0	4	4	0	0	39	3	3	0	45	48
H/TOT	2	0	34	2	0	0	38	36	0	0	19	2	0	0	21	21	1	0	161	18	8	8	196	211
P/TOT	4	0	154	14	2	2	176	177	1	0	56	4	0	1	62	62	8	0	429	51	17	27	532	570

	MOVEMENT 4								MOVEMENT 5								MOVEMENT 6							
TIME	PCL	MCL	CAR	LGV	HGV	BUS	TOT	PCU	PCL	MCL	CAR	LGV	HGV	BUS	TOT	PCU	PCL	MCL	CAR	LGV	HGV	BUS	TOT	PCU
16:00	0	0	5	1	0	0	6	6	0	0	9	2	1	0	12	13	0	2	74	12	5	1	94	99
16:15	0	0	2	1	0	0	3	3	0	0	12	2	0	0	14	14	2	1	60	9	0	1	73	72
16:30	1	0	6	1	0	0	8	7	0	1	11	1	1	0	14	14	3	1	63	13	5	3	88	93
16:45	0	0	5	0	0	0	5	5	0	0	12	1	0	0	13	13	1	1	80	13	2	1	98	100
H/TOT	1	0	18	3	0	0	22	21	0	1	44	6	2	0	53	54	6	5	277	47	12	6	353	363
17:00	0	0	3	0	0	0	3	3	0	0	18	4	0	0	22	22	3	1	79	15	2	2	102	103
17:15	0	0	4	0	0	0	4	4	1	0	24	1	0	0	26	25	9	1	96	14	1	1	122	116
17:30	0	0	5	0	0	0	5	5	0	0	19	4	0	0	23	23	6	1	101	9	3	2	122	122
17:45	0	0	19	0	0	0	19	19	2	0	30	2	0	0	34	32	4	0	82	8	0	2	96	95
H/TOT	0	0	31	0	0	0	31	31	3	0	91	11	0	0	105	103	22	3	358	46	6	7	442	436
18:00	0	0	9	2	0	0	11	11	0	0	16	3	0	0	19	19	1	0	58	13	1	1	74	75
18:15	0	0	7	1	0	0	8	8	1	0	13	0	0	0	14	13	0	2	64	5	2	0	73	74
18:30	1	0	4	1	0	0	6	5	2	0	10	1	0	0	13	11	2	1	48	6	0	3	60	61
18:45	1	0	14	0	0	0	15	14	0	0	6	1	0	0	7	7	2	0	69	4	0	2	77	77
H/TOT	2	0	34	4	0	0	40	38	3	0	45	5	0	0	53	51	5	3	239	28	3	6	284	287
P/TOT	3	0	83	7	0	0	93	91	6	1	180	22	2	0	211	208	33	11	874	121	21	19	1079	1086

HAZELHATCH II TRAFFIC COUNTS **MARCH 2022**

MANUAL CLASSIFIED JUNCTION TURNING COUNTS **TRA/22/085**

SITE: 06 DATE: 24th March 2022

LOCATION: R405 Newcastle Road/L5062 DAY: Thursday

	MOVEMENT 1								MOVEMENT 2								MOVEMENT 3							
TIME	PCL	MCL	CAR	LGV	HGV	BUS	TOT	PCU	PCL	MCL	CAR	LGV	HGV	BUS	TOT	PCU	PCL	MCL	CAR	LGV	HGV	BUS	TOT	PCU
07:00	1	1	74	16	1	2	95	97	0	0	2	0	0	0	2	2	0	0	2	0	0	0	2	2
07:15	1	0	90	11	2	3	107	111	0	0	1	1	0	0	2	2	0	0	7	2	0	0	9	9
07:30	3	1	105	19	3	2	133	135	0	0	2	0	0	0	2	2	0	0	10	3	0	0	13	13
07:45	3	2	94	16	1	3	119	119	0	0	3	0	0	0	3	3	0	0	11	1	0	0	12	12
H/TOT	8	4	363	62	7	10	454	462	0	0	8	1	0	0	9	9	0	0	30	6	0	0	36	36
08:00	5	0	91	10	4	1	111	112	0	0	3	1	0	0	4	4	0	0	5	1	0	0	6	6
08:15	3	0	103	17	3	4	130	135	0	0	5	1	0	0	6	6	0	0	10	0	0	0	10	10
08:30	10	0	113	5	1	0	129	122	0	0	3	0	0	0	3	3	0	0	9	0	0	0	9	9
08:45	5	0	103	7	2	4	121	123	0	0	9	1	0	0	10	10	0	0	7	0	0	0	7	7
H/TOT	23	0	410	39	10	9	491	492	0	0	20	3	0	0	23	23	0	0	31	1	0	0	32	32
09:00	2	0	79	7	3	0	91	92	0	0	13	0	0	0	13	13	0	0	13	0	0	0	13	13
09:15	1	1	52	5	1	4	64	68	0	0	1	0	0	0	1	1	0	0	15	0	0	0	15	15
09:30	0	0	35	5	0	1	41	42	0	0	3	1	0	0	4	4	0	0	4	1	0	0	5	5
09:45	3	0	32	4	1	1	41	41	0	0	3	0	0	0	3	3	0	0	6	0	0	0	6	6
H/TOT	6	1	198	21	5	6	237	243	0	0	20	1	0	0	21	21	0	0	38	1	0	0	39	39
P/TOT	37	5	971	122	22	25	1182	1196	0	0	48	5	0	0	53	53	0	0	99	8	0	0	107	107

	MOVEMENT 1								MOVEMENT 2								MOVEMENT 3							
TIME	PCL	MCL	CAR	LGV	HGV	BUS	TOT	PCU	PCL	MCL	CAR	LGV	HGV	BUS	TOT	PCU	PCL	MCL	CAR	LGV	HGV	BUS	TOT	PCU
16:00	1	0	35	7	1	0	44	44	0	0	1	0	0	0	1	1	0	0	9	0	0	0	9	9
16:15	0	0	34	4	4	3	45	52	0	0	7	0	0	0	7	7	0	0	7	1	0	0	8	8
16:30	5	0	31	3	1	2	42	41	0	0	3	0	0	0	3	3	0	0	7	1	0	0	8	8
16:45	0	0	43	5	0	3	51	54	0	0	3	0	0	0	3	3	0	0	4	2	0	0	6	6
H/TOT	6	0	143	19	6	8	182	191	0	0	14	0	0	0	14	14	0	0	27	4	0	0	31	31
17:00	1	2	35	6	2	2	48	50	0	0	8	0	0	0	8	8	0	0	5	2	0	0	7	7
17:15	0	1	36	7	0	1	45	45	0	0	9	0	0	0	9	9	0	0	9	1	0	0	10	10
17:30	3	0	40	2	1	0	46	45	1	0	6	0	0	0	7	6	0	0	14	1	0	0	15	15
17:45	0	1	75	8	0	3	87	89	0	0	4	0	0	0	4	4	0	0	9	0	0	0	9	9
H/TOT	4	4	186	23	3	6	226	229	1	0	27	0	0	0	28	27	0	0	37	4	0	0	41	41
18:00	5	0	55	5	0	0	65	61	0	0	5	1	0	1	7	8	0	0	6	1	0	0	7	7
18:15	0	0	35	5	0	3	43	46	0	0	3	1	0	0	4	4	0	0	2	0	0	0	2	2
18:30	3	0	48	4	0	1	56	55	0	0	2	0	0	0	2	2	0	0	5	1	0	0	6	6
18:45	3	0	92	2	0	3	100	101	0	0	2	0	0	0	2	2	0	0	5	2	0	0	7	7
H/TOT	11	0	230	16	0	7	264	262	0	0	12	2	0	1	15	16	0	0	18	4	0	0	22	22
P/TOT	21	4	559	58	9	21	672	683	1	0	53	2	0	1	57	57	0	0	82	12	0	0	94	94

HAZELHATCH II TRAFFIC COUNTS **MARCH 2022**

MANUAL CLASSIFIED JUNCTION TURNING COUNTS **TRA/22/085**

SITE: 06 DATE: 24th March 2022

LOCATION: R405 Newcastle Road/L5062 DAY: Thursday

	MOVEMENT 4								MOVEMENT 5								MOVEMENT 6							
TIME	PCL	MCL	CAR	LGV	HGV	BUS	TOT	PCU	PCL	MCL	CAR	LGV	HGV	BUS	TOT	PCU	PCL	MCL	CAR	LGV	HGV	BUS	TOT	PCU
07:00	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1	0	0	18	3	2	2	25	29
07:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	16	2	3	1	22	26
07:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	25	4	1	2	35	36
07:45	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1	2	0	20	4	1	4	31	34
H/TOT	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2	2	5	0	79	13	7	9	113	125
08:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	27	3	0	6	36	42
08:15	0	0	3	0	0	0	3	3	0	0	0	0	0	0	0	0	1	0	34	7	0	1	43	43
08:30	0	0	2	0	0	0	2	2	0	0	0	0	0	0	0	0	2	0	35	3	2	3	45	48
08:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	69	2	0	1	72	73
H/TOT	0	0	5	0	0	0	5	5	0	0	0	0	0	0	0	0	3	0	165	15	2	11	196	207
09:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	30	4	1	5	41	46
09:15	0	0	1	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	59	9	3	1	72	76
09:30	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1	0	0	17	2	1	2	22	25
09:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	36	4	3	0	43	46
H/TOT	0	0	1	0	0	0	1	1	0	0	0	1	0	0	1	1	1	0	142	19	8	8	178	193
P/TOT	0	0	6	0	0	0	6	6	0	0	2	1	0	0	3	3	9	0	386	47	17	28	487	525

	MOVEMENT 4								MOVEMENT 5								MOVEMENT 6							
TIME	PCL	MCL	CAR	LGV	HGV	BUS	TOT	PCU	PCL	MCL	CAR	LGV	HGV	BUS	TOT	PCU	PCL	MCL	CAR	LGV	HGV	BUS	TOT	PCU
16:00	2	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	2	74	14	6	1	97	103
16:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	1	65	10	0	1	79	78
16:30	0	0	1	0	0	0	1	1	0	0	1	0	0	0	1	1	3	2	67	13	6	3	94	99
16:45	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	1	88	12	2	1	105	107
H/TOT	3	0	1	0	0	0	4	2	0	0	1	0	0	0	1	1	6	6	294	49	14	6	375	387
17:00	0	0	1	0	0	0	1	1	0	0	1	0	0	0	1	1	3	1	92	17	2	2	117	118
17:15	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1	10	1	111	14	1	1	138	131
17:30	0	0	1	0	0	0	1	1	0	0	1	1	0	0	2	2	6	1	106	12	3	2	130	130
17:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	0	103	10	0	2	121	118
H/TOT	0	0	2	0	0	0	2	2	0	0	3	1	0	0	4	4	25	3	412	53	6	7	506	497
18:00	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1	1	0	68	15	1	1	86	87
18:15	1	0	3	0	0	0	4	3	0	0	1	0	0	0	1	1	1	2	75	5	2	0	85	85
18:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	1	53	6	0	3	67	66
18:45	0	0	1	0	0	0	1	1	0	0	0	0	0	0	0	0	2	0	70	3	0	2	77	77
H/TOT	1	0	4	0	0	0	5	4	0	0	2	0	0	0	2	2	8	3	266	29	3	6	315	316
P/TOT	4	0	7	0	0	0	11	8	0	0	6	1	0	0	7	7	39	12	972	131	23	19	1196	1200

HAZELHATCH II TRAFFIC COUNTS **MARCH 2022**

MANUAL CLASSIFIED JUNCTION TURNING COUNTS **TRA/22/085**

SITE: 07 DATE: 24th March 2022

LOCATION: R405 Newcastle Road/Elm Hall Road DAY: Thursday

	MOVEMENT 1								MOVEMENT 2								MOVEMENT 3							
TIME	**PCL**	**MCL**	**CAR**	**LGV**	**HGV**	**BUS**	**TOT**	**PCU**	**PCL**	**MCL**	**CAR**	**LGV**	**HGV**	**BUS**	**TOT**	**PCU**	**PCL**	**MCL**	**CAR**	**LGV**	**HGV**	**BUS**	**TOT**	**PCU**
07:00	0	0	20	2	0	1	23	24	1	1	64	14	0	0	80	79	0	0	11	3	2	0	16	18
07:15	0	0	15	2	0	2	19	21	0	0	71	12	2	1	86	89	0	0	15	3	2	0	20	22
07:30	0	0	17	1	0	0	18	18	1	1	81	11	2	0	96	97	2	0	16	4	1	0	23	22
07:45	1	0	21	2	1	3	28	31	3	2	76	18	2	1	102	101	1	0	18	4	0	2	25	26
H/TOT	1	0	73	7	1	6	88	94	5	4	292	55	6	2	364	366	3	0	60	14	5	2	84	89
08:00	2	0	24	2	1	1	30	30	2	0	71	8	3	2	86	89	0	0	21	2	0	2	25	27
08:15	0	0	16	3	0	1	20	21	3	0	94	14	2	0	113	113	0	0	30	6	0	0	36	36
08:30	0	0	12	2	0	2	16	18	1	0	70	3	2	1	77	79	2	0	27	3	1	1	34	34
08:45	1	0	14	2	1	3	21	24	1	0	48	6	1	0	56	56	0	0	23	3	0	0	26	26
H/TOT	3	0	66	9	2	7	87	94	7	0	283	31	8	3	332	337	2	0	101	14	1	3	121	123
09:00	1	0	7	1	0	0	9	8	2	0	51	6	2	0	61	61	0	0	19	6	2	2	29	33
09:15	0	0	14	2	0	3	19	22	1	1	48	3	1	0	54	54	0	0	26	8	2	0	36	38
09:30	0	0	8	1	0	0	9	9	0	0	26	4	1	2	33	36	0	0	9	2	1	0	12	13
09:45	0	0	4	1	0	2	7	9	0	0	36	3	1	0	40	41	0	0	25	5	3	0	33	36
H/TOT	1	0	33	5	0	5	44	48	3	1	161	16	5	2	188	192	0	0	79	21	8	2	110	120
P/TOT	5	0	172	21	3	18	219	236	15	5	736	102	19	7	884	895	5	0	240	49	14	7	315	332

	MOVEMENT 1								MOVEMENT 2								MOVEMENT 3							
TIME	**PCL**	**MCL**	**CAR**	**LGV**	**HGV**	**BUS**	**TOT**	**PCU**	**PCL**	**MCL**	**CAR**	**LGV**	**HGV**	**BUS**	**TOT**	**PCU**	**PCL**	**MCL**	**CAR**	**LGV**	**HGV**	**BUS**	**TOT**	**PCU**
16:00	2	0	8	3	0	0	13	11	0	0	24	4	1	0	29	30	0	2	60	13	6	0	81	86
16:15	0	0	10	0	0	1	11	12	0	0	28	4	3	0	35	38	2	1	51	9	0	0	63	61
16:30	0	0	10	0	0	2	12	14	2	0	22	3	2	2	31	33	3	2	57	12	6	0	80	82
16:45	1	0	10	2	0	1	14	14	0	0	38	3	0	0	41	41	1	0	77	11	2	0	91	92
H/TOT	3	0	38	5	0	4	50	52	2	0	112	14	6	2	136	142	6	5	245	45	14	0	315	321
17:00	0	0	16	1	1	1	19	21	1	0	24	5	1	1	32	33	5	2	80	17	2	0	106	103
17:15	0	0	13	5	0	1	19	20	0	3	22	3	0	0	28	26	7	0	82	8	1	0	98	93
17:30	0	0	17	1	0	0	18	18	1	0	27	2	0	0	30	29	2	3	88	13	2	0	108	107
17:45	0	0	17	0	0	3	20	23	1	1	29	6	1	0	38	38	4	0	72	12	0	0	88	85
H/TOT	0	0	63	7	1	5	76	82	3	4	102	16	2	1	128	126	18	5	322	50	5	0	400	388
18:00	0	0	16	0	0	0	16	16	3	0	21	5	0	0	29	27	1	0	50	11	1	1	64	65
18:15	0	0	14	0	0	3	17	20	1	0	21	5	0	0	27	26	2	1	54	7	0	0	64	62
18:30	0	0	12	1	0	0	13	13	1	0	21	3	0	1	26	26	2	1	44	5	0	0	52	50
18:45	0	0	17	1	0	3	21	24	2	0	18	1	0	0	21	19	1	0	39	2	0	0	42	41
H/TOT	0	0	59	2	0	6	67	73	7	0	81	14	0	1	103	98	6	2	187	25	1	1	222	218
P/TOT	3	0	160	14	1	15	193	207	12	4	295	44	8	4	367	367	30	12	754	120	20	1	937	927

HAZELHATCH II TRAFFIC COUNTS **MARCH 2022**

MANUAL CLASSIFIED JUNCTION TURNING COUNTS **TRA/22/085**

SITE: 07 DATE: 24th March 2022

LOCATION: R405 Newcastle Road/Elm Hall Road DAY: Thursday

	MOVEMENT 4								MOVEMENT 5								MOVEMENT 6							
TIME	**PCL**	**MCL**	**CAR**	**LGV**	**HGV**	**BUS**	**TOT**	**PCU**	**PCL**	**MCL**	**CAR**	**LGV**	**HGV**	**BUS**	**TOT**	**PCU**	**PCL**	**MCL**	**CAR**	**LGV**	**HGV**	**BUS**	**TOT**	**PCU**
07:00	0	0	15	3	1	0	19	20	0	0	14	1	0	0	15	15	0	0	5	0	0	2	7	9
07:15	0	0	15	3	1	0	19	20	0	0	17	1	0	0	18	18	0	0	7	0	1	2	10	13
07:30	0	0	18	2	0	0	20	20	0	0	27	7	0	0	34	34	1	0	11	0	0	2	14	15
07:45	0	0	16	4	2	0	22	24	0	0	24	2	0	0	26	26	0	0	6	0	1	1	8	10
H/TOT	0	0	64	12	4	0	80	84	0	0	82	11	0	0	93	93	1	0	29	0	2	7	39	47
08:00	0	0	24	1	1	2	28	31	0	0	42	5	1	1	49	51	0	0	10	0	0	4	14	18
08:15	0	0	11	4	1	0	16	17	0	0	32	5	1	0	38	39	0	0	4	1	0	1	6	7
08:30	0	0	10	3	0	0	13	13	0	0	37	4	1	0	42	43	0	0	5	0	1	2	8	11
08:45	0	0	10	3	2	1	16	19	0	1	43	6	0	2	52	53	0	0	5	0	0	1	6	7
H/TOT	0	0	55	11	4	3	73	80	0	1	154	20	3	3	181	186	0	0	24	1	1	8	34	43
09:00	0	0	10	1	1	0	12	13	0	0	17	5	0	0	22	22	0	0	2	0	0	3	5	8
09:15	0	0	7	2	1	0	10	11	1	0	18	4	1	0	24	24	0	0	3	0	0	1	4	5
09:30	0	0	8	1	0	0	9	9	0	0	10	1	0	0	11	11	0	0	1	0	0	2	3	5
09:45	0	0	4	1	0	0	5	5	0	0	5	1	1	0	7	8	0	0	3	0	0	0	3	3
H/TOT	0	0	29	5	2	0	36	38	1	0	50	11	2	0	64	65	0	0	9	0	0	6	15	21
P/TOT	0	0	148	28	10	3	189	202	1	1	286	42	5	3	338	345	1	0	62	1	3	21	88	111

	MOVEMENT 4								MOVEMENT 5								MOVEMENT 6							
TIME	**PCL**	**MCL**	**CAR**	**LGV**	**HGV**	**BUS**	**TOT**	**PCU**	**PCL**	**MCL**	**CAR**	**LGV**	**HGV**	**BUS**	**TOT**	**PCU**	**PCL**	**MCL**	**CAR**	**LGV**	**HGV**	**BUS**	**TOT**	**PCU**
16:00	0	0	15	6	0	0	21	21	0	0	26	2	1	0	29	30	0	0	11	1	0	2	14	16
16:15	0	1	19	2	0	0	22	21	0	0	24	1	0	0	25	25	0	0	15	1	0	1	17	18
16:30	0	0	17	1	1	0	19	20	0	0	25	6	0	1	32	33	0	0	9	0	0	2	11	13
16:45	0	0	22	2	0	1	25	26	1	0	30	7	1	0	39	39	0	1	8	1	0	0	10	9
H/TOT	0	1	73	11	1	1	87	88	1	0	105	16	2	1	125	127	0	1	43	3	0	5	52	56
17:00	0	0	22	2	0	0	24	24	0	0	26	6	1	0	33	34	1	0	20	0	0	2	23	24
17:15	0	0	30	6	1	0	37	38	1	0	33	9	0	0	43	42	0	0	13	2	0	1	16	17
17:30	0	0	21	2	1	0	24	25	0	0	23	7	2	0	32	34	0	0	16	1	1	2	20	23
17:45	0	0	25	1	0	0	26	26	1	0	33	3	0	0	37	36	0	0	33	1	0	2	36	38
H/TOT	0	0	98	11	2	0	111	113	2	0	115	25	3	0	145	146	1	0	82	4	1	7	95	102
18:00	1	0	20	2	1	0	24	24	1	0	23	1	0	0	25	24	0	0	9	3	0	1	13	14
18:15	0	0	20	1	1	0	22	23	1	0	32	1	0	0	34	33	0	0	23	1	1	0	25	26
18:30	0	0	12	0	0	0	12	12	0	0	11	1	0	0	12	12	0	0	6	1	1	3	11	15
18:45	0	0	25	1	0	0	26	26	0	0	26	2	0	0	28	28	1	0	17	0	0	2	20	21
H/TOT	1	0	77	4	2	0	84	85	2	0	92	5	0	0	99	97	1	0	55	5	2	6	69	76
P/TOT	1	1	248	26	5	1	282	287	5	0	312	46	5	1	369	371	2	1	180	12	3	18	216	235

APPENDIX C

TRICS Output Data
Residential Housing, Apartments & Creche

Calculation Reference: AUDIT-160301-210827-0816

TRIP RATE CALCULATION SELECTION PARAMETERS:

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

Selected regions and areas:

03	SOUTH WEST		
	DC	DORSET	1 days
	DV	DEVON	3 days
	SM	SOMERSET	3 days
	WL	WILTSHIRE	1 days
04	EAST ANGLIA		
	CA	CAMBRIDGESHIRE	2 days
	NF	NORFOLK	9 days
	SF	SUFFOLK	4 days
05	EAST MIDLANDS		
	DS	DERBYSHIRE	1 days
	LE	LEICESTERSHIRE	1 days
	LN	LINCOLNSHIRE	1 days
	NR	NORTHAMPTONSHIRE	2 days
06	WEST MIDLANDS		
	SH	SHROPSHIRE	2 days
	ST	STAFFORDSHIRE	3 days
	WK	WARWICKSHIRE	3 days
	WM	WEST MIDLANDS	2 days
	WO	WORCESTERSHIRE	1 days
07	YORKSHIRE & NORTH LINCOLNSHIRE		
	NE	NORTH EAST LINCOLNSHIRE	2 days
	NY	NORTH YORKSHIRE	6 days
	SY	SOUTH YORKSHIRE	3 days
	WY	WEST YORKSHIRE	1 days
08	NORTH WEST		
	CH	CHESHIRE	3 days
	GM	GREATER MANCHESTER	1 days
	LC	LANCASHIRE	2 days
	MS	MERSEYSIDE	1 days
09	NORTH		
	CB	CUMBRIA	1 days
	DH	DURHAM	3 days
	TW	TYNE & WEAR	2 days
10	WALES		
	PS	POWYS	2 days
	VG	VALE OF GLAMORGAN	1 days
11	SCOTLAND		
	FA	FALKIRK	2 days
	HI	HIGHLAND	1 days
12	CONNAUGHT		
	CS	SLIGO	2 days
	LT	LEITRIM	2 days
	RO	ROSCOMMON	2 days
13	MUNSTER		
	WA	WATERFORD	1 days
14	LEINSTER		
	CC	CARLOW	1 days
	WC	WICKLOW	2 days
	WX	WEXFORD	1 days
15	GREATER DUBLIN		
	DL	DUBLIN	1 days
16	ULSTER (REPUBLIC OF IRELAND)		
	CV	CAVAN	2 days
	DN	DONEGAL	6 days
17	ULSTER (NORTHERN IRELAND)		
	AN	ANTRIM	2 days
	DO	DOWN	1 days
	TY	TYRONE	1 days

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

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

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	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	94	98	0.073	94	98	0.271	94	98	0.344
08:00 - 09:00	94	98	0.144	94	98	0.369	94	98	0.513
09:00 - 10:00	94	98	0.146	94	98	0.180	94	98	0.326
10:00 - 11:00	94	98	0.122	94	98	0.139	94	98	0.261
11:00 - 12:00	94	98	0.130	94	98	0.143	94	98	0.273
12:00 - 13:00	94	98	0.158	94	98	0.159	94	98	0.317
13:00 - 14:00	94	98	0.159	94	98	0.156	94	98	0.315
14:00 - 15:00	94	98	0.179	94	98	0.190	94	98	0.369
15:00 - 16:00	94	98	0.249	94	98	0.180	94	98	0.429
16:00 - 17:00	94	98	0.278	94	98	0.167	94	98	0.445
17:00 - 18:00	94	98	0.342	94	98	0.179	94	98	0.521
18:00 - 19:00	94	98	0.263	94	98	0.176	94	98	0.439
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			2.243			2.309			4.552

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:	6 - 1882 (units:)
Survey date date range:	01/01/13 - 20/10/20
Number of weekdays (Monday-Friday):	98
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	12
Surveys manually removed from selection:	0

