

Proposed Strategic Housing Development at No. 2 Firhouse Road and the former 'Morton's The Firhouse Inn', Firhouse Road, Dublin 24 Traffic and Transport Assessment

For Bluemont Developments (Firhouse) Ltd



Final Report

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8			

Table of Contents

1. Introduction	4
1.1. Overview	4
1.2. Site Location and Overview of Proposed Development	4
1.3. Pre-Planning Consultation and TTA Scoping	5
1.4. Report Structure	11
2. Policy Review	13
2.1. Introduction	13
2.2. National and International Guidance.....	13
2.3. Regional Policy	17
2.4. Local Policy.....	24
3. Site Context.....	33
3.1. Introduction	33
3.2. Site Description, Location and Access.....	33
3.3. Local Road Network	36
3.4. Walking and Cycling Accessibility Pedestrian and Cycle Catchment Analysis	38
3.5. Public Transport – Existing Bus Services	40
3.6. Road Traffic Collision Data Analysis	43
4. Traffic Survey Data Collection and Analysis	45
4.1. Introduction	45
4.2. Summary Traffic Survey Results.....	46
4.3. Supplemental Traffic Survey Analysis	47
5. Description of Proposed Development.....	50
5.1 Introduction	50
5.2 Proposed Development	50
5.3 Proposed Access/ Egress and Layout Arrangements.....	50
5.4 Car Parking	54
5.5 Cycle Parking.....	57
5.6 Servicing, Deliveries, and Emergency Access.....	58
6. DMURS Compliance Statement.....	59
6.1 Introduction	59
6.2 Carriageway Widths.....	59
6.3 Corner Radii	59
6.4 Pedestrian Facilities	59
6.5 Surface Level Refuse/ Delivery Set-down	60
6.6 Materials and Finishes	60
7. Traffic Impact Analysis.....	61
7.1 Introduction	61
7.2 Analysis Scope, Assessment Years and Time Periods, and Assessment Scenarios.....	61
7.3 Do-Nothing Traffic Growth Forecasting.....	62
7.4 Do-Something Traffic Generation.....	63
8. Framework Residential Travel Plan	68

8.1	Introduction	68
8.2	Travel Plan Status	68
8.3	Reference Guide	68
8.4	Objectives.....	68
8.5	Modal Split Targets	68
8.6	Existing Public Transport Capacity Analysis	69
8.7	Key RTP Measures.....	72
8.8	RTP Actions	73
8.9	Monitoring and Update Strategy	75
9.	Car Parking Strategy	77
9.1	Car Parking Strategy’s Objectives	77
9.2	Car Parking Allocation Rules	77
9.3	Drop-Off, Pick-Up and Customer and Visitor Car Parking.....	78
9.4	Monitoring and Enforcement	78
10.	Summary and Conclusion	79
10.1	Summary	79
10.2	Conclusion.....	81

Appendices

- Appendix A Scoping Note**
- Appendix B Traffic Survey Data**
- Appendix C Visibility Splay Drawing**
- Appendix D Swept Path Analysis**
- Appendix E TRICS Trip Generation Data**
- Appendix F Traffic Distribution Diagrams**
- Appendix G Stage 1 and 2 Road Safety Audit**

1. Introduction

1.1. Overview

Transport Insights has been commissioned by Bluemont Developments (Firhouse) Ltd to provide transport engineering advice and to prepare a Traffic and Transport Assessment (TTA) and related Residential Travel Plan (RTP) for a proposed 100 no. unit Strategic Housing Development (SHD) at No. 2 Firhouse Road and the former ‘Morton’s The Firhouse Inn’, Firhouse Road, Dublin 24.

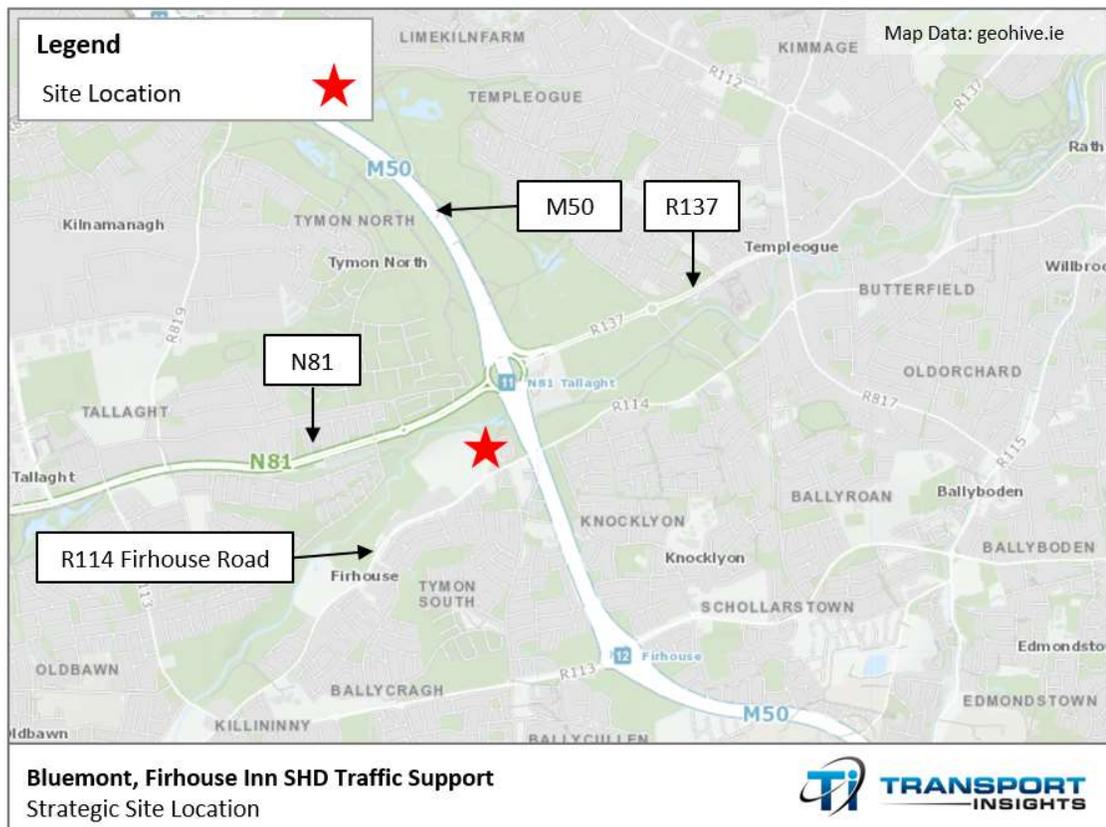


1.2. Site Location and Overview of Proposed Development

Site Location

The proposed development site, measuring ca. 0.46 hectares, is located adjacent to Firhouse Road (R114), Firhouse, Dublin 24. The site’s strategic location is presented in Figure 1.1, below.

Figure 1.1 Strategic Site Location



The proposed development site is bounded to the north and west by lands adjacent to the Carmel of the Assumption Convent, to the east by the Mount Carmel Park residential area, and to the south by Firhouse Road (R114). In terms of prevailing land uses, the lands to north and northwest are predominantly recreational in nature, while the lands to the east and also to the south of Firhouse Road are predominantly low-density residential. The M50 runs in an approximate north-south alignment ca. 150-200 metres to the east of the proposed development site.

Overview of Proposed Development

The proposed development comprises:

- 100 no. units incorporating a mix of studio (2 no.), 1-bed apartment units (45 no.), 2-bed apartment units (44 no.), 3-bed apartment units (5 no.), 1-bed duplex units (2 no.) and 2-bed duplex units (2 no.) over 3-5 storeys across 2 no. blocks;
- 5 no. small ground floor commercial units (ca. 28 – 66 sqm);
- a ground floor creche (ca. 114 sqm);
- 80 no. car parking spaces within 2 no. basement car parking levels;
- 270 no. cycle parking spaces comprised of the following:
 - 156 no. cycle parking spaces to accommodate residents;
 - 50 no. cycle parking spaces to accommodate residential visitors;
 - 20 no. cycle parking spaces to accommodate staff; and
 - 44 no. short-stay cycle parking spaces at surface level (provided in the form of 22 no. Sheffield stands) to accommodate visitors to the development.

It is proposed that the location of the existing access at the site's south-western boundary from Firhouse Road be maintained to accommodate vehicular access to the proposed development, however the layout of the junction will be subject to minor revisions. In addition to representing the established site access, in light of proposals for a shared street on Mount Carmel Park as part of the Dodder Greenway outlined in Section 2.3 of this Report, a vehicular site access at this eastern site boundary is not deemed preferential. A more detailed description of the proposed development, including proposed site access arrangements and internal layout is provided within Section 5 of this Report.

1.3. Pre-Planning Consultation and TTA Scoping

South Dublin County Council (SDCC) Pre-Planning Engagement

A Briefing Note for a ca. 100 no. unit SHD was previously submitted to SDCC's Land Use Planning and Transportation Department in December 2020 as part of the pre-application consultation process covering development of the eastern part of the subject site.

A pre-planning meeting took place between SDCC (with representatives from the Land Use Planning and Transportation Department also in attendance) and the Applicant (including the Applicant’s design team, with Transport Insights also in attendance) on 13 January 2021. A summary of the Land Use Planning and Transportation Department’s comments in relation to the draft proposed development are provided in Table 1.1 below.

Table 1.1 Section 247 Meeting (13 January 2021) – SDCC Traffic and Transport Comments, and Response

SDCC Comments	Response
<ul style="list-style-type: none"> The Department outlined that the existing access is feasible, however the option of including a right pocket turning lane should be explored and surveys carried out. 	<ul style="list-style-type: none"> Feasibility of right-turning pocket explored. See Section 5.3.
<ul style="list-style-type: none"> The Department stated that pedestrian permeability to the bus stop to the west and to Mount Carmel to the east should be considered and that the possibility of an uncontrolled pedestrian crossing to Mount Carmel should also be explored. 	<ul style="list-style-type: none"> The proposed development incorporates pedestrian links to the bus stop to the west and through the site. Pedestrian crossing facilities including pedestrian signals, tactile paving and dropped kerbs are located on the Mount Carmel arm of the 4-arm Firhouse Road/ Ballycullen Road/ Mount Carmel Park signalised junction and therefore an uncontrolled crossing of Mount Carmel has not been deemed appropriate.
<ul style="list-style-type: none"> Noted that the 70 no. car parking spaces provided is what would be expected, however access to all these spaces may be difficult. There is potential to reduce car parking to 63 no. spaces which may alleviate this concern. Electric charging (10%) and mobility spaces (5%) meets standards. 	<ul style="list-style-type: none"> Noted.
<ul style="list-style-type: none"> The Department noted that the required standards for bicycle parking varies greatly between the Apartment Guidelines (2018) and the South Dublin County Development Plan 2016-2022 standards (194 no. spaces v’s 30 no. spaces based on the proposed units). The Road’s Department advised that 140 no. spaces would be acceptable. 	<ul style="list-style-type: none"> 206 no. cycle parking spaces have been provided in secure compounds at basement level to accommodate the residential portion of the development, including residents and visitors. This figure is in accordance with the <i>Apartment Guidelines</i> and in excess of the <i>South Dublin County Development Plan 2016-2022</i> standards. 64 no. cycle parking spaces have been provided to accommodate the commercial portion of the development. This includes 20 no. staff cycle parking spaces located in secure compounds at basement level and 44 no. short stay visitor spaces provided in

SDCC Comments	Response
	the form of Sheffield stands at surface level. See Section 5.5 for further information.
<ul style="list-style-type: none"> The Department stated that fire tender access and bin management should be fully considered. 	<ul style="list-style-type: none"> A swept path analysis has been carried out for a large refuse vehicle. This is the largest vehicle that is predicted to access the site and demonstrates that both a large refuse vehicle and a fire tender can comfortably access the proposed development site. See Appendix D. An Operational Waste Management Plan has been produced by OCSC and is separately submitted along as part of this application.
<ul style="list-style-type: none"> The Department outlined that disposal of waste should not include residents transporting waste via the lift and indicated that a bin management strategy ('Operational Waste Management Plan') should be included with the application. 	<ul style="list-style-type: none"> An Operational Waste Management Plan has been produced by OCSC and is separately submitted along as part of this application.
<ul style="list-style-type: none"> The Department stated that other items to be included with the application are a Construction Waste and Demolition Management Plan, a Construction Traffic Management Plan and a Traffic and Transport Assessment (TTA). The TTA should consider traffic impacts over a 15-year period and potential cumulative impacts of other planning permissions granted in the area. 	<ul style="list-style-type: none"> This document constitutes the TTA, including a traffic impact assessment which assesses the traffic impact as a result of the proposed development for the year of opening, year of opening +5 years and the year of opening +15 years. See Section 7. A Construction Management Plan which also addresses construction traffic has been produced by PHM and is separately submitted as part of this application. A Construction Waste and Demolition Management Plan has been produced by PHM and is separately submitted as part of this application.

Following Planning Department feedback at the 13 January 2021 meeting, the proposed development was revised and, as a result, a second pre-planning meeting took place on 09 April 2021 between SDCC (with representatives from the Land Use Planning and Transportation Department also in attendance) and the Applicant (including the Applicant's design team, with Transport Insights also in attendance). A summary of Land Use Planning and Transportation Department comments in relation to the updated draft proposed development are provided in the following Table 1.2.

Table 1.2 Section 247 Meeting (09 April 2021) – SDCC Traffic and Transport Comments, and Responses

SDCC Comments	Response
<ul style="list-style-type: none"> The Road’s Department noted that not much had changed regarding access and parking from what was previously presented. He highlighted the access point to the site will be via Firhouse Road and a right turning lane will have to be facilitated. A 4 stage Road Safety Audit should be undertaken due to the proximity to the major junction. 	<ul style="list-style-type: none"> A Stage 1&2 Road Safety Audit is included in Section 5.3 and Appendix G of this Report.
<ul style="list-style-type: none"> The proposed pedestrian path along Mount Carmel Park will need to be 2m in width and not encroach on the road. 	<ul style="list-style-type: none"> The footpath along Mount Carmel Park to the east of the proposed development has been widened to 2.0 metres in width.
<ul style="list-style-type: none"> The Road’s Department noted that the proposed 70. no car parking spaces was generally around the correct figure, however, further detail in relation to car parking was required. 	<ul style="list-style-type: none"> Car parking provision is set out in Section 5.4. A Car Parking Strategy is included within Section 9.
<ul style="list-style-type: none"> The Road’s Department outlined that the feedback provided in the initial meeting on 13 January 2021 in relation to the requirement for a Construction Waste and Demolition Management Plan, a Construction Traffic Management Plan and a Traffic and Transport Assessment (TTA) still stood. 	<ul style="list-style-type: none"> Noted.

Following the 09 April 2021 SDCC meeting, Bluemont acquired lands to the immediate west of the originally proposed development site, and an updated draft proposed development was produced, taking in these newly acquired lands. A Briefing Note to cover the revised site area and development proposal was submitted to SDCC, setting out the scope of transport engineering design inputs and analysis, and the analytical approach underpinning the TTA and the RTP outlined within this document. A third pre-planning meeting took place on 29 July 2021 between SDCC (with representatives from the Land Use Planning and Transportation Department also in attendance) and the Applicant (including the Applicant’s design team, with Transport Insights also in attendance). A summary of Road’s Department’s comments in relation to the updated draft proposed development are provided in the following Table 1.3.

Table 1.3 Section 247 Meeting (29 July 2021) – SDCC Traffic and Transport Comments, and Response

SDCC Comments	Response
<ul style="list-style-type: none"> The Department welcomed the provision of the footpath along Mount Carmel and pedestrian permeability through the site. 	<ul style="list-style-type: none"> Noted.
<ul style="list-style-type: none"> The Department stated that car parking rates should be checked against development plan. 	<ul style="list-style-type: none"> Noted.
<ul style="list-style-type: none"> The bin collection area within the site and off the public road was welcomed. 	<ul style="list-style-type: none"> Noted.
<ul style="list-style-type: none"> A Road Safety Audit was noted to be required to the proximity of the site access junction and bus corridor. 	<ul style="list-style-type: none"> A Stage 1&2 Road Safety Audit is included in Section 5.3 and Appendix G of this Report.
<ul style="list-style-type: none"> The Department noted that a swept path analysis for a fire tender was required. 	<ul style="list-style-type: none"> A swept path analysis has been carried out for a large refuse vehicle. This is the largest vehicle that is predicted to access the site and demonstrates that both a large refuse vehicle and a fire tender can comfortably access the proposed development site. See Appendix D.
<ul style="list-style-type: none"> A rationale for bin collection was also asked to be provided. 	<ul style="list-style-type: none"> An Operational Waste Management Plan has been produced by OCSC and is separately submitted along as part of this application.
<ul style="list-style-type: none"> The requirement for a construction and waste demolition management plan was also restated. 	<ul style="list-style-type: none"> Noted.

As part of the SHD process, a tripartite meeting took place on 24 January 2022 between ABP, SDCC (with representatives from the Land Use Planning and Transportation Department also in attendance) and the Applicant (including the Applicant’s design team, with Transport Insights also in attendance). A summary of SDCC’s and ABP’s comments in relation to the updated draft proposed development are provided in Table 1.4 (below) and Table 1.5 (overleaf) respectively.

Table 1.4 An Bord Pleanála Tripartite Meeting (24 January 2022) – SDCC Traffic and Transport Comments, and Response

SDCC Comments	Response
<ul style="list-style-type: none"> South Dublin County Council is promoting active travel across the county and produced the Active Travel Brochure in April 2021. The brochure identifies Cycle South Dublin Route 34, a route which will 	<ul style="list-style-type: none"> SDCC was contacted in relation to the identified proposed cycle route on Mount Carmel Park. SDCC advised that there is minimal works planned on Mount Carmel Park with works mainly comprising of

SDCC Comments	Response
<p>pass the sites eastern boundary. The final permission should make generous provision and width to provide safe cycle and pedestrian space within the red line of the scheme, designed in line with the NTAs <i>Cycle Design Manual</i>.</p>	<p>resurfacing and road markings as part of the current phase of works which were due for completion in the first quarter of 2022. These works are understood to be as per the existing <i>Dodder Greenway Part 8 Application Report (2017), Drawing no. 13_102_00_2211 Proposed Scheme Layout Sheet 11 of 22</i> (see Section 2.3 of this Report). As such, there is no requirement for the provision of space for cycle/ pedestrian infrastructure within the red line boundary of the scheme in order to accommodate the proposed cycle route.</p>
<ul style="list-style-type: none"> The proposed development may be better served with the provision of a larger pedestrian footpath to Firhouse Road, separating the public open space from the road and serving as a mixed modal draw into and along the site. 	<ul style="list-style-type: none"> The proposed development incorporates a 2.0 metres wide footpath on Firhouse Road. It is also noted that a parallel pedestrian footpath within the site is also proposed, measuring ca. 3.0 metres, providing a cumulative total pedestrian infrastructure width of 5.0 metres. See Section 5.3 of this Report for further information in relation to pedestrian infrastructure proposals as part of this proposed development.
<ul style="list-style-type: none"> The Roads Department has provided a report stating no objections to the development and raising no issues with the proposal. 	<ul style="list-style-type: none"> Noted.
<ul style="list-style-type: none"> Given the residential parking ratio of 0.63, and the connectivity and transport options at the site, it is the opinion of South Dublin County Council that it would be appropriate to provide a higher cycle parking ratio to residential units, in line with the Apartment Guidelines. 	<ul style="list-style-type: none"> The cycle parking requirement for the proposed development as per the <i>Apartment Guidelines</i> are set out in Section 2.2 of this Report. The proposed provision of cycle parking for the residential portion of the development now conforms with these requirements. This figure is also noted to be in excess of the <i>South Dublin County Development Plan 2016-2022</i> standards.

Table 1.5 An Bord Pleanála Tripartite Meeting (24 January 2022) – ABP Traffic and Transport Comments, and Response

ABP Comments	Response
<ul style="list-style-type: none"> The proposed development is located at a significant cycle route for the city. 	<ul style="list-style-type: none"> Noted.

ABP Comments	Response
<ul style="list-style-type: none"> Further consideration of access and parking arrangements proposed, and the observations contained within the Roads Department Report 	<ul style="list-style-type: none"> An overview of access and parking arrangements are provided in Section 5.3 and 5.4 of this Report.
<ul style="list-style-type: none"> Cycle connectivity and width of footpaths for pedestrians shall be looked at in terms of the LC zoning 	<ul style="list-style-type: none"> The proposed development incorporates a 2.0 metres wide footpath on Firhouse Road. It is also noted that a parallel pedestrian footpath within the site is also proposed, measuring ca. 3.0 metres, providing a cumulative total pedestrian infrastructure width of 5.0 metres. See Section 5.3 of this Report for further information in relation to pedestrian infrastructure proposals as part of this proposed development.
<ul style="list-style-type: none"> Clarification that all items raised by the PA in their report submitted to the Board are addressed, further meetings should be sought to resolve outstanding issues 	<ul style="list-style-type: none"> SDCC was contacted in relation to the identified proposed cycle route on Mount Carmel Park. SDCC advised that there is minimal works planned on Mount Carmel Park with works mainly comprising of resurfacing and road markings as part of the current phase of works which were due for completion in the first quarter of 2022. These works are understood to be as per the existing <i>Dodder Greenway Part 8 Application Report (2017), Drawing no. 13_102_00_2211 Proposed Scheme Layout Sheet 11 of 22</i> (See Section 2.3 of this Report). As such, there is no requirement for the provision of space for cycle/ pedestrian infrastructure within the red line boundary of the scheme in order to accommodate the proposed cycle route.

The scope of this TTA is consistent with Transport Infrastructure Ireland’s *Traffic and Transport Assessment Guidelines* (May 2014) and has been agreed in principle with SDCC’s Land Use Planning and Transportation Department. The approach underpinning the RTP has also been guided by international best practice, including Transport for London’s (UK) *Guidance for Residential Travel Planning*.

1.4. Report Structure

The remainder of this Report is structured as follows:

- **Chapter 2** provides an overview of the relevant local, regional and national policy;
- **Chapter 3** describes the proposed development’s receiving environment;
- **Chapter 4** provides an overview of traffic survey data collection and analysis;

- **Chapter 5** describes key transport related characteristics of the development proposal;
- **Chapter 6** comprises a DMURS Statement of Compliance;
- **Chapter 7** provides details of traffic growth forecasting, trip generation and assignment, and sets out the appraisal of the development's traffic impacts;
- **Chapter 8** presents the Framework RTP;
- **Chapter 9** presents a car parking strategy; and
- **Chapter 10** provides an overall summary and conclusion.

2. Policy Review

2.1. Introduction

This section of the Report provides an overview of national, regional, and local planning policy and guidance deemed relevant to the proposed development and its assessment.

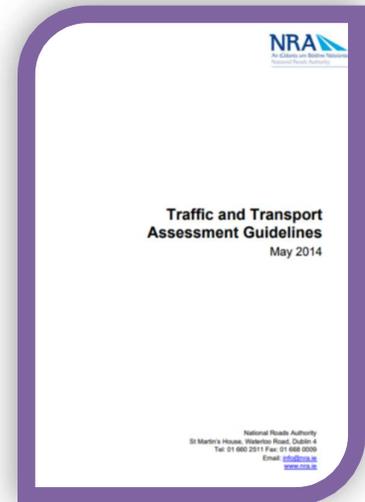
2.2. National and International Guidance

Traffic and Transport Assessment Guidelines (2014)

Transport Infrastructure Ireland's (TII's) *Traffic and Transport Assessment Guidelines* (May 2014) provides guidelines for best practice in relation to the preparation of a Traffic and Transport Assessment.

In relation to scoping, the guidance states:

“The scoping study is a very important part of the TTA process. It is a precursor to the preparation of a TTA and should be undertaken at the earliest stages of planning for development. For a planning application, this phase may be the initial contact between the developer and the planning authority and, as such, the opportunity should be taken to emphasise the role of transport as both a possible asset and liability to the development. The planning authority should avail of such contact to address traffic and transport implications as an integral element of the development proposal.”



In relation to the Assessment:

“The Traffic and Transport Assessment should be written as an impartial assessment of the traffic impacts of a scheme and it should not be seen to be a “best case” promotion of the development. All impacts, whether positive or negative, should be recorded. The level of detail to be included within the report should be sufficient to enable an experienced practitioner to be able to follow all stages of the assessment process and to reach a similar set of results and conclusions.”