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

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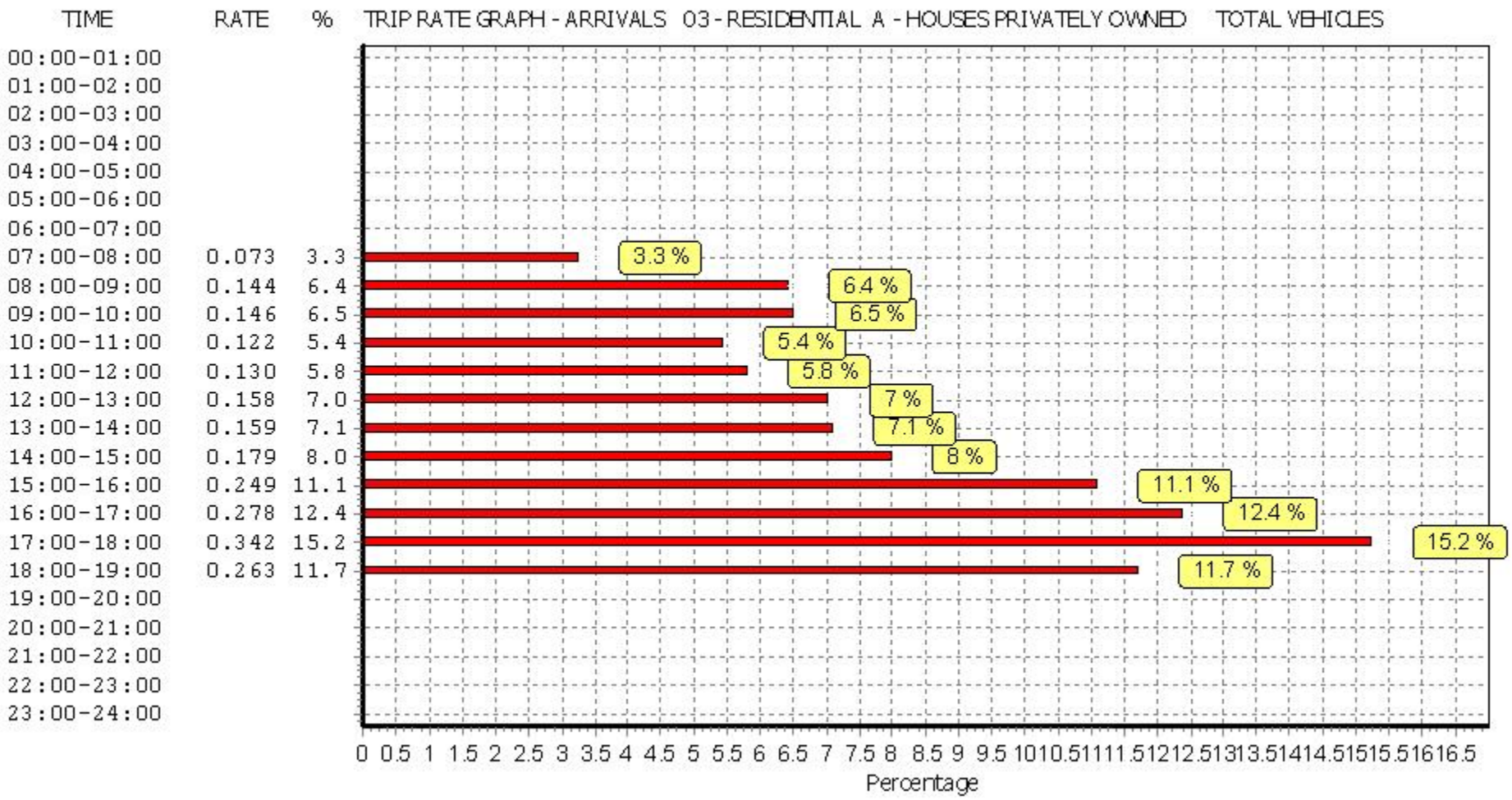

This graph is a visual representation of the trip rate calculation results screen. The same time periods and trip rates are displayed, but in addition there is an additional column showing the percentage of the total trip rate by individual time period, allowing peak periods to be easily identified through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

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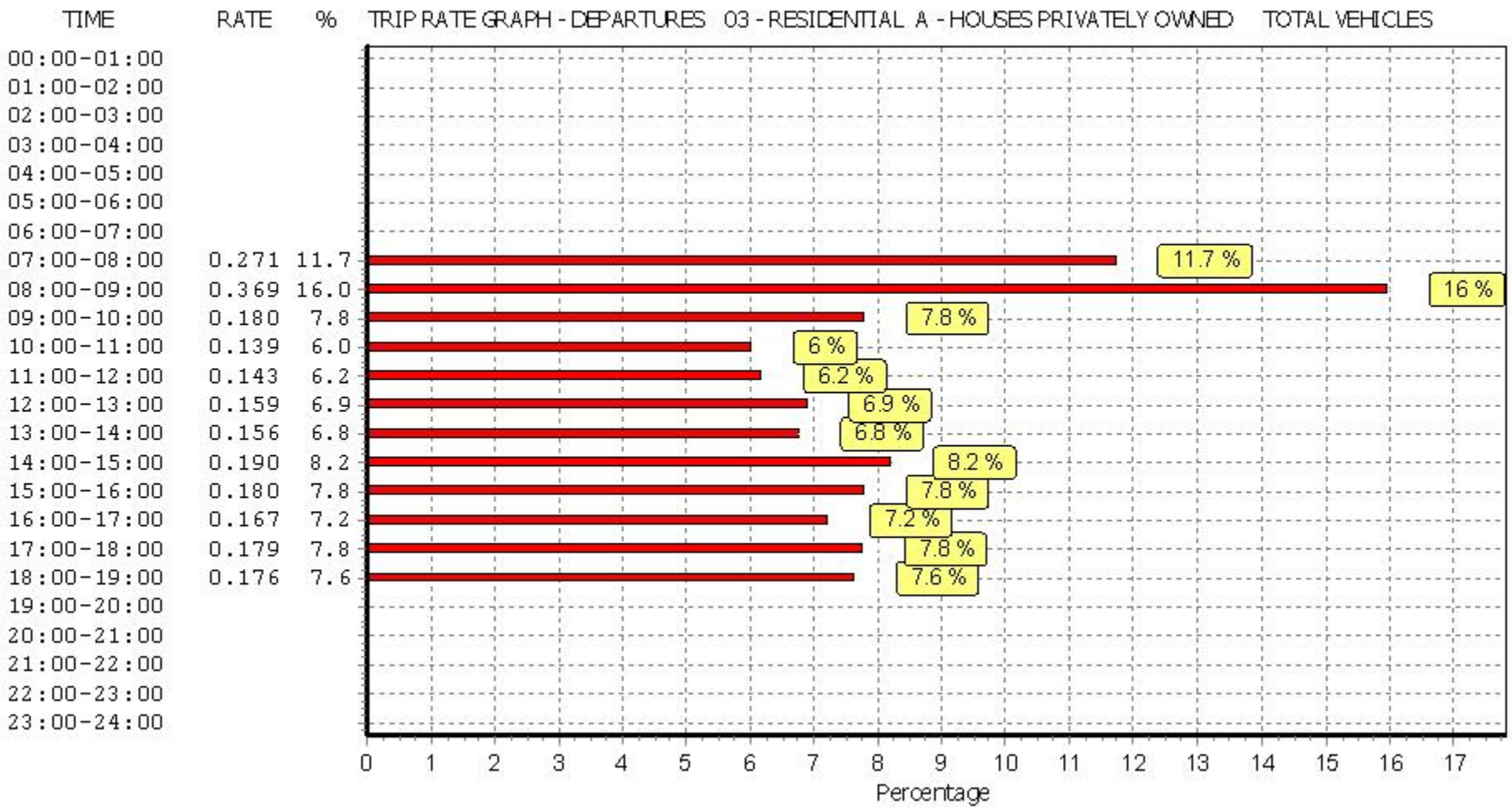

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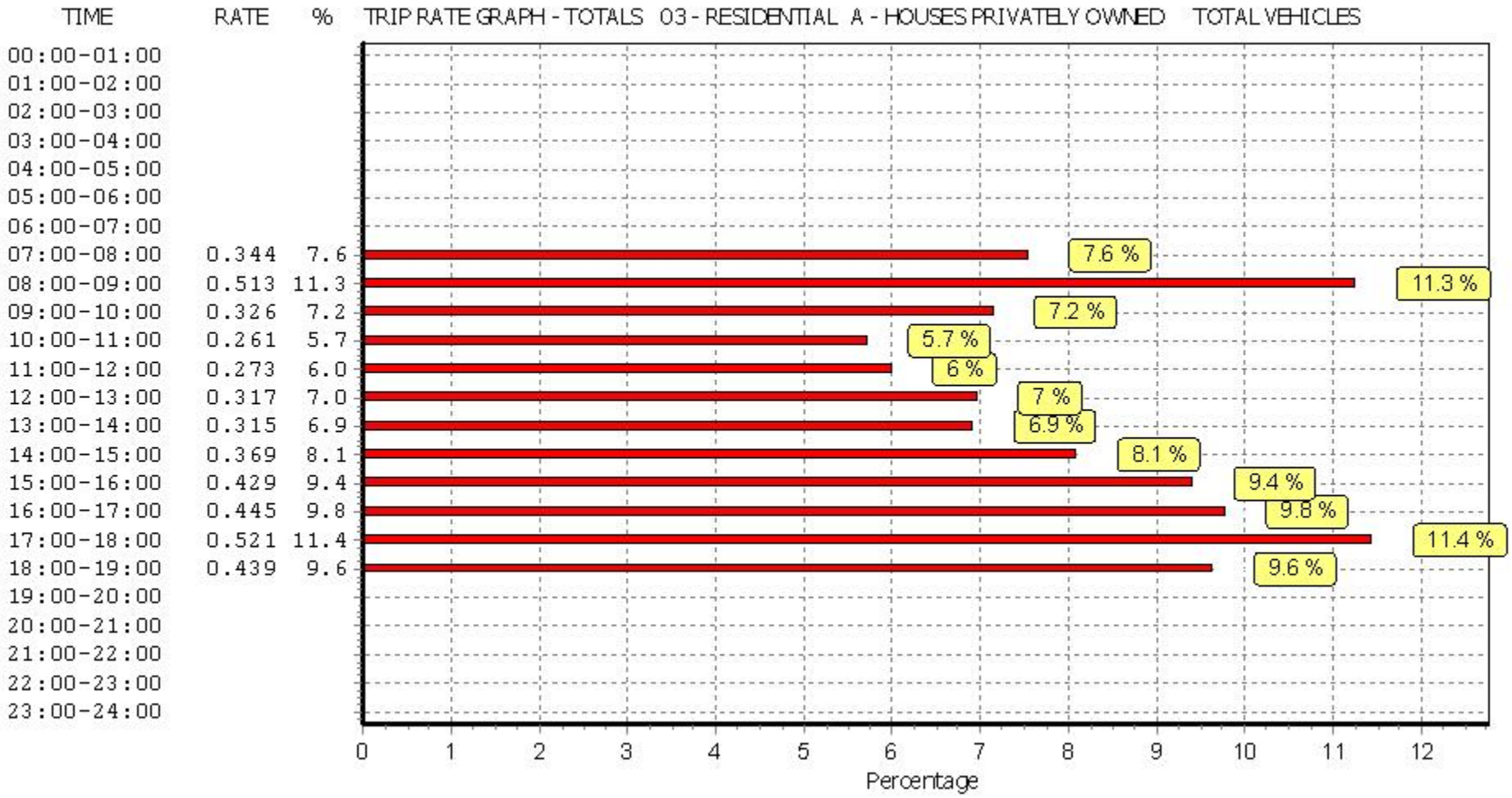

This graph is a visual representation of the trip rate calculation results screen. The same time periods and trip rates are displayed, but in addition there is an additional column showing the percentage of the total trip rate by individual time period, allowing peak periods to be easily identified through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

Calculation Reference: AUDIT-160301-210827-0818

TRIP RATE CALCULATION SELECTION PARAMETERS:

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

Selected regions and areas:

02	SOUTH EAST		
	BD	BEDFORDSHIRE	3 days
	ES	EAST SUSSEX	1 days
	EX	ESSEX	2 days
	HC	HAMPSHIRE	1 days
	HF	HERTFORDSHIRE	1 days
03	SOUTH WEST		
	DC	DORSET	1 days
	DV	DEVON	1 days
04	EAST ANGLIA		
	CA	CAMBRIDGESHIRE	1 days
	NF	NORFOLK	2 days
	SF	SUFFOLK	3 days
05	EAST MIDLANDS		
	DS	DERBYSHIRE	1 days
	LE	LEICESTERSHIRE	1 days
	NT	NOTTINGHAMSHIRE	2 days
06	WEST MIDLANDS		
	WM	WEST MIDLANDS	1 days
07	YORKSHIRE & NORTH LINCOLNSHIRE		
	RI	EAST RIDING OF YORKSHIRE	1 days
	SY	SOUTH YORKSHIRE	1 days
08	NORTH WEST		
	MS	MERSEYSIDE	2 days
09	NORTH		
	CB	CUMBRIA	3 days
10	WALES		
	CO	CONWY	1 days
11	SCOTLAND		
	EB	CITY OF EDINBURGH	1 days
	SA	SOUTH AYRSHIRE	1 days
	SR	STIRLING	3 days
12	CONNAUGHT		
	GA	GALWAY	1 days
13	MUNSTER		
	WA	WATERFORD	1 days
14	LEINSTER		
	LU	LOUTH	3 days
15	GREATER DUBLIN		
	DL	DUBLIN	7 days
16	ULSTER (REPUBLIC OF IRELAND)		
	MG	MONAGHAN	1 days
17	ULSTER (NORTHERN IRELAND)		
	AN	ANTRIM	1 days

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

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

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	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	48	66	0.043	48	66	0.154	48	66	0.197
08:00 - 09:00	48	66	0.060	48	66	0.196	48	66	0.256
09:00 - 10:00	48	66	0.072	48	66	0.087	48	66	0.159
10:00 - 11:00	48	66	0.057	48	66	0.076	48	66	0.133
11:00 - 12:00	48	66	0.064	48	66	0.079	48	66	0.143
12:00 - 13:00	48	66	0.089	48	66	0.086	48	66	0.175
13:00 - 14:00	48	66	0.079	48	66	0.087	48	66	0.166
14:00 - 15:00	48	66	0.086	48	66	0.083	48	66	0.169
15:00 - 16:00	48	66	0.100	48	66	0.068	48	66	0.168
16:00 - 17:00	48	66	0.121	48	66	0.078	48	66	0.199
17:00 - 18:00	48	66	0.173	48	66	0.087	48	66	0.260
18:00 - 19:00	48	66	0.164	48	66	0.098	48	66	0.262
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			1.108			1.179			2.287

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:	6 - 332 (units:)
Survey date date range:	01/01/13 - 23/10/20
Number of weekdays (Monday-Friday):	48
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	0
Surveys manually removed from selection:	0

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

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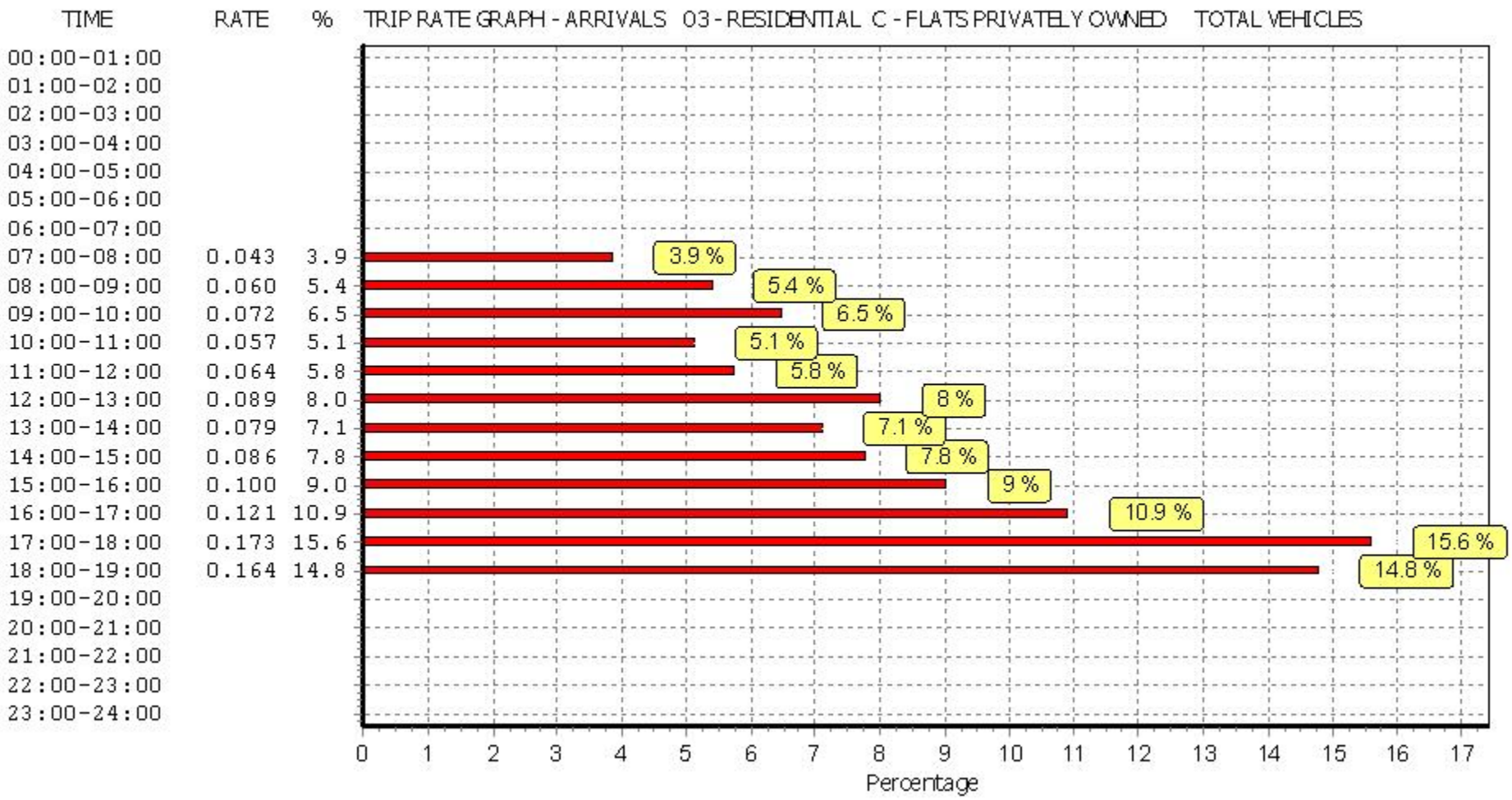

This graph is a visual representation of the trip rate calculation results screen. The same time periods and trip rates are displayed, but in addition there is an additional column showing the percentage of the total trip rate by individual time period, allowing peak periods to be easily identified through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

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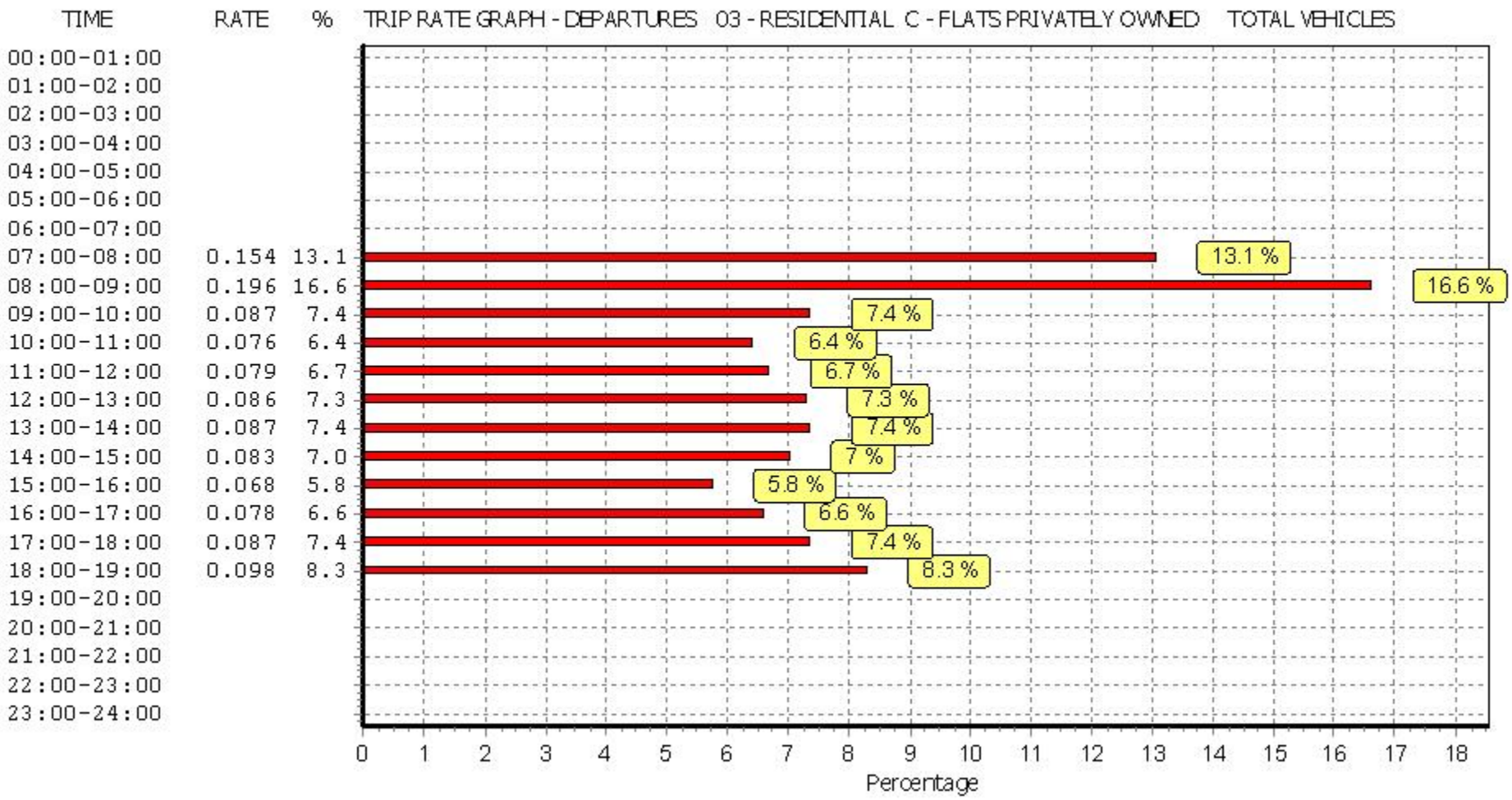

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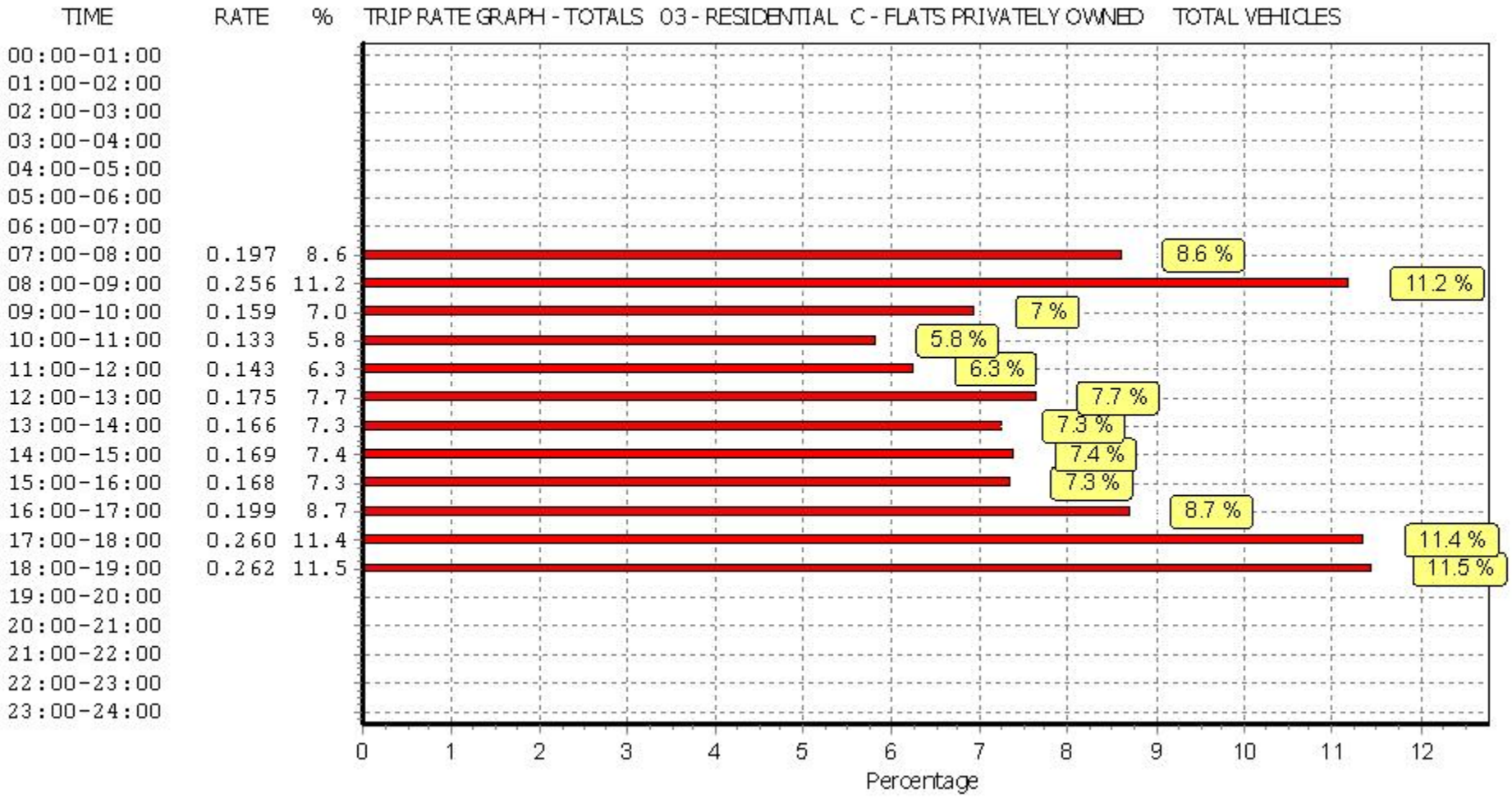

This graph is a visual representation of the trip rate calculation results screen. The same time periods and trip rates are displayed, but in addition there is an additional column showing the percentage of the total trip rate by individual time period, allowing peak periods to be easily identified through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

TRIP RATE for Land Use 04 - EDUCATION/D - NURSERY
TOTAL VEHICLES
Calculation factor: 100 sqm
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate
00:00 - 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	2	455	0.000	2	455	0.000	2	455	0.000
07:00 - 08:00	21	489	1.888	21	489	0.934	21	489	2.822
08:00 - 09:00	21	489	3.455	21	489	2.813	21	489	6.268
09:00 - 10:00	21	489	1.557	21	489	1.528	21	489	3.085
10:00 - 11:00	21	489	0.457	21	489	0.341	21	489	0.798
11:00 - 12:00	21	489	0.652	21	489	0.438	21	489	1.090
12:00 - 13:00	21	489	1.285	21	489	1.421	21	489	2.706
13:00 - 14:00	21	489	0.895	21	489	1.285	21	489	2.180
14:00 - 15:00	21	489	0.701	21	489	0.623	21	489	1.324
15:00 - 16:00	21	489	0.749	21	489	0.827	21	489	1.576
16:00 - 17:00	21	489	1.499	21	489	1.664	21	489	3.163
17:00 - 18:00	21	489	2.540	21	489	3.183	21	489	5.723
18:00 - 19:00	20	506	0.138	20	506	0.691	20	506	0.829
19:00 - 20:00	1	400	0.000	1	400	0.000	1	400	0.000
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			15.816			15.748			31.564

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:	150 - 880 (units: sqm)
Survey date date range:	01/01/14 - 19/11/21
Number of weekdays (Monday-Friday):	21
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	1
Surveys manually removed from selection:	0

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

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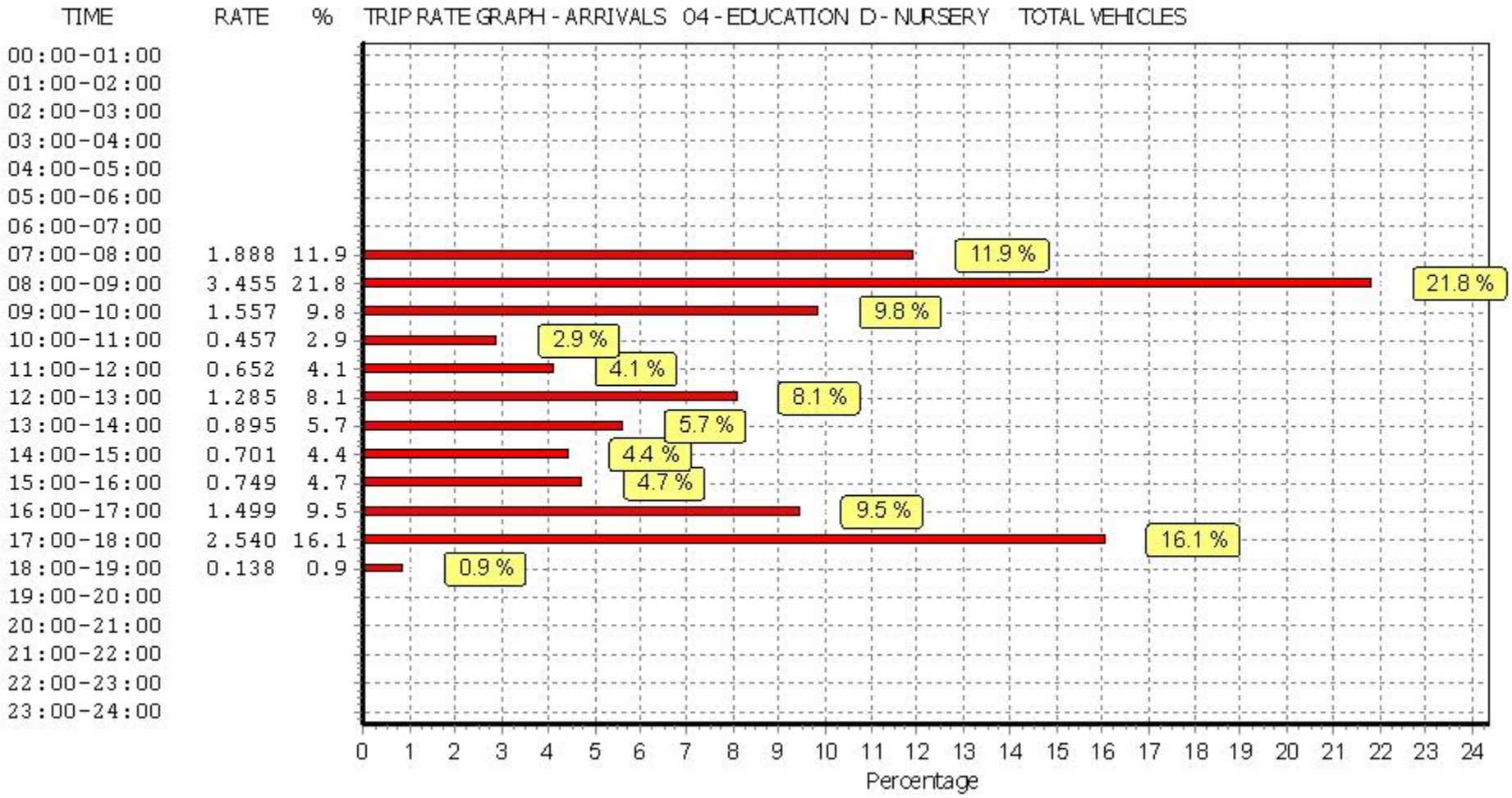

This graph is a visual representation of the trip rate calculation results screen. The same time periods and trip rates are displayed, but in addition there is an additional column showing the percentage of the total trip rate by individual time period, allowing peak periods to be easily identified through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

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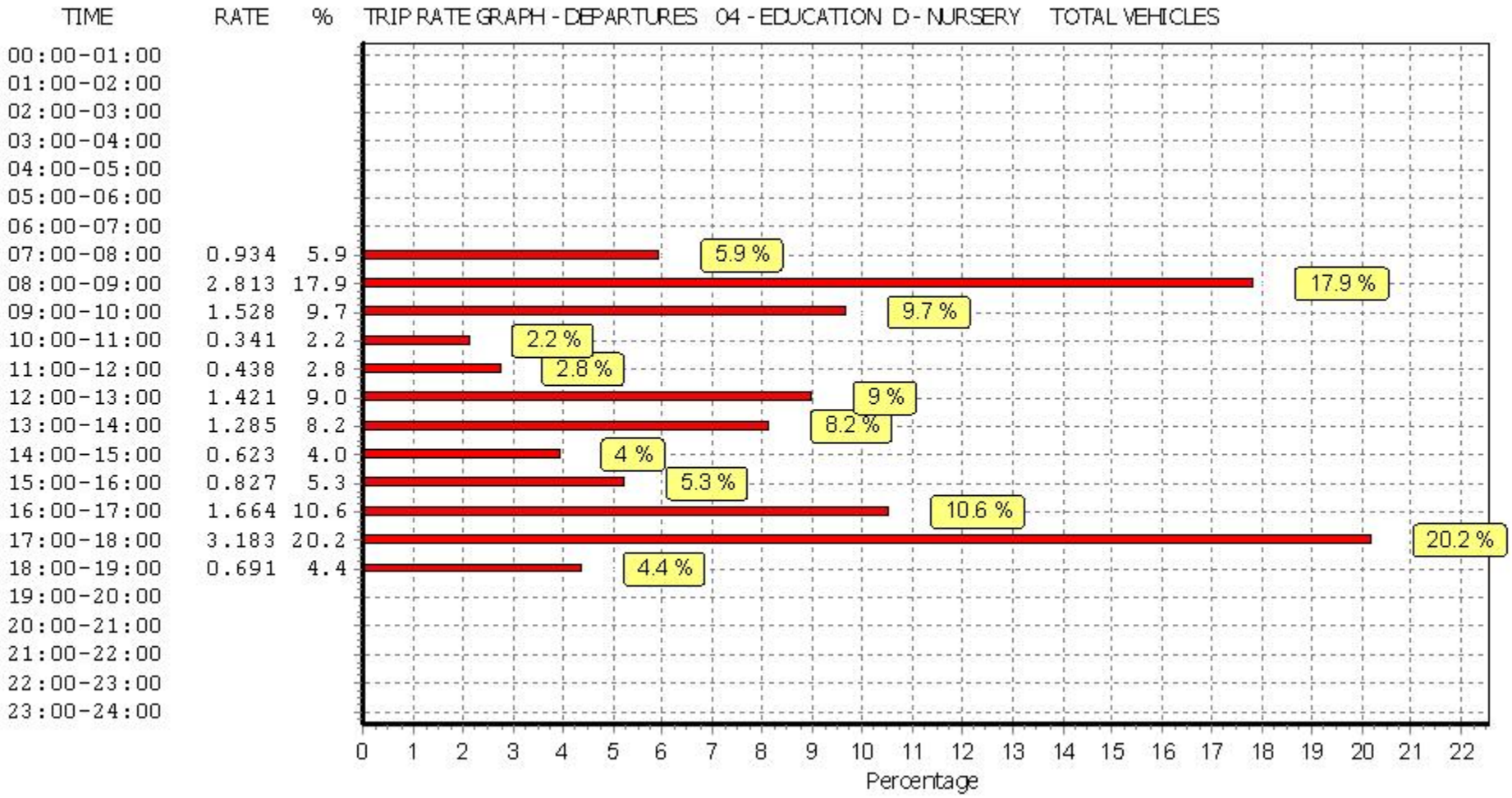
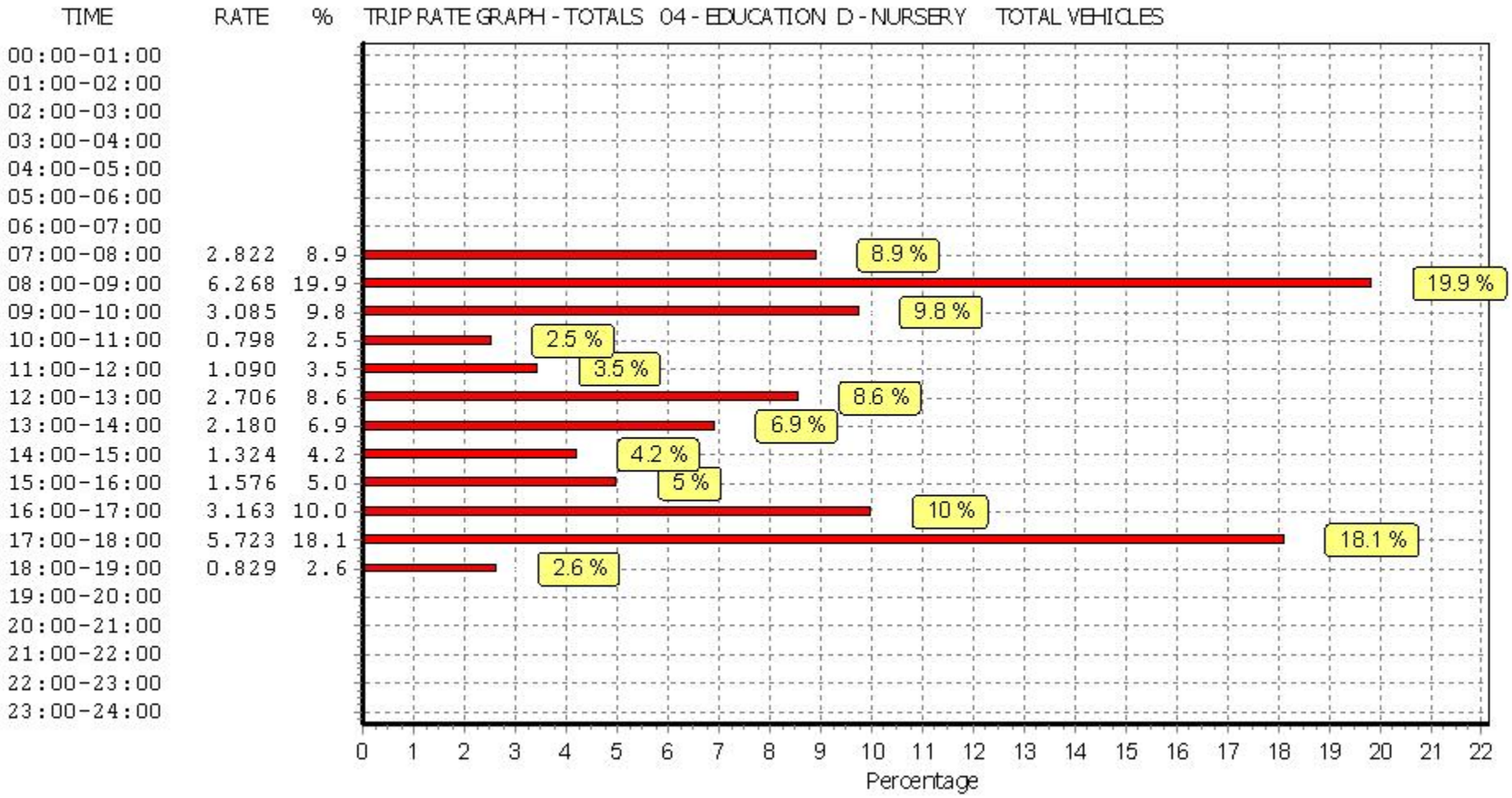


This graph is a visual representation of the trip rate calculation results screen. The same time periods and trip rates are displayed, but in addition there is an additional column showing the percentage of the total trip rate by individual time period, allowing peak periods to be easily identified through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

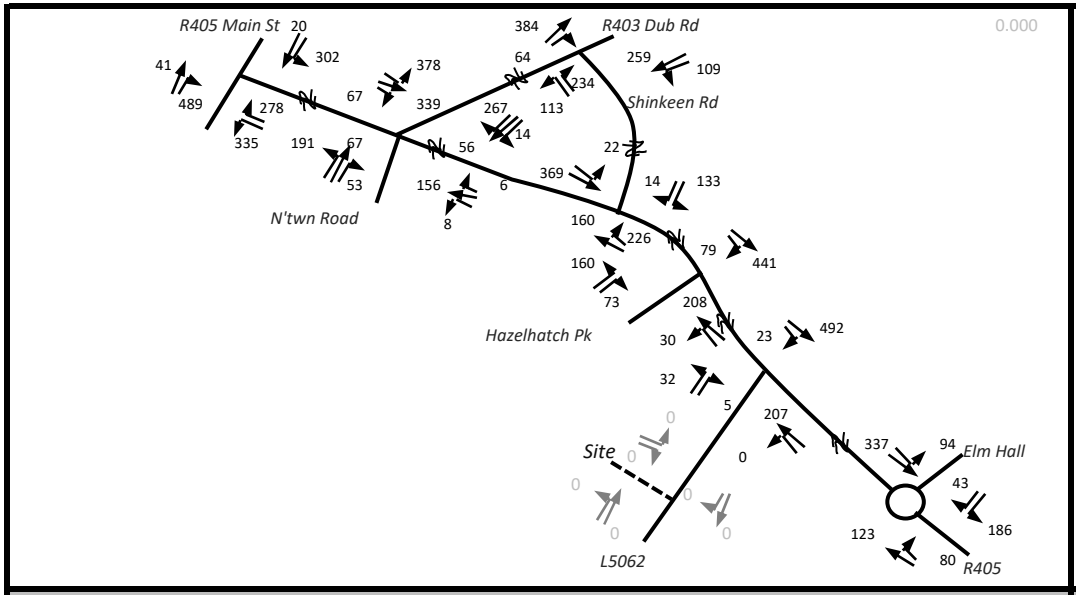
NRB Consulting Engineers Ltd 8 Leopardstown Business Centre, Ballyogan Avenue Dublin 18 Licence No: 160301



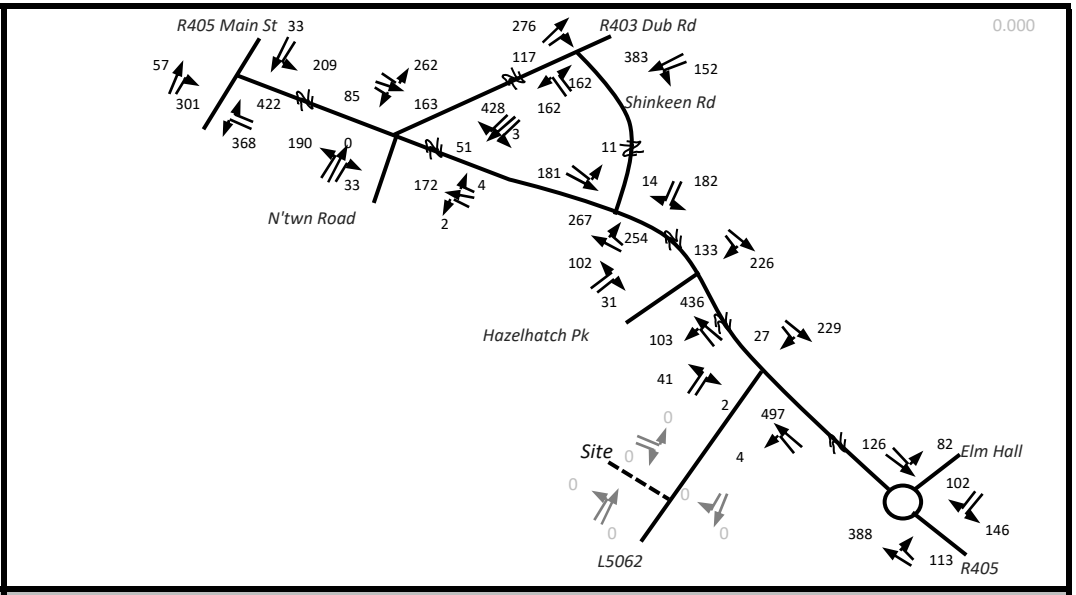
This graph is a visual representation of the trip rate calculation results screen. The same time periods and trip rates are displayed, but in addition there is an additional column showing the percentage of the total trip rate by individual time period, allowing peak periods to be easily identified through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

APPENDIX D

Traffic Calculations, Trip Distribution, Network Traffic Flow Diagrams & Projections Based on Traffic Surveys/TRICS



AM PEAK HR 8-9am

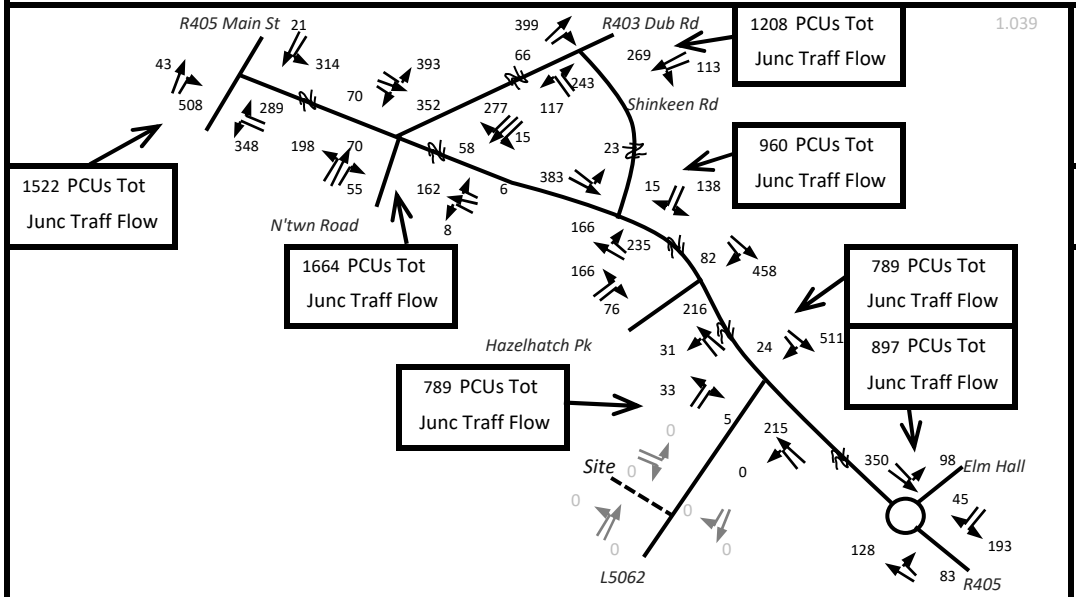


PM PEAK HR 5-6pm

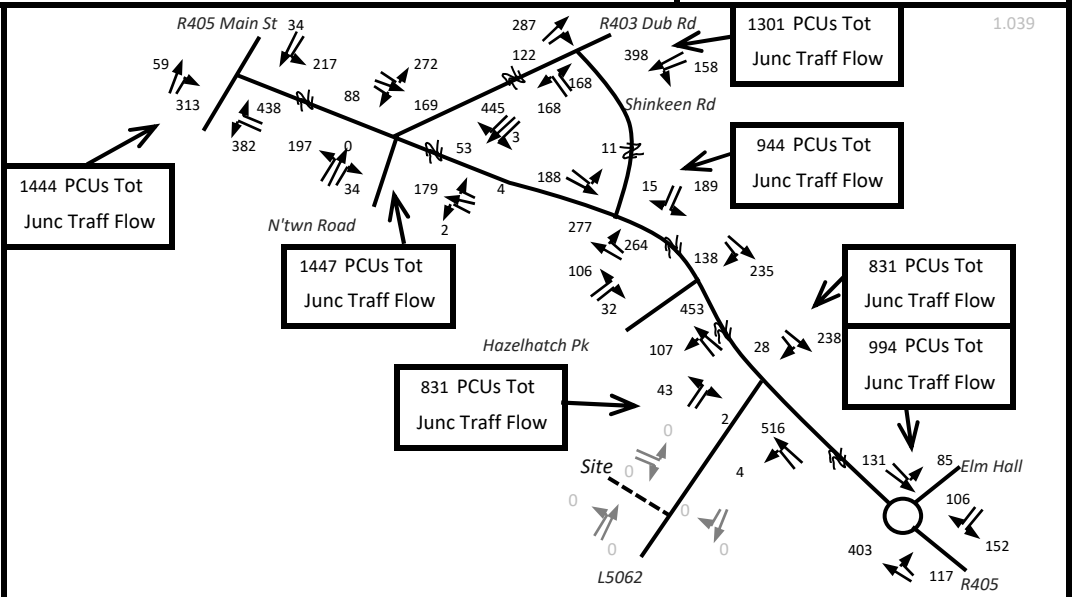
Existing As Surveyed March 2022 Traffic (PCUs) - WITHOUT NEW DEVELOPMENT (Refer Appendix B).