Within Table 2.2 of the *TTA Guidelines*, the following thresholds are provided in relation to the requirement for a TTA “where national roads are affected” i.e. the most onerous thresholds presented within the *Guidelines*:

- “Housing - 100 dwellings within urban areas with a population equal to or greater than 30,000.”
- “1,000 sqm GFA retail”

- *“Development traffic exceeds 5% of turning movements at junctions with National Roads if location has potential to become congested or sensitive.”*

It is noted that the threshold of 100 no. residential units contained within the preceding *Guidelines* is met by the proposed development, and as such a TTA is required (i.e. this document). However, as the development’s traffic impact, assessed in Section 7 of this Report, has been determined to be below the 5% of additional turning movements through any junction within the development site’s vicinity, more detailed analysis of traffic impacts i.e. traffic modelling, is deemed unnecessary.

Design Manual for Urban Roads and Streets (DMURS)

The *Design Manual for Urban Roads and Streets (DMURS)* was jointly published by the Department of Transport, Tourism and Sport and Department of Environment, Community and Local Government in 2013, and updated in 2019. The principles, approaches and standards set out in the Manual apply to the design of all urban roads and streets (streets and roads with a speed limit of 60 km/ h or less).

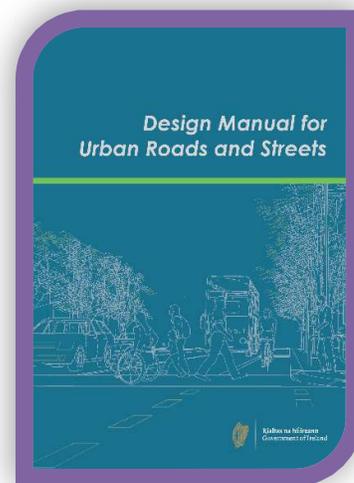
DMURS provides detailed guidance in relation to stopping sight distances and visibility splay requirements at new accesses (Section 4.4.4 Forward Visibility and Section 4.4.5 Visibility Splays).

For an access to a road with a 50 km/ h design speed which accommodates bus services, as is the case with Firhouse Road, the standard visibility splays required are 2.4 metres (‘x’ distance) * 49 metres (‘y’ distance). *DMURS* also recommends that *“priority junctions in urban areas should be designed as Stop junctions...”*. It should be noted that the existing vehicular access junction between the proposed development site and Firhouse is currently a Stop junction.

In terms of road width, *DMURS* guidance indicates that *“the standard carriageway width on Local streets should be between 5-5.5m”*. Furthermore, *DMURS* states that *“where additional space on Local streets is needed to accommodate additional manoeuvrability for vehicles entering/leaving perpendicular parking spaces, this should be provided within the parking bay and not on the vehicle carriageway”*.

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

Sustainable Urban Housing: Design Standards for New Apartments Guidelines for Planning Authorities was published in March 2018 and provides guidance on different aspects of new residential developments, including cycle parking and car parking provision.



Cycle Parking Provision

According to Section 4.17 of the *Design Standards*, “the accessibility to, and secure storage of, bicycles is a key concern for apartment residents”, with specific guidance provided in relation to the location, quantity, design and management of cycle parking facilities. In terms of cycle parking quantity, “a general minimum standard of 1 cycle storage space per bedroom shall be applied. For studio units, at least 1 cycle storage space shall be provided. Visitor cycle parking shall also be provided at a standard of 1 space per 2 residential units.”

The above standards indicate a requirement for 206 no. cycle parking spaces to meet the needs of the proposed residential component of the development, as outlined in Table 2.1 which follows.

Table 2.1 Design Standards for New Apartments, Cycle Parking Calculations

Land Use	No. Units	Bedrooms	Total Cycle Parking Spaces Required	Total Cycle Parking Spaces Provided
Residents’ Spaces: Studios, 1-Bedroom Apartments and 1- Bedroom Duplexes	49	49	49	49
Residents’ Spaces: 2- Bedrooms Apartments and 2- Bedroom Duplexes	46	92	92	92
Residents’ Spaces: 3- Bedrooms Apartments	5	15	15	15
Visitor Spaces (1 per 2 Units)	100	-	50	50
Total			206	206

In terms of qualitative requirements, it is stressed that cycle storage/ parking facilities shall be sufficiently accessible, offer an adequate level of safety and security, be well-lit and properly maintained. It is further recommended that cycle parking is provided within “a dedicated facility of permanent construction.” **The specification of the proposed development’s cycle parking provision is consistent with the *Design Standards’* qualitative requirements.**

Car Parking Provision

Section 4.18 of the *Design Standards* stipulates that car parking provision at apartment developments shall have regard to the type of location, based on “*proximity and accessibility criteria*”. As per Section 4.22, “*as a benchmark guideline for apartments in relatively peripheral or less accessible urban locations, one car parking space per unit, together with an element of visitor parking, such as one space every 3-4 apartments, should generally be required.*”

It is noted in Section 4.21 of the *Design Standards* that “***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.***” (Supplemental annotation in bold by Transport Insights.)

As detailed above, the *Design Standards* recommend a reduced level of car parking provision based on accessibility and proximity criteria for sites which are well served by alternative transport modes. As the application site is located within a short walk from several bus stops with high frequency services and a bus stop located outside the proposed development on Firhouse Road and Ballycullen Road (as per Section 3.5 of this Report), **a reduced level of on-site car parking provision is deemed consistent with its policy provisions.**

According to Section 4.23 of the *Design Standards*, “*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.*” In terms of alternative mobility options, Section 4.24 of the *Design Standards* states that “*it is important that access to a car sharing club or other non-car based modes of transport are available and/or can be provided to meet the needs of residents, whether as part of the proposed development, or otherwise.*”

The above considerations of the *Design Standards* have been considered in detail, and where beneficial to support the mobility needs of residents, incorporated within the current proposed development – this is elaborated upon within Section 5 of this Report.

Design Recommendations for Multi-Storey and Underground Car Parks

The international guidance document, *Design Recommendations for Multi-Storey and Underground Car Parks (fourth edition)* published by *The Institution of Structural Engineers*, has been referred to in relation to the design of the underground car park and associated ramps etc.

Guidance for Residential Travel Planning

Development of the Framework Residential Travel Plan set out in Section 0 of this Report has been guided by international best practice, including Transport for London's (UK) *Guidance for Residential Travel Planning*.

2.3. Regional Policy

Transport Strategy for the Greater Dublin Area 2016-2035 (2016)

The *Transport Strategy for the Greater Dublin Area 2016-2035* was published by the National Transport Authority in April 2016 following its approval by the Minister for Transport, Tourism and Sport and represents the key policy/ strategy document of relevance to the current development proposal. The *Strategy* provides a framework for the planning and delivery of transport infrastructure and services over the next two decades. It also provides the overarching transport planning policy framework for the region.

The *Strategy* sets out the necessary transport provision, for the period up to 2035 to deliver the objectives of existing national transport policy. Section 5.5 of the *Strategy* describes proposed bus infrastructure:

“As part of the Strategy process, a number of studies have been undertaken which have identified those routes where the demand for travel necessitates significant levels of infrastructural investment in order to minimise delays to bus services. Arising from this analysis, a “Core Bus Network” was identified for the overall region. This core network represents the most important bus routes in the region, and are generally characterised by a high frequency of bus services, high passenger volumes and with significant trip attractors located along the route. The identified core network comprises sixteen radial bus corridors, three orbital bus corridors and six regional bus corridors.”

Development of the core bus network has subsequently been advanced by the National Transport Authority (NTA) within the *BusConnects* programme, described below. The *Transport Strategy for the Greater Dublin Area* is currently being updated by the NTA, with a draft of the new strategy (with a 2042 planning horizon) published in late-2021.



BusConnects: Bus Network Redesign and Core Bus Corridors Project

The *BusConnects* programme was launched by the National Transport Authority (NTA) in May 2017 and is described as¹ “a plan to fundamentally transform Dublin’s bus system, so that journeys by bus will be fast, reliable, punctual, convenient and affordable. It will enable more people to travel by bus than ever before, and allow bus commuting to become a viable and attractive choice for employees, students, shoppers and visitors.”

The *BusConnects* programme contains three key elements:

- Dublin Area Bus Network Redesign Project;
- fare and ticketing enhancements; and
- better quality bus infrastructure, including the Core Bus Corridors Project.

The revised proposed bus network plan emerging from the *Dublin Area Bus Network Redesign Project* was published by the NTA in September 2020 and includes substantial changes in the bus network in the application site’s vicinity. Figure 2.1 (overleaf) presents the proposed bus network in the application site’s surrounds

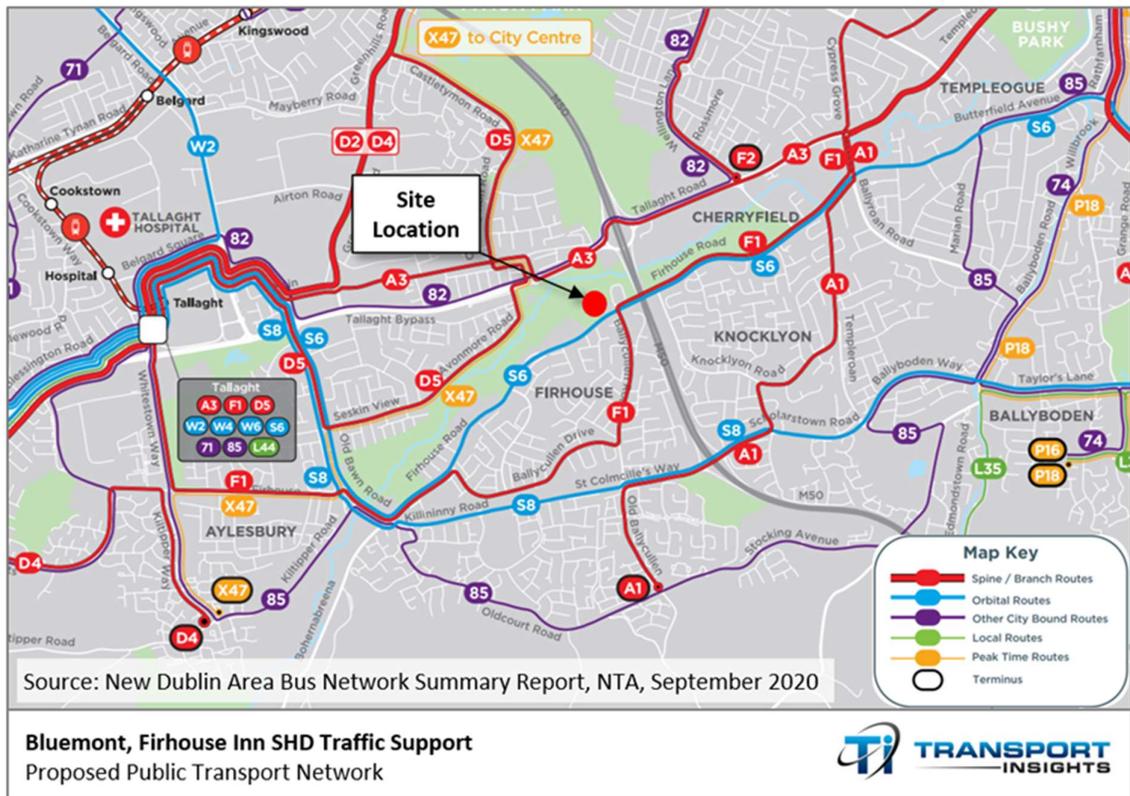
As can be seen in Figure 2.1, substantial changes are proposed to the bus services in the application site’s vicinity. The 75/ 75A will be replaced by orbital route S6 which will operate between Tallaght and Blackrock DART Station. This orbital route will enable access to numerous other bus routes, both radial and orbital, the Luas Red Line at Tallaght, and Luas Green Line at Dundrum. The F1 route will replace bus services operating on Ballycullen Road and will maintain direct access to Dublin City Centre. The F1 route will combine with routes F2 and F3 forming the F-spine, thus providing a high frequency bus service between Terenure Road West and Finglas via Dublin City Centre.

The A3 will operate via the N81 to the north of the subject site and will combine with the A1 at Templeogue and the A2 and A4 at Terenure Road East to form the high frequency A-spine between Terenure Road East and Whitehall on the northside of Dublin, via Dublin City Centre. Routes D5, 82 and X47 (peak hour only route) will also operate via the N81 and provide alternative routes to Dublin City Centre.

The A1 will replace route 15 on St. Colmcille’s Way to the south of the proposed development site. The S8 orbital route will also operate along St. Colmcille’s Way between Tallaght and Dun Laoghaire.

¹ <https://www.busconnects.ie/about/>

Figure 2.1 BusConnects: Proposed Bus Network in Application Site's Vicinity



Details of the proposed routes are presented within the following Table 2.2.

Table 2.2 Proposed Public Transport Services in Application Site's Vicinity

Route No.	Route	Weekday Peak Frequency
F1	Charlestown - Finglas Bypass - City Centre - Tallaght	10 minutes
S6	Tallaght - Dundrum - UCD - Blackrock	15 minutes
A3	DCU - City Centre - Tallaght	12 minutes
82	Killinarden - Crumlin - Mountjoy Square	20 minutes
D5	Edenmore - City Centre - Tallaght	30 minutes
X47	Kiltipper - Seskin View - Tymon North - City Centre	1 AM service, 1 PM service
A1	Beaumont - City Centre - Knocklyon	12 minutes

Route No.	Route	Weekday Peak Frequency
S8	Tallaght - Sandyford - Dún Laoghaire	15 minutes

As can be seen from the preceding Figure 2.1 and Table 2.2, routes F1 and S6 are proposed to operate with ca. 150 metres of the proposed development and will offer peak frequencies of 10 and 15 minutes respectively. As per the existing situation, routes operating in the application site’s immediate vicinity (< 150 metres) will continue to offer a cumulative peak frequency of one bus within less than 10 minutes, thereby continuing to fulfil a key criterion with the *Sustainable Urban Housing: Design Standards for New Apartments* (DoHPLG 2018) whereby a reduced level of on-site car parking provision is deemed appropriate.

Proposed Improvements to Urban Bus Infrastructure

In addition to the revised planned bus services emerging from the New Dublin Area Bus Network Project, it is proposed to implement a network of core bus corridors to enhance bus priority throughout the network. While there are existing dedicated bus lanes on Firhouse Road to the east and west of the proposed development site and on Ballycullen Road to the south, no other bus priority infrastructure is proposed in the immediate vicinity of the site.

The site is located ca. 700 metres to the southwest of the proposed BusConnects Core Bus Corridor 10, which will tie in with existing bus infrastructure and connect Tallaght to the City Centre via Templeogue, Terenure and Rathmines. The emerging preferred route for this corridor (in addition to other corridors running through north Dublin City), published by the National Transport Authority in March 2020, is shown in Figure 2.2 (overleaf). The alignment of Corridor 10 in the application site’s general vicinity was confirmed via the preferred route published in November 2020.

When implemented, proposed bus priority enhancement measures along this corridor are forecast to contribute to reduced travel times towards Dublin City Centre and result in more attractive travel times to destinations to the east of the site, in addition to improved journey time reliability.

Figure 2.2 Proposed BusConnects Core Bus Corridors



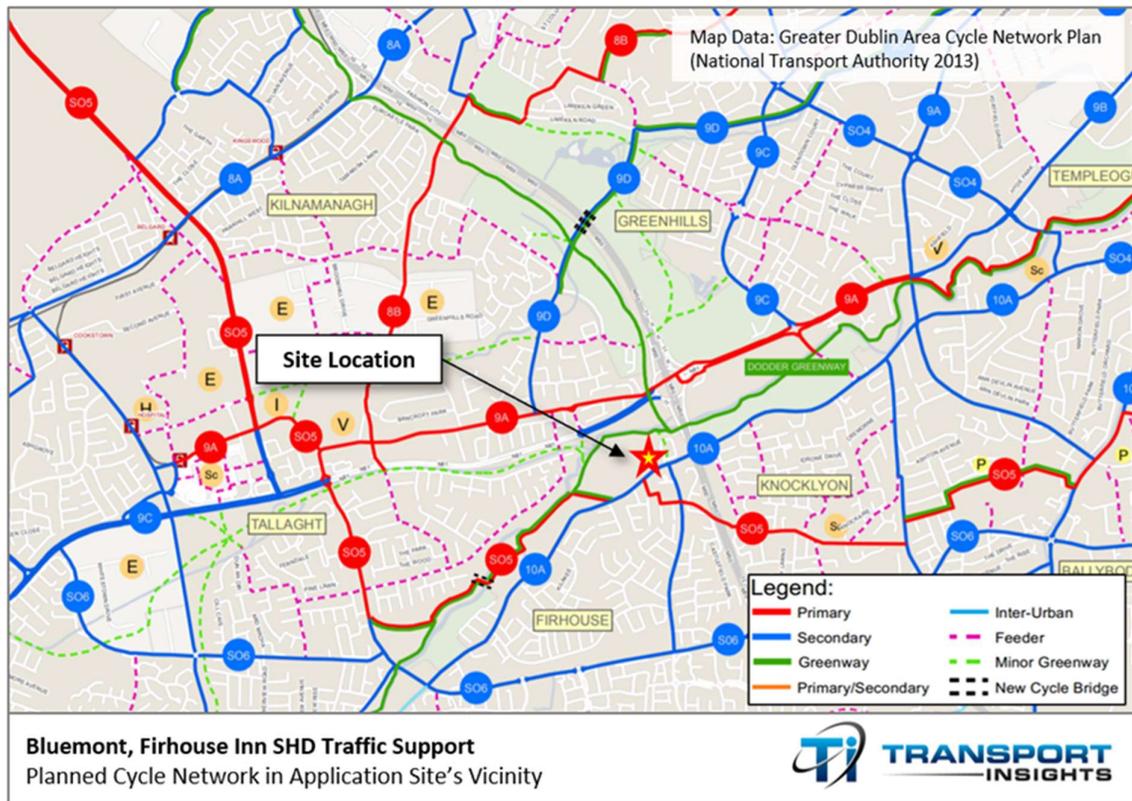
Greater Dublin Area Cycle Network Plan (2013)

The proposed development site is currently served by well-developed cycle infrastructure. There are existing cycle tracks and cycle lanes on much of Firhouse Road which connect the proposed development site to Old Bawn in the southwest and to Knocklyon, Templeogue, Terenure, Rathmines and ultimately to south Dublin City in the northwest. Cycling infrastructure also connects the site to south Dublin City Centre via Kimmage, Harold’s Cross and Templeogue.

The site is located to the immediate south of Dodder Valley Park within which there is existing infrastructure that allows cyclists to access Old Bawn, the N81, and the northern end of the Knocklyon without interacting with motorised traffic. Via infrastructure located under M50 Junction 11, Tymon Park can be accessed which can be then used to reach areas such as Kilnamanagh, Ballymount Industrial Estate, Limekiln Road and Walkinstown, again fully segregated from motorised vehicular traffic.

The above-mentioned cycling infrastructure in the site’s environs shall be enhanced by planned future schemes. The planned layout of cycle infrastructure network within Dublin has been set out within the *Greater Dublin Area Cycle Network Plan*, published by the National Transport Authority in 2013. The proposed network in the application site’s vicinity is illustrated in Figure 2.3 (overleaf).

Figure 2.3 Planned Greater Dublin Area Cycle Network²



As can be seen from the preceding figure, the proposed development site is ideally located to benefit from high-quality cycling infrastructure. It lies just to the south of a confluence of greenways which will provide full segregated cycling infrastructure, thus making cycling within the application site's vicinity an attractive, convenient and safe means of sustainable transport. The *Plan* proposes that the subject development site will be connected to the Dodder Greenway by a short minor greenway to the Dodder Greenway in Dodder Valley Park. An extract from the Dodder Greenway Part 8 Application Report (2017), Drawing no. 13_102_00_2211 Proposed Scheme Layout Sheet 11 of 22, is shown in Figure 2.4 (overleaf) and demonstrates the latest proposal for the short section of route between Firhouse Road and Dodder Valley Park. It is understood that the Dodder Greenway has been, as of mid-2021, under construction. As illustrated by Figure 2.4, it is proposed that Mount Carmel becomes a "wide shared street", connecting Firhouse Road and the existing entry point to Dodder Valley Park, with the vehicular carriageway shared between motorised vehicles and cyclists. A proposed cross-section of Mount Carmel Park which accompanies the above is shown in Figure 2.5 (overleaf).

² Greater Dublin Area Cycle Network Plan (National Transport Authority, December 2013)

Figure 2.4 Planned Cycling Infrastructure in the Vicinity of Proposed Development Site

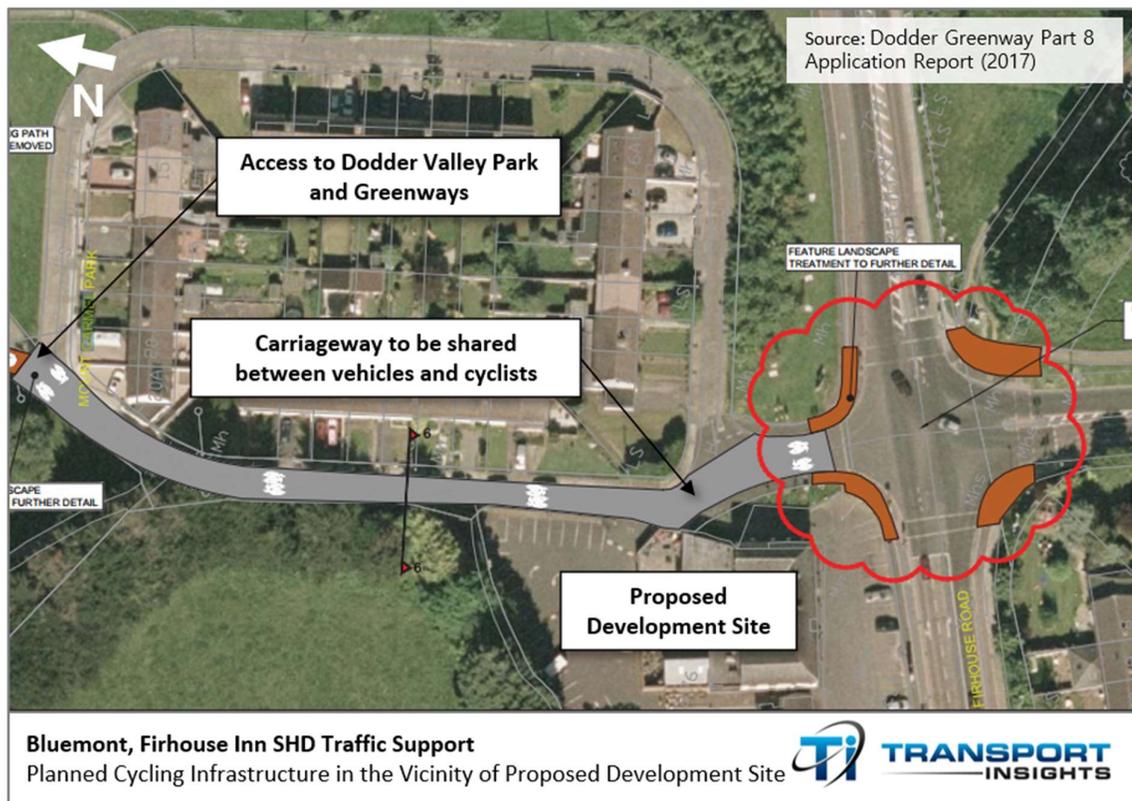
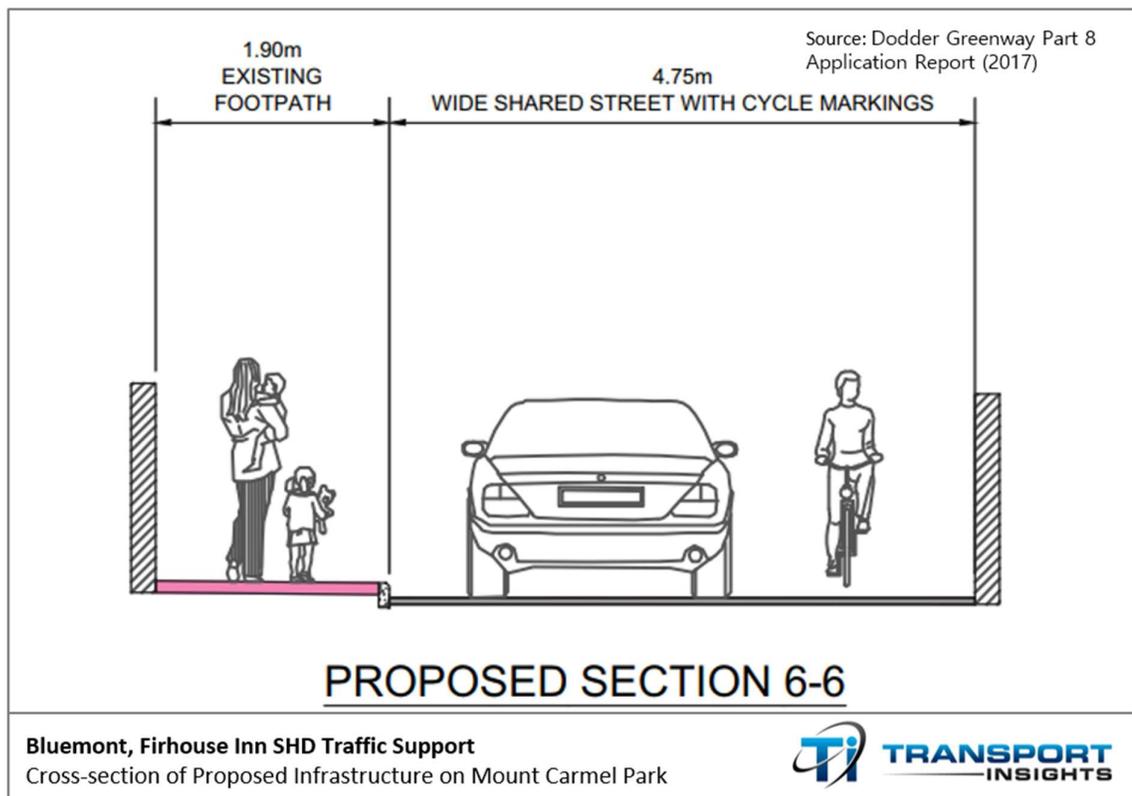


Figure 2.5 Cross-Section of Proposed Infrastructure on Mount Carmel Park



As per Figure 2.5, note that the existing ca. 1.9 metres wide pedestrian infrastructure on the eastern side of the vehicular carriageway is proposed to be maintained. It is noted that at the time of writing, this proposed cycle route forms part of *Cycle South Dublin Route 24*, as identified within the *Cycle South Dublin – A Programme for Work* (April 2021). Through consultation with representatives of SDCC, it is understood that proposals on Mount Carmel Park remain as per the above.

The abovementioned greenway will link to the Dodder Greenway, which will then connect the site to Dublin City Centre via Templeogue, Rathfarnham, Ballsbridge and the Docklands while will also give access to minor greenways and feeder routes connecting the proposed development site to Tallaght to the west. The greenway heading north from the proposed development site will also connect the site to the Grand Canal Greenway at a location to the northeast of Clondalkin via Kilnamanagh and the Red Cow, a route which runs approximately parallel to the M50 motorway.

An overview of other planned cycle routes in the vicinity of the proposed development site are:

- Secondary Route 10A: Route 10 will run from Camden Street through Rathmines, Rathgar and Terenure to Rathfarnham, where it splits into several branches, one of which is Route 10A which runs parallel to the River Dodder to Firhouse and Oldcourt beside Old Bawn Bridge on Orbital Route SO6.
- Primary Route 9A: Route 9 runs from Clanbrassil Street to Tallaght via Harold's Cross, where it branches into two routes, one of which is Route 9A which runs via Kimmage Road, Fortfield Road, Wainsfort Road, the N81 to the north of the subject site terminating at Tallaght Town Centre.
- Orbital Route SO5: Dundrum to Tallaght via Ballyboden and Knocklyon and Firhouse.
- Orbital Route SO6: Dun Laoghaire to Tallaght via Ballycullen and Old Bawn.

Overall, the proposed cycle network improvements result in the site being ideally located to benefit from high-quality cycle infrastructure, which will contribute to substantial increase in attractiveness and uptake of cycling for both leisure and commuting for both radial trips to areas between the site and Dublin City Centre, and orbital trips to Tallaght, Clondalkin and further afield. This is particularly true of the greenways in the vicinity of the site which offer increased safety and amenity to those who may be apprehensive about cycling on heavily trafficked roads.

2.4. Local Policy

South Dublin County Council Development Plan 2016-2022

The *South Dublin County Council Development Plan 2016-2022* provides the overarching planning framework for development in the South Dublin authority area until 2022. Of primary importance from a traffic and transportation perspective are sustainable travel accessibility and development car and cycle parking standards, outlined hereunder.

Overarching Transport Planning Related Objectives

Chapter 6 of the *Plan* outlines the Council's policies and objectives as they relate to transport and mobility. Of relevance to the development proposal are the following transport planning related policies within the current *Plan*, reproduced below:

- **TM1 Objective 2:** *"To spatially arrange activities around, and improve access to, existing and planned public transport infrastructure and services."*
- **TM2 Objective 1:** *"To secure the implementation of major public transport projects as identified within the relevant public transport strategies and plans for the Greater Dublin Area."*
- **TM3 Objective 2:** *"To ensure that connectivity for pedestrians and cyclists is maximised in new communities and improved within existing areas in order to maximise access to local shops, schools, public transport services and other amenities, while seeking to minimise opportunities for anti-social behaviour and respecting the wishes of local communities."*
- **TM3 Objective 3:** *"To ensure that all streets and street networks are designed to prioritise the movement of pedestrians and cyclists within a safe and comfortable environment for a wide range of ages, abilities and journey types."*
- **TM7 Objective 1:** *"To carefully consider the number of parking spaces provided to service the needs of new development."*
- **TM7 Objective 2:** *"To effectively design and manage parking to ensure the efficient turnover of spaces."*
- **TM7 Objective 3:** *"To ensure that car parking does not detract from the comfort and safety of pedestrians and cyclists or the attractiveness of the landscape."*

Cycle Parking Provision

Section 11.4.1 of the *Plan* provides recommendations in relation to the provision of cycle parking. Bicycle parking rates are divided into two main categories which are as follows:

- **Long-Term:** These are to be designed for use by residents and employees. Such spaces should be located in a secure area that is not freely accessible to the general public.
- **Short-Stay:** These are to be designed for ease of use by the general public. Such spaces should be located in highly visible areas that are easy to access.

The rate of car parking and required quantum of cycle parking spaces required to serve the proposed development are summarised in Table 2.3 (overleaf).

Table 2.3 South Dublin County Development Plan Cycle Parking Standards

Land Use	Required				Proposed	
	Long-Term		Short-Stay		No. Long-Term Proposed	No. Short-Stay Proposed
	Standard	No.	Standard	No.		
Residential Apartment	1 per 5 apartments	20	1 per 10 apartments	10	156	50
Creche	1 per 5 staff	1	1 per 10 children	2	5	16
Café	1 per 5 staff	1	1 per 10 seats	2	3	6
Bookmaker *	1 per 5 staff	1	1 per 50 sqm GFA	2	3	6
Barber's*	1 per 5 staff	1	1 per 50 sqm GFA	1	3	6
GP / Dental Practice	1 per 5 staff	1	0.5 per consulting room	2	3	6
Office	1 per 200 Sqm GFA	1	1 per 200 Sqm GFA	1	3	4
Sub-total	-	26	-	20	176	94
Total		46		270		

**Retail convenience/ retail comparison deemed to be most comparable land use for calculation of required cycle parking quantum.*

As can be seen from the preceding Table 2.3, according to the current *Plan*, the proposed development would require a total of 46 no. on-site cycle parking spaces. It should be noted that the quantum of cycle parking required within the *Draft South Dublin County Development Plan 2023-2029* is consistent with the above.

Further to the quantum of cycle parking provision, the current *Plan* also states that all bicycle parking spaces shall be designed in accordance with the requirements of the *National Cycle Manual*, NTA (2011).

Car Parking

Parking standards are outlined within Section 11.4.2 of the current *Plan* (Tables 11.23 and 11.24) for residential and commercial developments. These standards are presented for two separate zones, which are as follows:

Zone 1:

- General rate applicable throughout the County.

Zone 2:

- **Non-Residential:** More restrictive rates for application within town and village centres, within 800 metres of a Train or Luas station and within 400 metres of a high-quality bus service (including proposed services that have proceeded to construction).
- **Residential:** More restrictive rates for application within town and village centres, within 400 metres of a high-quality public transport service (includes a train station, Luas station or bus stop with a high quality service).

The car parking standards and maximum car parking spaces required to serve the proposed development are summarised in Table 2.4 which follows.

Table 2.4 South Dublin County Development Plan Car Parking Standards

Category	Land Use/Dwelling Type	Zone 2 Rate	No. Apartments/ GFA/ Classrooms / Consulting Rooms	Max. Car Parking Spaces	Proposed Car Parking Spaces
Residential	1-bed Apartment	0.75 spaces	49	37	63
	2-bed Apartment	1 space	46	46	
	3-bed Apartment	1.25 spaces	5	6	
Education	Creche	0.5 per classroom	1	1	5 (incl. drop-off spaces)
Retail and Retail Service	Café	1 per 20 sqm GFA	58	3	3
Retail and Retail Service	Bookmaker*	1 per 25 sqm GFA	66	3	3

Category	Land Use/Dwelling Type	Zone 2 Rate	No. Apartments/ GFA/ Classrooms / Consulting Rooms	Max. Car Parking Spaces	Proposed Car Parking Spaces
Retail and Retail Service	Barber's*	1 per 25 sqm GFA	28	2	2
Medical	GP / Dental Practice	1.5 per consulting room	3	3	3
Enterprise and Employment	Office	1 per 75 sqm GFA	30	1	1
Total				102	80

*Retail convenience deemed to be most comparable land use for calculation of required cycle parking quantum.

As can be seen from the preceding Table 2.4, according to the current *Development Plan*, the proposed commercial development could require a maximum of 102 no. on-site car parking spaces. It should be noted that the quantum of car parking required within the *Draft South Dublin County Development Plan 2023-2029* is consistent with the above standards.

The current *Plan* also notes that lower rates of car parking may be acceptable subject to the following regarding parking standards:

- *“The proximity of the site to public transport and the quality of the transport service it provides. (This should be clearly outlined in a Design Statement submitted with a planning application),*
- *The proximity of the development to services that fulfil occasional and day to day needs,*
- *The existence of a robust and achievable Workforce Management or Mobility Management Plan for the development,*
- *The ability of people to fulfil multiple needs in a single journey,*
- *The levels of car dependency generated by particular uses within the development,*
- *The ability of residents to live in close proximity to the workplace,*
- *Peak hours of demand and the ability to share spaces between different uses,*
- *Uses for which parking rates can be accumulated, and*
- *The ability of the surrounding road network to cater for an increase in traffic.”*

Further to the quantum of car parking required, SDCC’s car parking standards also contain a requirement for a provision of 5% accessible parking as required by Part M of Building Regulations

2010 and 10% electric vehicle parking. It should be noted that these provisions are inclusive of the figures outlined above. Section 5 of this Report presents the proposed car parking provision and assesses the suitability of such provision to serve the needs of the proposed development.

Draft South Dublin County Council Development Plan 2023-2029

The *Draft South Dublin County Development Plan 2023-2029* is currently being developed with a view to replacing the current *Development Plan*. The *Draft Plan* is currently in Stage 3 of its development process which involves Material Alterations (i.e. amendments) to the *Draft Plan* which result from the consideration of the submissions received in relation *Draft Development Plan 2022 - 2028*. The *Draft Development Plan* has been reviewed in order to ensure that the proposed development will be compatible with the *Plan*, which may be in place at the time a decision is taken by the Approving Authority (i.e. An Bord Pleanála). Again, of primary importance from a traffic and transportation perspective are sustainable travel objectives and policies and development car and cycle parking standards, which are outlined hereunder.

Sustainable Movement Overarching Policies and Objectives

- **Policy SM1: Overarching – Transport and Movement:** *"Promote ease of movement within, and access to South Dublin County, by integrating sustainable land-use planning with a high-quality sustainable transport and movement network for people and goods".*
- **SM1 Objective 1:** *"To achieve and monitor a transition to more sustainable travel modes including walking, cycling and public transport over the lifetime of the County Development Plan, in line with the County mode share targets of 15% Walk; 10% Cycle; 20% Bus; 5% Rail; and 50% Private (Car/Van/HGV/Motorcycle)."*
- **SM1 Objective 2:** *"To ensure consistency with the NTA's Transport Strategy for the Greater Dublin Area (2016-2035) and any superseding document, as required by RPO 8.4 of the RSES."*
- **SM1 Objective 3:** *"To support the delivery of key sustainable transport projects including DART and Luas expansion programmes, BusConnects and the Greater Dublin Metropolitan Cycle Network in accordance with RPO 5.2 of the RSES/MASP."*
- **SM1 Objective 4:** *"To ensure that future development is planned and designed in a manner that facilitates sustainable travel patterns, with a particular focus on increasing the share of active modes (walking and cycling) and public transport use and creating a safe and attractive street environment for pedestrians and cyclists, in accordance with RPO 5.3 of the RSES/MASP."*
- **SM1 Objective 5:** *"To ensure that future development is planned and designed in a manner that maximises the efficiency and protects the strategic capacity of the metropolitan area transport network, both existing and planned, and to protect and maintain regional accessibility, in accordance with RPO 8.3 of the RSES."*

- **SM1 Objective 6:** *“To safeguard the County’s strategic road network and to improve the local road and street network in a manner that will better utilise existing road space and encourage a transition towards more sustainable modes of transport.”*

Walking and Cycling

- **Policy SM2:** *“Walking and Cycling Re-balance movement priorities towards sustainable modes of travel by prioritising the development of walking and cycling facilities and encouraging a shift to active travel for people of all ages and abilities, in line with the County targets.”*
- **SM2 Objective 1:** *“To achieve and monitor a transition to the County mode share targets of 15% Walk and 10% Cycle.”*
- **SM2 Objective 2:** *“To create a comprehensive and legible County-wide network of safe cycling and walking routes that link communities to key destinations, amenities and leisure activities through implementation of the Cycle South Dublin project, the recommendations of the Sustainable Movement Studies and other permeability measures.”*
- **SM2 Objective 3:** *“To ensure that connectivity for pedestrians and cyclists is maximised and walking and cycling distances are reduced by promoting compact growth and permeability in the design and layout of new development areas.”*
- **SM2 Objective 5:** *“To ensure that all streets and street networks are designed in accordance with the principles, approaches and standards contained in the Design Manual for Urban Roads and Streets so that the movement of pedestrians and cyclists is prioritised within a safe and comfortable environment for a wide range of ages, abilities and journey types.”*
- **SM2 Objective 6:** *“To ensure that facilities for pedestrians and cyclists are designed in accordance with the principles, approaches and standards contained in the National Cycle Manual or any updated guidance and to promote off-road cycle infrastructure where feasible, subject to any design having regard to environmental sensitivities.”*
- **SM2 Objective 17:** *“To support bike parking provision at villages, centres, parks and any other area of interest, as well as near public transport nodes to support multi-modal transport options.”*

Public Transport

- **Policy SM3:** *“Public Transport – General Promote a significant shift from car-based travel to public transport in line with County targets and facilitate the sustainable development of the County by supporting and guiding national agencies in delivering major improvements to the public transport network.”*
- **SM3 Objective 1:** *“To achieve and monitor a transition to the County mode share targets of 20% Bus and 5% Rail.”*

- **SM3 Objective 3:** *“To ensure that future development is planned in such a manner as to facilitate a significant shift to public transport use through pursuing compact growth policies, consolidating development around existing and planned public transport routes and interchanges, and maximising access to existing and planned public transport services throughout the network.”*
- **SM3 Objective 5:** *“To facilitate an interlinked network that maximises the efficiency of existing services, reduces overall journey times and facilitates easy exchanges between modes and routes. SM3 Objective 6: To establish future public transport routes that will support the County’s medium to long term development, including orbital routes to provide connectivity between outer suburban areas.”*

Strategic Road Network

- **SM4 Objective 10:** *“To support sustainable measures including car-pooling and car clubs which promote access to cars rather than car ownership and which facilitate higher utilisation of vehicles rather than higher numbers of vehicles.”*

Road and Street Design

- **Policy SM5:** *“Street and Road Design Ensure that streets and roads within the County are designed to balance the needs of all road users and promote place making, sustainable movement and road safety providing a street environment that prioritises active travel and public transport.”*
- **SM5 Objective 1:** *“To ensure that all streets and street networks are designed to passively calm traffic through the creation of a self-regulating street environment that promotes active travel modes and public transport.”*
- **SM5 Objective 2:** *“To design new streets and roads within urban areas in accordance with the principles, approaches and standards contained within the Design Manual for Urban Roads and Streets.”*
- **Policy SM6:** *“Traffic and Transport Management Effectively manage and minimise the impacts of traffic within the County having regard to the need to provide shared road space for different users.”*

Traffic and Transport

- **SM6 Objective 3:** *“To minimise the impact of new development on the County’s road and street network through prioritising active travel and public transport and implementing appropriate traffic and transport management measures.”*

Electric Vehicle Parking

- **Policy SM7:** *“Car Parking and EV Charging Implement a balanced approach to the provision of car parking with the aim of using parking as a demand management measure to promote a transition*

towards more sustainable forms of transportation, while meeting the needs of businesses and communities.”

- **SM7 Objective 1:** *“To implement maximum car parking standards for a range of land-use types, where provision is based on the level of public transport accessibility.”*
- **SM7 Objective 2:** *“To limit the availability of workplace parking in urban centres to discourage car commuting, where alternative transport options are available.”*
- **SM7 Objective 4:** *“To promote the provision and management of destination parking in areas of high trip demand, subject to appropriate pricing and locational criteria, taking into account the availability of more sustainable transport options.”*
- **SM7 Objective 5:** *“To support the expansion of the EV charging network by increasing the provision of designated charging facilities for Electric Vehicles on public and private land in partnership with the ESB and other relevant stakeholders; and to support the Dublin Regional EV Parking Strategy.”*
- **SM7 Objective 6:** *“To promote appropriate parking arrangements for specific user requirements including disabled drivers, motorcycles and scooters in town and district centres, public transport nodes and other destinations.”*
- **SM7 Objective 10:** *“To ensure that parking provision, including the provision of EV charging facilities, does not detract from the comfort and safety of pedestrians and cyclists, visual amenity or the character of an area. (refer also to Chapter 10 Energy).”*

Bicycle Parking Standards

Upon review of the draft cycle parking standards, it is noted that the cycle parking requirements for commercial developments included with both current *Plan* and the *Draft Plan* are identical. The cycle parking standards for residential development within the *Draft Plan* are as per the Apartment Guidelines, which are outlined above. However, it is noted that a material amendment adopted as part of the *Plan’s* development states that short-stay spaces should be *“designed for ease of use by the general public. Such spaces should be located in highly visible areas that are easy to access and allow for cargo bikes”*.

Car Parking and Electrical Vehicle Car Parking

Upon review of the draft car parking standards, it is noted that the car parking requirements included with both current plan and the draft plan are identical. However, it is noted that a material amendment adopted as part of the *Plan’s* development states the following in relation to EV charging:

“EV charging shall be provided in all new residential, mixed use and commercial development and shall comprise a minimum of 20% of the total parking spaces provided (or as may be further required by legislation), with higher provision within this range required in urban areas, with the remainder of spaces to be future proofed.”

3. Site Context

3.1. Introduction

To assess the proposed development's potential traffic impacts, an appreciation of the existing situation first needs to be established. This section of the Report describes the existing site layout, access arrangements, the local road network and background traffic conditions. The existing conditions presented here represents an evidence-based review, and have been informed by:

- a high-level desktop review of the study area and its surrounding transport network, including general traffic road infrastructure, facilities for pedestrians and cyclists and public transport infrastructure and service provision; and
- a site assessment, undertaken on Tuesday 06 October 2020 (between 15:00hrs and 17:00hrs) to confirm facilities and operating conditions for all road users on the adjoining road network.

The above activities have been supplemented by analysis of classified junction turning count survey data collected to determine existing background traffic conditions on the local road network. The location of the junctions surveyed and the survey periods are as follows;

- 4-Arm Firhouse Road/ Ballycullen Road/ Mount Carmel Park signalised junction – Tuesday 30 March 2017 – 00:00hrs to 23:59hrs; and
- 3-arm Firhouse Road/ Knocklyon Road signalised junction – Tuesday 12 February 2019 - 00:00hrs to 23:59hrs.

Further detail in relation to traffic survey data collection, analysis and validation is given within Section 4 of this Report.

3.2. Site Description, Location and Access

Proposed Development Site

The proposed development site, measuring ca. 0.46 hectares, is located adjacent to Firhouse Road (R114), Firhouse, Dublin 24. The application site's location is presented in Figure 3.1 (overleaf).

Figure 3.1 Site Location

As can be seen from the preceding Figure 3.1, the proposed development site is bounded to the north and west by lands adjacent to the Carmel of the Assumption Convent, to the east by the Mount Carmel Park residential area, and to the south by Firhouse Road (R114). In terms of prevailing land uses, the lands to north and northwest are predominantly recreational in nature, while the lands to the east and also to the south of Firhouse Road are predominantly low-density residential. The M50 runs in an approximate north-south alignment ca. 150-200 metres to the east of the proposed development site.

Existing Site Access Arrangements

Vehicular access to the site is currently possible at 2 no. locations. The main vehicular access to the site, measuring ca. 12.5 metres wide (which is illustrated in Figure 3.2 overleaf), is via Firhouse Road at a location ca. 60 metres to the west of the Firhouse Road/ Ballycullen Road/ Mount Carmel Park four-arm signalised junction. A yellow box is provided on the two eastbound lanes of Firhouse Road immediately adjacent to the existing site access, facilitating ease of access and egress to/ from the application site.

As illustrated by Figure 3.3 (overleaf), there is a secondary ca. 8.0 metres wide gated access to the site at the eastern boundary from Mount Carmel Park. The vehicular carriageway of Mount Carmel Park adjacent to this access is relatively narrow, with a width of ca. 5.2 metres.

Figure 3.2 Primary Access to Site from Firhouse Road



Bluemont, Firhouse Inn SHD Traffic Support
Primary Access to Site from Firhouse Road



Figure 3.3 Secondary Access to Site from Mount Carmel Park



Bluemont, Firhouse Inn SHD Traffic Support
Secondary Access to Site from Mount Carmel Park



3.3. Local Road Network

Firhouse Road (R114)

The site is located adjacent to Firhouse Road (R114) which is a two-way regional road which runs between the Dublin Mountains at its southern end and Rathfarnham at its northern end. The vehicular carriageway of the R114 incorporates bus lanes intermittently along its length on one or both sides.

In the vicinity of the proposed development site, the vehicular carriageway is ca. 10.5 metres wide and incorporates two eastbound lanes and one westbound lane. To the west of the existing vehicular access, one of these westbound lanes is a bus lane with the other lane accommodating all other traffic. The eastbound bus lane ends ca. 20 metres to the west of the existing vehicular access to the proposed development site from Firhouse Road and in the vicinity of the Firhouse Road/ Ballycullen Road/ Mount Carmel Park four-arm signalised junction, the two vehicular lanes become a right-turning lane for vehicles turning onto Ballycullen Road and a straight-ahead and left-turning lane for vehicles continuing on Firhouse Road or turning left onto Mount Carmel Park respectively. Ca. 200 metres to the east of the existing primary access to the proposed development site, Firhouse Road crosses the M50 motorway.



The R114 incorporates cyclist provision along much of its length. To the west of the proposed development site, this cycling infrastructure is provided in the form of grade separated cycle tracks which extend as far as Old Bawn. To the east of proposed development site cycling infrastructure is provided as a mix of off-road and on-road cycle tracks and advisory cycle lanes. Advisory cycle lanes are also provided across the primary access junction to the subject site and through the Firhouse Road/ Ballycullen Road/ Mount Carmel Park four-arm signalised junction and the Firhouse Road and Ballycullen Road arms of the junction also feature advanced stop lines and storage space for cyclists.

Pedestrian infrastructure is provided along both sides of Firhouse Road in the form of footpaths. The footpath along the northern carriageway edge (i.e. adjacent to the site) is ca. 2.0 metres wide, whereas the footpath opposite the site entrance is ca. 1.6 metres and adjacent to a ca. 1.5 metres wide cycle track which is separated from the vehicular carriageway. The Firhouse Road/ Ballycullen Road/ Mount Carmel Park four-arm signalised junction also includes pedestrian crossing lights on all four arms in addition to dropped kerbs, tactile paving and crossing markings.