TII PE-PAG-02017 Project Appraisal Guidelines for National Roads Unit 5.3
(Travel Demand Projections 2019, Table 6.2: Central Growth Rates: Annual Growth Factors Kildare)

2022 to 2024 = 1.039
2024 to 2038 = 1.204

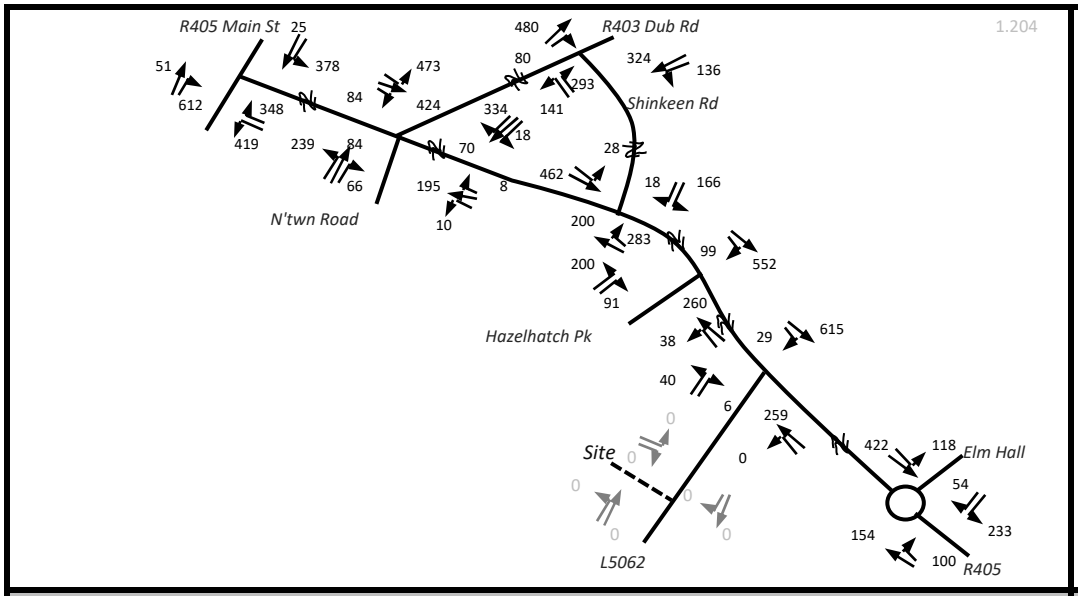


AM PEAK HR 8-9am

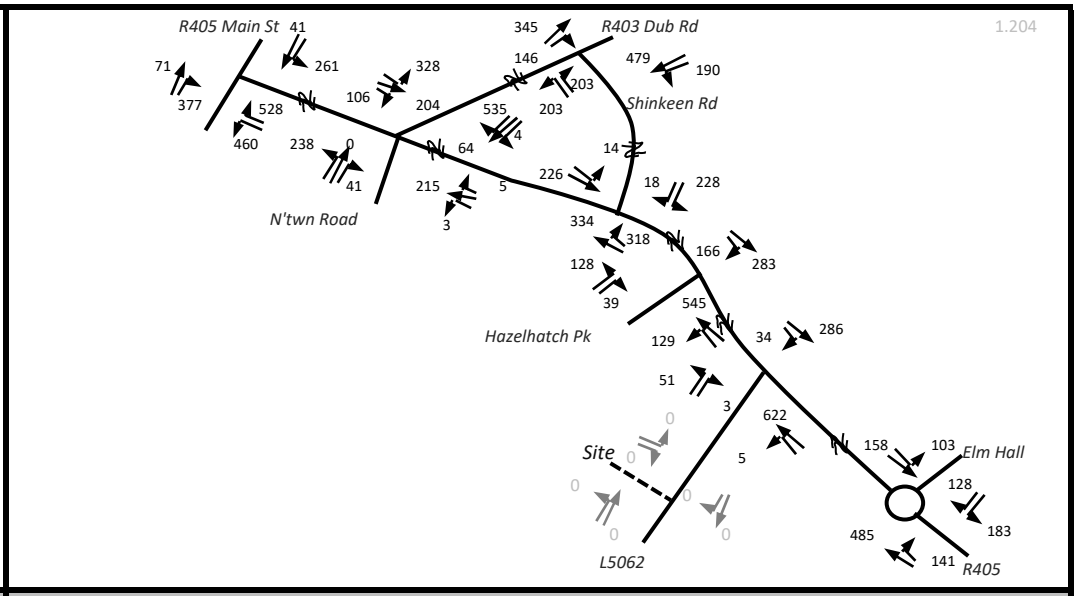


PM PEAK HR 5-6pm

Projected Selected Opening Year 2024 Weekday Peak Hour Traffic Volumes - TII Annual Growth Factors Applied (PCUs) - WITHOUT NEW DEVELOPMENT



AM PEAK HR 8-9am

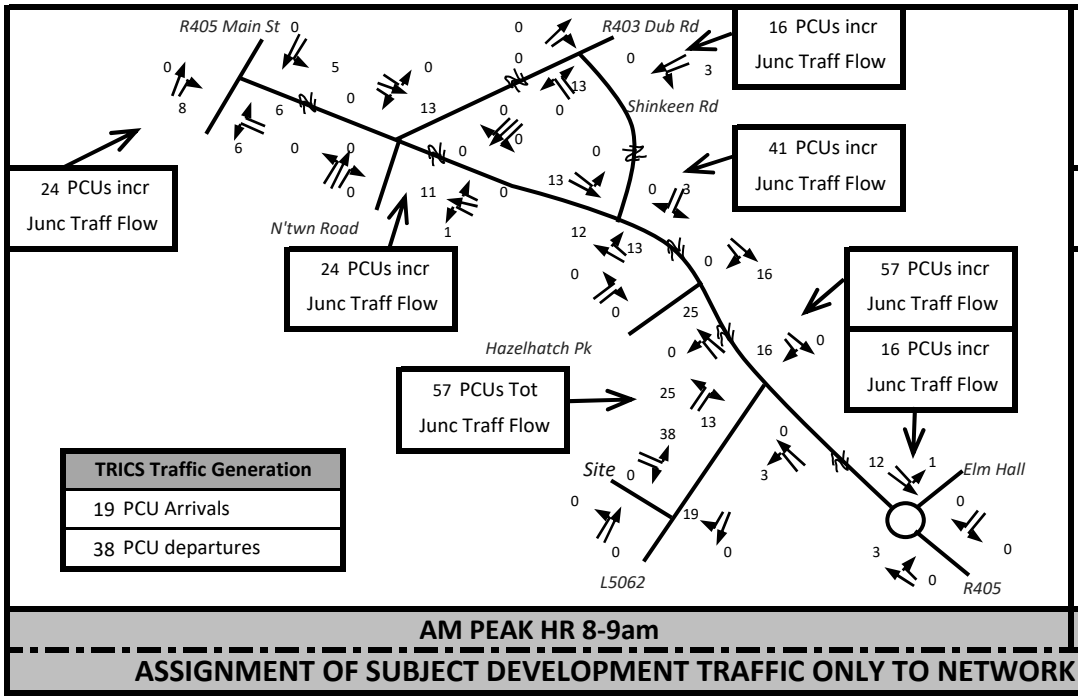


PM PEAK HR 5-6pm

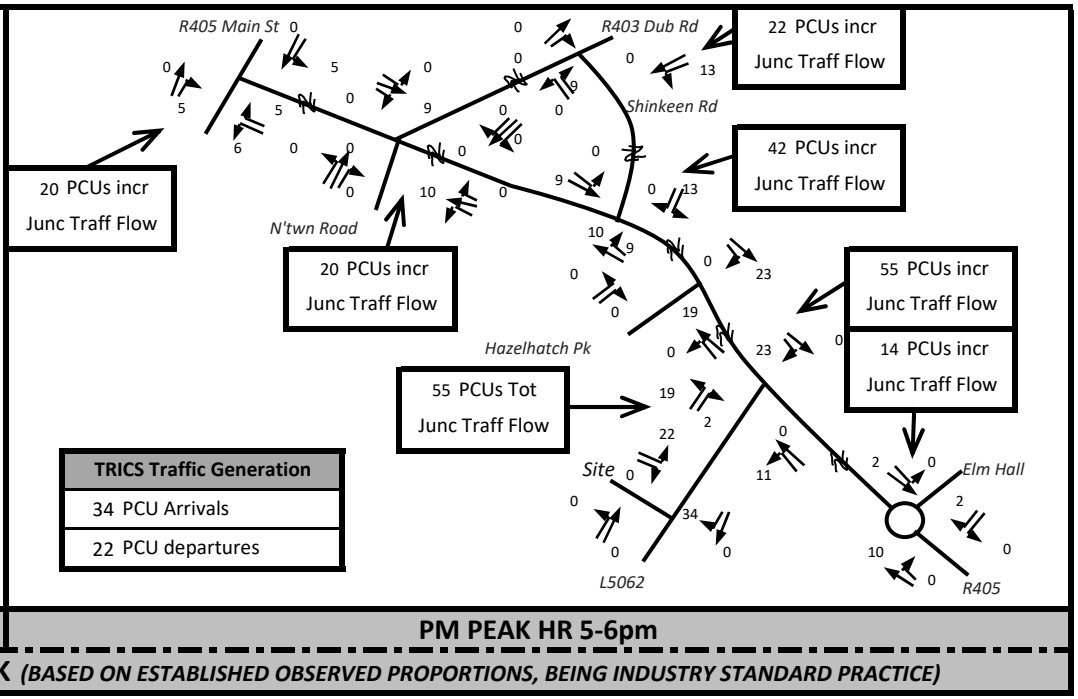
Associated Design Year 2039 Weekday Peak Hour Traffic Volumes - TII Annual Growth Factors Applied (PCUs) - WITHOUT NEW DEVELOPMENT

TRICS ASSESSMENT OF WORST-CASE TRAFFIC GENERATED BY PROPOSED DEVELOPMENT (Refer Appendix C)

115 No Apartments	Arrivals (PCUs)		Departures (PCUs)		Total 2-Way Vehicular Traffic Generated	
Network Hour	Per Unit	115 No	Per Unit	115 No		
Weekday AM Peak Hr 8-9	0.060	7	0.196	23	30	115 Apartments
Weekday PM Peak Hr 5-6	0.173	20	0.087	10	30	
22 No Houses	**Arrivals (PCUs)**		**Departures (PCUs)**		**Total 2-Way Vehicular Traffic Generated**	
Network Hour	**Per Unit**	**22 No**	**Per Unit**	**22 No**		
Weekday AM Peak Hr 8-9	0.144	3	0.369	8	11	22 Housess
Weekday PM Peak Hr 5-6	0.342	8	0.179	4	12	
250 m2 Creche	**Arrivals (PCUs)**		**Departures (PCUs)**		**Total 2-Way Vehicular Traffic Generated**	
Network Hour	**100m2**	**Dev**	**100m2**	**Dev**		
Weekday AM Peak Hr 8-9	3.455	9	2.813	7	16	Creche
Weekday PM Peak Hr 5-6	2.540	6	3.183	8	14	
TOTAL DEVELOPMENT TRAFFIC GENERATED ('CAR EQUIVALENTS')						
Network Hour	**Arrivals (PCUs)**		**Departures (PCUs)**		2-Way Flow	Total Development Traffic
Weekday AM Peak Hr 8-9	19		38		57	
Weekday PM Peak Hr 5-6	34		22		56	

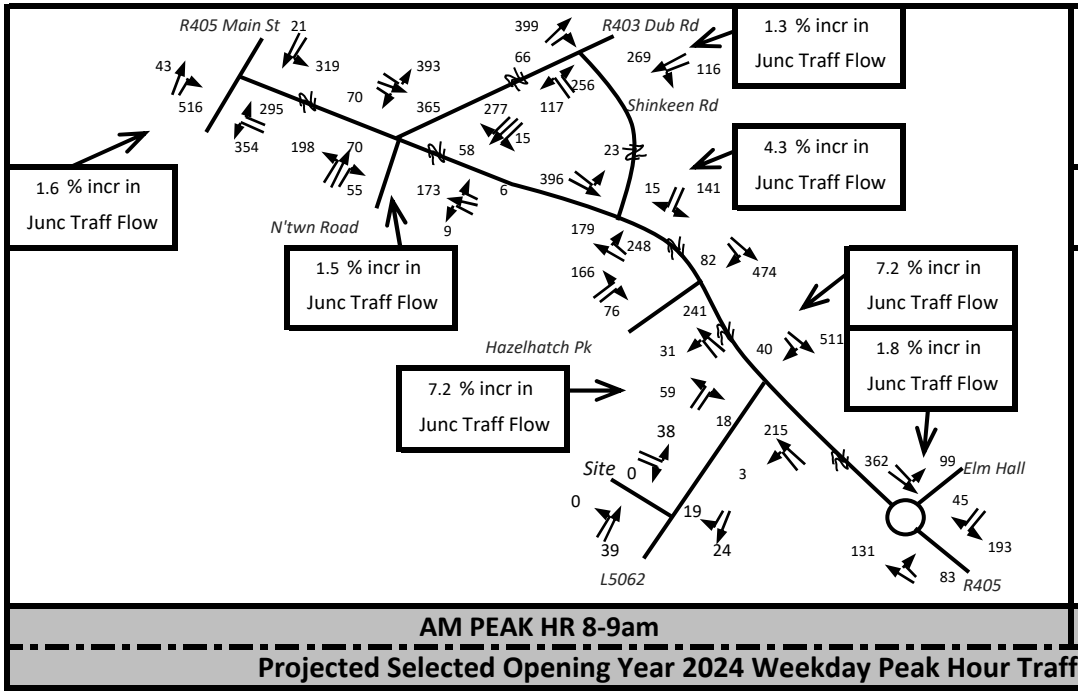


AM PEAK HR 8-9am

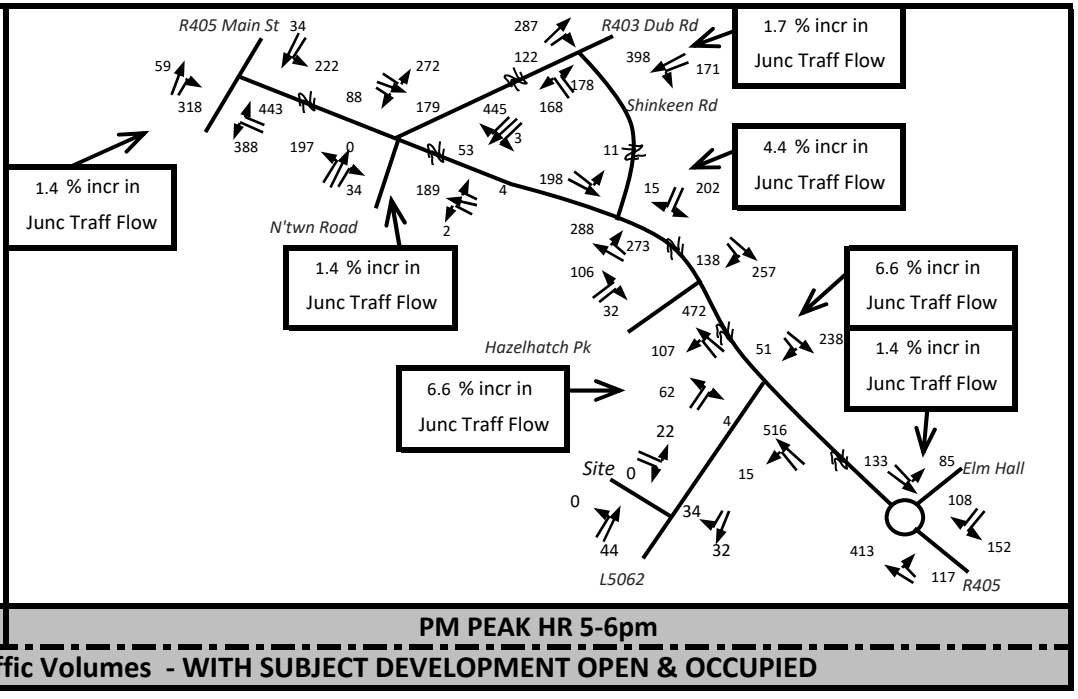


PM PEAK HR 5-6pm

ASSIGNMENT OF SUBJECT DEVELOPMENT TRAFFIC ONLY TO NETWORK ***(BASED ON ESTABLISHED OBSERVED PROPORTIONS, BEING INDUSTRY STANDARD PRACTICE)***

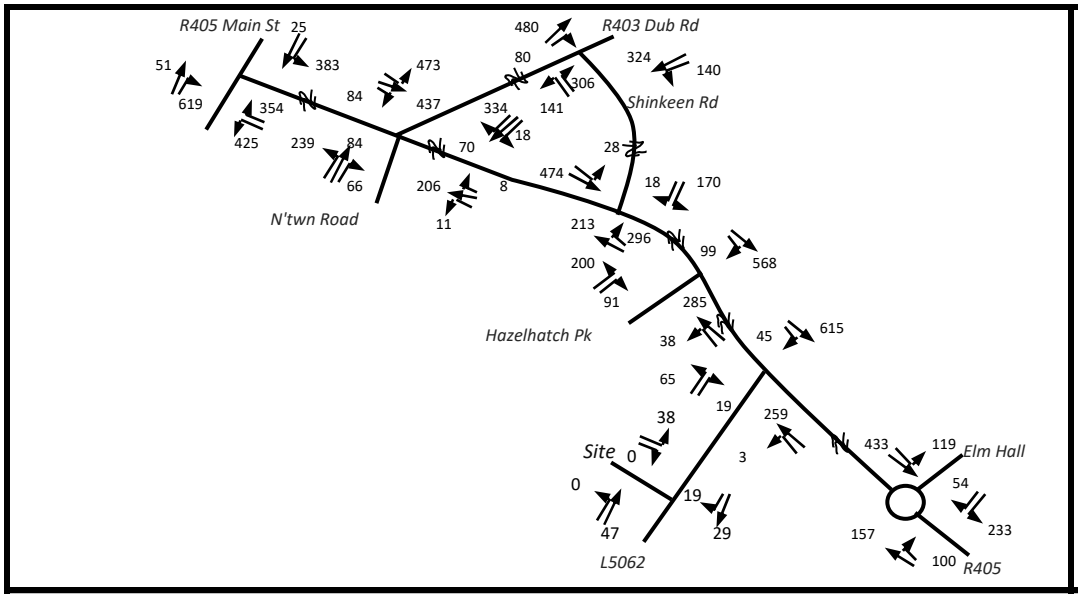


AM PEAK HR 8-9am

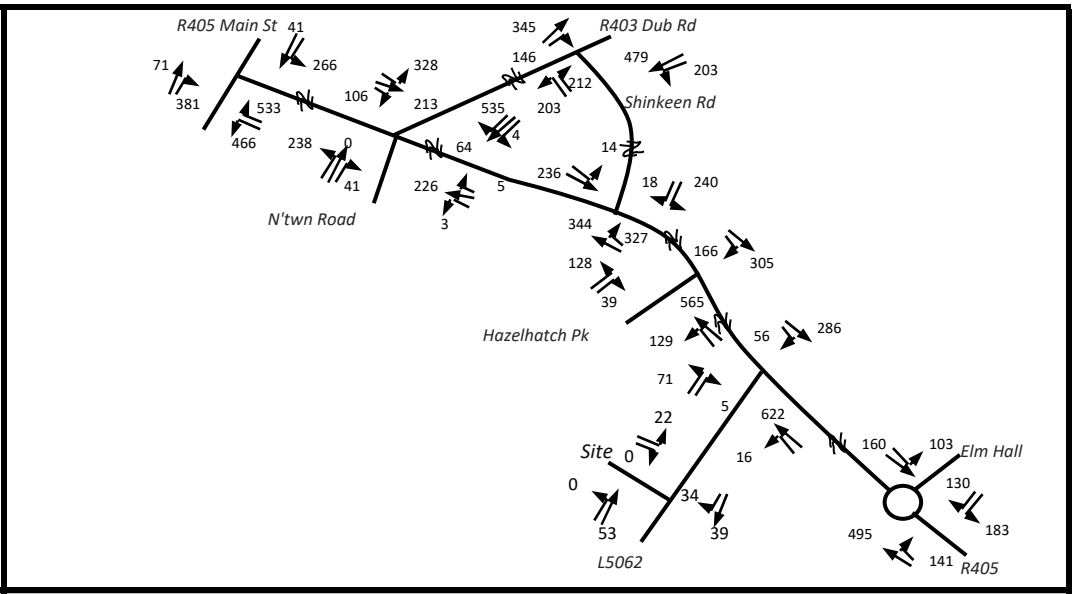


PM PEAK HR 5-6pm

Projected Selected Opening Year 2024 Weekday Peak Hour Traffic Volumes - WITH SUBJECT DEVELOPMENT OPEN & OCCUPIED



AM PEAK HR 8-9am



PM PEAK HR 5-6pm

Associated Design Year 2039 (Ope +15) Weekday Peak Hour Traffic Volumes - WITH SUBJECT DEVELOPMENT OPEN & OCCUPIED

APPENDIX E

Junction9 PiCADY Output
(Site Access/L5062 T-Junction)

Capacity Assessment With Subject Development Open and Occupied
Priority Controlled Site Access Junction

Modelled Scenario	Period Mean Max Q (PCUs)	Period Max RFC
2024 Opening Year AM Peak Hr	0.1	0.06
2024 Opening Year PM Peak Hr	0.1	0.06
2039 Design Year AM Peak Hr	0.1	0.06
2039 Design Year PM Peak Hr	0.1	0.06

All Results Above are WAY below the recommended RFC of 0.85 (85% Capacity) and therefore no problems whatsoever are anticipated at the Junction in terms of Capacity or excessive vehicle Queues

NB - Any Small Changes to Selected Opening Year 2024 or Design Year 2039, or indeed significantly higher traffic volumes experienced, as clearly deductable from the positive results presented, will clearly have no significant implications in terms of the conclusions of the Study. The Excess Capacity in the Junction is such that the modelled RFCs are practically immeasurable.

Junctions 9

PICADY 9 - Priority Intersection Module

Version: 9.0.1.4646 []
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Filename: 2024 AM PM.j9
Path: C:\Users\Eoin\NRB Consulting Engineers Ltd\NRB Server - Documents\2021\21-082 Hazelhatch LSRD\Calculations\Site Access Picadys
Report generation date: 22/08/2022 10:24:07

»2024, AM
»2024, PM

Summary of junction performance

	AM				PM			
	Q (PCU)	Delay (s)	RFC	LOS	Q (PCU)	Delay (s)	RFC	LOS
	2024							
Stream B-AC	0.1	5.91	0.06	A	0.0	5.76	0.04	A
Stream C-AB	0.0	6.04	0.03	A	0.1	6.22	0.06	A

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

File summary

File Description

Title	(untitled)
Location	
Site number	
Date	30/08/2021
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	NRB-004\Eoin
Description	

Units

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

Analysis Options

Calculate Q Percentiles	Calculate residual capacity	RFC Threshold	Av. Delay threshold (s)	Q threshold (PCU)
		0.85	36.00	20.00

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D1	2024	AM	ONE HOUR	07:45	09:15	15
D2	2024	PM	ONE HOUR	16:45	18:15	15

Analysis Set Details

ID	Network flow scaling factor (%)
A1	100.000

2024, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction Type	Major road direction	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way	2.83	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description	Arm type
A	L5062 S		Major
B	Site Access		Minor
C	L5062 N		Major

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Has right turn bay	Visibility for right turn (m)	Blocks?	Blocking queue (PCU)
C	6.00			90.0	✓	1.00

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

Minor Arm Geometry

Arm	Minor arm type	Lane width (m)	Visibility to left (m)	Visibility to right (m)
B	One lane	3.00	60	60

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Junction	Stream	Intercept (PCU/hr)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
1	B-A	527	0.096	0.243	0.153	0.346
1	B-C	662	0.101	0.256	-	-
1	C-B	626	0.243	0.243	-	-

The slopes and intercepts shown above do NOT include any corrections or adjustments.

Streams may be combined, in which case capacity will be adjusted.

Values are shown for the first time segment only; they may differ for subsequent time segments.

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D1	2024	AM	ONE HOUR	07:45	09:15	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Av. Demand (PCU/hr)	Scaling Factor (%)
A		✓	39	100.000
B		✓	38	100.000
C		✓	43	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A	B	C
From	A	0	0	39
	B	0	0	38
	C	24	19	0

Vehicle Mix

HV %s

		To		
		A	B	C
From	A	0	0	2
	B	0	0	0
	C	2	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max delay (s)	Max Q (PCU)	Max LOS
B-AC	0.06	5.91	0.1	A
C-AB	0.03	6.04	0.0	A
C-A				
A-B				
A-C				

Main Results for each time segment

07:45 - 08:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	29	654	0.044	28	0.0	5.751	A
C-AB	14	619	0.023	14	0.0	5.949	A
C-A	18			18			
A-B	0			0			
A-C	29			29			

08:00 - 08:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	34	653	0.052	34	0.1	5.819	A
C-AB	17	618	0.028	17	0.0	5.988	A
C-A	22			22			
A-B	0			0			
A-C	35			35			

08:15 - 08:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	42	651	0.064	42	0.1	5.912	A
C-AB	21	617	0.034	21	0.0	6.043	A
C-A	26			26			
A-B	0			0			
A-C	43			43			

08:30 - 08:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	42	651	0.064	42	0.1	5.912	A
C-AB	21	617	0.034	21	0.0	6.043	A
C-A	26			26			
A-B	0			0			
A-C	43			43			

08:45 - 09:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	34	653	0.052	34	0.1	5.822	A
C-AB	17	618	0.028	17	0.0	5.991	A
C-A	22			22			
A-B	0			0			
A-C	35			35			

09:00 - 09:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	29	654	0.044	29	0.0	5.757	A
C-AB	14	619	0.023	14	0.0	5.951	A
C-A	18			18			
A-B	0			0			
A-C	29			29			

2024, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction Type	Major road direction	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way	2.57	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D2	2024	PM	ONE HOUR	16:45	18:15	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Av. Demand (PCU/hr)	Scaling Factor (%)
A		✓	44	100.000
B		✓	22	100.000
C		✓	66	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A	B	C
From	A	0	0	44
	B	0	0	22
	C	32	34	0

Vehicle Mix

HV %s

		To		
		A	B	C
From	A	0	0	2
	B	0	0	0
	C	2	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max delay (s)	Max Q (PCU)	Max LOS
B-AC	0.04	5.76	0.0	A
C-AB	0.06	6.22	0.1	A
C-A				
A-B				
A-C				

Main Results for each time segment

16:45 - 17:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	17	653	0.025	16	0.0	5.653	A
C-AB	26	619	0.041	25	0.0	6.063	A
C-A	24			24			
A-B	0			0			
A-C	33			33			

17:00 - 17:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	20	652	0.030	20	0.0	5.697	A
C-AB	31	618	0.050	31	0.1	6.129	A
C-A	29			29			
A-B	0			0			
A-C	40			40			

17:15 - 17:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	24	649	0.037	24	0.0	5.758	A
C-AB	38	616	0.061	38	0.1	6.218	A
C-A	35			35			
A-B	0			0			
A-C	48			48			

17:30 - 17:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	24	649	0.037	24	0.0	5.758	A
C-AB	38	616	0.061	38	0.1	6.218	A
C-A	35			35			
A-B	0			0			
A-C	48			48			

17:45 - 18:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	20	652	0.030	20	0.0	5.700	A
C-AB	31	618	0.050	31	0.1	6.130	A
C-A	29			29			
A-B	0			0			
A-C	40			40			

18:00 - 18:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	17	653	0.025	17	0.0	5.656	A
C-AB	26	619	0.041	26	0.0	6.069	A
C-A	24			24			
A-B	0			0			
A-C	33			33			

Junctions 9

PICADY 9 - Priority Intersection Module

Version: 9.0.1.4646 []
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Filename: 2039 AM PM.j9
Path: C:\Users\Eoin\NRB Consulting Engineers Ltd\NRB Server - Documents\2021\21-082 Hazelhatch LSRD\Calculations\Site Access Picadys
Report generation date: 22/08/2022 10:26:00

»2039, AM
»2039, PM

Summary of junction performance

	AM				PM			
	Q (PCU)	Delay (s)	RFC	LOS	Q (PCU)	Delay (s)	RFC	LOS
	2039							
Stream B-AC	0.1	5.93	0.06	A	0.0	5.78	0.04	A
Stream C-AB	0.0	6.06	0.03	A	0.1	6.24	0.06	A

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

File summary

File Description

Title	(untitled)
Location	
Site number	
Date	30/08/2021
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	NRB-004\Eoin
Description	

Units

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

Analysis Options

Calculate Q Percentiles	Calculate residual capacity	RFC Threshold	Av. Delay threshold (s)	Q threshold (PCU)
		0.85	36.00	20.00

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D1	2039	AM	ONE HOUR	07:45	09:15	15
D2	2039	PM	ONE HOUR	16:45	18:15	15

Analysis Set Details

ID	Network flow scaling factor (%)
A1	100.000

2039, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction Type	Major road direction	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way	2.56	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description	Arm type
A	L5062 S		Major
B	Site Access		Minor
C	L5062 N		Major

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Has right turn bay	Visibility for right turn (m)	Blocks?	Blocking queue (PCU)
C	6.00			90.0	✓	1.00

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

Minor Arm Geometry

Arm	Minor arm type	Lane width (m)	Visibility to left (m)	Visibility to right (m)
B	One lane	3.00	60	60

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Junction	Stream	Intercept (PCU/hr)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
1	B-A	527	0.096	0.243	0.153	0.346
1	B-C	662	0.101	0.256	-	-
1	C-B	626	0.243	0.243	-	-

The slopes and intercepts shown above do NOT include any corrections or adjustments.