As an urban road, a 50 km/ h speed limit is in operation on Firhouse Road. Public lighting is in place along the entire section of the road adjacent to the application site. There are on-street car parking

restrictions in the form of double yellow lines in the vicinity of the primary site access junction to the proposed development site.

Ballycullen Road

Ballycullen Road is a two-way road with an approximately north-south alignment which runs between Firhouse Road (R114) at its northern end and the R113 at its southern end. The vehicular carriageway typically incorporates 3 no. vehicular lanes including a single northbound and southbound lane in addition to a bus lane facilitating northbound bus traffic along the majority of its length. This is discontinued in the vicinity of several junctions to allow for left-turning traffic. Ballycullen Road also



incorporates cycling infrastructure along the majority of its length in the form of off-road cycle tracks and mandatory and advisory cycle lanes. In the vicinity of the proposed development site, these cycle lanes are ca. 1.5 metres wide.

At the northern end of Ballycullen Road, the vehicular carriageway is ca. 14 metres wide incorporating 2 no. cycle tracks, one at each edge of the carriageway. Ballycullen Road also incorporates ca. 1.5 metres and 2.0 metres wide footpaths on the western and eastern side of the vehicular carriageway respectively. On the eastern side of Ballycullen Road, the footpath is separated from the road via a ca. 1.5 metres wide grass verge. Street lighting is provided along the road. The posted speed limit on Ballycullen Road is 50 km/ h.

Mount Carmel Park

Mount Carmel Park is a small residential area to the immediate east of the proposed development site, located between Firhouse Road and Dodder Valley Park. Mount Carmel Park is typified by its low-speed, lightly-trafficked residential nature.

The vehicular carriageway of Mount Carmel Park is ca. 5.2 metres wide immediately adjacent to the existing secondary access to the proposed development site. At the entrance to Mount Carmel Park there are ca. 2.2 metres wide footpaths on



either side of the vehicular carriageway. In the vicinity of the secondary access to the site, the vehicular

carriageway of Mount Carmel Park narrows with the footpath continuing on the one side of the vehicular carriageway only.

At the northern end of Mount Carmel Park there are 3 no. paved accesses to Dodder Valley Park. It should be noted however that there is full permeability between Mount Carmel Park and the surrounding Dodder Valley Park along its northern and eastern boundaries.

4-Arm Firhouse Road/ Ballycullen Road/ Mount Carmel Park Signalised Junction

Firhouse Road intersects Ballycullen Road and Mount Carmel Park at a 4-arm signal-controlled junction to the immediate southeast of the proposed development site. The western and eastern approaches to the junction on Firhouse Road feature lane dualling to allow for the separation of straight-ahead and left-turning traffic from right-turning traffic. The southern approach to the junction from Ballycullen Road also features lane dualling to allow for the separation of left-turning traffic from straight-ahead and right turning traffic. The northern Mount Carmel Park arm of the junction features a single lane on approach to the junction.

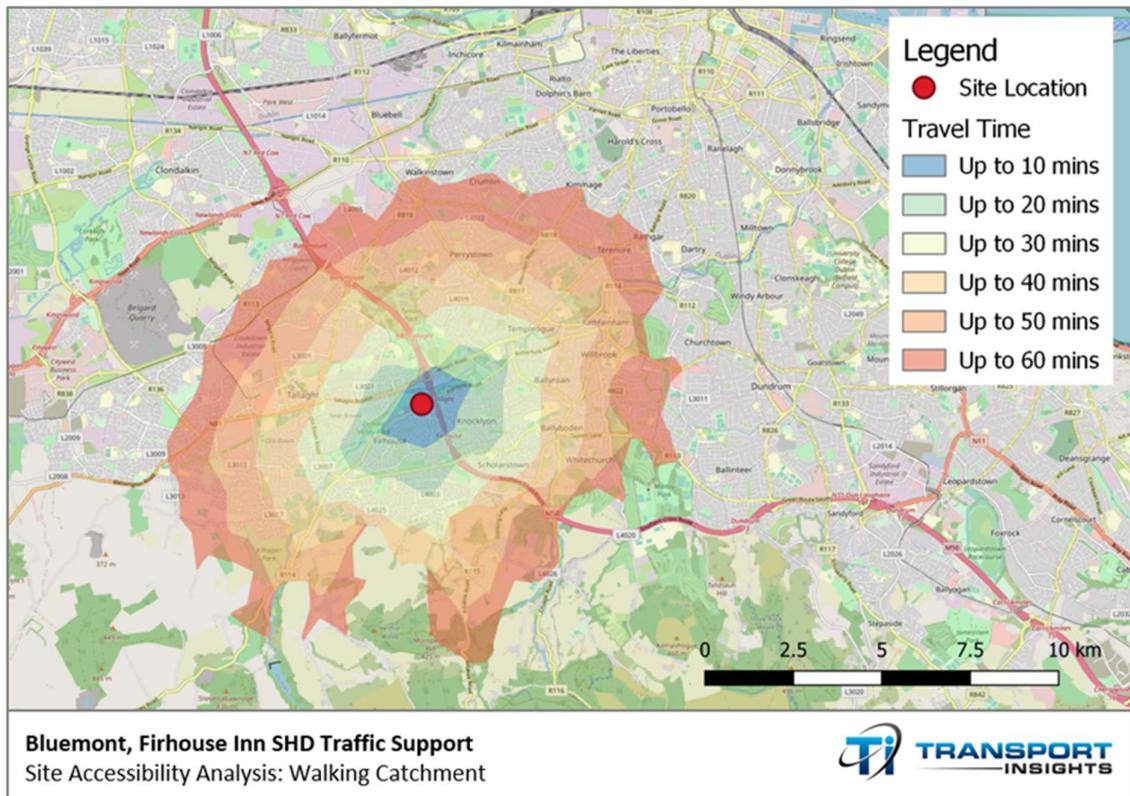


All arms of the junction include signalised pedestrian crossing facilities, in addition to dropped kerbs, tactile paving and crossing markings. The approaches to the junction from Firhouse Road and Ballycullen Road also feature advanced stop lines and storage space for cyclists. Advisory cycle lanes are also present through the junction on Firhouse Road. The Ballycullen Road arm of the junction also includes an advisory cycle lanes which accommodates right-turning cyclists.

3.4. Walking and Cycling Accessibility Pedestrian and Cycle Catchment Analysis

The application site's accessibility by walking and cycling has been assessed regarding each respective catchment. For the purposes of the analysis, the site's 60-minute walking and cycling catchments have been analysed at 10-minute isochrone intervals. The application site's mapped walking catchment is presented in Figure 3.4 (overleaf).

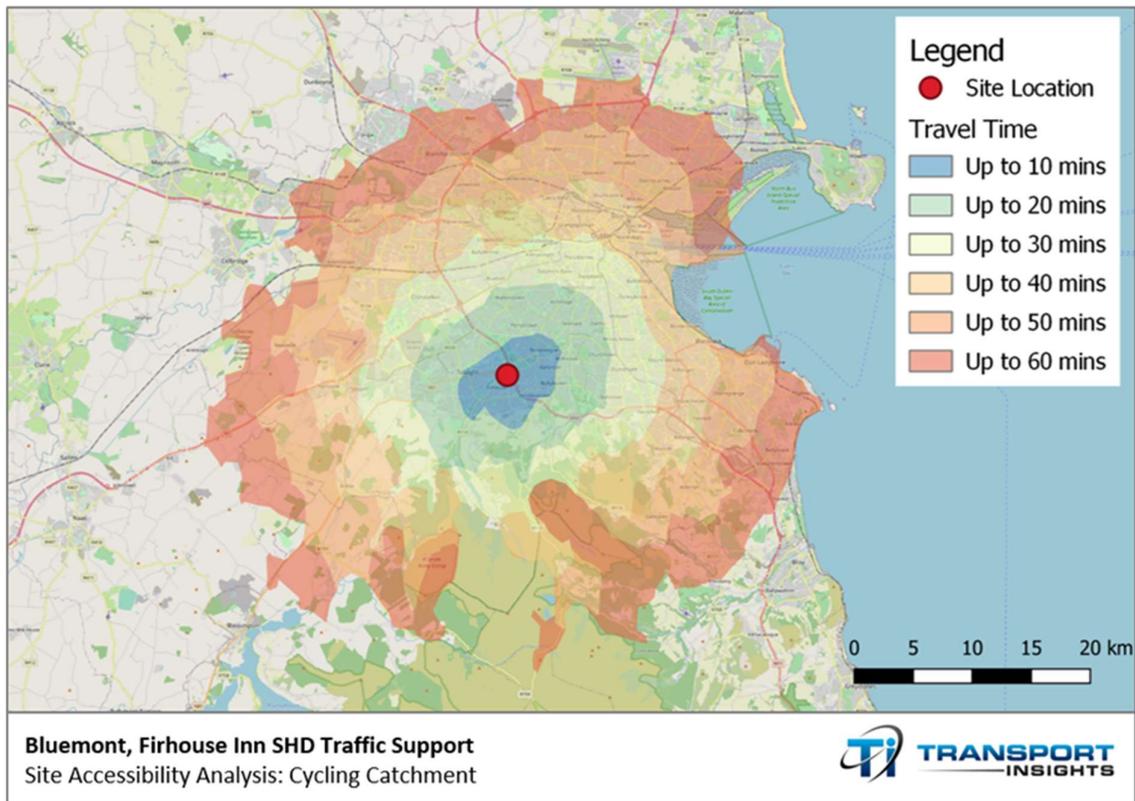
Figure 3.4 Site Accessibility Analysis: Walking Catchment



As can be seen in the preceding figure, the wider 60 minutes’ walking catchment of the site extends approximately to Rockbrook and Bohernabreena in the south, Jobstown in the west, Walkinstown to the north and Rathfarnham to the east. Tallaght Town Centre, which includes ample employment, educational, retail and cultural amenities is noted to be located within a ca. 45 minutes’ walk from the application site, whereas the site’s 20 minutes’ walking catchment includes such shopping destinations as Knocklyon Shopping Centre and Firhouse Shopping Centre (which both include large grocery supermarket stores), Delaney’s Public House and Firhouse Community and Leisure Centre. Recreational amenities in the site’s direct vicinity include Dodder Valley Park, a linear park which stretches from Old Bawn in the southwest to the Knocklyon Road in the northeast.

The application site’s mapped 60 minutes’ cycling catchment is presented in Figure 3.5 (overleaf). As per analysis presented within this figure, the cycle catchment extends to just south of Dublin Airport in the north, to Dun Laoghaire in the east, the Wicklow Mountains in the south, and to the vicinity of Kill, Co. Kildare in the west. The cycling catchment includes the entirety of the area inside the M50 and a range of employment and education clusters located within the 40 minute’s cycling catchment including such destinations as Dublin City Centre, Docklands, Sandyford Business Park, industrial estates such as Cookstown, Hibernian, Ballymount, John F. Kennedy and Robinhood, TU Tallaght Campus etc.

Figure 3.5 Site Accessibility Analysis: Cycling Catchment



Based on the above analysis, it has been concluded that there are ample such opportunities within the range of a convenient and sustainable commute by cycling.

3.5. Public Transport – Existing Bus Services

The proposed development site is served by a number of bus routes serving stops located on Firhouse Road and Ballycullen Road, namely the 49, 65b and 75. Furthermore, the 54a and 77a routes operate on the N81 to the north of the site which can be accessed via pedestrian infrastructure through Dodder Valley Park and under the M50 junction to the northeast of the site. The high frequency route 15 also operates on the St. Colmcille’s Way (R113) to the south of the site. Currently available services are presented in Figure 3.6 (overleaf), with details in relation to their proximity to the site and peak/ off-peak frequencies set out in the subsequent Table 3.1.

Figure 3.6 Current Bus Network in Application Site’s Vicinity

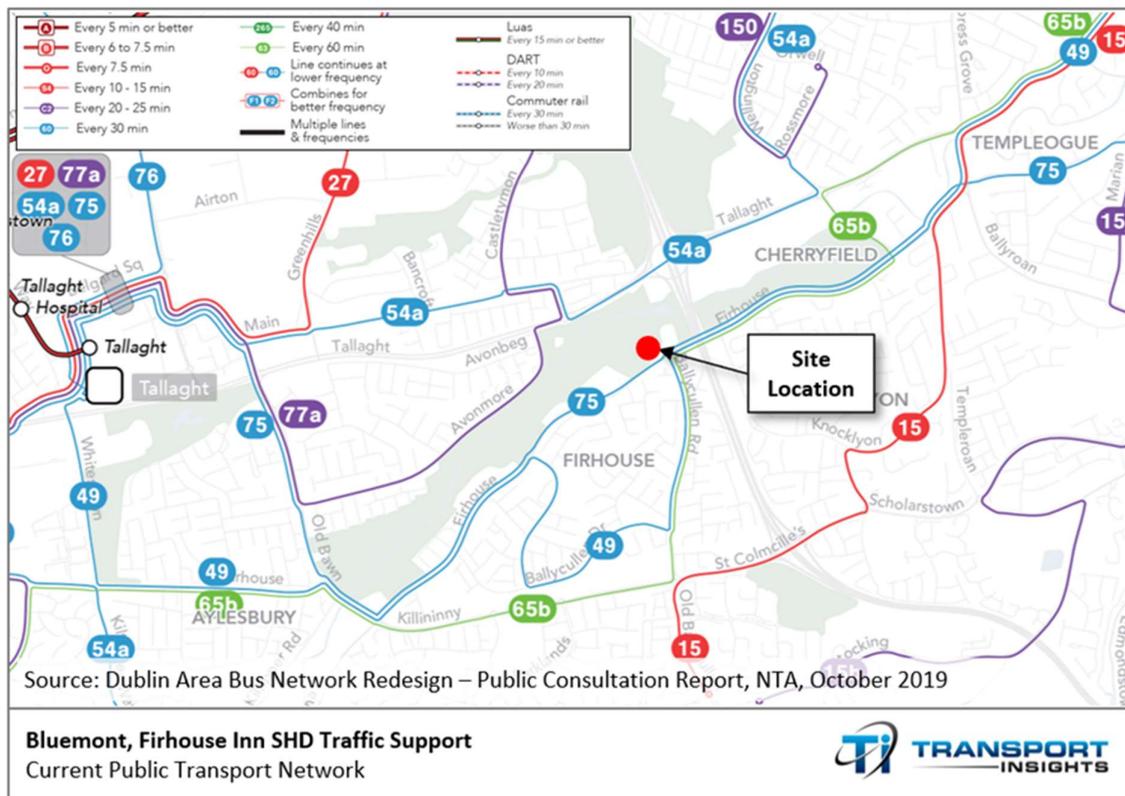


Table 3.1 Current Public Transport Services in Application Site’s Vicinity

Route No.	Route	Weekday Off-Peak Frequency	Average Weekday Peak Frequency	Distance to Nearest Stops
75/ 75A	Tallaght – Dun Laoghaire	30 minutes	20 minutes	Adjacent to the site
49	Tallaght – Pearse Street	30 minutes	30 minutes	ca. 150m
65b	Citywest – Poolbeg Street	60 minutes	30 minutes	ca. 150m
54a	Tallaght – Pearse Street	30 minutes	30 minutes	ca. 800m
77a	Citywest – Ringsend	20 minutes	20 minutes	ca. 1.1 km
15	Ballycullen Road - Clongriffin	8-12 minutes	8-12 minutes	ca. 1.2 km

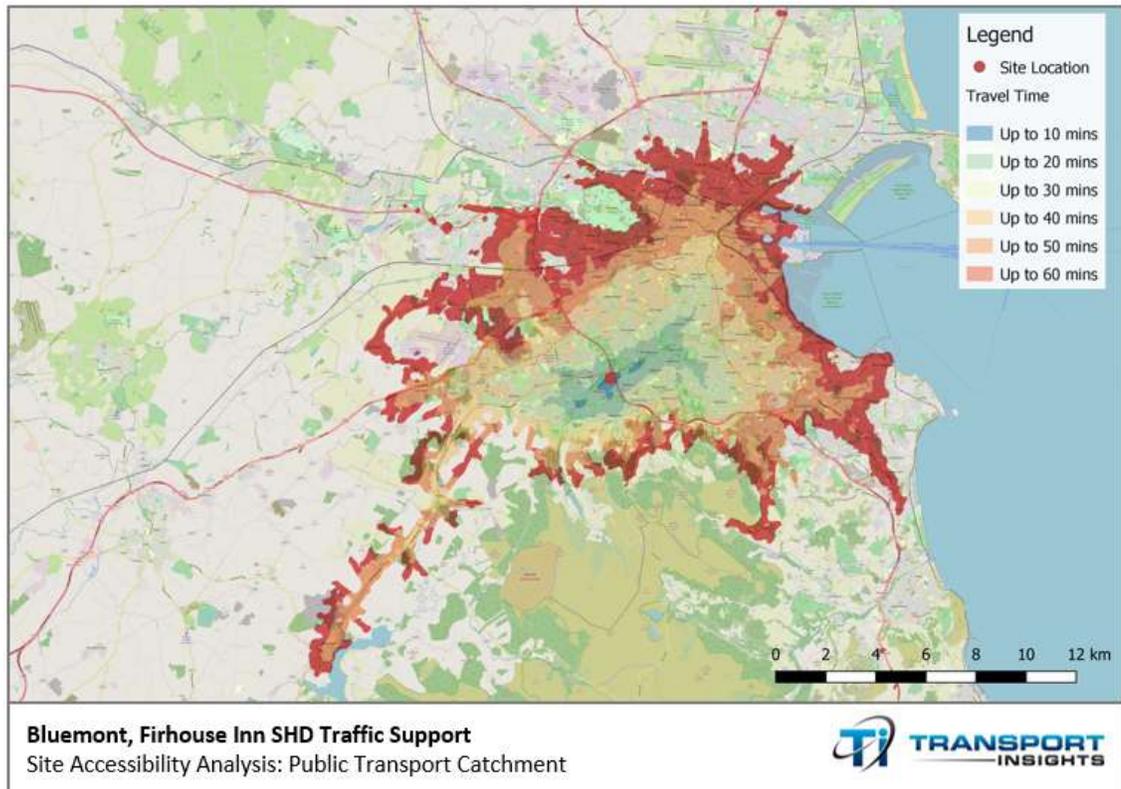
As can be seen in the preceding Table 3.1, the immediate area of the application site is served by three bus routes, one of which, the 75/ 75A, serves a stop on Firhouse Road to the immediate west of the site and connects the site to Tallaght and Dun Laoghaire via Sandyford/ Stillorgan. The 49 and 65b serve a bus stop on Ballycullen Road ca. 150 metres to the south of the subject site, while the 54a and 77a serve bus stops on the N81 to the north of the site. Finally, the high frequency, 24-hour bus route 15 serves St. Colmcille's Way, ca 1.2 kilometres to the south of the subject site.

As outlined above, routes operating in the application site's immediate vicinity (< 150 metres) offer a cumulative peak frequency of one bus every 8.5 minutes. In light of the site's proximity to these services, the site is "within 5 minutes walking distance of high frequency (min 10 minute peak hour frequency) bus services", it thereby fulfils a key criterion with the *Sustainable Urban Housing: Design Standards for New Apartments* (DoHPLG 2018) whereby a reduced level of on-site car parking provision is deemed appropriate.

To further improve the project team's understanding of the site's accessibility by public transport, a travel time analysis using Geographic Information System (GIS) software was undertaken, with travel time isochrones generated based on bus, Luas, and rail timetables published by the National Transport Authority. The output of the public transport accessibility analysis is presented in Figure 3.7 (overleaf) in the form of an isochrone map illustrating travel time from the site by public transport on a working day (including walk and wait time), during the AM commuting peak (assuming a departure time from the site between 08:00-08:30hrs). It is noted that this analysis has been undertaken based on the public transport timetables applicable in March 2020, i.e. pre-implementation of COVID-19 travel restrictions, which may have resulted in temporarily reduced public transport services in subsequent months.

As can be seen from Figure 3.7, the available public transport services enable access to a significant portion of Dublin including Dublin City Centre in under 60 minutes with many key employment areas such as Tallaght, Dublin City Centre, the Docklands, Dun Laoghaire, Sandyford, Dundrum, Drumcondra, etc accessible within that timeframe. Considering the above, the analysis indicates that much of Dublin's southside and Dublin City Centre are accessible from the site within a convenient commute by public transport.

Figure 3.7 Site Accessibility Analysis: Public Transport Catchment



3.6. Road Traffic Collision Data Analysis

Data from the Road Safety Authority (RSA) collision database was used to assess the safety performance characteristics of the local road network. The database contains information on all reported collisions by severity of injury incurred (i.e. fatal, serious or minor) and by year the collision occurred.

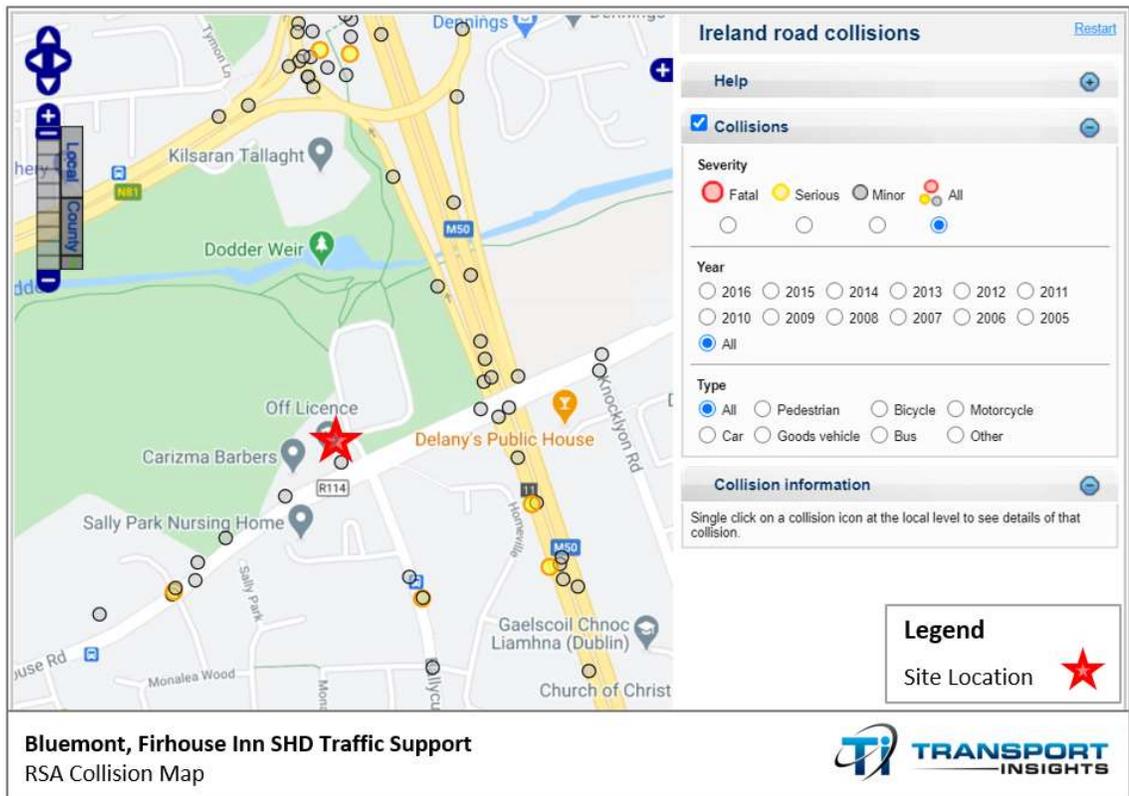
Figure 3.8 (overleaf) illustrates the location of all collisions in the vicinity of the site for the 12-year period from 2005 to 2016 inclusive. As can be seen from this figure, a number of minor collisions have occurred on road network surrounding the site during the assessed period. One such minor collision involving a car, occurring in 2005, appears to be recorded within the existing car parking area to the immediate south of the site boundary. A further minor collision also involving a car, occurring in 2009, appears to have been recorded in the vicinity of the existing site access junction. The circumstances of this collision are recorded as “*angle, right turn*”.

5 no. further minor collisions appear to have occurred to the west of the proposed development site during the assessment period. 3 no. of these minor collisions involved cars with the remaining 2 no. involving a bicycle and a pedestrian and occurred in 2015 and 2016 respectively. To the east of the proposed development site, a further 3 no. minor collisions are recorded on the bridge crossing the M50, all occurring between the years 2009 and 2012, and all involving cars.