Streams may be combined, in which case capacity will be adjusted.

Values are shown for the first time segment only; they may differ for subsequent time segments.

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D1	2039	AM	ONE HOUR	07:45	09:15	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Av. Demand (PCU/hr)	Scaling Factor (%)
A		✓	47	100.000
B		✓	38	100.000
C		✓	48	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A	B	C
From	A	0	0	47
	B	0	0	38
	C	29	19	0

Vehicle Mix

HV %s

		To		
		A	B	C
From	A	0	0	2
	B	0	0	0
	C	2	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max delay (s)	Max Q (PCU)	Max LOS
B-AC	0.06	5.93	0.1	A
C-AB	0.03	6.06	0.0	A
C-A				
A-B				
A-C				

Main Results for each time segment

07:45 - 08:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	29	653	0.044	28	0.0	5.766	A
C-AB	14	618	0.023	14	0.0	5.962	A
C-A	22			22			
A-B	0			0			
A-C	35			35			

08:00 - 08:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	34	651	0.052	34	0.1	5.836	A
C-AB	17	617	0.028	17	0.0	6.004	A
C-A	26			26			
A-B	0			0			
A-C	42			42			

08:15 - 08:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	42	648	0.065	42	0.1	5.934	A
C-AB	21	615	0.034	21	0.0	6.063	A
C-A	32			32			
A-B	0			0			
A-C	52			52			

08:30 - 08:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	42	648	0.065	42	0.1	5.934	A
C-AB	21	615	0.034	21	0.0	6.063	A
C-A	32			32			
A-B	0			0			
A-C	52			52			

08:45 - 09:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	34	651	0.052	34	0.1	5.840	A
C-AB	17	617	0.028	17	0.0	6.007	A
C-A	26			26			
A-B	0			0			
A-C	42			42			

09:00 - 09:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	29	653	0.044	29	0.0	5.771	A
C-AB	14	618	0.023	14	0.0	5.965	A
C-A	22			22			
A-B	0			0			
A-C	35			35			

2039, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction Type	Major road direction	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way	2.30	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D2	2039	PM	ONE HOUR	16:45	18:15	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Av. Demand (PCU/hr)	Scaling Factor (%)
A		✓	53	100.000
B		✓	22	100.000
C		✓	73	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A	B	C
From	A	0	0	53
	B	0	0	22
	C	39	34	0

Vehicle Mix

HV %s

		To		
		A	B	C
From	A	0	0	2
	B	0	0	0
	C	2	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max delay (s)	Max Q (PCU)	Max LOS
B-AC	0.04	5.78	0.0	A
C-AB	0.06	6.24	0.1	A
C-A				
A-B				
A-C				

Main Results for each time segment

16:45 - 17:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	17	651	0.025	16	0.0	5.669	A
C-AB	26	618	0.042	25	0.0	6.078	A
C-A	29			29			
A-B	0			0			
A-C	40			40			

17:00 - 17:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	20	649	0.030	20	0.0	5.716	A
C-AB	31	616	0.050	31	0.1	6.147	A
C-A	35			35			
A-B	0			0			
A-C	48			48			

17:15 - 17:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	24	647	0.037	24	0.0	5.782	A
C-AB	38	615	0.061	38	0.1	6.239	A
C-A	43			43			
A-B	0			0			
A-C	58			58			

17:30 - 17:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	24	647	0.037	24	0.0	5.782	A
C-AB	38	615	0.061	38	0.1	6.239	A
C-A	43			43			
A-B	0			0			
A-C	58			58			

17:45 - 18:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	20	649	0.030	20	0.0	5.719	A
C-AB	31	616	0.050	31	0.1	6.148	A
C-A	35			35			
A-B	0			0			
A-C	48			48			

18:00 - 18:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	17	651	0.025	17	0.0	5.669	A
C-AB	26	618	0.042	26	0.0	6.081	A
C-A	29			29			
A-B	0			0			
A-C	40			40			

APPENDIX F

Junction9 PiCADY Output
(Existing R405 Hazelhatch Rd/L5062 T-Junction)

Capacity Assessment With Subject Development Open and Occupied
Existing R405 Hazelhatch Rd/L5062 Priority T-Junction

Modelled Scenario	Period Mean Max Q (PCUs)	Period Max RFC
2024 Opening Year AM Peak Hr	0.2	0.16
2024 Opening Year PM Peak Hr	0.2	0.15
2039 Design Year AM Peak Hr	0.2	0.18
2039 Design Year PM Peak Hr	0.2	0.18

All Results Above are WAY below the recommended RFC of 0.85 (85% Capacity) and therefore no problems whatsoever are anticipated at the Junction in terms of Capacity or excessive vehicle Queues

NB - Any Small Changes to Selected Opening Year 2024 or Design Year 2039, or indeed significantly higher traffic volumes experienced, as clearly deductable from the positive results presented, will clearly have no significant implications in terms of the conclusions of the Study. The Excess Capacity in the Junction is such that the modelled RFCs are WAY below 0.85.

Junctions 9

PICADY 9 - Priority Intersection Module

Version: 9.0.1.4646 []
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Filename: 2024 AM PM.j9
Path: C:\Users\Eoin\NRB Consulting Engineers Ltd\NRB Server - Documents\2021\21-082 Hazelhatch LSRD\Calculations\L5062 Hazelhatch Rd Picadys
Report generation date: 22/08/2022 10:33:31

»2024, AM
»2024, PM

Summary of junction performance

	AM				PM			
	Q (PCU)	Delay (s)	RFC	LOS	Q (PCU)	Delay (s)	RFC	LOS
	2024							
Stream B-AC	0.2	8.37	0.16	A	0.2	8.65	0.15	A
Stream C-AB	0.1	6.49	0.08	A	0.1	8.05	0.12	A

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

File summary

File Description

Title	(untitled)
Location	
Site number	
Date	30/08/2021
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	NRB-004\Eoin
Description	

Units

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

Analysis Options

Calculate Q Percentiles	Calculate residual capacity	RFC Threshold	Av. Delay threshold (s)	Q threshold (PCU)
		0.85	36.00	20.00

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D1	2024	AM	ONE HOUR	07:45	09:15	15
D2	2024	PM	ONE HOUR	16:45	18:15	15

Analysis Set Details

ID	Network flow scaling factor (%)
A1	100.000

2024, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction Type	Major road direction	Junction Delay (s)	Junction LOS
1	L5062 Main Rd Junct	T-Junction	Two-way	1.09	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description	Arm type
A	Hazelhatch Rd East		Major
B	L5062		Minor
C	Hazelhatch Rd West		Major

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Has right turn bay	Visibility for right turn (m)	Blocks?	Blocking queue (PCU)
C	6.00			90.0	✓	1.00

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

Minor Arm Geometry

Arm	Minor arm type	Lane width (m)	Visibility to left (m)	Visibility to right (m)
B	One lane	3.00	60	60

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Junction	Stream	Intercept (PCU/hr)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
1	B-A	527	0.096	0.243	0.153	0.346
1	B-C	662	0.101	0.256	-	-
1	C-B	626	0.243	0.243	-	-

The slopes and intercepts shown above do NOT include any corrections or adjustments.

Streams may be combined, in which case capacity will be adjusted.

Values are shown for the first time segment only; they may differ for subsequent time segments.

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D1	2024	AM	ONE HOUR	07:45	09:15	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Av. Demand (PCU/hr)	Scaling Factor (%)
A		✓	218	100.000
B		✓	77	100.000
C		✓	551	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A	B	C
From	A	0	3	215
	B	18	0	59
	C	511	40	0

Vehicle Mix

HV %s

		To		
		A	B	C
From	A	0	2	2
	B	2	0	2
	C	2	2	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max delay (s)	Max Q (PCU)	Max LOS
B-AC	0.16	8.37	0.2	A
C-AB	0.08	6.49	0.1	A
C-A				
A-B				
A-C				

Main Results for each time segment

07:45 - 08:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	58	557	0.104	58	0.1	7.343	A
C-AB	31	607	0.051	31	0.1	6.371	A
C-A	384			384			
A-B	2			2			
A-C	162			162			

08:00 - 08:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	69	543	0.127	69	0.1	7.744	A
C-AB	38	609	0.062	38	0.1	6.431	A
C-A	458			458			
A-B	3			3			
A-C	193			193			

08:15 - 08:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	85	523	0.162	85	0.2	8.367	A
C-AB	48	614	0.078	48	0.1	6.485	A
C-A	559			559			
A-B	3			3			
A-C	237			237			

08:30 - 08:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	85	523	0.162	85	0.2	8.373	A
C-AB	48	614	0.078	48	0.1	6.488	A
C-A	559			559			
A-B	3			3			
A-C	237			237			

08:45 - 09:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	69	543	0.127	69	0.2	7.755	A
C-AB	38	609	0.062	38	0.1	6.436	A
C-A	458			458			
A-B	3			3			
A-C	193			193			

09:00 - 09:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	58	557	0.104	58	0.1	7.359	A
C-AB	31	607	0.051	31	0.1	6.377	A
C-A	384			384			
A-B	2			2			
A-C	162			162			

2024, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction Type	Major road direction	Junction Delay (s)	Junction LOS
1	L5062 Main Rd Junct	T-Junction	Two-way	1.13	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D2	2024	PM	ONE HOUR	16:45	18:15	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Av. Demand (PCU/hr)	Scaling Factor (%)
A		✓	531	100.000
B		✓	66	100.000
C		✓	289	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A	B	C
From	A	0	15	516
	B	4	0	62
	C	238	51	0

Vehicle Mix

HV %s

		To		
		A	B	C
From	A	0	2	2
	B	2	0	2
	C	2	2	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max delay (s)	Max Q (PCU)	Max LOS
B-AC	0.15	8.65	0.2	A
C-AB	0.12	8.05	0.1	A
C-A				
A-B				
A-C				

Main Results for each time segment

16:45 - 17:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	50	547	0.091	49	0.1	7.377	A
C-AB	39	543	0.073	39	0.1	7.284	A
C-A	178			178			
A-B	11			11			
A-C	388			388			

17:00 - 17:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	59	526	0.113	59	0.1	7.866	A
C-AB	48	530	0.090	48	0.1	7.604	A
C-A	212			212			
A-B	13			13			
A-C	464			464			

17:15 - 17:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	73	497	0.146	72	0.2	8.641	A
C-AB	60	516	0.116	60	0.1	8.046	A
C-A	258			258			
A-B	17			17			
A-C	568			568			

17:30 - 17:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	73	497	0.146	73	0.2	8.648	A
C-AB	60	516	0.116	60	0.1	8.052	A
C-A	258			258			
A-B	17			17			
A-C	568			568			

17:45 - 18:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	59	526	0.113	60	0.1	7.875	A
C-AB	48	530	0.090	48	0.1	7.610	A
C-A	212			212			
A-B	13			13			
A-C	464			464			

18:00 - 18:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	50	547	0.091	50	0.1	7.393	A
C-AB	39	543	0.073	39	0.1	7.296	A
C-A	178			178			
A-B	11			11			
A-C	388			388			

Junctions 9

PICADY 9 - Priority Intersection Module

Version: 9.0.1.4646 []
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Filename: 2039 AM PM.j9
Path: C:\Users\Eoin\NRB Consulting Engineers Ltd\NRB Server - Documents\2021\21-082 Hazelhatch LSRD\Calculations\L5062 Hazelhatch Rd Picadys
Report generation date: 22/08/2022 10:36:21

»2039, AM
»2039, PM

Summary of junction performance

	AM				PM			
	Q (PCU)	Delay (s)	RFC	LOS	Q (PCU)	Delay (s)	RFC	LOS
	2039							
Stream B-AC	0.2	8.94	0.18	A	0.2	9.66	0.18	A
Stream C-AB	0.1	6.51	0.09	A	0.2	8.50	0.14	A

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

File summary

File Description

Title	(untitled)
Location	
Site number	
Date	30/08/2021
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	NRB-004\Eoin
Description	

Units

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

Analysis Options

Calculate Q Percentiles	Calculate residual capacity	RFC Threshold	Av. Delay threshold (s)	Q threshold (PCU)
		0.85	36.00	20.00

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D1	2039	AM	ONE HOUR	07:45	09:15	15
D2	2039	PM	ONE HOUR	16:45	18:15	15

Analysis Set Details

ID	Network flow scaling factor (%)
A1	100.000

2039, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction Type	Major road direction	Junction Delay (s)	Junction LOS
1	L5062 Main Rd Junct	T-Junction	Two-way	1.06	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description	Arm type
A	Hazelhatch Rd East		Major
B	L5062		Minor
C	Hazelhatch Rd West		Major

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Has right turn bay	Visibility for right turn (m)	Blocks?	Blocking queue (PCU)
C	6.00			90.0	✓	1.00

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

Minor Arm Geometry

Arm	Minor arm type	Lane width (m)	Visibility to left (m)	Visibility to right (m)
B	One lane	3.00	60	60

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Junction	Stream	Intercept (PCU/hr)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
1	B-A	527	0.096	0.243	0.153	0.346
1	B-C	662	0.101	0.256	-	-
1	C-B	626	0.243	0.243	-	-

The slopes and intercepts shown above do NOT include any corrections or adjustments.

Streams may be combined, in which case capacity will be adjusted.

Values are shown for the first time segment only; they may differ for subsequent time segments.

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D1	2039	AM	ONE HOUR	07:45	09:15	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Av. Demand (PCU/hr)	Scaling Factor (%)
A		✓	262	100.000
B		✓	84	100.000
C		✓	660	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A	B	C
From	A	0	3	259
	B	19	0	65
	C	615	45	0

Vehicle Mix

HV %s

		To		
		A	B	C
From	A	0	2	2
	B	2	0	2
	C	2	2	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max delay (s)	Max Q (PCU)	Max LOS
B-AC	0.18	8.94	0.2	A
C-AB	0.09	6.51	0.1	A
C-A				
A-B				
A-C				

Main Results for each time segment

07:45 - 08:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	63	545	0.116	63	0.1	7.608	A
C-AB	36	607	0.059	35	0.1	6.421	A
C-A	461			461			
A-B	2			2			
A-C	195			195			

08:00 - 08:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	76	528	0.143	75	0.2	8.113	A
C-AB	43	610	0.071	43	0.1	6.475	A
C-A	550			550			
A-B	3			3			
A-C	233			233			

08:15 - 08:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	92	503	0.184	92	0.2	8.931	A
C-AB	55	619	0.089	55	0.1	6.507	A
C-A	671			671			
A-B	3			3			
A-C	285			285			

08:30 - 08:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	92	503	0.184	92	0.2	8.939	A
C-AB	55	619	0.089	55	0.1	6.511	A
C-A	671			671			
A-B	3			3			
A-C	285			285			

08:45 - 09:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	76	528	0.143	76	0.2	8.126	A
C-AB	43	610	0.071	44	0.1	6.478	A
C-A	550			550			
A-B	3			3			
A-C	233			233			

09:00 - 09:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	63	545	0.116	63	0.1	7.631	A
C-AB	36	607	0.059	36	0.1	6.427	A
C-A	461			461			
A-B	2			2			
A-C	195			195			

2039, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction Type	Major road direction	Junction Delay (s)	Junction LOS
1	L5062 Main Rd Junct	T-Junction	Two-way	1.18	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D2	2039	PM	ONE HOUR	16:45	18:15	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Av. Demand (PCU/hr)	Scaling Factor (%)
A		✓	638	100.000
B		✓	76	100.000
C		✓	342	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A	B	C
From	A	0	16	622
	B	5	0	71
	C	286	56	0

Vehicle Mix

HV %s

		To		
		A	B	C
From	A	0	2	2
	B	2	0	2
	C	2	2	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max delay (s)	Max Q (PCU)	Max LOS
B-AC	0.18	9.66	0.2	A
C-AB	0.14	8.50	0.2	A
C-A				
A-B				
A-C				

Main Results for each time segment

16:45 - 17:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	57	524	0.109	57	0.1	7.854	A
C-AB	44	528	0.083	43	0.1	7.568	A
C-A	214			214			
A-B	12			12			
A-C	468			468			

17:00 - 17:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	68	499	0.137	68	0.2	8.525	A
C-AB	53	515	0.103	53	0.1	7.952	A
C-A	254			254			
A-B	14			14			
A-C	559			559			

17:15 - 17:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	84	464	0.180	83	0.2	9.648	A
C-AB	68	500	0.135	67	0.2	8.487	A
C-A	309			309			
A-B	18			18			
A-C	685			685			

17:30 - 17:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	84	464	0.180	84	0.2	9.659	A
C-AB	68	500	0.135	68	0.2	8.496	A
C-A	309			309			
A-B	18			18			
A-C	685			685			

17:45 - 18:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	68	499	0.137	69	0.2	8.541	A
C-AB	53	515	0.103	53	0.1	7.963	A
C-A	254			254			
A-B	14			14			
A-C	559			559			

18:00 - 18:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	57	524	0.109	57	0.1	7.876	A
C-AB	44	528	0.083	44	0.1	7.584	A
C-A	214			214			
A-B	12			12			
A-C	468			468			

APPENDIX G

Preliminary Planning Stage
Mobility Management Plan/Travel Plan

consulting engineers

NRB

Residential Travel Plan
(Mobility Management Plan)

Appendix G

For

Proposed Residential Apartment Development

At

Glencarrig, Celbridge, Co Kildare.

SUBMISSION ISSUE

1st Floor, Apollo Building, Dundrum Road, Dundrum, Dublin 14
Tel: +353 1 292 1941, E-mail: info@nrb.ie, Web: www.nrb.ie

Registered in Ireland No. 491679

Contents

Page	Section	Description
3	1.0	Introduction
5	2.0	Access to the Site - By Mode
15	3.0	Collection of Baseline Information
16	4.0	The Travel Plan
22	5.0	Implementing the Plan
24	6.0	Monitoring and Review

1.0 INTRODUCTION

1.1 NRB Consulting Engineers have been commissioned to prepare a Residential Travel Plan in support of a proposed residential development on the site at Hazelhatch Road, Celbridge, Co Kildare. This report explains the applicant's commitment to the promotion of more sustainable and cost-effective travel habits among the end occupiers/residents of the scheme. In this case, sustainable travel is supported by reduced provision of car parking for the apartment element of the development with generous cycle parking provision.

1.2 Of course, it should be recognised that, until residents are actually in place, an MMP prepared at Planning Stage can only outline the current and proposed alternative transport services and set out strategies that will be deployed to encourage future residents to use alternative modes of travel.

What is a Travel Plan?

1.3 Originally and elsewhere called Mobility Management Plans (MMPs), they originated in the United States and the Netherlands in the late 1980s. In the US, employers over a certain size (generally over 100 employees) were required to implement 'Trip Reduction Plans' in order to reduce single-occupancy car commuting trips, and to increase car occupancy.

1.4 A MMP or Travel Plan (TP) consists of a package of measures put in place by an organisation to encourage and support more sustainable travel patterns among staff and other visitors. Such a plan usually concentrates on staff commuting patterns. In essence, a TP is useful not only to reduce the attractiveness of private car use, but also for the ability to promote and support the use of more sustainable transport modes such as walking, cycling, shared transport, and mass transit such as buses and trains.

Aims and Objectives of this Travel Plan

1.5 The package generally includes measures to promote and improve the attractiveness of using public transport, cycling, walking, car sharing, flexible working, or a combination of these as alternatives to single-occupancy car journeys to work. A TP can consider all travel associated with the residential or work site, including business travel, fleet management, customer access and deliveries. It should be considered as a dynamic process where a package of measures and campaigns are identified, piloted, and monitored on an on-going basis.

1.6 The changes which are being sought as part of any plan may be as simple as car sharing one-day per week, or walking on Wednesdays, or taking the bus on days which do not conflict with other commitments, leisure, or work activities.

1.7 It is envisaged that once in place, the Travel Plan will enable the following benefits to be realised for the Development:

- Reduced residential car parking demand and reduced congestion on the local road network due to lower demand for private transport and/or more efficient use of private motor vehicles,
- Improved safety for cyclists and pedestrians,
- Direct financial savings for those taking part in the developed initiatives, through higher-than-average vehicle occupancy rates,
- A reduction in car parking and car set-down demand, resulting in improved operational efficiency and safety for all,
- Improved social networking between all those participating in the shared initiatives,
- Improved environmental consideration and performance,
- Improved public image for the development, which sets an example to the broader community and may lead to residents making better travel decisions in the future,
- Improved health and well-being for those using active non-car transport modes,
- Regular liaison with the Local Authority and public transport providers to maintain, improve, and support transportation services to and from the site,
- Improved attractiveness of the development to prospective residents,
- Optimal levels of safety for all residents, staff & visitors.

Methodology

1.8 As part of this Travel Plan, reference has been made to the following documents:

- Your Step-By-Step Guide To Travel Plans (NTA 2012),
- Achieving Effective Workplace Travel Plans (NTA 2011),
- Traffic and Transport Assessment Guidelines (TII),
- Traffic Management Guidelines (DoELG, 2003),
- Mobility Management Plans – DTO Advice Note (DTO, 2002),
- The Route to Sustainable Commuting (DTO 2001),
- Smarter Travel: A Sustainable Transport Future (DOT).

1.9 Consultation with key stakeholders is an essential part of any Travel plan. As discussed below, as part of the operational phase of this development, a Travel Plan Coordinator Role will be appointed from within the Management Company responsible for the Apartments. Following on, once occupied, residents will be asked to complete detailed questionnaires on essential data in relation to their existing travel patterns. This information will be used to inform the ongoing implementation, monitoring and review of the plan for this development.

1.10 This information has been used herein as the basis for the assessment, conclusions, and recommendations.

2.0 ACCESS TO THE SITE - BY MODE

2.1 The development consists of a total of 23 traditional residential houses and 115 residential apartment units, arranged in blocks together with ancillary/supporting facilities. The site is within close proximity to high quality alternative modes of transport, with secure off street parking areas for bicycles and a reduced number of private cars proposed along with bins storage, electrical room, plant enclosures and all associated site works.

2.2 For a Residential Development, it is essential for the successful Travel Planning to concentrate on journeys associated with work and school commuting patterns. These are the groups which can most practically be encouraged to use modes of transport other than the car.

2.3 It should be noted that, being located within easy walking distance of Hazelhatch/Celbridge Train Station, this contributes to sustainable living, with Dublin City employment opportunities, retail and leisure all located within easy commuting distance. The measures and initiatives below are relevant and assist in addressing the transportation demands of the proposed scheme.