Over the assessed period, 2 no. serious collisions occurred. The locations of these collisions are ca. 190 metres to the west of the site and 160 metres to the south of the site. Both of these collisions involved bicycles, with the collision to the west occurring in 2015 and the collision to the south occurring 2016. Records also show that no fatal collisions occurred over the assessed period in the vicinity of the proposed development site.

The available data outlined above indicates that there are no location-specific road safety concerns of relevance to the proposed development considering the volume of traffic on the road network.

Figure 3.8 Road Collision Data 2005-2016



4. Traffic Survey Data Collection and Analysis

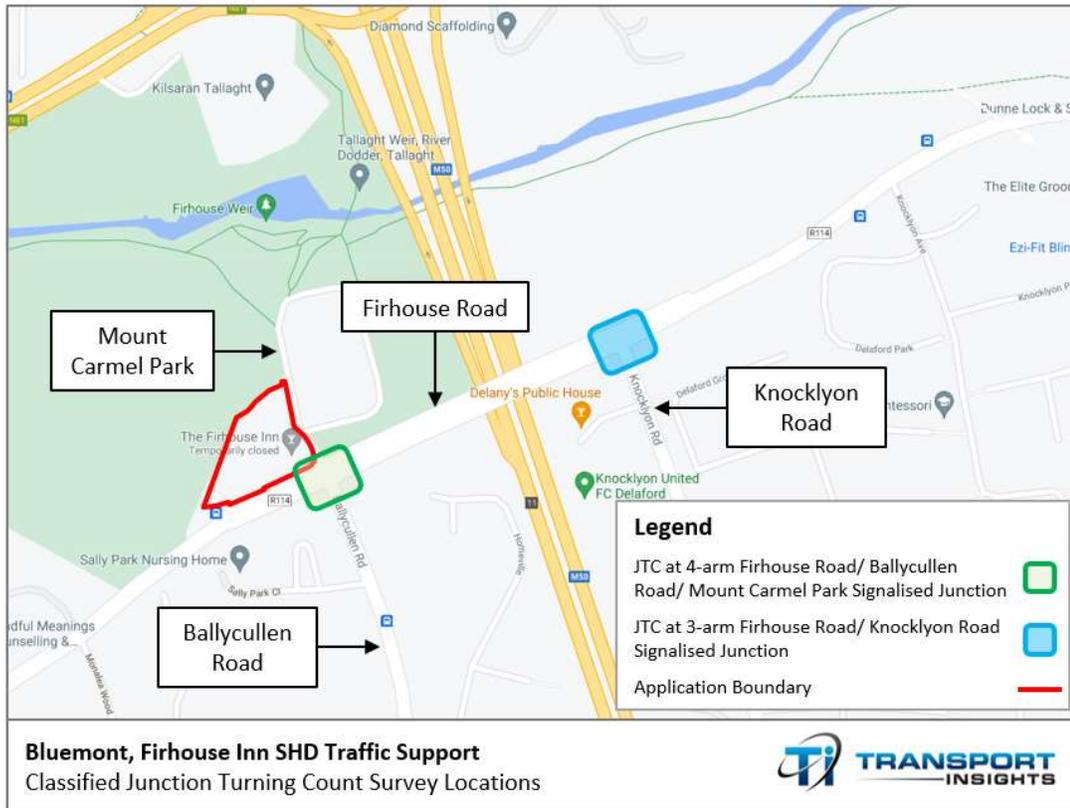
4.1. Introduction

Due to the COVID-19 pandemic and associated restrictions on travel at the time the traffic impact assessment was carried out, traffic levels in the area were understood to be lower than those that would have been present under usual circumstances. Therefore, in order to determine baseline traffic conditions and provide a basis from which the future development's traffic impact can be measured, historical classified junction turning count survey data was obtained for the 4-arm Firhouse Road/ Ballycullen Road/ Mount Carmel Park signalised junction. It was decided that due to the age of this data to obtain more recent classified junction turning count survey data for the 3-arm Firhouse Road/ Knocklyon Road signalised junction to the east of the site in order to ensure that the traffic volumes in the area had not substantially changed in the intervening period. The classified junction turning count surveys were carried out over the following periods:

- 4-arm Firhouse Road/ Ballycullen Road/ Mount Carmel Park signalised junction – Tuesday 30 March 2017 – 00:00hrs to 23:59hrs; and
- 3-arm Firhouse Road/ Knocklyon Road signalised junction – Tuesday 12 February 2019 – 00:00hrs to 23:59hrs.

Figure 4.1 (overleaf) illustrates the location of the junctions outlined above.

Figure 4.1 Classified Junction Turning Count Survey Locations



4.2. Summary Traffic Survey Results

The traffic survey results were analysed in order to determine link flows on each arm of the abovementioned junctions, the AM and PM peak hour periods and the numbers of light vehicles (LV) and heavy vehicles (HV) on the local road network. The results of this analysis are summarised in Table 4.1 which follows.

Table 4.1 Recorded Approach Flows

Year	Junction Location	Road Link	AM Peak Hour		PM Peak Hour	
			Light Vehicles	Heavy Vehicles	Light Vehicles	Heavy Vehicles
2017	4-arm Firhouse Road/ Ballycullen Road/ Mount Carmel Park Junction	Ballycullen Road (S)	537	10	295	3
		Firhouse Road (W)	653	10	337	3
		Mount Carmel Park (N)	19	0	11	0
		Firhouse Road (E)	494	12	980	10

Year	Junction Location	Road Link	AM Peak Hour		PM Peak Hour	
			Light Vehicles	Heavy Vehicles	Light Vehicles	Heavy Vehicles
		Sub-total	1,703	32	1,623	16
		Total	1,735		1,639	
2019	3-arm Firhouse Road/ Knocklyon Road Junction	Firhouse Road (W)	1,015	17	460	7
		Firhouse Road (E)	448	6	853	11
		Knocklyon Road (S)	258	2	251	1
		Sub-total	1,721	25	1,564	19
		Total	1,746		1,583	

As can be seen from the preceding Table 4.1, the AM peak was recorded as having slightly greater approach flows when compared to the PM peak hour during both traffic surveys. It should be noted that the 2017 AM peak occurred between 08:15hrs and 09:14hrs while during the 2019 survey the AM peak occurred during 08:00hrs and 08:59hrs. Similarly, the 2017 PM peak occurred between 17:45hrs and 18:44hrs while during the 2019 survey the PM peak occurred during 16:45hrs and 17:44hrs.

Full traffic survey results are included within Appendix B of this Report.

4.3. Supplemental Traffic Survey Analysis

As outlined above, it was deemed prudent to validate the 2017 4-arm Firhouse Road/ Ballycullen Road/ Mount Carmel Park signalised junction traffic survey using the more recent 3-arm Firhouse Road/ Knocklyon Road Junction in order to ensure that the traffic volumes in the area had not substantially changed in the intervening period. This validation exercise focused on the eastern arm of the 4-arm Firhouse Road/ Ballycullen Road/ Mount Carmel Park signalised junction and the western arm of the 3-arm Firhouse Road/ Knocklyon Road Junction as these road links constitute the same section of the Firhouse Road i.e. at the section of road which bridges the M50 motorway. The location of these road links are illustrated graphically by Figure 4.2 (overleaf).

Two-way flows on these road links over the full 24-hour (00:00hrs to 23:59hrs) were analysed and compared. This analysis is illustrated graphically by Figure 4.3 (overleaf).

Figure 4.2 Road Link Locations

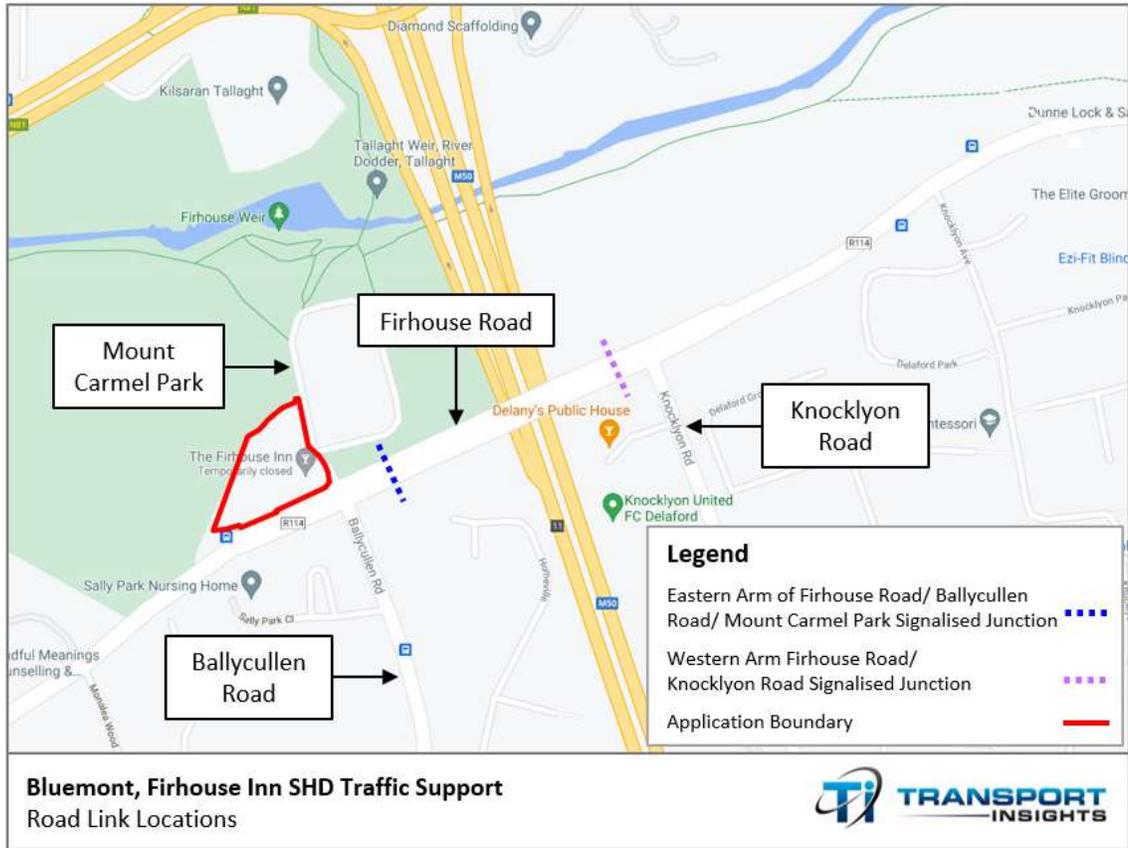
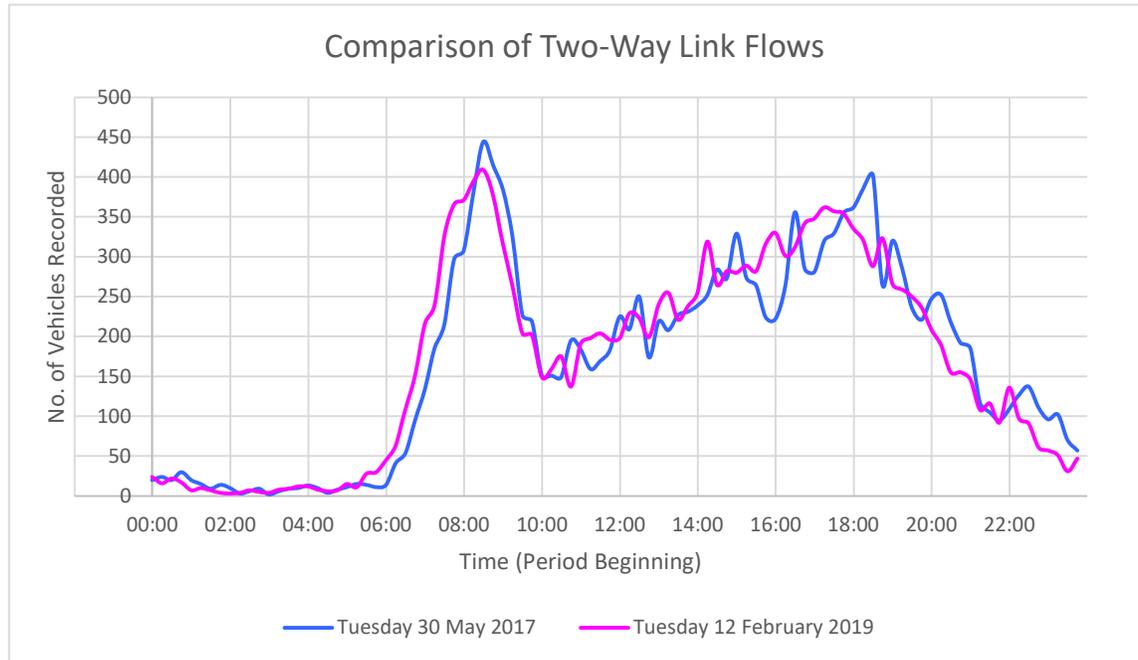


Figure 4.3 Comparison of Two-Way Link Flows



As can be seen from the preceding Figure 4.3, two-way traffic flows on both road links on the Firhouse Road over both survey periods outlined above (i.e. 30 May 2017 and 12 February 2019) are similar in

terms of both the quantum of vehicles and the distribution of traffic throughout the day. It is noted that the survey carried out on Tuesday 30 May 2017, which is proposed to form a baseline from which the proposed development traffic can be assessed, recorded slightly higher traffic flows in both the AM and PM peak periods. The quantum of vehicles recorded during the AM and PM peak hour periods and the total quantum of vehicles recorded over the full 24-hour period are detailed in Table 4.2 below.

Table 4.2 Two-Way Link Flows

Junction	Link	Two-Way Link Flows		
		AM Peak	PM Peak	Total
4-arm Firhouse Road/ Ballycullen Road/ Mount Carmel Park Junction	Firhouse Road (E)	1,625	1,504	16,362
3-arm Firhouse Road/ Knocklyon Road Junction	Firhouse Road (W)	1,552	1,409	16,553

As can be seen from both Figure 4.3 and Table 4.2 above, peak two-way traffic flows on the Firhouse Road between the 4-arm Firhouse Road/ Ballycullen Road/ Mount Carmel Park junction and the 3-arm Firhouse Road/ Knocklyon Road junction were slightly higher during the 2017 survey period when compared to the 2019 survey period. 24-hour two-way traffic flows were found to be ca. 1.2% greater during the 2019 survey when compared to the 2017 survey. Due to this minor difference, it is apparent that the 2017 classified junction turning count data represents typical pre-COVID-19 conditions on the local road network, and therefore provides a suitable baseline from which to establish the traffic impact of the proposed development.

5. Description of Proposed Development

5.1 Introduction

This section of the TTA describes key physical attributes of the proposed development including site access and internal site layout arrangements, proposed car and cycle parking provision, and servicing arrangements.

5.2 Proposed Development

As outlined within Section 1.2, the proposed development comprises the following:

- 100 no. units incorporating a mix of studio (2 no.), 1-bed apartment units (45 no.), 2-bed apartment units (44 no.), 3-bed apartment units (5 no.), 1-bed duplex units (2 no.) and 2-bed duplex units (2 no.) over 3-5 storeys across 2 no. blocks;
- 5 no. small ground floor commercial units (ca. 27 – 66 sqm);
- a ground floor creche (ca. 114 sqm);
- 80 no. car parking spaces within 2 no. basement car parking levels;
- 270 no. cycle parking spaces comprised of the following:
 - 156 no. cycle parking spaces to accommodate residents;
 - 50 no. cycle parking spaces to accommodate residential visitors;
 - 20 no. cycle parking spaces to accommodate staff; and
 - 44 no. short-stay cycle parking spaces at surface level (provided in the form of 20 no. Sheffield stands) to accommodate visitors to the development.

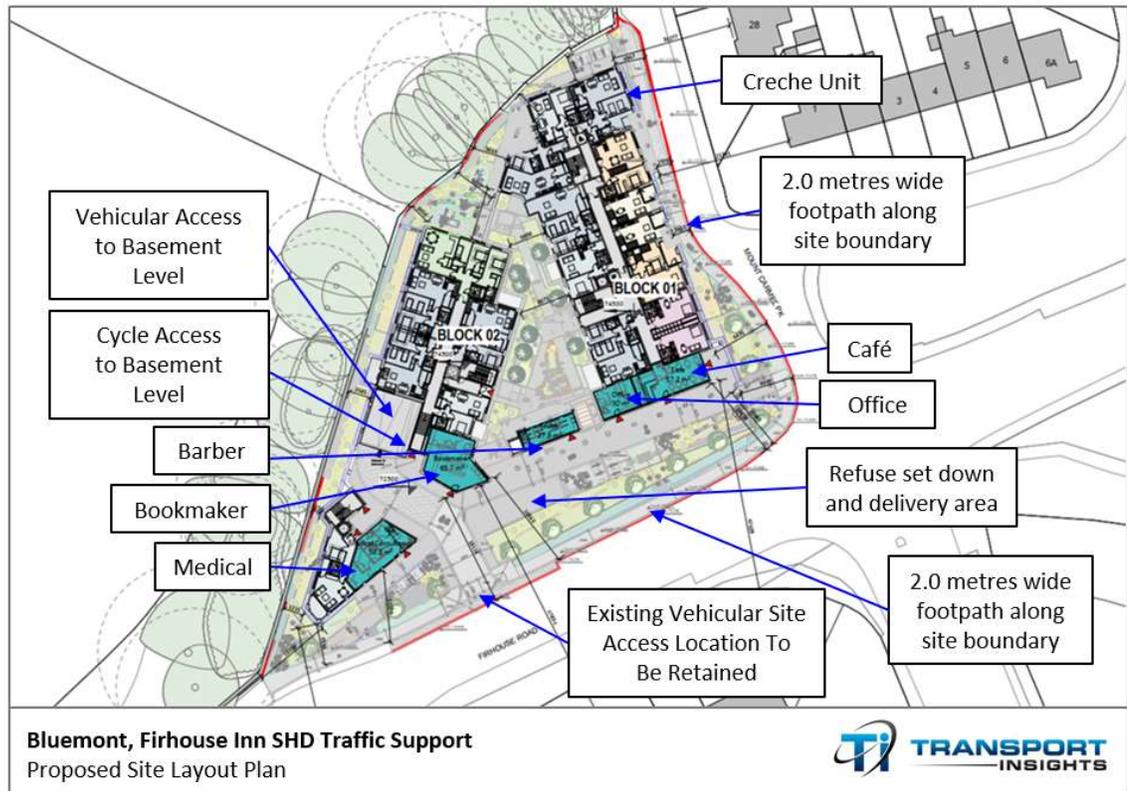
Further information in relation to traffic and transport characteristics of the development proposal is provided in the remainder of this section of the Report.

5.3 Proposed Access/ Egress and Layout Arrangements

Overview

The proposed surface level site layout which includes pedestrian and vehicular access arrangements relative to local roads is shown in Figure 5.1 (overleaf).

Figure 5.1 Proposed Site Layout*



* Image courtesy of O’Mahoney Pike (Drawing Reference: 20022 - OMP - 00 - SP - DR - A - 1000) with supplemental annotation by Transport Insights. A to-scale architectural version of the preceding Figure 5.1 is included within the overall planning pack.

Pedestrian Access Arrangements

Pedestrian access to the site will be via the southern, eastern and western sides of the site. A 2.0 metres wide footpath is proposed along the length of the eastern side of the development on the western side of Mount Carmel Park and along the southern side of the development along the northern side of Firhouse Road. Pedestrian access will be possible from these footpaths from 5 no. locations, 1 no. at the proposed creche, 2 no. adjacent the main site access junction (i.e. either side of the vehicular carriageway), 1 no. at the south-western corner of the proposed development and 1 no. at the south-eastern corner.

A 3.0 metres wide footpath will also connect the pedestrian access at the south-western corner of the site, through the site to Mount Carmel Park and will provide access to the southern side of the development buildings. This footpath will also facilitate access to the site from the vicinity of the existing pedestrian crossing lights on Firhouse Road and Mount Carmel Park.

Internal pedestrian routes provide access from the development buildings to podium level. It should be noted that the podium level is proposed to accommodate private access only.

Cycling Access Arrangements

Cyclist access to the site is via the main site access junction at the southern boundary of the site which in turn provides access to a dedicated cycle ramp. This ramp provides access to cycle parking facilities at basement level and will allow easy cyclist access to and from the proposed shared surface at Mount Carmel Park which will link to the greenway network (proposed as part of *the Greater Dublin Area Cycle Network Plan*) to the north of the site.

In addition, cyclists can also access the site via the pedestrian access points which provide convenient access to the numerous short-stay cycle parking stands provided throughout the site.

Vehicular Site Access/ Egress Arrangements

Vehicular access/ egress to the proposed development will be from Firhouse Road via the existing site access junction. This junction will be subject to minor modifications such as decreasing the corner radii to 4.0 metres and decreasing the access width to 5.0 metres in order to ensure its suitability for the site and its compliance with *DMURS*. Resulting from the Stage 1 and 2 RSA carried out for the proposed development, a bevelled kerb is also proposed on the southern side of Firhouse Road (See Appendix G for further details). Pedestrian crossing facilities in the form of dropped kerbs and tactile paving will also be implemented at the junction and the existing cycle lane shall continue to operate on the adjoining Firhouse Road across the junction as an advisory cycle lane. It should be noted that the site access junction shall continue to operate as a stop-controlled junction.

The access junction will lead to the site access road from which a delivery/ refuse vehicle set-down bay at surface level will be accessible as will access to the proposed vehicular ramp to basement level.

Visibility splays at the new junction will accord with *DMURS*, with in excess of 49 metres of sightlines provided in each direction along Firhouse Road, measured 2.4 metres from the edge of the carriageway along the centre of the site access. A to-scale visibility splay drawing has been produced and is included in Appendix C of this document.

As per pre-planning feedback provided by SDCC, the need for a right turning pocket for vehicles entering the site from Firhouse Road was investigated. An assessment of the quantum of trips generated by existing on-site land uses, namely the existing ca. 580 sqm public house, and proposed on-site land uses, namely 100 no. apartment units, a creche, a café and a GP's surgery / dental practice was undertaken using the TRICS database and the outputs were compared. It should be noted that the existing and proposed commercial units and office space within the site were not included within this assessment as they are assumed to continue to generate a comparable number of trips in the development Year of Opening as they have done previously. It should also be noted that this assessment has been carried out for the PM peak hour only as this the period in which the greatest

amount of traffic would access the proposed development site from Firhouse Road (based on both its current and proposed land uses). The output of this analysis is shown in Table 5.1 (overleaf).

Table 5.1 Existing and Proposed PM Peak Hour Right-Turning Arrivals to Site

	Existing	Proposed
Total Arrivals	16	24
No. of Right-Turning Arrivals	10	15
Difference in No. of Right-Turning Arrivals	N/A	+5

As set out in Table 5.1 above, the proposed development site is projected to generate 5 no. more right turning vehicles into the site during the PM peak hour period than the site does under its current land use, i.e. as a public house. Under the site’s current land use, an average of 1 no. vehicle would turn right into the site every 6 minutes. In comparison, upon implementation of the proposed development, an average of 1 no. vehicle would turn right into the site approximately every 4 minutes. Due to this minor increase in the number of right-turning vehicles, it is deemed unnecessary to implement a right-turning pocket in order to accommodate the proposed development.

Internal Site Layout

The proposed site consists of a mixed-use residential and commercial building, with the commercial units located in each of the blocks. The site also features a central courtyard (at podium level), pedestrian footways, refuse and delivery set-down area, public spaces and short-stay cycle parking facilities located within the southern portion of the development and at the northern end of the development adjacent to the proposed creche.

Stage 1 & 2 Road Safety Audit

As per pre-planning feedback provided by SDCC, a Road Safety Audit (RSA) was required to be completed in relation to the proposed development. A combined Stage 1 & 2 RSA as per *TII Publication TII GE-STY-01024* has been completed by a certified independent auditor for the proposed development scheme, and is included along with the Audit Feedback Form, within Appendix G.

This RSA identified 3 no. problems with the draft proposed site layout. These are described within the report in Appendix G. All 3 no. recommendations to address these problems have been accepted by the Applicant and Designer with the external works shown in the associated drawing in Appendix G, with such works to be carried out in agreement with SDCC.