Cycling and Walking Facilities

2.4 At present, pedestrian/cycle traffic at/to the existing site is served by an extensive network of footpaths and some cycle lanes/facilities, all as set out on the NTAs plans, with an extract below as ***Figure 2.1***

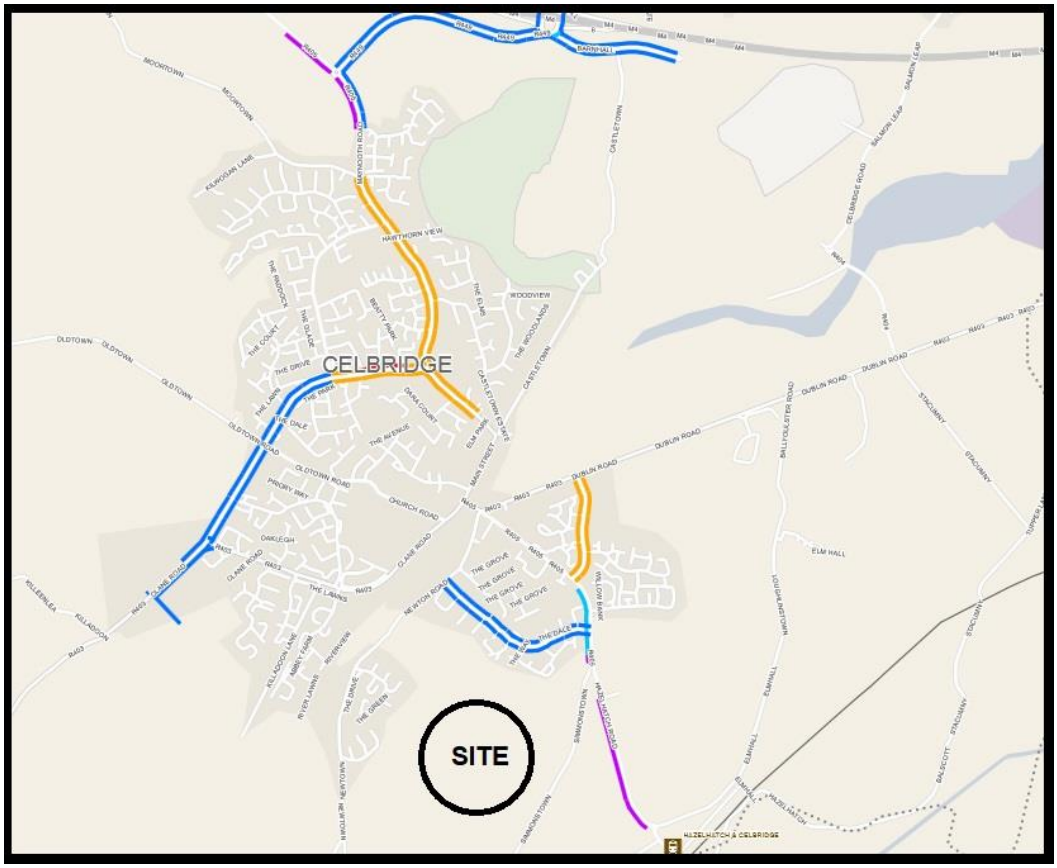


Figure 2.1 – Existing Cycle Facilities Serving Site, NTA Document

2.5 An extract from the Plan showing the Drawing Legend that applies to the above is as included below as ***Figure 2.2***

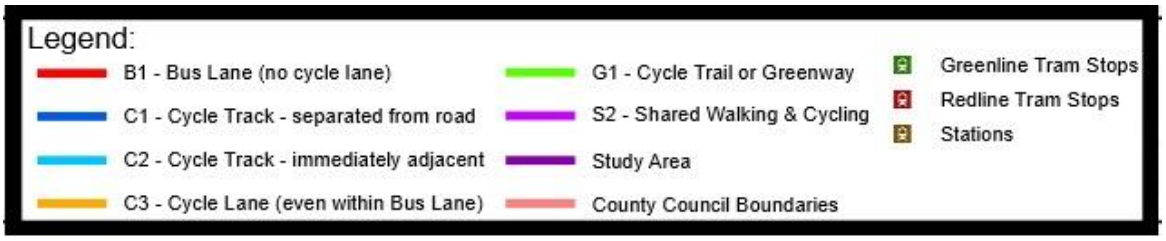


Figure 2.2 – Legend/Key from NTA Plans

2.6 The facility currently provided is best illustrated as ***Figure 2.3*** below.

Figure 2.3 – Existing Facilities on Hazelhatch Rd

2.7 The cycle facilities within the local area are ever improving, and of course the nature of Celbridge (with major colleges and employers nearby) is that the GDA cycle network will be rolled out as the nature of the environment changes. There is clearly scope to provide the facilities to create the plan as set out in the NTA's GDA Cycle Network Plan for this area of Kildare. An extract from the plan is This is as illustrated in ***Figure 2.4*** below.

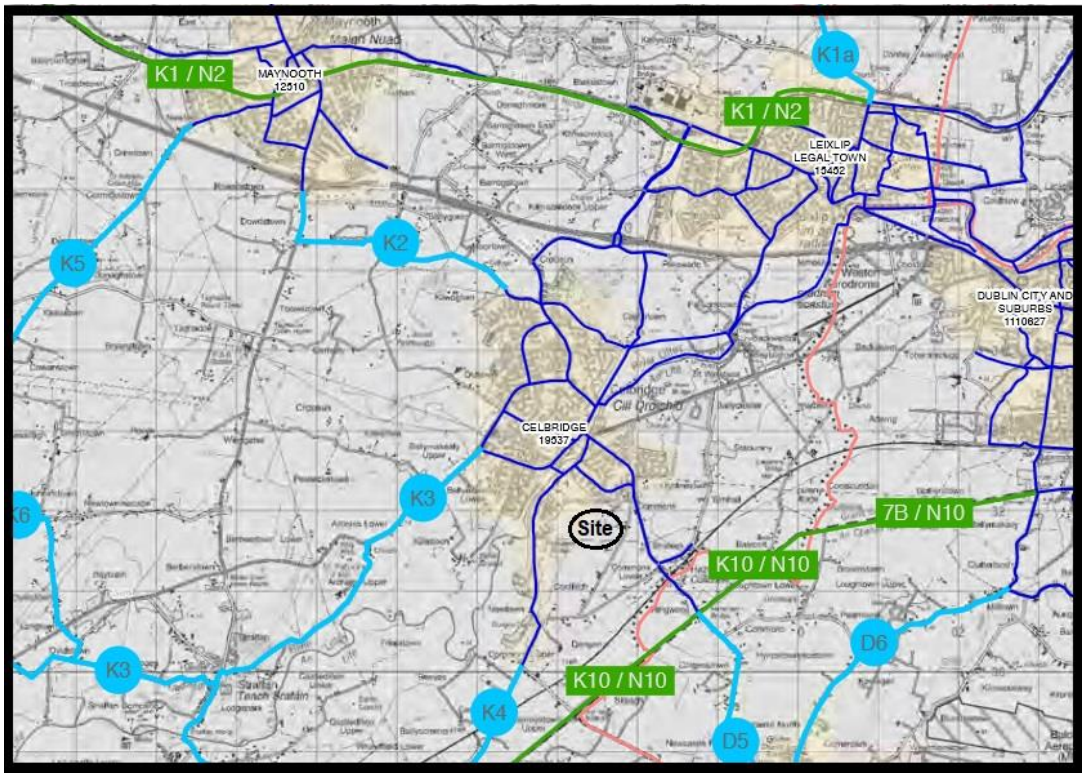


Figure 2.4 – NTA's Inter-Urban Cycle Network, Showing Site

2.8 The site is clearly linked to the overall GDA Cycle Network Plan by way of the K10/N10 Greenway as shown above and as illustrated in the GDA extract included below as ***Figure 2.5***. This demonstrates the cyclist permeability of the location to the overall Dublin City Area

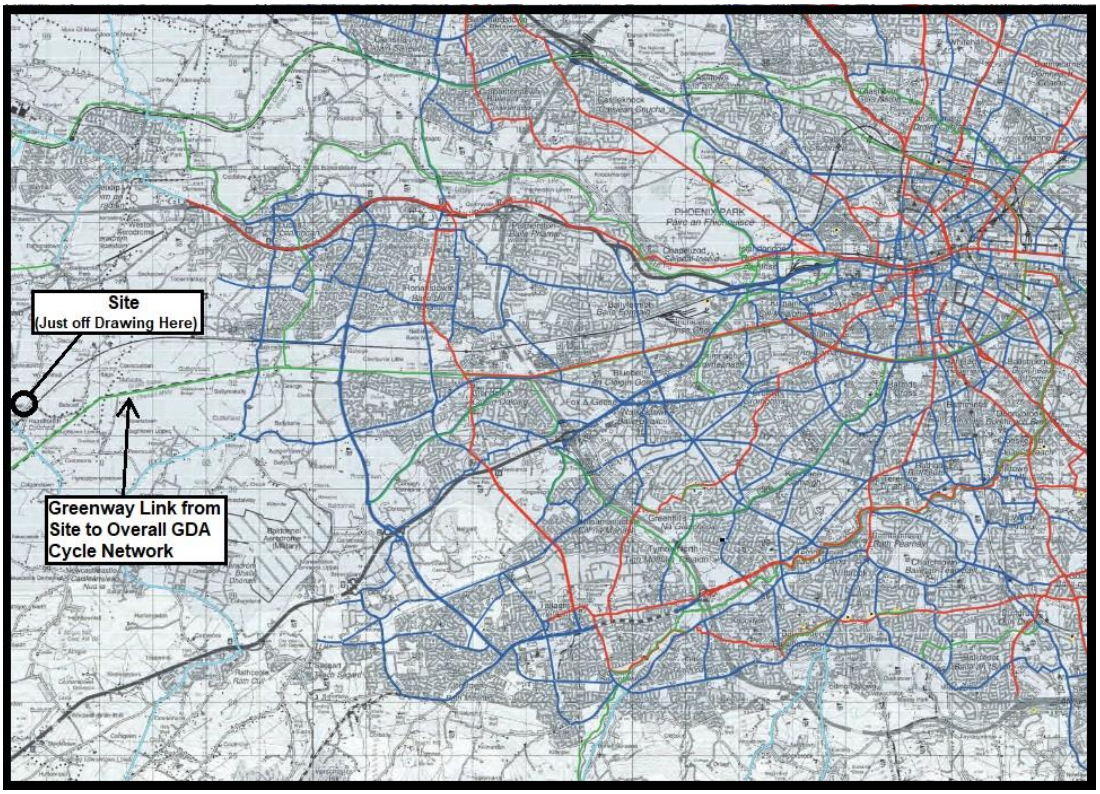


Figure 2.5 – NTA's GDA Cycle Network Plan Showing Site Proximity

2.9 The key to cycle accessibility is convenient safe links, with secure and carefully sited cycle parking. Cycling is ideal for shorter journeys. The provision of cycle parking for the site is addressed in more detail within ***Section 2.0*** of the ***TA Report***.

2.10 For journeys greater than 8km, it is recognised that a modal shift to cycling could be achievable for some, but not all, and options such as public transport and car sharing should be considered. Journeys up to 8km could be undertaken by bicycle and journeys up to 3-4km could be undertaken by walking or cycling.

2.11 To illustrate the extent of the GDA accessible by both Bicycle (8km) and on foot (2km) we have included below approximate 'Iso-Distance Mapping' for an 8km and 2km Radius from the site. These illustrate the extent of the employment, retail, and schools within sustainable travel distance of the site, as ***Figure 2.6*** and ***Figure 2.7***. In these terms, residents would not have a requirement to own a car, supporting sustainable living.

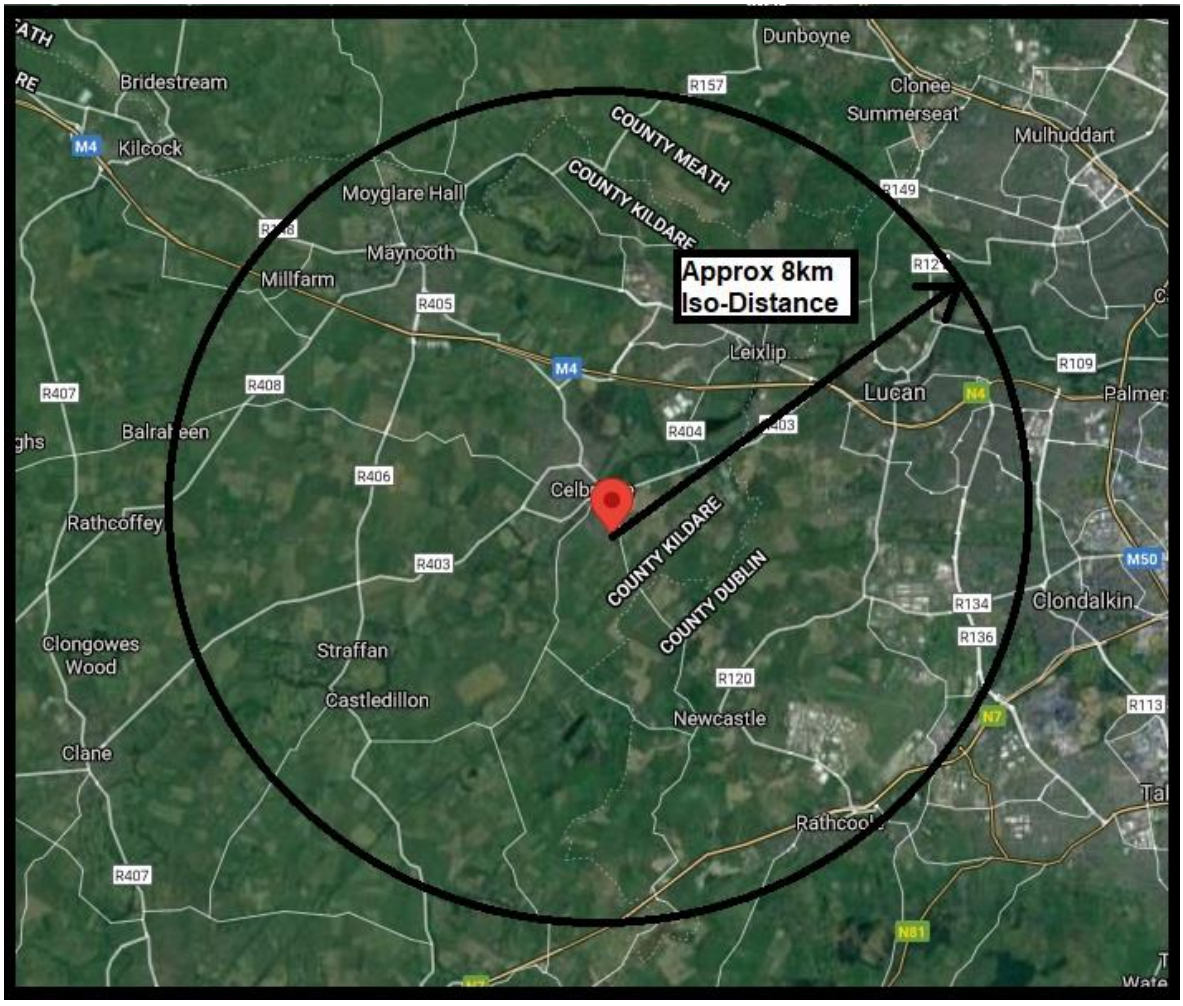


Figure 2.6 – 8km Radius Iso-Distance of the Subject Site (Cycle)

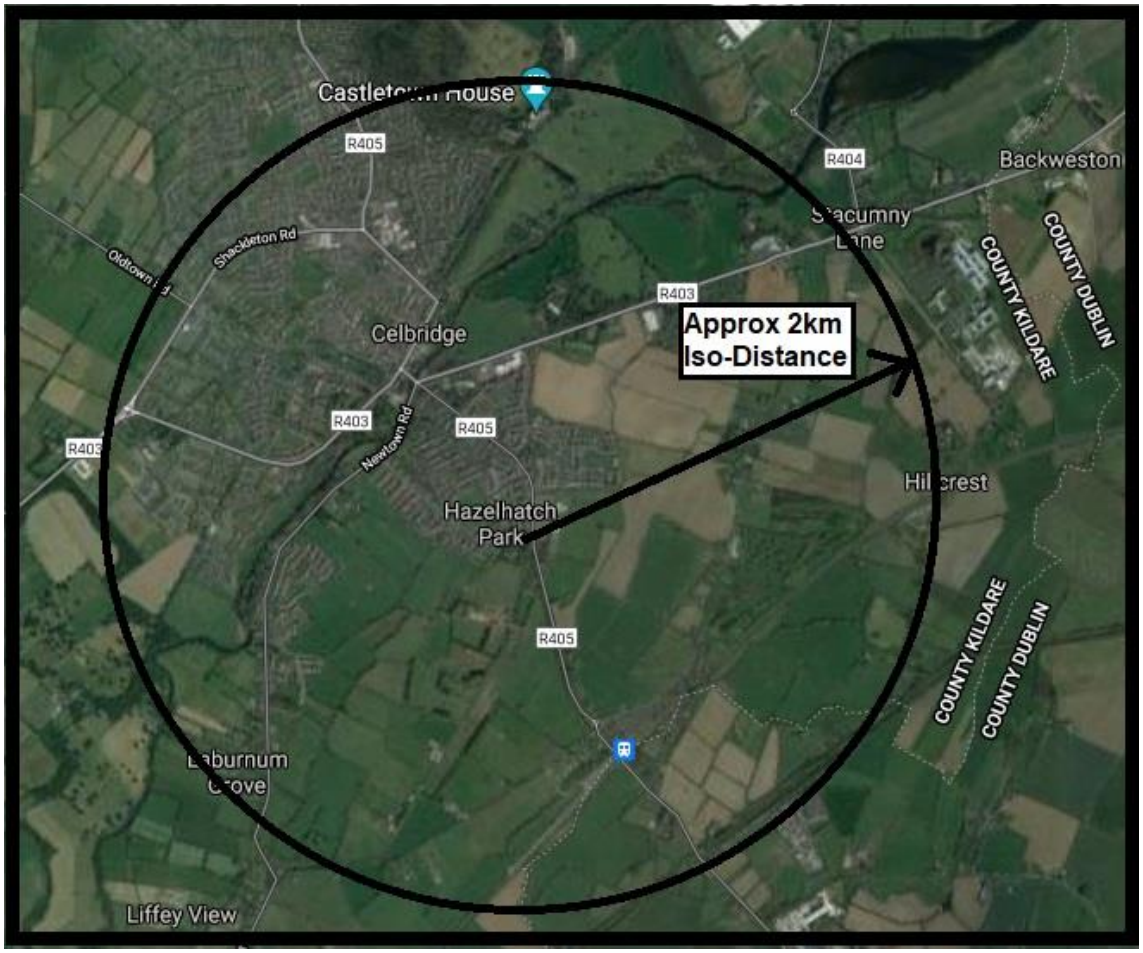


Figure 2.7 – 2km Radius Iso-Distance of the Subject Site (Walk)

2.12 The proposed site clearly can support sustainable living in terms of cycle and walking accessibility to schools, employment, and services as set out above.

2.13 Bicycle sharing facilities are becoming ever more popular with the Dublin Bikes and BleeperBike initiatives spreading ever further throughout the City and into Suburbs such as Celbridge. These facilities offer a bicycle sharing alternative mode of transport.

Cycle Parking

2.14 Given the clear accessibility of the location as demonstrated above, it is anticipated that a significant number of residents can be encouraged to cycle to work and school etc. with the safe links and secure parking which are in place (and that is reflected in the provision of 174 No. dedicated cycle parking spaces consistent with the National Apartment Guidelines, as set out in Section 2 of the TA Report). The provision is considered appropriate in terms of published policy documents.

2.15 The Kildare Development Plan and NTA Policy Documents vision is to cultivate a cycling culture, through the implementation of appropriate infrastructure and promotional measures, which positively encourages all members of the community to cycle at all life stages and abilities as a mode of sustainable transport that delivers environmental, health and economic benefits to both the individual and the community.

COMMUTER RAIL ACCESSIBILITY

2.16 The site is located within a very short walk or cycle distance of Hazelhatch & Celbridge Railway Station, which has an excellent commuter rail service to/from the city. In addition of course there is an excellent Park and Ride facility at the Station. The proximity to the Railway Station, being a 13 minute walk or 4 minute cycle, is illustrated in ***Figure 2.8*** below.

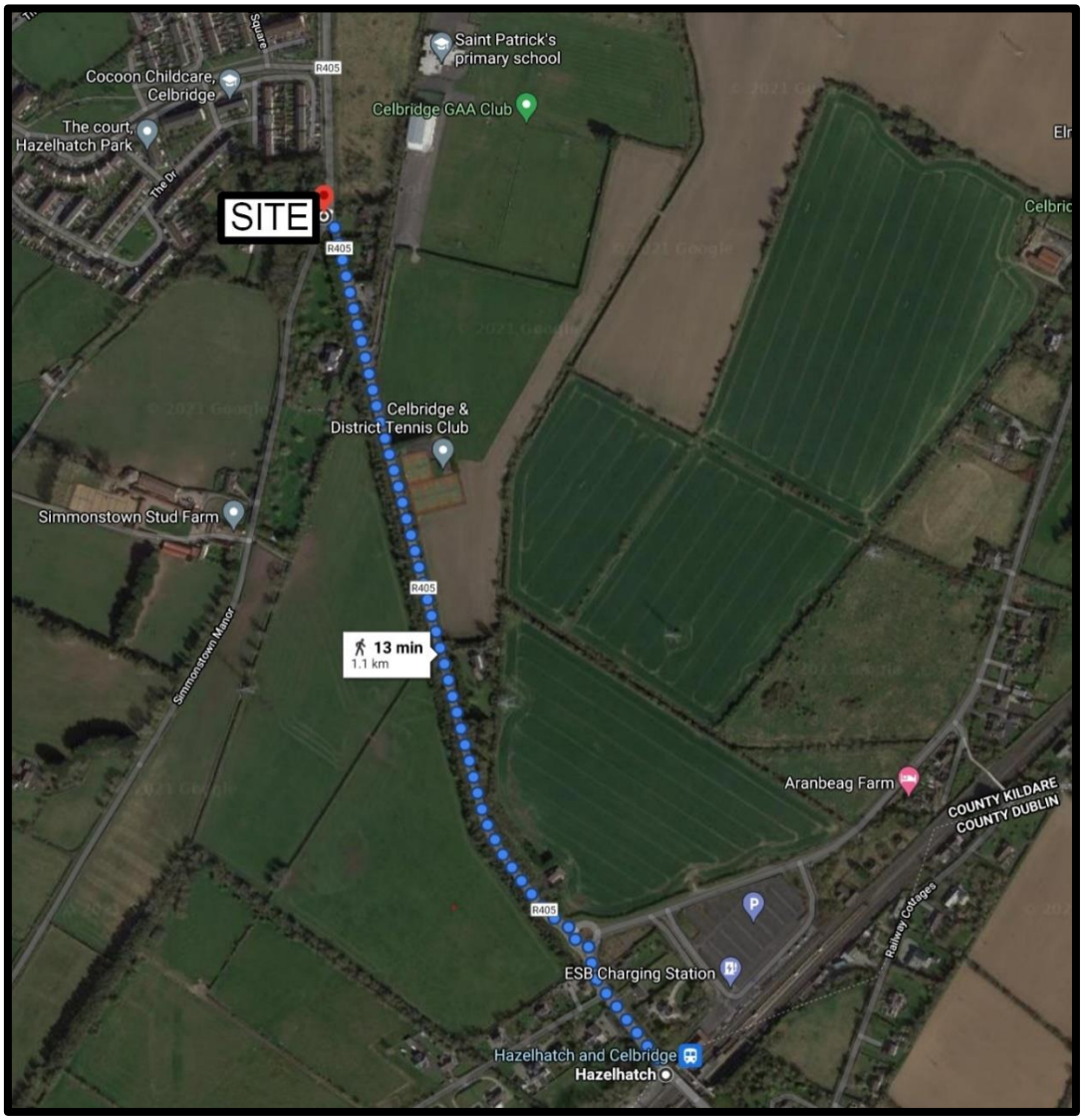
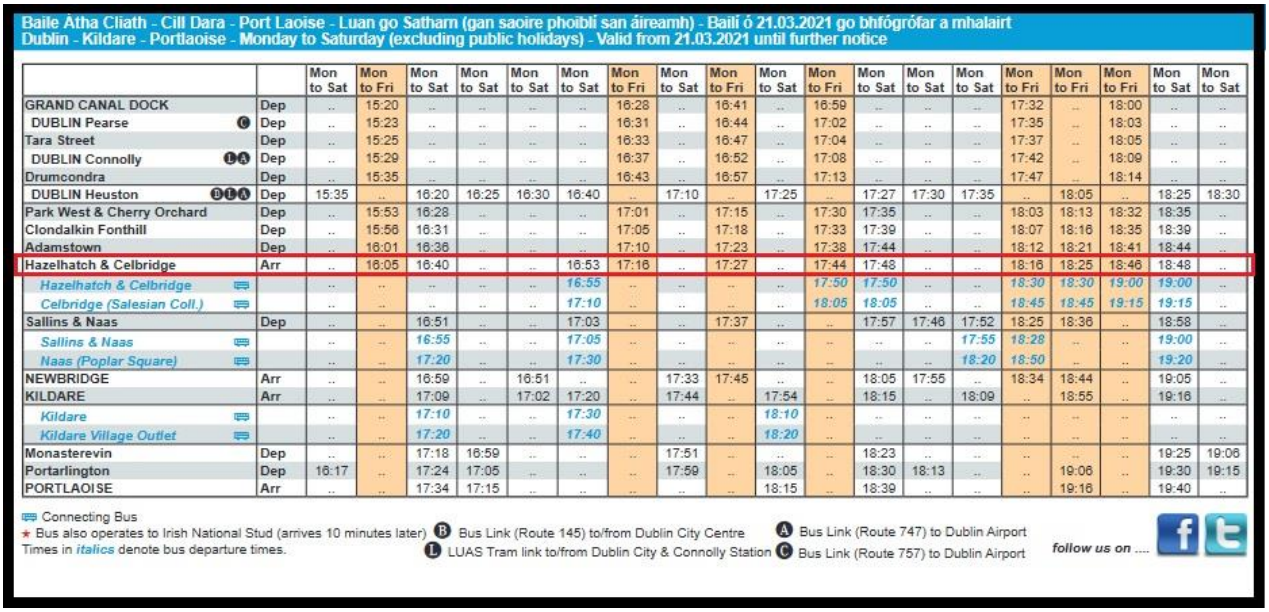


Figure 2.8 – Proximity to Railway Station

2.17 In terms of the frequency and availability of commuter services, extracts from the Timetable for both the weekday AM and PM peak periods are included below as ***Figure 2.9*** and ***Figure 2.10***.