5.4 Car Parking

A new 2-storey basement car park shall be provided beneath the proposed development site, having a total of 80 no. car parking bays across 2 no. levels, comprising the following:

Level B01 – Commercial Car Parking

- 15 no. standard commercial car parking bays, measuring 2.4 metres * 4.8 metres:
 - 5 no. car parking bays to serve the creche (incl. 2 no. family spaces with a buffer either side and to the rear of the bays).
 - 2 no. car parking bays to serve the café;
 - 2 no. car parking bays to serve the bookmakers;
 - 3 no. car parking bays to serve the barber unit;
 - 2 no. car parking bays to serve the medical unit; and
 - 1 no. car parking bay to serve the office unit.
- 1 no. accessible commercial car parking bay, measuring 2.5 metres * 4.8 metres, with a 1.2 metres buffer provided either side and to the rear of the bays to serve all commercial units.
- 1 no. accessible residential car parking bay, measuring 2.5 metres * 4.8 metres, with a 1.2 metres buffer provided either side and to the rear of the bay.

Level B02 – Residential Only Car Parking

- 61 no. standard residential car parking bays, measuring 2.4 metres * 4.8 metres.
- 2 no. accessible residential car parking bays, measuring 2.5 metres * 4.8 metres, with a 1.2 metres buffer provided either side and to the rear of the bays.

20% of car parking spaces (i.e. 16 no. spaces) will be equipped to allow for charging of electric vehicles on the development Day of Opening, with 100% of spaces being capable of being upgraded to include electric vehicle charging points as demand for them increase. 8 no. motorcycle parking spaces will also be provided within the basement car park.

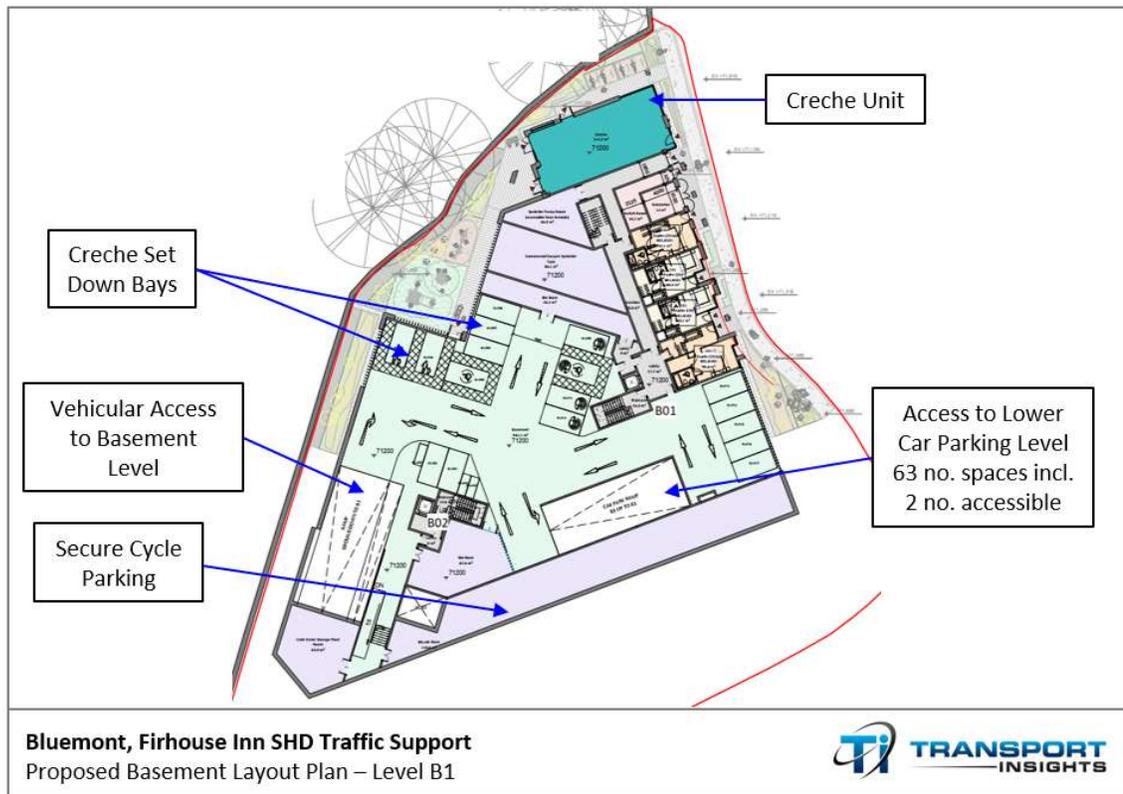
The quantum of residential car parking proposed, representing a ratio of ca. 0.63 bays per apartment, is noted to be below *South Dublin County Development Plan 2016-2022* maximum standards of 1 car parking bay per 1-bed unit, 1.5 car parking bays per 2-bed unit and 1.75 bays per 3-bed unit. However, due to the site's favourable accessibility characteristics, including high frequency bus services (as detailed in Section 3.5 of this Report), and within a range of employment, retail and amenity opportunities within its walking and cycling catchments, the proposed car parking allocation is considered appropriate. A further assessment of the appropriateness of the proposed car parking provision is provided below.

Operation and Access Arrangements for Basement Car Park

Access to the basement car parking shall be via a dedicated access ramp used by vehicles while cyclists will have a separate dedicated access ramp located immediately adjacent. This ramp has been designed in accordance with *Design Recommendations for Multi-Storey and Underground Car Parks, fourth Edition* as set out within Section 2.2 of this Report. The access ramp and internal ramps will measure 6.0 metres wide. Aisles within the basement measure 6.0 metres minimum in width which is sufficient to accommodate traffic circulation and access/ egress to/ from perpendicular car parking bays within the car park.

The proposed basement layout at levels B1 and B3 are shown at the following Figures 5.2 (below) and 5.3 (overleaf) respectively.

Figure 5.2 Proposed Basement Layout – Level B1*



*Image courtesy of O’Mahoney Pike (Drawing Reference: 20022 - OMP - ZZ - B1 - DR - A - 1099) with supplemental annotation by Transport Insights. A to-scale architectural version of the preceding Figure 5.2 is included within the overall planning pack.

Figure 5.3 Proposed Basement Layout – Level B3*



*Image courtesy of O’Mahoney Pike (Drawing Reference: 20022 - OMP - ZZ - B2 - DR - A - 1098) with supplemental annotation by Transport Insights. A to-scale architectural version of the preceding Figure 5.3 is included within the overall planning pack.

Appropriateness of Development Car Parking Provision – CSO Data

A Central Statistics Office (CSO) Census 2016 Small Area Population Statistics data analysis has been undertaken to inform the proposed development’s car parking provision. The analysis has involved selecting small areas within Dublin City and County, where residential apartments form a dominating proportion (at least 80%) of the overall housing stock and identifying the average car ownership level among resident households. In doing so, the central area delineated by the Royal Canal in the north and the Grand Canal in the south was deemed not representative for the application site and has therefore been excluded.

The analysis has revealed that within the study area comprising small areas with at least 80% of apartments among the overall housing stock, located within outer suburbs of Dublin City and the entirety of Counties Fingal, South Dublin and Dún Laoghaire-Rathdown, an average of 34% of privately rented apartment households outside of Dublin City Centre (Canal Cordon) do not own a car.

Based on the above considerations, it is the opinion of Transport Insights that 34% of residential units within the development i.e. 34 no. units would not own a car, while the remaining 66% of residential units (66 no. units) may require one. As part of the development, it is proposed to provide 63 no. residential car parking spaces. In order to address any shortfall with regards to the mobility requirements of future residents, an integrated package of measures have been developed and are set out within the Framework Residential Travel Plan (Section 8). This includes measures aimed at reducing car ownership and use among the proposed development's residents and visitors and measures to increase the uptake of active travel modes, particularly cycling. A Car Parking Strategy has also been developed, and this is set out in Section 9.

Furthermore, the proposed quantum of car parking provision has been considered appropriate in the context of the following:

- the site's public transport accessibility including Dublin Bus routes 49, 65b and 75 on the adjoining Firhouse Road and Ballycullen Road;
- the range of destinations reachable within a convenient cycle commute, including Dublin City Centre, Docklands, Sandyford Business Park, industrial estates such as Cookstown, Hibernian, Ballymount, John F. Kennedy and Robinhood, TU Tallaght Campus, etc (see cycle travel time isochrone map in Figure 3.5); and
- immediate employment opportunities within walking distance of the site Tallaght Town Centre, TU Tallaght Campus, Cookstown Industrial Estate, Broomhill Industrial Estate, etc. (see walk travel time isochrone map in Figure 3.4).

5.5 Cycle Parking

It is proposed to provide a total of 270 no. cycle parking spaces as part of the development for both residential and commercial land uses. Cycle parking facilities will be provided in the form of 226 no. cycle parking spaces within the basement level which will accommodate residents, visitors to the residential portion of the development and staff cycle parking needs. A further 44 no. short-stay cycle parking spaces are proposed at surface level, 16 no. in the vicinity of the creche and 28 no. in the forecourt area to accommodate visitors to the ground floor commercial units.

Cycle parking provision is in accordance with the *South Dublin County Development Plan 2016-2022* (and the *Draft South Dublin County Development Plan 2022-2028*) – see Section 2.4 of this Report for further details. It is noted that the provision of 206 no. cycle parking spaces is as per requirements of the *Sustainable Urban Housing: Design Standards for New Apartments, Guidelines for Planning Authorities* (see Section 2.2 of this Report for further details) to accommodate the residential portion of development alone. It is also noted that the qualitative specification of facilities provided within the proposed development accords with its requirements in the following key respects:

- **Location:** Cycle parking has been provided at a location which is conveniently accessible. The cycle parking within the development is accessed via a dedicated cyclist ramp.
- **Basement level cycle parking:** There are 226 no. cycle parking spaces within basement level B2 with none provided at B3 in order to prevent unnecessarily long routes for cyclists.
- **Ground level visitor cycle parking:** The 44 no. cycle parking spaces provided within covered facilities at ground level, offer secure, attractive facilities for visitors to the development. Cargo bike parking will also be accommodated within this area.

5.6 Servicing, Deliveries, and Emergency Access

Refuse Collection and Deliveries

Refuse and delivery vehicles will access the site via the main site access on Firhouse and make use of a loading bay proposed at surface level. This loading bay has been designed to accommodate a large refuse vehicle and also includes space for the marshalling of bins.

Refuse from both the commercial and residential waste stores will be brought to this area and emptied into the bin lorry. The refuse lorry will then egress the site via the main site access. A further bin store will be located adjacent to the creche, and refuse will be collected on Mount Carmel Park while residential dwellings within Mount Carmel Park are also being serviced.

An AutoTrack analysis of the proposed development has been carried out for an 8.2 metres long refuse lorry accessing, maneuvering within and egressing the site, and is presented in Appendix D.

Emergency Access

Emergency access will be via the main site access junction on Firhouse Road. From this location, the south-western and southern sides of the development buildings will be accessible as will the podium level. The eastern development building is also accessible to emergency vehicles along the full length of Mount Carmel Park. As outlined above, the proposed development has been assessed by means of an AutoTrack analysis and, as per the drawing included in Appendix D, is accessible for a 8.2 metres long refuse lorry and is therefore also deemed to be accessible for a high-reach fire tender.

6. DMURS Compliance Statement

6.1 Introduction

This section of the Report contains a statement that the proposed development is consistent with the *Design Manual for Urban Roads and Streets (DMURS)*, as per Section 19 of the Strategic Housing Development (SHD) pre-application form.

Compliance of key roads related aspects of the proposed development's layout with the principles of *DMURS* is set out hereunder.

6.2 Carriageway Widths

The main vehicular carriageway width within the development is a maximum of 5.0 metres (although slightly wider at the access to the basement car park). This represents the standard carriageway width for local streets, as per *DMURS* Section 4.4.1.

6.3 Corner Radii

Corner radii at the proposed main site access junction from Firhouse Road are proposed to be 4.0 metres which is compliant with *DMURS* Section 4.4.3.

6.4 Pedestrian Facilities

Proposed pedestrian footpaths are on Mount Carmel Park and Firhouse Road measure 2.0 metres wide. The primary pedestrian route through the site is proposed as 3.0 metres wide in order to accommodate primary pedestrian desire lines through the site, access to the bus stop to the immediate southwest of the site and accommodate areas of pedestrian activity. As set out in Section 1 above, it should be noted that this arrangement provides a cumulative total pedestrian infrastructure width of 5.0 metres running east-west across the site.

Footpaths measuring 1.8 metres are provided either side of the vehicular carriageway at the vehicular access to the site. It is noted that these pedestrian footpaths are not located on a frequently used pedestrian desire lines, with the majority of pedestrians entering the site from the Firhouse Road at the south-western corner of the proposed development site and from the corner of Mount Carmel Park and Firhouse Road at the south-eastern corner of the site which are accommodated by a 3.0 metres wide pedestrian provision described above. Therefore, footpath widths of 1.8 metres at this location, which is the minimum space required for two wheelchairs to pass comfortably in areas of low pedestrian demand, as per *DMURS* Section 4.3.1, are deemed to be appropriate.

A pedestrian priority crossing is proposed at the site access junction which will provide a vertical deflection in order to slow vehicles entering the site and provide a continuation of the footpath on Firhouse Road across the site access junction to ensure pedestrian priority and comfort. A further

crossing point is proposed within the development where the footpath to the immediate south of the development buildings crosses the vehicular carriageway in the vicinity of the access to the proposed basement level car park. This crossing is proposed as a continuation of the pedestrian footpath and shall operate as a courtesy crossing.

6.5 Surface Level Refuse/ Delivery Set-down

An area is proposed at surface level to provide for the off-street set-down of refuse vehicles servicing the development and for the accommodation of delivery vehicles to the site. This area is ca. 15.0 metres long and 3.6 metres wide and is provided as a paved area which, outside of its usage as a refuse vehicle set-down and delivery area will revert to usable pedestrian space, in accordance with *DMURS* guidance.

6.6 Materials and Finishes

Visually contrasting materials and finishes are proposed to be used within the site in order to delineate shared surface areas, pedestrian footpaths and vehicular carriageways, and in doing so to improve legibility, calm vehicular traffic and reduce the need for line markings and signage etc.

7. Traffic Impact Analysis

7.1 Introduction

This section of the TTA Report sets out the approach pursued in assessing the proposed development's traffic impacts and its findings, specifically identifying the extent of additional traffic the proposed development will add to the adjoining road network.

7.2 Analysis Scope, Assessment Years and Time Periods, and Assessment Scenarios

Analysis Scope

Analysis has focused on assessing the impact of the development proposal on the 4-arm Firhouse Road/ Ballycullen Road/ Mount Carmel Park signalised junction, the location of which is illustrated in in Figure 4.1 of this Report.

Assessment Years and Time Periods

As recommended by TII's *TTA Guidelines*, three assessment years are considered, namely: base year (2019), year of opening (YoO) which is assumed to be 2023; and a horizon year (YoO+15), i.e. 2038. The assessment will focus on the critical time periods for the local road network i.e. the AM peak hour (08:15-09:14hrs) and the PM peak hour (17:45hrs-18:44hrs) for assessing the proposed development's traffic impact.

Assessment Scenarios

The following scenarios have been developed in assessing the proposed development's traffic impacts:

- **Do-Nothing Scenario:** To assess the traffic impact of the development proposals on the local road network, it is first necessary to establish background traffic conditions without the proposed development, also referred to as the 'do-nothing' scenario. Such background traffic flows have been determined from the traffic survey detailed in Section 4 of this Report.
- **Do-Something Scenario:** The with-development or 'do-something' scenario represents traffic conditions following completion of the proposed development, i.e. do-nothing plus additional traffic generated by the proposed development.

The traffic impact of the proposed development is determined by assessing the relative changes between traffic flows in do-nothing versus do-something scenarios, with such impacts determined within the remainder of this section of the Report.

It should be noted that the existing development site incorporates a public house, an off-license, office space, a bookmaker and a barbershop. It should be noted that the public house and off-license have permanently closed since 2020. Due to the ongoing COVID-19 pandemic and associated restrictions, it is difficult to estimate the amount of traffic associated with the existing land uses on-site and this

has not been included within the baseline scenario. As a result, the do-something scenarios can be conservatively assumed to represent a robust assessment.

7.3 Do-Nothing Traffic Growth Forecasting

In order to understand the impact of the development proposals on the local road network, it is first necessary to understand the without development or do-nothing scenario for the base year (2019), the YoO (Year of Opening) (2023), YoO+5 (2028) and YoO+15 (2038). Traffic levels in the do-nothing scenario comprise forecast background traffic flows, which is assumed to grow organically over the assessment period.

Forecast Background Traffic Flows

Existing traffic flows on the surrounding road network as determined via surveys undertaken in 2017 have been adjusted through application of appropriate growth factors to determine YoO and YoO+15 traffic flows. For this assessment, growth factors have been determined from the TII’s *Project Appraisal Guidelines for National Roads Unit 5.3 – Travel Demand Projections*, October 2021. Information within these guidelines is provided for ‘Dublin Metropolitan’ from 2016-2030 and from 2030-2040 for low, central and high sensitivity growth scenarios.

This information is provided for light vehicles (LVs) and heavy vehicles (HVs) and was used to determine the future year do-nothing traffic flows. Central growth factors were assumed for this assessment to determine future year background traffic flows on the surrounding road network. These factors are set out in Table 7.1, which follows.

Table 7.1 TII Traffic Growth Factors (Central) – Dublin Metropolitan

Year	Annual Growth Factor - LV	Annual Growth Factor – HV
2016-2030	1.0162	1.0295
2030-2040	1.0051	1.0136

Based on the TII central growth factors in the preceding Table 7.1, 2017 traffic volumes have been factored to 2023, 2028 and 2038 levels, to determine the assumed year of opening and horizon year traffic volumes, without the proposed development in place. Table 7.2 (overleaf) provides an overview of do-nothing base year, YoO, YoO+5 and YoO+15 AM and PM peak hour traffic volumes.

Table 7.2 Do Nothing Scenario – Existing (Base) and Forecast Background Approach Flows, All Arms, AM and PM Peak Periods

	Junction	Peak Period	Approach Flows
Base (2019) ³	3-arm Site Access Firhouse Road Junction	AM	1,005
		PM	910
	4-arm Firhouse Road/ Ballycullen Road/ Mount Carmel Park Signalised Junction	AM	1,735
		PM	1,639
YoO (2023)	3-arm Site Access Firhouse Road Junction	AM	1,073
		PM	971
	4-arm Firhouse Road/ Ballycullen Road/ Mount Carmel Park Signalised Junction	AM	1,852
		PM	1,749
(Yoo+5) 2028	3-arm Site Access Firhouse Road Junction	AM	1,164
		PM	1,053
	4-arm Firhouse Road/ Ballycullen Road/ Mount Carmel Park Signalised Junction	AM	2,010
		PM	1,896
YoO+15 (2038)	3-arm Site Access Firhouse Road Junction	AM	1,255
		PM	1,133
	4-arm Firhouse Road/ Ballycullen Road/ Mount Carmel Park Signalised Junction	AM	2,166
		PM	2,042

Committed Developments

A review of committed developments (developments with planning permission, but not yet delivered) in the vicinity of the development site has not identified any of sufficient proximity/ scale to be deemed relevant to this assessment.

7.4 Do-Something Traffic Generation

The do-something or with proposed development scenario, represents the summation of do-nothing future year background traffic and traffic associated with the proposed development. As outlined

³ Note that while the baseline has been established using 2017 junction turning count surveys, growth factors have only been applied from 2019 as the growth in traffic on the local road network in the vicinity of the development site was found to be negligible between 2017 and 2019, as per Section 4.3.

above, traffic associated with the existing development has not been accounted for in undertaking the impact analysis, and as such the assessment can be considered robust.

Traffic Generation Analysis

Data from the industry standard Trip Rate Information Computer System (TRICS) database has been utilised to calculate the quantum of vehicle trips likely to be generated by a development of the scale and type proposed. Trip generation data was determined for the following proposed on-site land uses:

- 'residential – flats privately owned';
- 'nursery – education' (i.e. crèche);
- 'food & drink – café';
- 'health – GP Surgeries'; and
- 'health – Dental Surgery'

Given the site's location, developments in 'suburban/edge of town' locations were selected with data analysed for the morning and evening peak periods in order to determine the maximum impact of the proposed development on the local road network. It should be noted that the 2 no. commercial units within the western portion of the site are to be demolished and reconstructed and that the traffic generated by commercial units at this location would have been captured in the traffic surveys. Trips associated with previously present office space within the site (solicitor's office) would also have been captured. As such, separate vehicle trip generation for these land uses has not been undertaken. Trip rates for the AM and PM peak hour hours are shown in Table 7.3, which follows, with full TRICS outputs included in Appendix E.

Table 7.3 TRICS Unit Trip Rates

TRICS Land Use Category	Rate	AM Peak (08:15-09:14Hrs)		PM Peak (17:45-18:44hrs)	
		Arrivals	Departures	Arrivals	Departures
Residential – flats privately owned	per dwelling	0.079	0.223	0.184	0.102
Education – Nursery	per 100 sqm	3.907	3.119	2.468	3.239
Food & Drink – Cafe	No. of Employees	0.148	0.074	0.074	0.111
Health – GP / Dental*	per 100 sqm	2.3995	0.8325	0.772	1.769

*Calculated as the average trip rate resulting from a GP surgery and a dental practice per 100 sqm GFA

Applying the trips rates shown in Table 7.3 above to the schedule of accommodation, the quantum of trips generated by the development during the AM and PM peak hours has been derived. The result of this exercise is shown in the following Table 7.4.

Table 7.4 Development Trip Generation Outputs

Proposed Land Use	Quantum	AM Peak (08:15-09:14Hrs)		PM Peak (17:45-18:44hrs)	
		Arrivals	Departures	Arrivals	Departures
Apartments	100 units	8	23	19	11
Crèche	114 sqm	5	4	3	4
Cafe	3 no. employees (estimated)	1	1	1	1
GP / Dental Surgery	59 sqm	2	1	1	1
Total		16	29	24	17
Two-Way Trips		45		41	

As can be seen from the preceding Table 7.4, the traffic generation estimates indicate that the development proposal would generate 45 no. two-way vehicle trips during the weekday AM peak hour; and 41 no. two-way vehicle trips during the weekday PM peak hour.

Traffic Assignment

For the purposes of this analysis, traffic generated by the proposed development site has been assigned onto the local road network based on the existing traffic flows identified by the traffic surveys carried out. The AM peak sees development traffic distributed onto the local road network at the site access junction in a ratio of 34:66 with 34% of traffic heading west from the site towards Old Bawn and 66% of traffic heading east from the site towards the 4-arm Firhouse Road/ Ballycullen Road/ Mount Carmel Park signalised junction with arrivals trips assigned in accordance with the same ratios. Similarly, PM peak sees development traffic distributed onto the local road network at the site access junction in a ratio of 37:63 with 37% of traffic heading west from the site towards Old Bawn and 63% of traffic heading east from the site towards the 4-arm Firhouse Road/ Ballycullen Road/ Mount Carmel Park signalised junction, again with arrivals trips assigned in accordance with the same ratios.

In both the AM and PM peak hours, development traffic is then distributed through the 4-arm Firhouse Road/ Ballycullen Road/ Mount Carmel Park signalised junction based on the proportions of traffic identified by the traffic surveys during these periods. The distribution of traffic from and to the development and through the junction is illustrated graphically in Appendix F for the AM and PM peak hour periods.

Do-Something Traffic Flows

Table 7.5 (below) provides an overview of year of opening AM (08:15-09:14hrs) and PM (17:45-18:44hrs) peak hour do-something traffic flows through analysed junctions, i.e. forecast traffic as per Table 7.2 plus traffic generated by the proposed development as per Table 7.4.

Table 7.5 Do-Something Two-Way Traffic, AM and PM Peak Hours

Year	Junction	Peak Period	Approach Flows	Of which Additional Development Flows	Percentage Impact
2023	3-arm Site Access/ Firhouse Road Junction	AM	1,118	45	4.2%
		PM	1,012	41	4.2%
	4-arm Firhouse Road/ Ballycullen Road/ Mount Carmel Park Signalised Junction	AM	1,877	25	1.3%
		PM	1,770	21	1.2%
2028	3-arm Site Access/ Firhouse Road Junction	AM	1,209	45	3.9%
		PM	1,094	41	3.9%
	4-arm Firhouse Road/ Ballycullen Road/ Mount Carmel Park Signalised Junction	AM	2,034	25	1.2%
		PM	1,918	21	1.1%
2038	3-arm Site Access/ Firhouse Road Junction	AM	1,300	45	3.6%
		PM	1,174	41	3.6%
	4-arm Firhouse Road/ Ballycullen Road/ Mount Carmel Park Signalised Junction	AM	2,190	25	1.1%
		PM	2,063	21	1.0%

As it can be seen from Table 7.5 above, the percentage change in traffic through the assessed junctions due to traffic generated by the proposed development during both peak hours in the development's assumed year of opening is projected to result in:

- an increase of 4.2% through the 3-arm Site Access/ Firhouse Road junction in both the AM and PM peak hours; and

- an increase of 1.3% and 1.2% through the 4-arm Firhouse Road/ Ballycullen Road/ Mount Carmel Park signalised junction in the AM and PM peak hours respectively.

Due to the low additional traffic generated at both junctions assessed, i.e. no more than 5% additional traffic in any assessment year, more detailed analysis in the form of traffic modelling has not been deemed necessary in support of the proposed development.

8. Framework Residential Travel Plan

8.1 Introduction

This section of the Report sets out the objectives, mode share targets and a coherent set of Action Plan measures which together comprise the Residential Travel Plan (RTP). These are accompanied by a Monitoring and Management Strategy, to ensure the Action Plan remains relevant in meeting the future needs of residents of the proposed development. It should be noted that measures within this Travel Plan are also applied in order facilitate and promote sustainable travel among staff of the creche and 3 no. small commercial units.

8.2 Travel Plan Status

As the site is not currently developed, the RTP has been developed in 'framework' format.

8.3 Reference Guide

To date, no relevant national (Irish) guidance has been published in relation to the development of RTP. Therefore, its development has been guided by best practice as set out within the Transport for London's (UK) *Guidance for Residential Travel Planning*. This guidance document provides a holistic approach to behavioural change within residential settlements by incorporating both the 'hard' engineering measures and the 'soft' marketing and management measures necessary to address the transport needs of new residential developments.

8.4 Objectives

The overarching objectives of the RTP are to:

- promote sustainable travel choices (walking, cycling and public transport); and
- reduce car dependency, car use and car ownership among residents and staff of the development.

8.5 Modal Split Targets

To establish performance indicators for the RTP, modal split targets for the proposed development have been set. Achieving a sustainable modal split for commuting is of key importance, therefore the modal split targets relate to commuting to work and education only. However, the actions (Section 8.7) aim to influence all residents' trip making needs, including recreational, social and retail trips.

The modal split targets have been set based on the site's accessibility characteristics. The modal split characteristics of Small Areas "Sa2017_267084039" and "Sa2017_267086010", as per Census 2016, in which the proposed development site is situated has been deemed to represent an appropriate baseline for establishing modal split targets for the proposed development. As such the following Table

8.1 presents the identified modal split of these small areas (i.e. the baseline), alongside the mode share targets for the proposed development.

Table 8.1 Baseline and Proposed Modal Split Targets

Mode	Walking	Cycling	Public Transport	Motorcycle / Scooter	Car (Driver)	Car (Passenger)	Other*
Baseline	11%	7%	14%	1%	46%	13%	8%
Target	12%	13%	21%	2%	27%	13%	12%

*Other includes: Van, Lorry, Work mainly at/from home, not stated.

As can be seen in the preceding Table 8.1 approximately 59% of trips to work by residents of these small areas are undertaken by car, of which 46% are as driver and 13% as passenger. A significant share of public transport is noted at 14%, while walking and cycling also play a prominent role, with 11% and 7% modal shares respectively. In summary sustainable modes of travel to work, school or college account for 32% of all commuting trips.

In developing this RTP, it is intended to achieve the following modal split:

- higher public transport modal share (21% vs 14%);
- higher cycling modal share (13% vs 7%); and
- reduction in car driver and passenger modal share (40% vs 59%).

While no specific mode share targets have been set for site's visitors due to the more limited scope to influence their travel behaviour, the site's accessibility by public transport, along with the ample provision of high-quality visitor bicycle parking spaces, are expected to encourage sustainable mode choices. It should also be noted that with the recent advent in remote and 'hybrid' working, it is envisaged that there will be an increase in the number of residents who work from home. This is reflected in the increase in the share of 'Other' set out in Table 8.1 above.

8.6 Existing Public Transport Capacity Analysis

In order to determine whether the above modal splits are achievable in relation to existing public transport (i.e. bus service) provision in the vicinity of the site, an analysis of the capacity of the existing bus services has been undertaken. This analysis is based on the modal splits set out above, the number of residents expected to occupy the proposed development, existing bus service provision and data given with the *NTA's latest National Household Travel Survey (NHTS) 2017 Final Report* (December 2018).

The following Table 8.2 gives an overview of residential travel demand based on the proposed no. of units within the development, the assumed average occupancy of these units and the average no. of trips per person per day taken within the Greater Dublin Area, as set out within the *NHTS 2017*.

Table 8.2 Daily Residential Public Transport Demand

No. of units proposed	100	units
Assumed no. of residents per unit	2.7	persons
Total residents	270	persons
No. Trips per person per day within GDA (As per NHTS 2017)	1.87	trips/person/day
Target PT Modal Split (as per Table 8.1 above)	21%	-
Assumed distribution of travel in the direction of demand	80%	-
Total PT trips per day travelling in the direction of demand	85	trips

Based on the above, it is estimated that 270 no. persons may occupy the residential portion of the site. As much of the development is comprised of 1- and 2-bed units, this is deemed to a conservative estimate. Based on evidence provided within the *NHTS 2017*, it is assumed that each one of these residents will generate 1.87 trips per day, equating to a total daily production of ca. 505 no. trips. Of these 505 no. daily trips, 21% are assumed to travel by public transport, as per the proposed modal splits outlined in Table 8.1. This equates to ca. 106 no. public transport trips per day. It is also conservatively assumed that 80% of public transport resident trips will take place in the direction of peak demand (i.e. in the direction of Dublin City, Dundrum, Sandyford etc. in the AM peak period and towards Tallaght and Citywest in the PM peak period). This equates to 85 no. public transport trips in the direction of peak demand throughout the day.

Within Table 8.3 (overleaf), the capacity of bus services, namely the 49, 65B and 75, within the immediate vicinity of the site i.e. <150 metres have been calculated. In order to provide a robust assessment, other bus services in the locale, namely the 15, 54A and 77A have been discounted. As set out in this table, based on the capacity of a typical bus operating on these routes and the average weekday capacity of these routes, the average weekday peak bus service capacity has been estimated as 665 persons per direction per hour (ppdph).

Table 8.3 Existing Bus Service Capacity

Typical Bus (Volvo B5TL (Euro 6)) Capacity	95	persons
No. of Services in Vicinity of Site (Peak Frequency)	7	services
Average Weekday Peak Bus Service Capacity	665	persons per direction per hour (ppdph)

As set out above, there are 505 no. trips estimated to be undertaken throughout the day. Using data included within the *NHTS 2017 Final Report*, the proportion of these trips undertaken during each hour of the day can be estimated. As set out in the following Table 8.4, 08:00-09:00hrs represents the AM peak hour during which 14% of all daily trips are undertaken. Similarly, 17:00-18:00hrs represents the PM peak hour during which 11% of all daily trips are undertaken. Through the application of the proposed mode share of public transport as set out above in Table 8.1 and the assumption that 80% of public transport trips will occur in the direction of demand during these periods, the number of resident trips undertaken by public transport in the direction of demand has been calculated.

Table 8.4 Existing Bus Service Capacity

Time of day (Hr Beginning)	% Share of Daily Trips	No. of Resident Trips From Development	No. of Resident PT Trips in Direction of Demand	Average Weekday Peak Bus Service Capacity	% New PT Users/ Capacity
08:00hrs	14%	71	12	665	1.8%
17:00hrs	11%	56	9	665	1.4%

As set out in Table 8.4 above, 12 no. and 9 no. trips are expected to be undertaken by public transport in the direction of peak demand during the 08:00-09:00hrs and 17:00-18:00hrs respectively. This demand represents 1.8% and 1.4% of the total capacity of weekday peak bus services in the site’s immediate vicinity. As such, it is apparent that current public transport capacity is sufficient to accommodate the small additional demand generated by the proposed development.

It should also be noted with the improvements in bus services being implemented as part of the *BusConnects* network redesign of the Dublin Bus network, as set out in Section 2.3, and the availability of additional bus services (including 24-hour bus services) which are outside the immediate vicinity of the site but still within convenient walking distances, public transport capacity will further improve in the short-medium term.

8.7 Key RTP Measures

To achieve the modal split targets, the following measures are aimed at encouraging walking, cycling and using public transport. These measures compliment the proposed bicycle and car parking provision aimed at reducing the car (driver) modal share, and residents' and staff's car ownership needs.

Appointment of a Travel Plan Coordinator

Encouraging a sustainable modal split is an ongoing behavioural change initiative. Therefore, effective management is critical to the implementation and ongoing success of the Travel Plan. A Travel Plan Coordinator (TPC) will be appointed to oversee the ongoing development and implementation of the RTP, including development of mobility related strategies and identification of newly available opportunities for residents and staff as they emerge.

Residential Sales/ Letting Staff Training

Training shall be provided to staff responsible for meeting with prospective residents and letters of commercial property within the proposed development. The training will focus on ensuring all staff are familiar with the objectives of the RTP and are able to communicate both the limited on-site car parking provision and available local sustainable travel opportunities to prospective buyers or tenants.

Sustainable Travel Information Pack

A Sustainable Travel Information Pack will be issued to each apartment and commercial unit upon first occupation. The aim of the Pack is to raise awareness of local amenities around the site and the available sustainable travel options available to get there. The Pack will include the following promotional materials and leaflets:

- overview of benefits of sustainable travel to individuals, the community and the environment;
- information on available sustainable travel schemes and pricing, including Leap Card (incl. TaxSaver offer), Bike to Work scheme, etc.;
- walking and cycling maps of the site's surroundings, detailing local education, shopping, health, sports, and leisure facilities in addition to public transport stops, and car sharing stations;
- public transport map covering bus services available in site's vicinity, presenting their routes' and typical frequency; and
- contact details of the TPC, to discuss transport or travel problems, or potential new ideas.

Residential Travel Survey

Six months after the development is operational, it is proposed that a travel survey of residents and staff be undertaken to establish the development's baseline modal split and identify measures to

promote travel by sustainable modes. This will allow future modal split targets to be set and actions to be identified to achieve these targets. The survey is also a forum for residents and staff to identify any issues relating to mobility.

Following this, it is envisaged that a travel survey should be carried every two years, enabling changes in travel patterns to be monitored and any issues to be addressed on a regular basis.

8.8 RTP Actions

To assign responsibilities involved in the implementation of the RTP and set out the proposed measures in a systematic manner, the Action Plan is set out in a tabular form and is presented in the following Table 8.2.

Table 8.2 Framework Travel Plan Actions

Action	Why	Who	When	Target: Residents/ Visitors
Coordination				
Appoint a Travel Plan Co-Ordinator (TPC)	To assign responsibility for managing the Travel Plan implementation and ensuring that all actions are completed on time	Bluemont Developments (Firhouse) Ltd	Following planning approval	All
Public Transport				
Promote availability of public transport TaxSaver scheme	To alert residents and staff to possibility and opportunity to engage with their respective employers	TPC	Upon site occupation	Residents, staff
<ul style="list-style-type: none"> Sustainable Transport Information Pack to be provided to new residents occupation of apartments to include details of public transport services and stop locations, along with information about the Transport for Ireland journey planner website Travel information on resident's noticeboard 	To inform residents and staff of public transport options and opportunities	TPC	Prior to site occupation	Residents, staff

Action	Why	Who	When	Target: Residents/ Visitors
(Travel Plan Information Board) to include public transport service details and stop locations				
Car Sharing				
Review demand for car club and car share spaces	<ul style="list-style-type: none"> To ensure provision meets resident demand 	TPC	Upon site occupation	Residents & Neighbourhood
Cycling (Hard Measures Promoting Behavioural Change)				
<ul style="list-style-type: none"> Provide 156 no. secure resident cycle parking spaces at basement level Provide 20 no. secure staff cycle parking spaces at basement level 	<ul style="list-style-type: none"> To reduce residents' and staff's car use and associated car parking demand To facilitate cycle use 	Bluemont Developments (Firhouse) Ltd	Prior to site occupation	Residents, staff
<ul style="list-style-type: none"> Provide 50 no. residential visitor cycle parking spaces at basement level Provide 44 no. ground-level cycle parking spaces for visitors to the development 	<ul style="list-style-type: none"> To reduce visitors' and customers car use and associated car parking demand To facilitate cycle use 	Bluemont Developments (Firhouse) Ltd	Prior to site occupation	Visitors, customers
Cycling (Soft Measures Promoting Behavioural Change)				
Promote availability of Cycle to Work scheme	To alert residents and staff to possibility and opportunity to engage with their respective employers	TPC	Upon site occupation	Residents, staff
<ul style="list-style-type: none"> Arrange tours of cycling facilities for new residents and staff Include information about the on-site cycling facilities in a Sustainable Transport Information Pack 	To establish an active cycling culture and raise awareness of in-house cycle facilities to accommodate it	TPC	Upon site occupation	Residents, staff

Action	Why	Who	When	Target: Residents/ Visitors
<ul style="list-style-type: none"> Inform residents and staff of cycle routes which may accommodate their travel needs 				
Have a bicycle repair kit and pump available for use by residents, staff and visitors	To support cycling	TPC	Upon site occupation	All
Walking				
Promote walking as active travel in the Sustainable Transport Information Pack	To promote fitness, well-being and reduce car dependency	TPC	Upon site occupation	Residents, staff
Taxi				
Include information on local taxi rank facilities and phone numbers for local taxi companies on the residents' and staff noticeboards	To accommodate residents, staff and visitors access requirements	TPC	As relevant in the future	All

8.9 Monitoring and Update Strategy

It is important to monitor and update the RTP to ensure the actions are being implemented and that actions are sustained over time. It also provides an opportunity for the effectiveness of actions to be assessed, and if required, new actions identified. The following steps are recommended to monitor progress:

- Informed by a resident, staff and visitor travel survey, the RTP should be updated within six months of site occupation; and the Action Plan tailored to meet the specific requirements of its residents and visitors.
- A residents, staff and visitors travel survey should be carried out every two years thereafter, forming the baseline from which the RTP's future performance is measured and additional/ amended interventions identified. This information should be disseminated among residents and staff.

- A quarterly review of the actions carried out or due should be undertaken by the TPC. This should take the form of a memo to the development's management company, documenting actions implemented, residents' feedback etc.

Monitoring of bicycle parking facilities should be carried out on a regular basis to determine their level of use and maintenance required.

9. Car Parking Strategy

9.1 Car Parking Strategy's Objectives

The Car Parking Strategy for the proposed development sets out how car parking spaces will be assigned and how the assignment of spaces will be continually managed. While measures and initiatives to provide alternatives to car ownership have been set out within the Framework RTP in Section 8, the proposed car parking allocation rules, monitoring and enforcement protocols are presented below.

9.2 Car Parking Allocation Rules

Residential Car Parking

To enable effective use of the available 63 no. resident car parking spaces in the long-term, continuous management of the car park is proposed. This will involve a permit system, with the number of issued permits not exceeding the number of available resident car parking spaces. These permits will be offered by the development's management company to the residents on a first come, first served basis. They will be associated with a specific vehicle rather than an apartment to prevent hoarding of car parking and also to prevent unauthorised sub-letting of car parking spaces.

It is envisaged that initially no more than one car parking permit per household would be issued prior to full occupation of the development. Should take-up be lower than the number of available car parking spaces, additional permits may be offered to the residents, however a limited number of permits will remain unassigned and thus available to new residents moving in after initial occupation of the development, should they wish to avail of a car parking space.

In the case of residents moving out, their car parking permits will return to the development's management company and may be offered first to subsequent new residents, and later to current residents (in line with the preceding rules).

3 no. of the residential car parking spaces are designed such that they wheelchair accessible. Should residents with mobility impairments require them they will be assigned accordingly.

Commercial Management Car Parking

1 no. staff car parking space is allocated to serve the car parking needs of the management the creche and each of the 5 no. small commercial units, equating to 6 no. car parking spaces in total. This measure has been taken to increase the viability of the commercial units. As per the residential car parking spaces, if a commercial unit were to be vacated, the associated car parking permit will return to the development's management company and may be offered to subsequent occupants of that unit.

9.3 Drop-Off, Pick-Up and Customer and Visitor Car Parking

Drop-off/ and pick-up activities for the creche will be located within the basement car park level at a location from which the creche can be easily accessed. It is proposed to provide 4 no. bays at this location, 2 no. of which is are provided with a 1.2 metres buffer to the sides and rear so that they better accommodate parents and children. It is envisaged that these spaces may also be used occasionally by management/ maintenance staff of the development should they be needed.

Customer car parking for customers of the 5 no. small commercial units is also proposed at basement level. 6 no. customer car parking spaces, including 1 no. accessible space, are proposed to accommodate these units. It is envisaged, due to the nature of these businesses, that occupancy of these spaces will be of short duration and that a provision of 6 no. spaces is adequate. These spaces may also accommodate deliveries by small commercial vehicles from time to time. It should also be noted that 8 no. motorcycle parking spaces will also be provided within the basement car park.

While active travel (i.e. walking and cycling) and public transport are proposed to accommodate all visitor trips to the development, for the small number of visitor trips that may potentially be required to be undertaken by car, customer car parking will double as visitor car parking for the proposed development, with residents being able to book a visitor space with the management company outside of commercial business hours. It is noted that within the current *South Dublin Development Plan 2016-2022* that the parking rates are subject to “uses for which parking rates can be accumulated”. Furthermore, the *Draft South Dublin Development Plan 2023-2029* states that parking rates are subject to “Peak hours of demand and the ability to share spaces between different uses”. In light of these considerations, the above provision, allocation and management arrangements are deemed to be appropriate.

A set-down area is proposed at surface level to accommodate refuse collection activities within the development. This set-down area may also accommodate larger delivery vehicles within the site, should it be necessary. When this area is not in use it shall revert to useable space for pedestrians within the development.

9.4 Monitoring and Enforcement

The management company will manage the ongoing allocation of car parking and enforce unauthorised car parking activities within the development. Where necessary, unauthorised vehicles violating permit allocations or creating an obstruction will be clamped. Signage to this effect, in accordance with the Vehicle Clamping and Signage Regulations 2017, will be installed within the site.

10. Summary and Conclusion

10.1 Summary

Overview and Scope

Transport Insights has been commissioned by Bluemont Developments (Firhouse) Ltd to provide transport engineering advice and to prepare a Traffic and Transport Assessment (TTA) and related Residential Travel Plan (RTP) for a proposed 100 no. unit Strategic Housing Development (SHD) at No. 2 Firhouse Road and the former 'Morton's The Firhouse Inn', Firhouse Road, Dublin 24.

The assessment approach underpinning this TTA is consistent with Transport Infrastructure Ireland's *Traffic and Transport Assessment Guidelines* (May 2014) and has been agreed in principle with South Dublin County Council's (SDCC's) Land Use Planning and Transportation Department.

Site Context

The proposed development site, measuring ca. 0.46 hectares, is located adjacent to Firhouse Road (R114), Firhouse, Dublin 24. The proposed development site is bounded to the north and west by lands adjacent to the Carmel of the Assumption Convent, to the east by the Mount Carmel Park residential area, and to the south by Firhouse Road (R114). In terms of prevailing land uses, the lands to north and northwest are predominantly recreational in nature, while the lands to the east and also to the south of Firhouse Road are predominantly low-density residential. The M50 runs in an approximate north-south alignment ca. 150-200 metres to the east of the proposed development site.

Development Proposals

The proposed development consists of:

- 100 no. units incorporating a mix of studio (2 no.), 1-bed apartment units (45 no.), 2-bed apartment units (44 no.), 3-bed apartment units (5 no.), 1-bed duplex units (2 no.) and 2-bed duplex units (2 no.) over 3-5 storeys across 2 no. blocks;
- 5 no. small ground floor commercial units (ca. 28 – 66 sqm);
- a ground floor creche (ca. 114 sqm);
- 80 no. car parking spaces within 2 no. basement car parking levels;
- 270 no. cycle parking spaces comprised of the following:
 - 156 no. cycle parking spaces to accommodate residents;
 - 50 no. cycle parking spaces to accommodate residential visitors;
 - 20 no. cycle parking spaces to accommodate staff; and
 - 44 no. short-stay cycle parking spaces at surface level (provided in the form of 22 no. Sheffield stands) to accommodate visitors to the development.

Vehicular access/ egress by residents at the application site will be via the existing primary site access/ egress point onto Firhouse Road, although this access will be subject to minor modifications. This junction shall also provide access to a newly constructed basement car park provided beneath the proposed development site, with this car park having a total of 80 no. car parking bays across two levels.

The quantum of residential car parking proposed is noted to be below *South Dublin County Council Development Plan 2016-2022* standards of 1 car parking bay per 1-bed unit, 1.5 car parking bays per 2-bed unit and 1.75 bays per 3-bed unit. However, due to the site's favourable accessibility characteristics, including high frequency bus services (as detailed in Section 3.5 of this Report), and within a range of employment, retail and amenity opportunities within its walking catchment, the proposed car parking allocation is considered appropriate.

DMURS Compliance Statement

See DMURS Compliance statement in Section 6. The development layout accords with DMURS guidance in relation to carriageway widths, corner radii, pedestrian footpaths and crossings etc.

Traffic Impact Findings

The assessment of the proposed development's traffic impacts, which has been informed by the industry standards TRICS database and extensive traffic surveys of the local road network, has found that the percentage change in traffic through the assessed junctions due to traffic generated by the proposed development during both peak hours in the development's assumed year of opening is projected to result in:

- an increase of 4.2% through the 3-arm Site Access Firhouse Road junction in both the AM and PM peak hours; and
- an increase of 1.3% and 1.2% through the 4-arm Firhouse Road/ Ballycullen Road/ Mount Carmel Park signalised junction in the AM and PM peak hours respectively.

Due to the low additional traffic generated at both junctions assessed, i.e. no more than 5% additional traffic in any assessment year, more detailed analysis in the form of traffic modelling has not been deemed necessary in support of the proposed development, in accordance with TII's *Traffic and Transport Assessment Guidelines* (May 2014). Furthermore, it has been demonstrated that the proposed development shall have **no material impact on the operation of the local road network in all future assessment years.**

Framework Residential Travel Plan (RTP)

A set of modal share targets have been established for the RTP, with an Action Plan subsequently developed for the proposed development with a view to meeting these targets and facilitating and

incentivizing sustainable mobility choices among future residents. The Plan's implementation will be continually overseen and managed by an appointed Travel Plan Coordinator (TPC), with a range of proposed measures to support cycling, walking and public transport. The Framework RTP is complemented by a Car Parking Management Plan, which is set out in Section 9 of this Report, setting out the proposed car parking allocation rules, monitoring and enforcement protocols.

10.2 Conclusion

The proposed residential development at No. 2 Firhouse Road and the former 'Morton's The Firhouse Inn', Firhouse Road, Dublin 24 has been subject to a comprehensive Traffic and Transport Assessment per guidance contained with Transport Infrastructure Ireland's *TTA Guidelines*. The assessment of the proposed development's traffic and transport impacts has been underpinned by comprehensive traffic survey data collection and trip generation analysis. **The assessment has demonstrated that the proposed development will have a negligible impact on the performance of the road network.**

Appendix A Scoping Note

Firhouse Inn Residential Development: Transport Briefing Note

Contract Number	C623 2020
Topic	Transport Briefing Note for a proposed Strategic Housing Development on the site of the former Firhouse Inn, Firhouse Road, Dublin 24
Version Number	V2.4
Status	Draft
Author(s)	Seán Byron
Reviewer	Ciaran McKeon
Date	28 June 2021

1. Introduction

1.1 Overview

Transport Insights has been commissioned by Bluemont to provide transport engineering advice and to prepare a Traffic and Transport Assessment (TTA) and related Residential Travel Plan (RTP) for a proposed 103 no. unit Strategic Housing Development (SHD) at the former site of The Firhouse Inn, Firhouse Road, Dublin 24.

A Briefing Note for a ca. 100 no. unit SHD was previously submitted to South Dublin County Council's Land Use Planning and Transportation Department in December 2020 as part of the pre-application consultation process covering development of the eastern part of the subject site. Following Bluemont's acquisition of lands located to the immediate west of the originally proposed development site, the Briefing Note has been updated to cover the current site area and revised development proposal. It sets out the scope of transport engineering design inputs and analysis, and the analytical approach underpinning the TTA and the RTP which shall support a planning application to An Bord Pleanála (ABP) for the expanded development site under the SHD process.