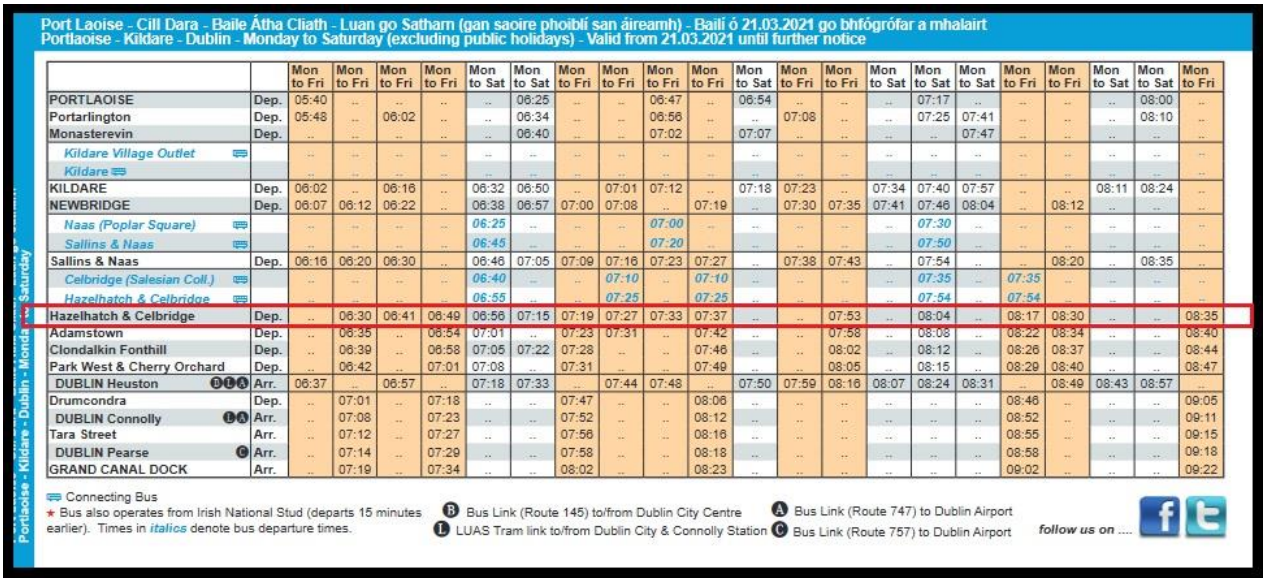


Baile Átha Cliath - Cill Dara - Port Laoise - Luan go Satharn (gan saoire phoiblí san áireamh) - Bailí ó 21.03.2021 go bhfógrófar a mhalairt
Dublin - Kildare - Portlaoise - Monday to Saturday (excluding public holidays) - Valid from 21.03.2021 until further notice

		Mon to Sat	Mon to Fri	Mon to Sat	Mon to Sat	Mon to Sat	Mon to Sat	Mon to Fri	Mon to Sat	Mon to Fri	Mon to Sat	Mon to Fri	Mon to Sat	Mon to Sat	Mon to Sat	Mon to Sat	Mon to Fri	Mon to Fri	Mon to Fri	Mon to Sat	Mon to Sat
GRAND CANAL DOCK	Dep	..	15:20	..	..	..	..	16:28	..	16:41	..	16:59	..	..	..	17:32	..	18:00	..	..
DUBLIN Pearse C	Dep	..	15:23	..	..	..	..	16:31	..	16:44	..	17:02	..	..	..	17:35	..	18:03	..	..
Tara Street	Dep	..	15:25	..	..	..	..	16:33	..	16:47	..	17:04	..	..	..	17:37	..	18:05	..	..
DUBLIN Connolly LA	Dep	..	15:29	..	..	..	..	16:37	..	16:52	..	17:08	..	..	..	17:42	..	18:09	..	..
Drumcondra	Dep	..	15:35	..	..	..	..	16:43	..	16:57	..	17:13	..	..	..	17:47	..	18:14	..	..
DUBLIN Heuston BLA	Dep	15:35	..	16:20	16:25	16:30	16:40	..	17:10	..	17:25	..	17:27	17:30	17:35	..	18:05	..	18:25	18:30	
Park West & Cherry Orchard	Dep	..	15:53	16:28	..	..	..	17:01	..	17:15	..	17:30	17:35	..	..	18:03	18:13	18:32	18:35	..	
Clondalkin Fonthill	Dep	..	15:56	16:31	..	..	..	17:05	..	17:18	..	17:33	17:39	..	..	18:07	18:16	18:35	18:39	..	
Adamstown	Dep	..	16:01	16:36	..	..	..	17:10	..	17:23	..	17:38	17:44	..	..	18:12	18:21	18:41	18:44	..	
Hazelhatch & Celbridge	Arr	..	16:05	16:40	..	..	16:53	17:16	..	17:27	..	17:44	17:48	..	..	18:16	18:25	18:46	18:48	..	
Hazelhatch & Celbridge		..	..	..	..	..	*16:55*	..	..	..	..	*17:50*	*17:50*	..	..	*18:30*	*18:30*	*19:00*	*19:00*	..	
Celbridge (Salesian Coll.)		..	..	..	..	..	*17:10*	..	..	..	..	*18:05*	*18:05*	..	..	*18:45*	*18:45*	*19:15*	*19:15*	..	
Sallins & Naas	Dep	..	..	16:51	..	..	17:03	..	..	17:37	..	..	17:57	17:46	17:52	18:25	18:36	..	18:58	..	
Sallins & Naas		..	..	*16:55*	..	..	*17:05*	..	..	..	..	..	..	..	*17:55*	*18:28*	..	..	*19:00*	..	
Naas (Poplar Square)		..	..	*17:20*	..	..	*17:30*	..	..	..	..	..	..	..	*18:20*	*18:50*	..	..	*19:20*	..	
NEWBRIDGE	Arr	..	..	16:59	..	16:51	..	..	17:33	17:45	..	..	18:05	17:55	..	18:34	18:44	..	19:05	..	
KILDARE	Arr	..	..	17:09	..	17:02	17:20	..	17:44	..	17:54	..	18:15	..	18:09	..	18:55	..	19:16	..	
Kildare		..	..	*17:10*	..	..	*17:30*	..	..	..	*18:10*	..	..	..	..	..	..	..	..	..	
Kildare Village Outlet		..	..	*17:20*	..	..	*17:40*	..	..	..	*18:20*	..	..	..	..	..	..	..	..	..	
Monasterevin	Dep	..	..	17:18	16:59	..	..	..	17:51	..	..	..	18:23	..	..	..	..	..	19:25	19:06	
Portarlington	Dep	16:17	..	17:24	17:05	..	..	..	17:59	..	18:05	..	18:30	18:13	..	..	19:06	..	19:30	19:15	
PORTLAOISE	Arr	..	..	17:34	17:15	..	..	..	..	..	18:15	..	18:39	..	..	..	19:16	..	19:40	..	

Connecting Bus
★ Bus also operates to Irish National Stud (arrives 10 minutes later)
Times in *italics* denote bus departure times.
B Bus Link (Route 145) to/from Dublin City Centre
L LUAS Tram link to/from Dublin City & Connolly Station
A Bus Link (Route 747) to Dublin Airport
C Bus Link (Route 757) to Dublin Airport
follow us on ....

Figure 2.9 – Train Timetable Weekday PM Arrivals



Port Laoise - Cill Dara - Baile Átha Cliath - Luan go Satharn (gan saoire phoiblí san áireamh) - Bailí ó 21.03.2021 go bhfógrófar a mhalairt
Portlaoise - Kildare - Dublin - Monday to Saturday (excluding public holidays) - Valid from 21.03.2021 until further notice

Portlaoise - Kildare - Dublin - Monday to Saturday

		Mon to Fri	Mon to Fri	Mon to Fri	Mon to Fri	Mon to Sat	Mon to Sat	Mon to Fri	Mon to Fri	Mon to Fri	Mon to Sat	Mon to Fri	Mon to Sat	Mon to Fri	Mon to Fri	Mon to Sat	Mon to Sat	Mon to Sat	Mon to Fri	Mon to Fri	Mon to Fri	Mon to Sat	Mon to Sat	Mon to Fri
PORTLAOISE	Dep.	05:40	..	..	..	..	06:25	..	..	06:47	..	06:54	..	..	..	07:17	..	..	..	..	08:00	..	
Portarlington	Dep.	05:48	..	06:02	..	..	06:34	..	..	06:56	..	..	07:08	..	..	07:25	07:41	..	..	..	08:10	..	
Monasterevin	Dep.	..	..	..	..	..	06:40	..	..	07:02	..	07:07	..	..	..	..	07:47	..	..	..	..	..	
Kildare Village Outlet		..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
Kildare		..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
KILDARE	Dep.	06:02	..	06:16	..	06:32	06:50	..	07:01	07:12	..	07:18	07:23	..	07:34	07:40	07:57	..	..	08:11	08:24	..	
NEWBRIDGE	Dep.	06:07	06:12	06:22	..	06:38	06:57	07:00	07:08	..	07:19	..	07:30	07:35	07:41	07:46	08:04	..	08:12	..	..	..	
Naas (Poplar Square)		..	..	..	..	*06:25*	..	..	..	*07:00*	..	..	..	..	..	*07:30*	..	..	..	..	..	..	
Sallins & Naas		..	..	..	..	*06:45*	..	..	..	*07:20*	..	..	..	..	..	*07:50*	..	..	..	..	..	..	
Sallins & Naas	Dep.	06:16	06:20	06:30	..	06:46	07:05	07:09	07:16	07:23	07:27	..	07:38	07:43	..	07:54	..	..	08:20	..	08:35	..	
Celbridge (Salesian Coll.)		..	..	..	..	*06:40*	..	..	*07:10*	..	*07:10*	..	..	..	..	*07:35*	..	*07:35*	..	..	..	..	
Hazelhatch & Celbridge		..	..	..	..	*06:55*	..	..	*07:25*	..	*07:25*	..	..	..	..	*07:54*	..	*07:54*	..	..	..	..	
Hazelhatch & Celbridge	Dep.	..	06:30	06:41	06:49	06:56	07:15	07:19	07:27	07:33	07:37	..	..	07:53	..	08:04	..	08:17	08:30	..	..	08:35	
Adamstown	Dep.	..	06:35	..	06:54	07:01	..	07:23	07:31	..	07:42	..	..	07:58	..	08:08	..	08:22	08:34	..	..	08:40	
Clondalkin Fonthill	Dep.	..	06:39	..	06:58	07:05	07:22	07:28	..	..	07:46	..	..	08:02	..	08:12	..	08:26	08:37	..	..	08:44	
Park West & Cherry Orchard	Dep.	..	06:42	..	07:01	07:08	..	07:31	..	..	07:49	..	..	08:05	..	08:15	..	08:29	08:40	..	..	08:47	
DUBLIN Heuston BLA	Arr.	06:37	..	06:57	..	07:18	07:33	..	07:44	07:48	..	07:50	07:59	08:16	08:07	08:24	08:31	..	08:49	08:43	08:57	..	
Drumcondra	Dep.	..	07:01	..	07:18	..	..	07:47	..	..	08:06	..	..	..	..	..	..	08:46	..	..	..	09:05	
DUBLIN Connolly LA	Arr.	..	07:08	..	07:23	..	..	07:52	..	..	08:12	..	..	..	..	..	..	08:52	..	..	..	09:11	
Tara Street	Arr.	..	07:12	..	07:27	..	..	07:56	..	..	08:16	..	..	..	..	..	..	08:55	..	..	..	09:15	
DUBLIN Pearse C	Arr.	..	07:14	..	07:29	..	..	07:58	..	..	08:18	..	..	..	..	..	..	08:58	..	..	..	09:18	
GRAND CANAL DOCK	Arr.	..	07:19	..	07:34	..	..	08:02	..	..	08:23	..	..	..	..	..	..	09:02	..	..	..	09:22	

Connecting Bus
★ Bus also operates from Irish National Stud (departs 15 minutes earlier). Times in *italics* denote bus departure times.
B Bus Link (Route 145) to/from Dublin City Centre
L LUAS Tram link to/from Dublin City & Connolly Station
A Bus Link (Route 747) to Dublin Airport
C Bus Link (Route 757) to Dublin Airport
follow us on ....

Figure 2.10 – Train Timetable Weekday AM Departures

2.18 It is quite clear from the above that the site will benefit from easy access by rail to/from Dublin City Centre and intermediate stations, and transport links within the City and other to national destinations.

BUS ACCESSIBILITY

2.19 The development is well placed to take advantage of service currently serving Celbridge town centre. The #67 Dublin Bus Service to/from Merrion Square serves Celbridge Town Centre and provides a link to Maynooth and Maynooth Train Station. The proximity of the site to Celbridge Bus Stops for the existing #67 service, some 1km north of the site, is illustrated in ***Figure 2.11*** below

Figure 2.11 – Site Proximity to Dublin Bus Service #67

2.20 In terms of **Future Planned Services**, the NTA have recently published details of the overall bus network for the GDA, including Celbridge - showing Spine Routes, Feeder and Orbital Routes. An extract from the NTA Plans showing the site location is included below as ***Figure 2.12***

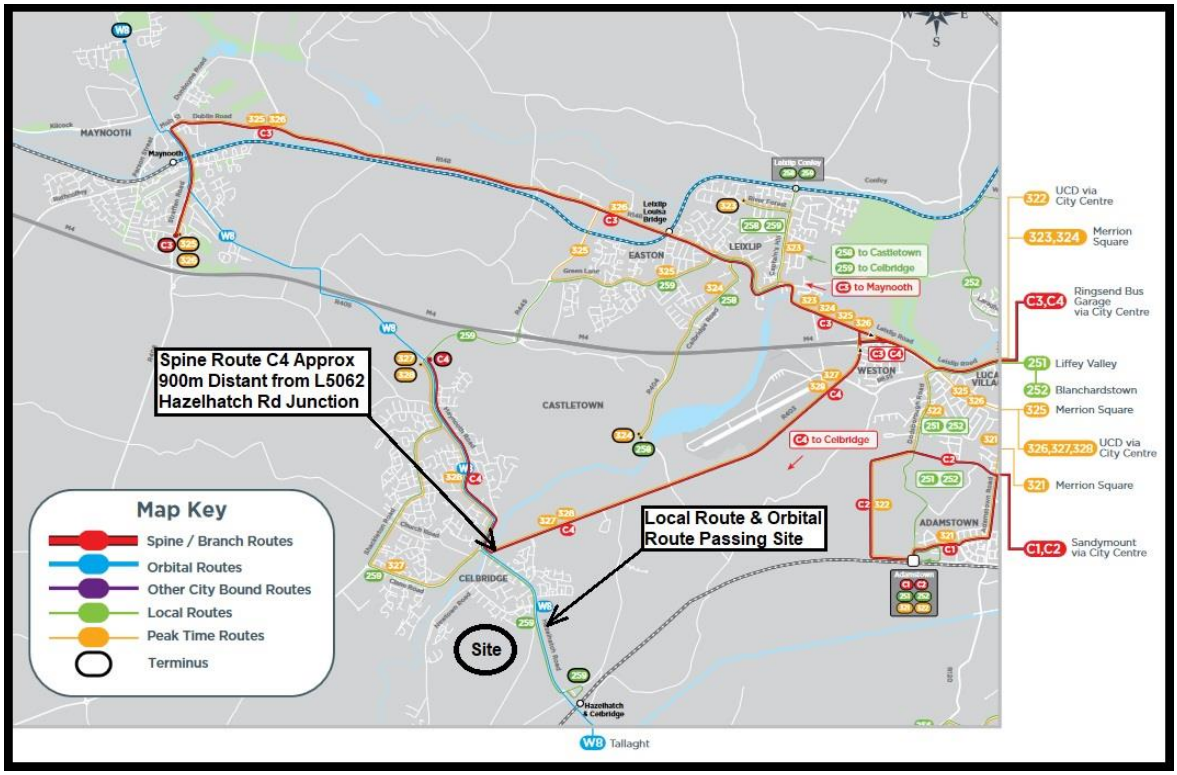


Figure 2.12 – Site Proximity to Core Bus Connects Plans

2.21 This future network shows that the site's accessibility to bus services will be further enhanced, with a high frequency and permeable service to be provided via the 'Main Spine Routes' C4 just north of the site, with a local and feeder route planned to pass the site on Hazelhatch Road.

MAINLINE BUS AND RAIL

2.22 Hazelhatch is of course on the main Dublin-Cork and Dublin-Limerick Train Service lines. And of course, with the high frequency existing Bus and Rail Service, and with the proposed improved services to/from the city, the site is therefore also within easy reach of the mainline Nationwide Bus & Train Services - trains via Connolly & Heuston Stations and Buses via Busarus Terminus.

TAXI ACCESSIBILITY

2.23 In terms of taxis, modern communication devices (e.g., 'FreeNow' and 'Lynk') now allow taxis to be ordered on a demand-basis, without any requirement for formal taxi ranks or dedicated taxi holding areas.

WALKING

2.24 The permeability locally for walking by residents is addressed above – and of course, being within close proximity to the Celbridge town centre this means that schools, services and employment destinations are within an easy and acceptable walk-commute of the site.

2.25 In these terms we believe that walking will represent the most popular mode of home-work-home and home-school-home travel for residents.

2.26 With ease of accessibility by Bus and Rail, and in particular with the high frequency existing rail services, and with the clear accessibility for walking and cycling as demonstrated above, it is therefore considered that the proposed development is highly sustainable in terms of public transport accessibility. The proximity of the development to existing public transport services, and planned improved services, means that end occupiers/residents will have viable alternatives to the private car for accessing the site and will not be reliant whatsoever upon the car as a primary mode of travel

RESIDENTS COMMUNICATION

2.27 Prior to moving in, the Management Company will issue welcome packs to all residents. These packs include details of the development and how it is run, advice on moving in, public transport information, useful local information, the restricted availability of on-site parking and can require confirmation of a timeslot to move in. The preparation of this information ensures residents are familiar with the operation of the development before moving in.

2.28 In terms of number of transport alternatives easily available to Residents, it is considered that the proposed development is very highly sustainable in terms of public and alternative transport accessibility. The proximity of the development to existing public transport services means that all residents will have viable alternatives to the private car for accessing the site and will not be reliant upon the car as a primary mode of travel.

2.29 Direct and high-quality pedestrian linkages are provided between the site and the existing pedestrian facilities on the surrounding road network. The entrances to the site will be well lit, so that people can feel secure in using the facilities and can also be monitored by CCTV.

2.30 Public transport maps and timetables can be provided in prominent locations on site and the information will be kept up to date by the appointed Travel Plan Coordinator, a role for the Management Company.

2.31 Working Residents are generally now offered the opportunity to purchase public transport commuter tickets under the current ‘Employer Pass’ and ‘TaxSaver’ programmes, by individual Employers. Under these schemes the employer applies to Iarnród Éireann / Bus Éireann for tax free public transport tickets for their employees as an incentive for them to use public transport to travel to work.

2.32 With this in mind, the main focus of this Preliminary Travel Plan will be to promote and support the use of alternative modes to the private car.

3.0 COLLECTION OF BASELINE INFORMATION

Possible Travel Pattern Questionnaires

3.1 Once occupied, and when the Travel Plan Coordinator is appointed, the occupiers of the proposed development will be encouraged to regularly monitor the Travel Plan initiatives in order to maximise on their success.

3.2 Shortly after occupation of the new development, a detailed travel-questionnaire will be compiled and distributed to residents for completion. The aim of the travel questionnaire will be to establish travel patterns between work and home and school among other travel demands. The information gathered from this survey will be used to inform the further development of the Travel Plan.

3.3 The Baseline Survey information will also allow the Travel Plan Coordinator for the development to set realistic modal-split targets for the development.

3.4 It is anticipated that, given the very-much town centre location and good transport links at this development, combined with the lack of car parking on site, there will be a high percentage of use via public and alternative transport. The Travel Plan will need to maintain this positive modal split and improve it, where possible. It is informative to note that the "Smarter Travel: A Sustainable Transport Future" (DOT) Objective for 2020 is to achieve a reduced work-related commuting by car modal share of 65% to 45%.

4.0 THE TRAVEL PLAN

4.1 The successful implementation of a Travel Plan will ensure that, in-so-far-as-possible, the impacts of this traffic are reduced and minimised where practical, while providing a number of environmental and economic advantages detailed below.

4.2 The following sub-sections detail the available initiatives which will serve to better manage travel demand, and therefore the traffic impact of work-related journeys, focused on the movement of residents during peak times.

Walking - Key Information	
Approx. Zone of Influence	3.5km
Percentage of Residents travelling in area of influence	TBC in each survey when occupied
Percentage of Residents interested in Walking	TBC in each survey when occupied

Table 4.1 – Key Information: Walking

4.3 There are many local, global, and personal benefits to walking, a few of which are listed following:

- **W** - Wake Up! - Studies have shown that people who walk are more awake and find it easier to concentrate.
- **A** - Always one step ahead - Walking makes people more aware of road safety issues and helps them develop stronger personal safety skills.
- **L** - Less congestion - If you leave the car at home and walk, there are fewer cars on the road which makes it safer for those who walk and cycle.
- **K** - Kinder to the environment - By leaving the car at home you are reducing the amount of CO 2 produced and helping to reduce the effects of climate change and air pollution.
- **I** - Interpersonal skills - Walking can be a great way to meet other walkers, share the experience, and develop personal skills.
- **N** - New adventures - Walking is a great way to learn about your local environment and community. It's also a fun way to learn about the weather, landscape, and local ecosystems.
- **G** - Get fit and stay active - Walking helps people incorporate physical activity into their daily routines. Research shows that regular physical activity can benefit your body and mind.

4.4 Most adults will consider walking a maximum of 3.5 km (Approx. 30/40 minutes). Residents working within a 3.5 km radius of the site will be encouraged to walk as often as their schedule permits.

4.5 The following initiatives and incentives can be used to encourage walking:

- Take part in a 'Pedometer Challenge' which is organised through the Irish Heart Foundation or Smarter Travel Workplaces,
- Organise special events such as a 'Walk to work/school on Wednesdays' where participants are rewarded for their participation,
- Keep umbrellas in public areas on a deposit system for use when raining,
- Display Smarter Travel Workplaces Accessibility Walking maps on notice boards areas so residents can plan journeys,
- Organise lunch time or afternoon walks as part of a health and well-being programme,
- Highlight the direct savings gained due to reduced use of private vehicles.

Cycling – Key Information	
Approx. zone of influence	10km
Percentage of Residents travelling in area of influence	TBC in each survey when occupied
Percentage of Residents interested in cycling	TBC in each survey when occupied

Table 4.2: Key Information - Cycling

4.6 Research suggests that cycling is a viable mode of transport for people who live up to 10 km from work or school.

4.7 Cycling is a great way to travel. It helps foster independence, raises awareness of road safety, and helps the environment.

4.8 Some positive aspects of cycling are listed following:

- **C** - Cycling is fun! - Cycling is a great form of transport but it's also a great recreational activity. Cycling is a skill that stays with you for life and it's a fantastic way to explore your local community,
- **Y** - You save time & money - cycling reduces the need to travel by car thus reducing fuel costs and freeing up road space for more cyclists,
- **C** - Confidence building - travelling as an independent cyclist can give people increased confidence proving beneficial in all aspects of life,
- **L** - Less congestion - If you leave the car at home and cycle there are fewer cars on the road which makes it safer for those who cycle and walk,
- **I** - Interpersonal skills - Cycling can be a great way to meet other cyclists and share the experience,
- **N** - New adventures - Cycling is a great way to learn about your local environment

and community. It helps people to understand where they live and how their actions affect their local environment,

- **G** - Get fit and stay active - cycling helps people incorporate physical activity into their daily routines. Research shows that regular physical activity can benefit your body and mind.

4.9 The provision of enhanced and attractive cycle parking facilities at the site will clearly play a critical role in promoting journeys by bicycle.

4.10 The following initiatives and incentives can be used to encourage cycling:

- New cycle parking installed within the development, secure and well lit,
- Publicise cycle parking availability by way of signage and on notice boards,
- Display maps on notice boards areas so people can plan journeys,
- The development can provide free cycle accessories (panniers, lights, visi-vests, helmets) in periodic draws for cyclists,
- The Travel Plan Coordinator can organise cycle training sessions on site on the rules of the road and the specific risks associated with the locality,
- The Travel Plan Coordinator can invite bike suppliers on site for a 'Green Day' or 'Green Week' so that people can try bikes before buying,
- The Travel Plan Coordinator can set up a Bicycle User Group (BUG) to promote cycling,
- The Travel Plan Coordinator can highlight the direct savings gained due to reduced use of private vehicles,
- The Travel Plan Coordinator can encourage residents to take part in National Bike Week, see www.bikeweek.ie.

Public Transport – Key Information	
Approx. zone of influence	All Residents
Percentage of Residents travelling in area of influence	100%
Percentage of Residents using Public Transport	TBC in each survey when occupied

Table 4.3: Key Information: Public Transport

4.11 There are many benefits to taking public transport, some of which include:

- Personal Opportunities – Public transportation provides personal mobility and freedom,
- Saving fuel – Every full standard bus can take more than 50 cars off the road, resulting in fuel savings from reduced congestion,
- Reducing congestion – The more people who travel on public transport, especially

during peak periods, the less people travelling by private car,

- Saving money – Taking public transport is a lot cheaper than travelling by car and saves the cost of buying, maintaining, and running a vehicle,
- Reducing fuel consumption – A full standard bus uses significantly less fuel per passenger than the average car,
- Reducing carbon footprint – Public transport is at least twice as energy efficient as private cars. Buses produce less than half the CO2 emissions per passenger kilometre compared to cars and a full bus produces 377 times less carbon monoxide than a full car,
- Get fit and stay active - Walking to public transport helps people incorporate physical activity into their daily routines. Research shows that regular physical activity can benefit your body and mind,
- Less stress – Using public transport can be less stressful than driving yourself, allowing you to relax, read, or listen to music.

4.12 The following initiatives and incentives can be used to encourage people to take public transport:

- Publicise Employee Tax Saver Commuter tickets, which offer savings to employers in PSRI per ticket sold and significant savings to employees in marginal tax rate and levies on the price of their ticket,
- Encourage public transport use for travel by promoting smart cards, advertising the availability of these tickets to residents,
- Publicise the availability of Real Time Information. Real Time Information shows when your bus is due to arrive at your bus stop so you can plan your journey more accurately,
- Provide maps of local bus routes and the nearest bus stops and the length of time it takes to walk to them.

Car Sharing – Key Information	
Approx. zone of influence	All Residents
Percentage of Residents travelling in area of influence	100%
Percentage of Residents Car Sharing	TBC in each survey when occupied

Table 4.4: Key Information - Go-Car/Car Sharing

4.13 Every day thousands of commuters drive to work or to school on the same routes to the same destinations, at the same time as their colleagues. By car sharing just once a week, a commuter's fuel costs can be reduced by 20%, and in a similar fashion, the demand for work place parking can be reduced by 20%. If every single-occupancy driver carried another driver, there would be 50% less cars on the road at peak times.

4.14 Although use of the car to get to work or to school is essential for some people, car sharing schemes such as GoCar (which are active in Dublin) have the potential to deliver a significant reduction in private vehicle trips by promoting higher than average occupancy rates for each vehicle.

4.15 Car sharing often happens informally, however some participants often prefer a formal scheme such as a GoCar facility which will normally generate a higher take-up for car sharing, and more efficiency in terms of increased occupancy rates.

4.16 Encouraging more residents to share car journeys to work rather than driving alone as well as encouraging more to set up and take part in car sharing/pooling would prove a very effective means of reducing daily car trips to and from the site.

4.17 The following initiatives and incentives can be used to encourage car sharing:

- Draw up a car-sharing policy for how the scheme will operate,
- Highlight to drivers that they do not have to share with a person that doesn't suit them – allow choice based on gender, route, smoking or non-smoking,
- Clarify the financial implications of the scheme – those accepting a lift could contribute towards fuel costs,
- Use existing online databases for car sharing. For example, the development could set up its own private car sharing site using www.carsharing.ie.

4.18 Other travel planning measures such as the use of technology, flexible working arrangements and video conferencing facilities will and are used as part of this development to minimise travel requirements and allow people to use alternative means of transport.

Action Plan Summary Table

4.19 The Summary Action Plan is described in the Table below. Modal Split Targets will be determined following on from the first survey shortly after full occupation, typically within the first six months. This will be part of the role of the Travel Plan Coordinator. This will show existing travel patterns with realistic targets set to improve the modal split of Residents.

	Initiative	Impact on Delivery	Difficulty Delivering	Current Modal Split	Target
Residents Initiatives	Walking	Medium	Low	TBC	TBC
	Cycling	Medium	Medium	TBC	TBC
	Public Transport	High	Low	TBC	TBC
	Other	Medium	Medium	TBC	TBC
	Car - Sharing	Medium	Medium	TBC	TBC
	Cars - 1 Passenger Only	High - Negative	High	TBC	TBC
Promoting the TP	Marketing the Plan	High	Low	Driven By TP Coordinator	
	Measuring Success	High	Medium	Annual Surveys	

Action Plan Summary Table

5.0 IMPLEMENTING THE PLAN

Background

5.1 Setting realistic targets and a sustained approach to the promotion of the Travel Plan is important if the measures are to be successful. The objectives and benefits of the Plan will be made clear and broadcast during the full lifecycle of the Plan.

5.2 The implementation of a successful Travel plan will require the upfront investment of resources. As well as reviewing objectives and initiatives regularly, it is equally important to measure results. This provides an indication of any Plan's success and ensures that the targets remain realistic.

The Travel Plan Coordinator

5.3 The key objective of this Travel Plan is to ensure that the traffic impacts and car usage associated with the operation of development are minimised. Achieving this objective will result in a wide array of benefits for the development and its stakeholders.

5.4 To ensure the plan is effective it is essential for a Travel Plan Coordinator to be appointed for the Development upon occupation.

5.5 The nominated person and their contact details will be provided to the Planning Authority upon occupation of the development.

5.6 It is envisaged that the Coordinator will work closely with residents to enthusiastically promote and market the Travel Plan. As Residents will be the focus of the plan; their involvement must be sought from the outset.

5.7 To support the Travel Plan Coordinator's efforts, the Operator must ensure that they have sufficient time to carry out their duties. In addition, it is essential that the powers of decision making are bestowed upon him/her, along with a suitable budget and programme for implementation.

Promoting the Travel Plan

5.8 Active promotion and marketing is needed if the Travel Plan is to have a positive impact on stakeholder travel patterns to and from the site.

5.9 All marketing initiatives should be focused on areas where there is willingness to change. Such information has been extracted from the questionnaires and has been described in Section 3 of this Plan.

- **Identify the Aim** – e.g., to reduce low occupancy car commuting, school, and business travel & to promote active travel, public transport & alternatives to travelling by car.

- **Brand the Plan** – as part of communicating the Travel Plan, visually brand all work relating to it with a consistent look, slogan, identity, or logo.
- **Identify the Target Audience** – 'segment the audience' (e.g., shift workers, school travel, sedentary workers, people travelling long/ short distances, mode used, members of a walking club or green team) so you can target the message and events towards these different groups.

5.10 As part of the marketing process, the Travel Plan coordinator can personalise a plan for the Development, drawing attention to the benefits of participation and support for its implementation.

5.11 The Coordinator can identify communication tools and networks used by the different audiences in the development and use these to communicate about travel.

5.12 Promotional material regardless of its quality is only as good as its distribution network; material incentives assist greatly in introducing people to alternative modes of commuting.

5.13 The Coordinator can promote positive messages associated with a plan, for example, reduced tax/PRSI payments, getting fit and active, reducing congestion, reducing CO2 emissions and so on, and encourage people to start small – changing one day per week for example, to explore their options.

5.14 Marketing drives which feature individual residents who have reduced their car use can carry a strong message. This will serve to raise not only the profile of the Plan, but also send a clear message in relation to the Residents commitment to the Plan.

6.0 CONCLUSIONS

6.1 The development forming the subject of this application accords with the principles of sustainable development, being located within a developing well serviced residential neighbourhood within clear and easy access to current and planned alternative modes of travel. With slightly reduced car parking provided for the apartment element, this will also act as a travel demand management measure. The Operator, once the development is occupied, will utilise pragmatic measures that encourage safe and viable alternatives to the private car for accessing the development.

6.2 Good Travel Planning is not a one-off event, it is instead an on-going iterative process requiring continued effort. This report assists these efforts by forming an outline framework and providing guidance for its success. Monitoring and reviewing the initiatives set out within the plan will form a far greater part of the working Travel Plan itself.

6.3 The key to the Plans success will be the appointment of a ***Travel Plan Coordinator*** for the development, once occupied. They will be vested with total responsibility for implementing the plan. They should be granted the authority and time to execute the Plan and be provided with sufficient resources to realise the Plans success.

6.4 As Residents are the focus of the plan; their involvement should be sought from the outset following occupation. To this end, the Plan Coordinator should be assisted and supported by the Operator and Residents. This will serve to spread the work load, and also give the Residents a valuable input into the operation of the Plan.

6.5 Successful Travel Plans require marketing **and** regular review. The measures set out in the Action Plan Summary Table (Chapter 4) should form the basis of a sound, realistic Plan and should be clearly set out and be fully transparent to all users.

6.6 Residents also have an essential responsibility in terms of co-operating with and taking an active part in the plan. They are, after all, the plan's primary focus.

6.7 It is recommended that the working Travel Plan be set in motion full residential occupation. The plan should evolve and develop with the development, taking into account changing Residents and their travel preferences and needs.

6.8 Annual reviews of the Plan should include a full stakeholder survey, providing valuable information for target setting and marketing target groups. It is emphasised that failing to meet initial targets should not be seen as failure, as the preliminary 12 to 18 months of the plan should be viewed as a calibration exercise for target setting.

APPENDIX H

DMURS Statement of Consistency

consulting engineers

NRB

DMURS Design Statement
Technical Note
(Appendix H)

For

Proposed Residential Development

At

Glencarrig, Celbridge, Co Kildare.

SUBMISSION ISSUE

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Registered in Ireland No. 491679

1.0 INTRODUCTION

1.1 It is NRB's opinion that the proposed residential development is consistent with both the principles and guidance outlined within the *Design Manual for Urban Roads and Streets* (DMURS). The scheme proposals are the outcome of an integrated design approach. This approach seeks to implement a sustainable community connected by well-designed links, layout and accesses - which combined deliver attractive, convenient and safe access in addition to promoting modal shift and viable alternatives to car-based journeys.

1.2 The following section discusses design features which are incorporated within the proposed residential scheme with the objective of delivering a design that is consistent with the principles of DMURS.

2.0 DESIGN ATTRIBUTES

2.1 The proposed layout strategy seeks to maximise connectivity between key local destinations through the provision of a high level of **permeability and legibility** for all journeys, particularly for sustainable forms of travel (cycling and walking). The proposed residential scheme delivers greater mode & route choices along direct, attractive, and safe linkages to local amenities and schools/service destinations.

2.2 High Quality Connections between the proposed development and the local roads and public transport services are provided. The internal road layout itself been designed to deliver a hierarchy which provide safe access within / across the proposed new residential community, linking the site and community with the established and proposed local network.

2.3 Dedicated routes are provided for pedestrians and for cyclists to access the adjoining public roads. As part of the development the movement function is designed to respect the different levels of motorised traffic whilst optimising access to/from alternative transport and catering for higher number of pedestrians & cyclists. In parallel the adopted design philosophy has sought to consider the context / place status of the scheme in terms of level of connectivity provided, quality of the proposed design, level of pedestrian / cyclists activity and vulnerable users requirements whilst identifying appropriate 'transition' solutions particularly at street junctions.

2.4 The layout of the proposed development seeks to maximise permeability and enhances legibility, and the design of appropriately sized blocks actively contributes to a highly permeable and accessible community for both pedestrians and cyclists.

2.5 The proposed layout seeks to successfully create an appropriate balance between the functional requirements of different network users whilst enhancing the 'sense of place'. Design attributes of the proposed layout which contribute to achieving this ***DMURS objective*** include:

a) The main vehicular access to the development is clearly defined and distinct from the pedestrian and cyclist accesses to the development and out-with the open space.

b) The proposed scheme includes improvements to the Local Road L5062 leading to Hazelhatch Road, which will have significant benefits in terms of operational traffic and safety. The plan then offers a well-connected, sustainable, and improved but permeable network through connectivity to and through the Development, with the vehicular traffic using a separate dedicated route.

c) The proposed design deliberately seeks to specify minimal signage and line markings along the internal layout, with such treatments used sensitively throughout and predominately at key nodes and ‘transition’ areas.

d) Footpaths no less than 1.8m (generally 2.0m or wider) will be provided throughout the scheme with connections and tie-ins to existing external pedestrian networks.

e) Appropriate clear unobstructed visibility splays, as per DMURS requirements, will at the site access junctions to the external road network.

f) Well designed and frequent pedestrian crossing facilities will be provided along key travel desire lines throughout the scheme in addition to those located at street nodes. All courtesy crossings will be provided with either dropped kerbs thereby allowing pedestrians to informally assert a degree of priority. The separation of vehicular access to the development from the pedestrian and cyclist accesses to the development and the open space aid in this aspect of the layout.

g) As the primary vehicular connection to the established public roads, a simple priority-controlled junction is to be provided – and by nature this clearly provides priority to Main Road Traffic using the local road. This connects with the ever-improving Pedestrian, Cyclists and Bus Stop facilities leading to Celbridge via Hazelhatch Road R405.

h) All internal informal pedestrian crossing facilities will be at least 2.0m wide,

i) With the objective of encouraging low vehicle speeds and maximising pedestrian safety and convenience, corner radii will be 6m where swept path analysis permits and will be of further reduced radii where feasible in line with DMURS guidance.

j) Internally within the development, where carriageway kerbs are required, heights will be typically 75-80mm in accordance with the objectives of DMURS.

k) There are plans by the NTA to upgrade all of the cycle facilities in this area as outlined in the MMP. Within the development, as required cyclists will share the carriageway with other street users as per the National Cycle Manual Guidance for such situations and best practice.

l) Any required street signage and road markings will be in accordance with the Department of Transport Traffic Signs Manual, and the location and form will be agreed in advance with KCC.

APPENDIX I

Stage 1 Independent Road Safety/Quality Audit & Designer Feedback Form

Title: **Stage 1 Road Safety/Quality Audit**

(incl Pedestrians/Cyclists)

For;

Proposed Residential Development at Glencarrig, Celbridge, Co. Kildare.

Client: **NRB Consulting Engineers**

Date: **August 2022**

Report reference: **1591R01**

VERSION: **FINAL**

Prepared By:

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1.0 Introduction

This report was prepared in response to a request from Mr. Eoin Reynolds, NRB Consulting Engineers, for a Stage 1 Road Safety Audit and Quality audit (Including pedestrians and cyclists) of a proposed residential development at Glencarrig, Celbridge. Co. Kildare.

The Audit Team comprised of;

Team Leader: **Norman Bruton**, BE CEng FIEI, Cert Comp RSA.

TII Auditor Approval no. NB 168446

Team Member: **Owen O'Reilly**, B.SC. Eng Dip Struct. Eng NCEA Civil Dip Civil. Eng CEng MIEI

TII Auditor Approval no. OO1291756

The Audit involved the examination of drawings and other material provided by NRB and a site visit on the 22nd of August 2022.

The weather at the time of the site visit was dry and the road surface was damp.

This Stage 1 Road Safety Audit has been carried out in accordance with the requirements of TII Publication Number GE-STY-01024, dated December 2017.

The Quality Audit elements have been carried out in accordance with DMURS.

The scheme has been examined and this report compiled in respect of the consideration of those matters that have an adverse effect on road safety. It has not been examined or verified for compliance with any other standards or criteria.

The problems identified in this report are considered to require action in order to improve the safety of the scheme for road users.

If any of the recommendations within this audit report are not accepted, a written response is required, stating reasons for non-acceptance. Comments made within the report under the heading of Observation are intended to be for information only. Written responses to Observations are not required.

The information supplied to the Audit Team is listed in **Appendix A.**

The feedback form is contained in **Appendix B.**

A plan drawing showing the problem locations is contained in **Appendix C**.

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2.0 Background

It is proposed to construct a residential development of 115 apartments and 22 houses with ancillary Creche just off the Hazelhatch Road (R405) in Celbridge. The site has currently a single dwelling and gardens.

The site is located to the south of the existing Hazelhatch Park residential development.

The L5062 forms the south eastern boundary of the site. It is proposed to provide a simple T junction on the L5062 to facilitate vehicular access to the development. The L5062 is to be improved as far as the R405 junction to cater for the additional traffic and vulnerable road users.

It is proposed to provide a raised table at the L5062/R405 junction which will be slightly realigned so that drivers will be closer to perpendicular when entering the R405.

A 3.0m shared use cycle/pedestrian facility will be provided along the R405 to the northern extent of the site where the facilities will be segregated to tie into the existing.

Pedestrian and cyclist links will be provided off the R405 and the L5062

The speed limit on the R405 is 60km/hr and on the L5062 is 50km/hr.

The site location is shown below.

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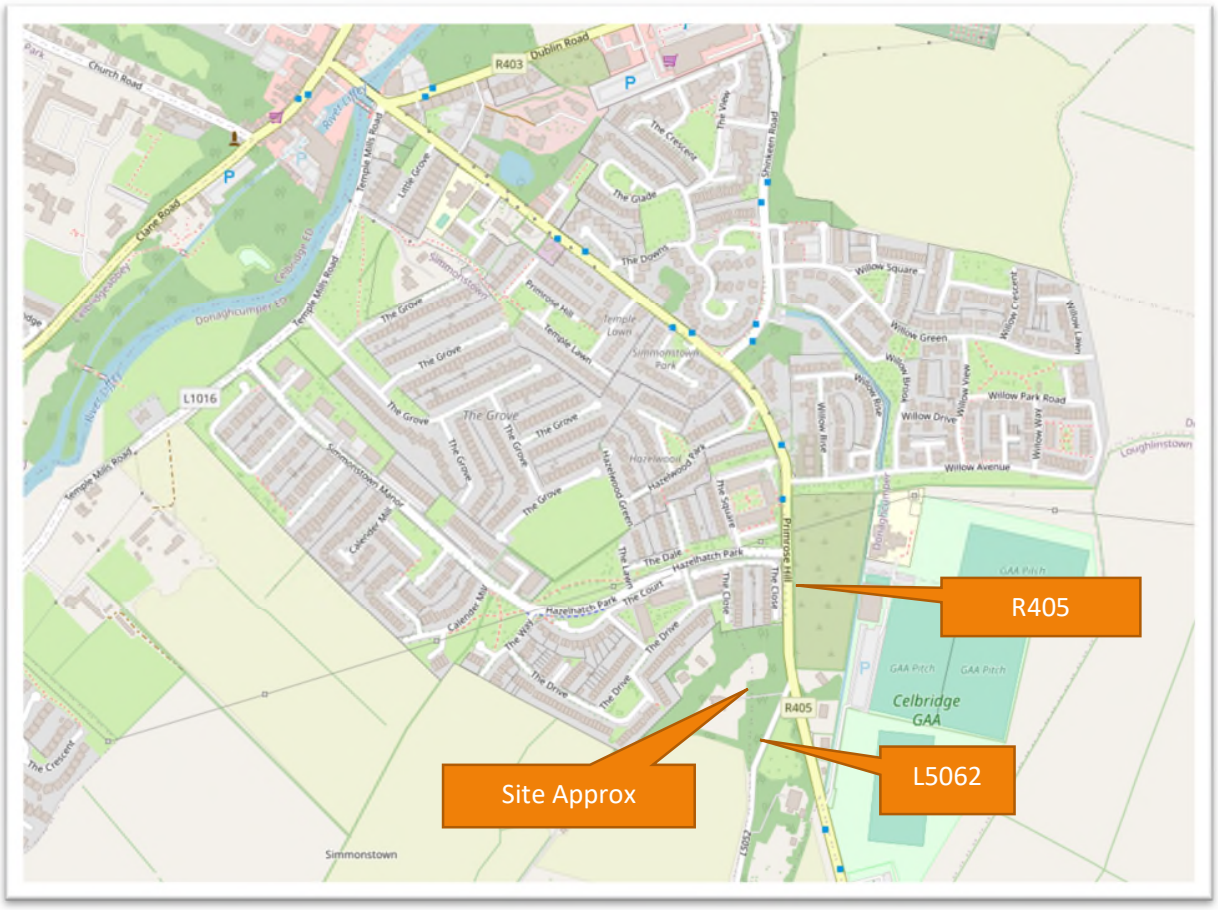

Image courtesy of openstreetmap.org

3.0 Items Raised in This Stage 1 Road Safety Audit/QA incl Pedestrians & Cyclists.

3.1. Problem

LOCATION

Drawing NRB -TA-003

PROBLEM

The sightlines at the vehicular access onto the R405 is shown through the trees. There is a risk that the cumulative effect of the trees may obscure visibility for drivers leading to side-impact or rear-end collisions.

RECOMMENDATION

It is recommended that only instantaneous obstacles be allowed in the visibility splay.

3.2 Problem

LOCATION

Drawing NRB -TA-003

PROBLEM

It is unclear if the L5062 is to be lit. A lack of lighting along the footpath and at the junction with the development and R405 could lead to drivers being unable to see pedestrians and cyclists resulting in collisions.

RECOMMENDATION

It is recommended that the L5062 be lit.

3.3 Problem

LOCATION

Drawing NRB -TA-003

PROBLEM

There are telecom poles in the existing verge of the L5062. These poles could be hazards for pedestrians is they remain and are located in the proposed footpath.

RECOMMENDATION

It is recommended that the poles be relocated to the rear of the new footpath or that the service be placed underground.

3.4 Problem

LOCATION

Drawing NRB -TA-003

PROBLEM

It is proposed to provide a cycle track along the main access road into the development. It is unclear if this cycle track links with just a footpath or as hared use surface through the development or along the L6052. A lack of continuous facilities for cyclists could lead to collisions with pedestrians.

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RECOMMENDATION

It is recommended that a continuous facility for cyclists be provided to the cycle facilities on the R405.

3.5 Problem

LOCATION

Drawing NRB -TA-003

PROBLEM

It is proposed to provide a cycle track along the access road into the development. It is unclear if this cycle track is wide enough for two-way cycling as there is no proposed cycle track on the opposite side of the carriageway. A narrow cycle facility for two-way cyclists may lead to collisions.

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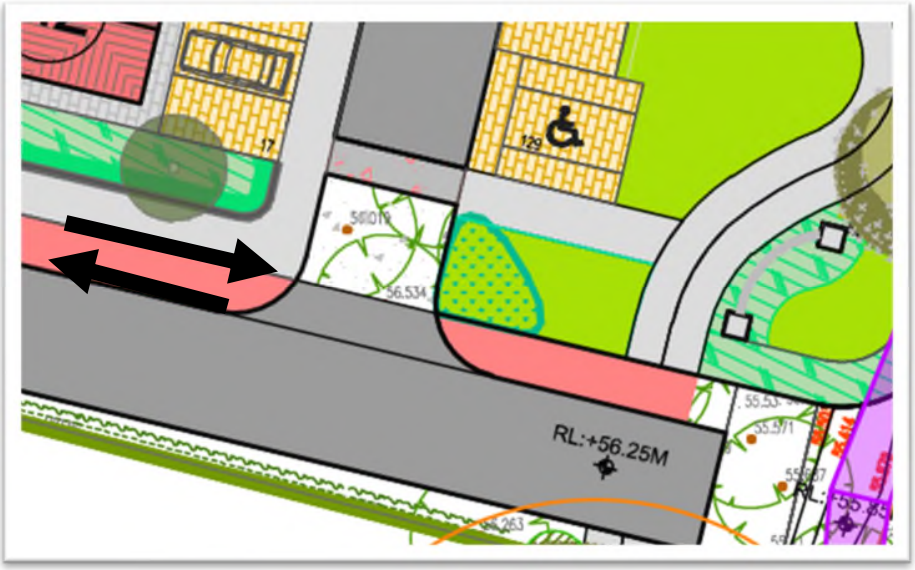


RECOMMENDATION

It is recommended that suitable cycle facilities be provided for cyclists travelling in both directions.

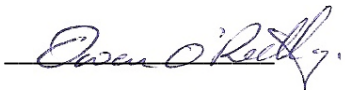
4.0 Audit Statement

We certify that we have examined the information provided and the site. The examination has been carried out with the sole purpose of identifying any features of the design which could be removed or modified in order to improve the safety of the scheme.

The problems identified have been noted in this report together with associated safety improvement suggestions which we would recommend should be studied for implementation. The audit has been carried out by the persons named below who have not been involved in any design work on this scheme as a member of the Design Team.

Norman Bruton **Signed:**

(Audit Team Leader) **Dated:** __22-8-20222_____

Owen O'Reilly **Signed:** 

(Audit Team Member) **Dated:** __22-8-2022_____

Appendix A

List of Material Supplied for this Road Safety Audit;

- Drawing NRB TA-001
- Drawing NRB TA-002
- Drawing NRB TA-003
- Drawing NRB TA-004
- Drawing NRB TA-005
- Transportation Assessment Report, NRB, May 2022

Appendix B

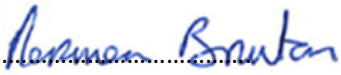
Feedback Form

QUALITY AUDIT FORM – FEEDBACK ON AUDIT REPORT

Scheme: Glencarrig Residential.
Stage: 1 Road Safety Audit & Quality Audit.
Date Audit (Site Visit) Completed: 22-8-2022

Paragraph No. in Safety Audit Report	Problem accepted (yes/no)	Recommended measure accepted (yes/no)	Alternative measures (describe)	Alternative measures accepted by Auditors (Yes/No)
3.1	Yes	Yes – Any Existing Trees and hedging within the sightline will be removed, and all new trees will be planted outside the sightline envelope, ensuring no stems or foliage impede visibility - with the Landscape drawing being illustrative in terms of canopy/overhang.		
3.2	Yes	Yes – the Local Road L5062 can be lit, and the detail of this street lighting can be agreed with KCC at detailed design or compliance stage in the event of a grant of planning permission.		
3.3	Yes	Yes – the poles can be relocated to the rear of the path, and location or diversion can be agreed with KCC at detailed design or compliance stage in the event of a grant of planning permission.		
3.4	Yes	Yes – the intersection or transition will be designed to ensure compliance with the NCM, with the requisite tactile paving, with the E-W orientated pathway & 2-way cycle track serving the site being designed as a 2 way pedestrian/cyclist surface. This can be agreed with KCC at detailed design or compliance stage in the event of a grant of planning permission.		
3.5	Yes	This is intended as a 2-way cycle track with a dedicated pedestrian path along the northern edge. The detail of this can be agreed with KCC at detailed design or compliance stage in the event of a grant of planning permission.		

Signed…… **Date** 22 August 2022.
Design Team Leader

Signed……  …… **Date**……22-8-2022……

Audit Team Leader

Signed…….. **Date** 22 Aug 2022

PP Employer/Developer ***(With Agreement/Approval By Email)***

Appendix C

Problem Location Plan.

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55.9
e Court
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Problem 3.3
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