1.2 Development Site Location

The proposed development site, measuring ca. 0.44 hectares, is located adjacent to Firhouse Road (R114), Firhouse, Dublin 24. The application site's location is presented in the following Figure 1.1.

Figure 1.1 Site Location



As can be seen from the preceding Figure 1.1, the proposed development site is bounded to the north and west by lands adjacent to the Carmel of the Assumption Convent and to the east by the Mount Carmel Park residential area. The site also includes lands incorporating a number of car parking spaces and hardstanding areas which are understood to be in South Dublin County Council (SDCC) ownership, with Firhouse Road (R114) located immediately to the south of those bays. In terms of prevailing land uses, the lands to north and northwest are predominantly recreational in nature, while the lands to the south of Firhouse Road are predominantly low-density residential. The M50 runs in an approximately north-south alignment ca. 150-200 metres to the east of the proposed development site.

1.3 Existing Site Access Arrangements

Vehicular access to the site is currently possible at 2 no. locations. The main vehicular access to the site, which is illustrated in Figure 1.2 (overleaf), is via Firhouse Road at a location ca. 60

metres to the west of the Firhouse Road/ Ballycullen Road/ Mount Carmel Park four-arm signalised junction. This access is ca. 12.5 metres wide and also serves as the main vehicular access for businesses to the immediate west of the subject site, in addition to the parking spaces located to the south of the application site's boundary. A yellow box is provided on the two eastbound lanes of Firhouse Road immediately adjacent to the existing site access, facilitating ease of access and egress of the application site.

Figure 1.2 Primary Access to Site from Firhouse Road



As illustrated by Figure 1.3 (overleaf), there is a secondary ca. 8.0 metres wide gated access to the site at the eastern boundary from Mount Carmel Park. The vehicular carriageway of Mount Carmel Park adjacent to this access is relatively narrow, with a width of ca. 5.2 metres.

Figure 1.3 Secondary Access to Site from Mount Carmel Park



1.4 Development Site's Current Status and Planning History

To the east of the main vehicular access from Firhouse Road, the development site currently incorporates a public house building which also includes a small shop and a solicitor's office. A single storey residential unit is also located within this part of the site, which is understood to be unoccupied. A bookmakers and barber shop are currently located within the site, to the west of the main vehicular access.

Within the red line boundary of the site shown in Figure 1.1, there are ca. 87 no. marked car parking spaces including the car parking area located on SDCC lands which contain 17 no. car parking spaces. Notwithstanding those spaces being owned by SDCC, they have, over recent decades, served to accommodate the parking needs of commercial units located within the application site.

No recent planning applications in relation to the proposed development site, granted permission or otherwise, have been identified via a search of SDCC's online planning system, and no applications are understood to have been submitted directly to ABP.

1.5 Pre-Planning Engagement To Date

An overview of the then proposed development, which comprised 101 no. apartment units and a ground floor café and creche on a smaller site of 0.32 ha. (eastern part of current 0.44 ha. application site), and a draft of this Briefing Note (Working Draft v1.6) and proposed site layout plan was submitted to SDCC's Land Use Planning and Transportation Department by email on 19 November 2020. Specific feedback was sought in relation to the acceptability in principle of car parking proposals, namely 48 no. spaces within an undercroft car park within the application site, and a further 17 no. spaces located between the site's southern boundary and Firhouse Road (see preceding Section 1.4) which shall continue to serve some of the development's parking needs.

Comprehensive feedback in relation to the then proposed development was provided by SDCC on 23 November 2020, covering a range of traffic/ transport items including:

- Access arrangements – deemed acceptable from the current location on Firhouse Road.
- The quantity of proposed cycle parking – 65-70 no. spaces deemed required to meet resident car parking demand (compared to the 48 no. then proposed), however a somewhat lower quantum may be appropriate in light of accessibility enhancements arising from the recently published *New Dublin Area Bus Network Project*.
- Undercroft car parking layout – some spaces noted to be difficult to access, with a revised layout necessary.
- Electric vehicle charging – 10% equipped initially, with all spaces ducted for future provision
- Accessible car parking – 5% to be designated for such uses.
- Bicycle parking – bearing in mind requirements of the *Sustainable Urban Housing: Design Standards for New Apartments* and *South Dublin County Council Development Plan 2016 – 2022*, ca. 200 no. spaces deemed necessary.
- Refuse collection and emergency vehicle access – swept path analysis of all routes necessary for fire access and bin servicing required.

In response to the abovementioned layout, the proposed site layout plan was revised to include both undercroft and basement levels, with total parking capacity of ca. 70 spaces then proposed to be provided within the application site. This proposed development was outlined within an updated Briefing Note (Draft v1.8) submitted to SDCC in advance of a first Section 247 SHD pre-application meeting on 14 January 2021.

A second pre-planning meeting took place on 04 April 2021 at which the Project Design Team presented a revised scheme in order to address SDCC's concerns in relation to the density/ scale

of the previously proposed development. This proposal development included 100 no. apartment units and a ground floor café and creche. Feedback was again received from SDCC's Land Use Planning and Transportation Department, and included the following;

- A four-stage road safety audit required to be carried out.
- Proposed pedestrian footpath on the western side of Mount Carmel Park is required to be 2.0 metres in width.
- Car parking was deemed to be generally around the correct figure however, further detail in this regard is required.

1.6 Note Structure

The remainder of this Briefing Note is structured as follows:

- Section 2 – preliminary site accessibility assessment;
- Section 3 – development proposal;
- Section 4 – Briefing Note objectives;
- Section 5 – scope of development transport inputs; and
- Section 6 – summary.

2. Preliminary Site Accessibility Assessment

2.1 Current Accessibility by Public Transport

The proposed development site is served by a number of bus routes serving stops located on Firhouse Road and Ballycullen Road, namely the 49, 65b and 75. Furthermore, the 54a and 77a routes operate on the N81 to the north of the site which can be accessed via pedestrian infrastructure through Dodder Valley Park and under the M50 junction to the northeast of the site. The high frequency route 15 also operates on the St. Colmcille's Way (R113) to the south of the site. Currently available services are presented in Figure 2.1 (overleaf), with details in relation to their proximity to the site and peak/ off-peak frequencies set out in the subsequent Table 2.1.

Figure 2.1 Current Bus Network in Application Site's Vicinity

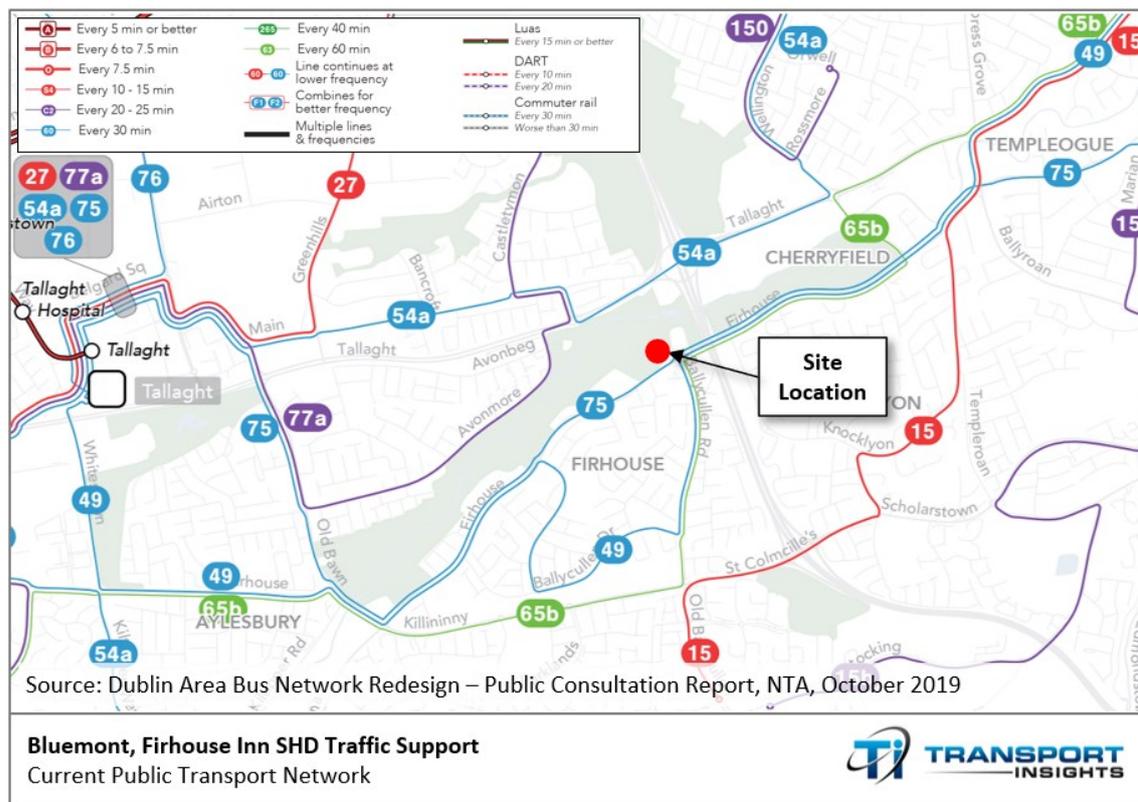


Table 2.1 Current Public Transport Services in Application Site's Vicinity

Route No.	Route	Weekday Off-Peak Frequency	Average Weekday Peak Frequency	Distance to Nearest Stops
75/ 75A	Tallaght – Dun Laoghaire	30 minutes	20 minutes	Adjacent to the site
49	Tallaght – Pearse Street	30 minutes	30 minutes	ca. 150m
65b	Citywest – Poolbeg Street	60 minutes	30 minutes	ca. 150m
54a	Tallaght – Pearse Street	30 minutes	30 minutes	ca. 800m
77a	Citywest – Ringsend	20 minutes	20 minutes	ca. 1.1 km
15	Ballycullen Road - Clongriffin	8-12 minutes	8-12 minutes	ca. 1.2 km

As can be seen in the preceding Table 2.1, the immediate area of the application site is served by three bus routes, one of which, the 75/ 75A, serves a stop on Firhouse Road at the southwest corner of the site and connects the site to Tallaght and Dun Laoghaire via Sandyford/ Stillorgan. The 49 and 65b serve a bus stop on Ballycullen Road ca. 150 metres to the south of the subject site, while the 54a and 77a serve bus stops on the N81 to the north of the site. Finally, the high frequency, 24-hour bus route 15 serves St. Colmcille's Way, ca 1.2 kilometres to the south of the subject site.

As outlined above, routes operating in the application site's immediate vicinity (< 150 metres) offer a cumulative peak frequency of one bus every 8.5 minutes. In light of the site's proximity to these services, the site is "*within 5 minutes walking distance of high frequency (min 10 minute peak hour frequency) bus services*", it thereby fulfils a key criterion with the *Sustainable Urban Housing: Design Standards for New Apartments* (DoHPLG 2018) whereby a reduced level of on-site car parking provision is deemed appropriate.

2.2 Proposed Improvements to Urban Bus Services

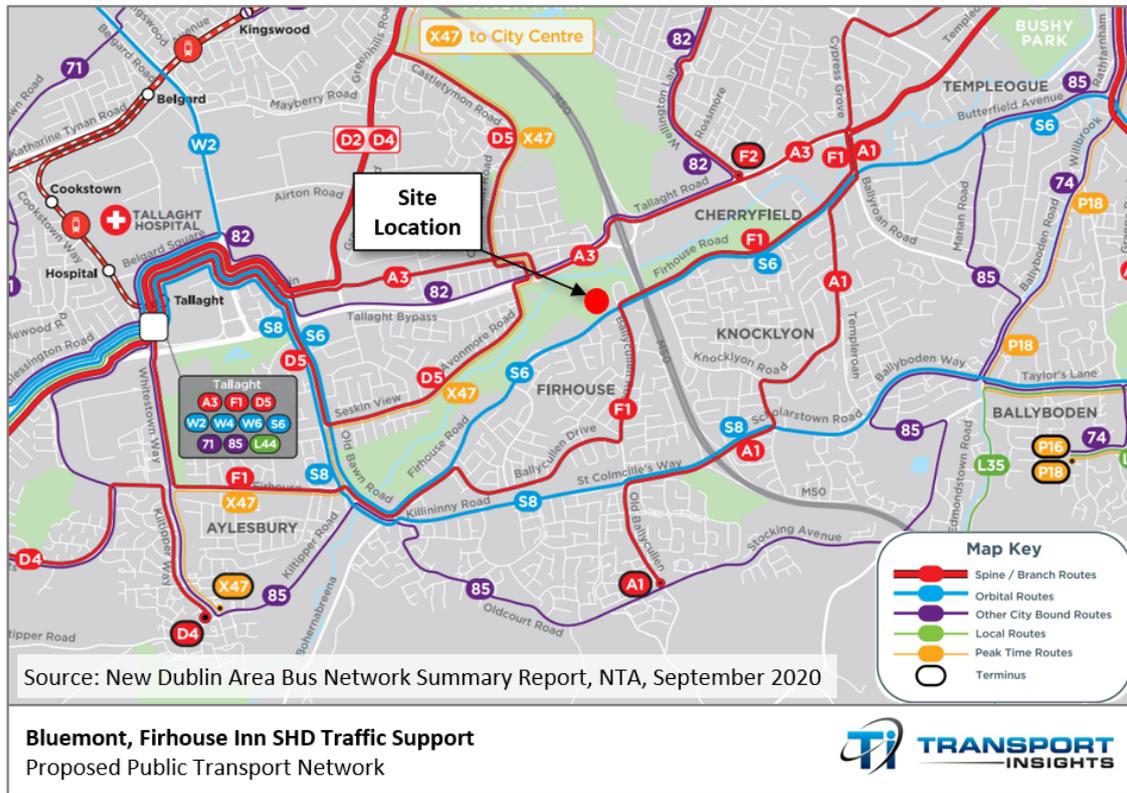
The final proposals from the *New Dublin Area Bus Network Project*, developed as part of the broader *BusConnects* programme, were published by the National Transport Authority in September 2020 after considerable public consultation and includes substantial changes in the bus network within the application site's vicinity as illustrated in Figure 2.2 (overleaf).

As can be seen in Figure 2.1, substantial changes are proposed to the bus services in the application site's vicinity. The 75/ 75A will be replaced by orbital route S6 which will operate between Tallaght and Blackrock DART Station. This orbital route will enable access to numerous other bus routes, both radial and orbital, the Luas Red Line at Tallaght, and Luas Green Line at Dundrum. The F1 route will replace bus services operating on Ballycullen Road and will maintain direct access to Dublin City Centre. The F1 route will combine with routes F2 and F3 forming the F-spine, thus providing a high frequency bus service between Terenure Road West and Finglas via Dublin City Centre.

The A3 will operate via the N81 to the north of the subject site and will combine with the A1 at Templeogue and the A2 and A4 at Terenure Road East to form the high frequency A-spine between Terenure Road East and Whitehall on the northside of Dublin, via Dublin City Centre. Routes D5, 82 and X47 (peak hour only route) will also operate via the N81 and provide alternative routes to Dublin City Centre.

The A1 will replace route 15 on St. Colmcille’s Way to the south of the proposed development site. The S8 orbital route will also operate along St. Colmcille’s Way between Tallaght and Dun Laoghaire.

Figure 2.2 BusConnects: Proposed Bus Network in Application Site’s Vicinity



Details of the proposed routes are presented within the following Table 2.2.

Table 2.2 BusConnects: Proposed Bus Services in Application Site's Vicinity

Route No.	Route	Weekday Peak Frequency
F1	Charlestown - Finglas Bypass - City Centre - Tallaght	10 minutes
S6	Tallaght - Dundrum - UCD - Blackrock	15 minutes
A3	DCU - City Centre - Tallaght	12 minutes
82	Killinarden - Crumlin - Mountjoy Square	20 minutes
D5	Edenmore - City Centre - Tallaght	30 minutes

Route No.	Route	Weekday Peak Frequency
X47	Kiltipper - Seskin View - Tymon North - City Centre	1 AM Service, 1 PM Service
A1	Beaumont - City Centre - Knocklyon	12 minutes
S8	Tallaght - Sandyford - Dún Laoghaire	15 minutes

As can be seen from the preceding Table 2.2, routes F1 and S6 are proposed to operate with ca. 150 metres of the proposed development and will offer peak frequencies of 10 and 15 minutes respectively. As per the existing situation, routes operating in the application site's immediate vicinity (< 150 metres) will continue to offer a cumulative peak frequency of one bus within less than 10 minutes, thereby continuing to fulfil a key criterion with the *Sustainable Urban Housing: Design Standards for New Apartments* (DoHPLG 2018) whereby a reduced level of on-site car parking provision is deemed appropriate.

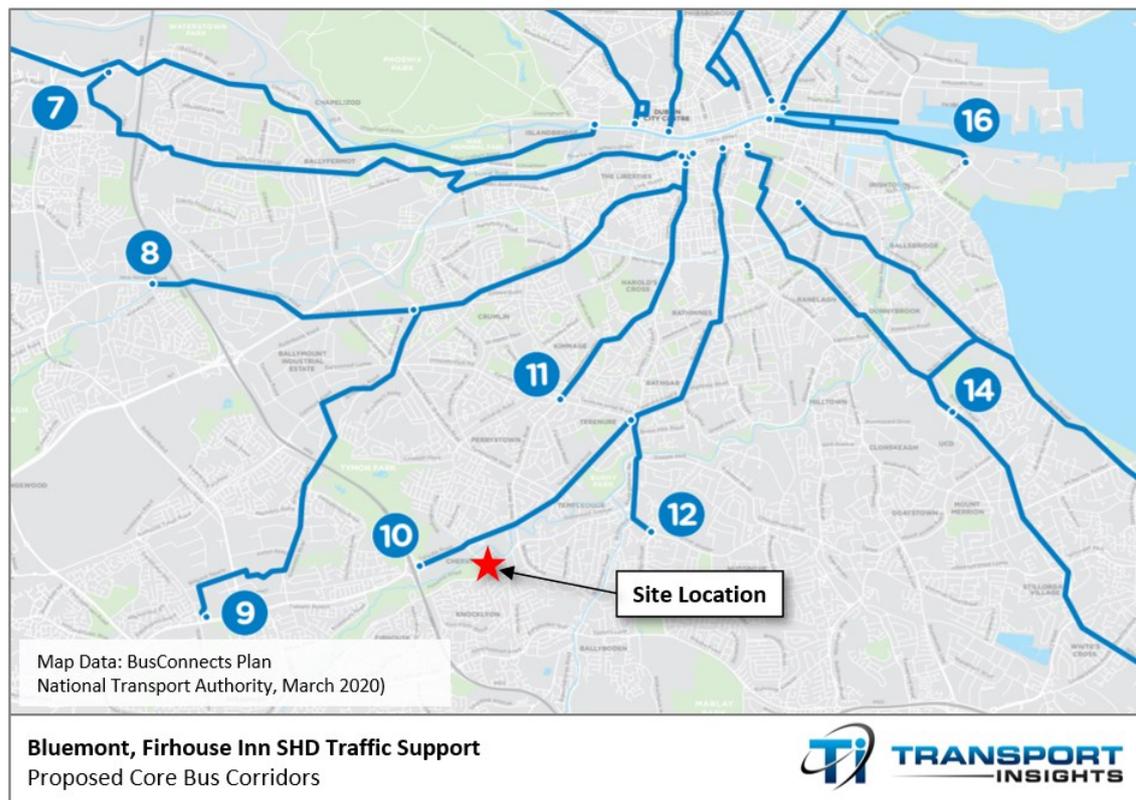
2.3 Proposed Improvements to Urban Bus Infrastructure

In addition to the revised planned bus services emerging from the *New Dublin Area Bus Network Project*, it is proposed to implement a network of core bus corridors to enhance bus priority throughout the network. While there are existing dedicated bus lanes on Firhouse Road to the east and west of the proposed development site and on Ballycullen Road to the south, no other bus priority infrastructure is proposed in the immediate vicinity of the site.

The site is located ca. 700 metres to the southwest of the proposed *BusConnects* Core Bus Corridor 10, which will tie in with existing bus infrastructure and connect Tallaght to the City Centre via Templeogue, Terenure and Rathmines. The emerging preferred route for this corridor (in addition to other corridors running through north Dublin City), published by the National Transport Authority in March 2020, is shown in Figure 2.3 (overleaf). The alignment of Corridor 10 in the application site's general vicinity was confirmed via the preferred route published in November 2020.

When implemented, proposed bus priority enhancements' measures along this corridor are forecast to contribute to reduced travel times towards Dublin City Centre and result in more attractive travel times to destinations to the east of the site, in addition to improved journey time reliability.

Figure 2.3 Proposed BusConnects Core Bus Corridors

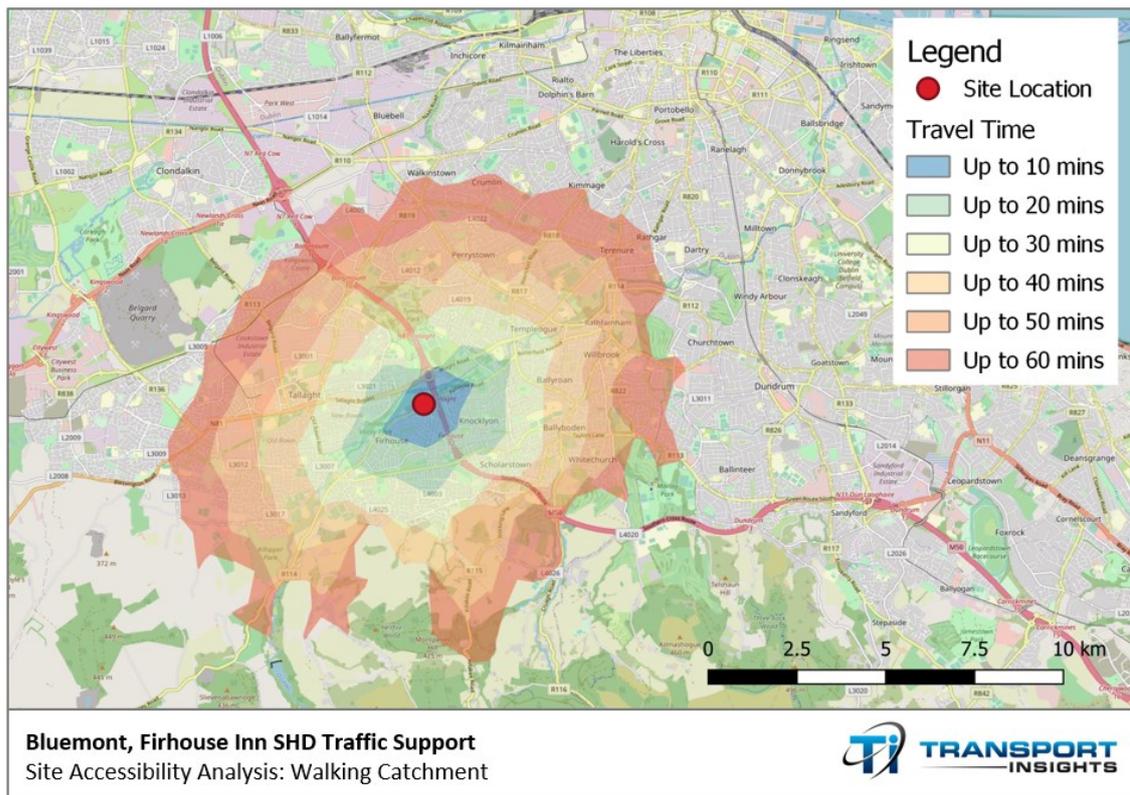


2.4 Accessibility by Walking and Cycling

The application site's accessibility by walking and cycling has been assessed regarding each respective catchment. For the purposes of the analysis, the site's 60-minute walking and cycling catchments have been analysed at 10-minute isochrone intervals. The application site's mapped walking catchment is presented in Figure 2.4 (overleaf).

As can be seen in Figure 2.5, the wider 60 minutes' walking catchment of the site extends approximately to Rockbrook and Bohernabreena in the south, Jobstown in the west, Walkinstown to the north and Rathfarnham to the east. Tallaght Town Centre, which includes ample employment, educational, retail and cultural amenities is noted to be located within a ca. 45 minutes' walk from the application site, whereas the site's 20 minutes' walking catchment includes such shopping destinations as Knocklyon Shopping Centre and Firhouse Shopping Centre (which both include large grocery supermarket stores), Delaney's Public House and Firhouse Community and Leisure Centre. Recreational amenities in the site's direct vicinity include Dodder Valley Park, a linear park which stretches from Old Bawn in the southwest to the Knocklyon Road in the northeast.

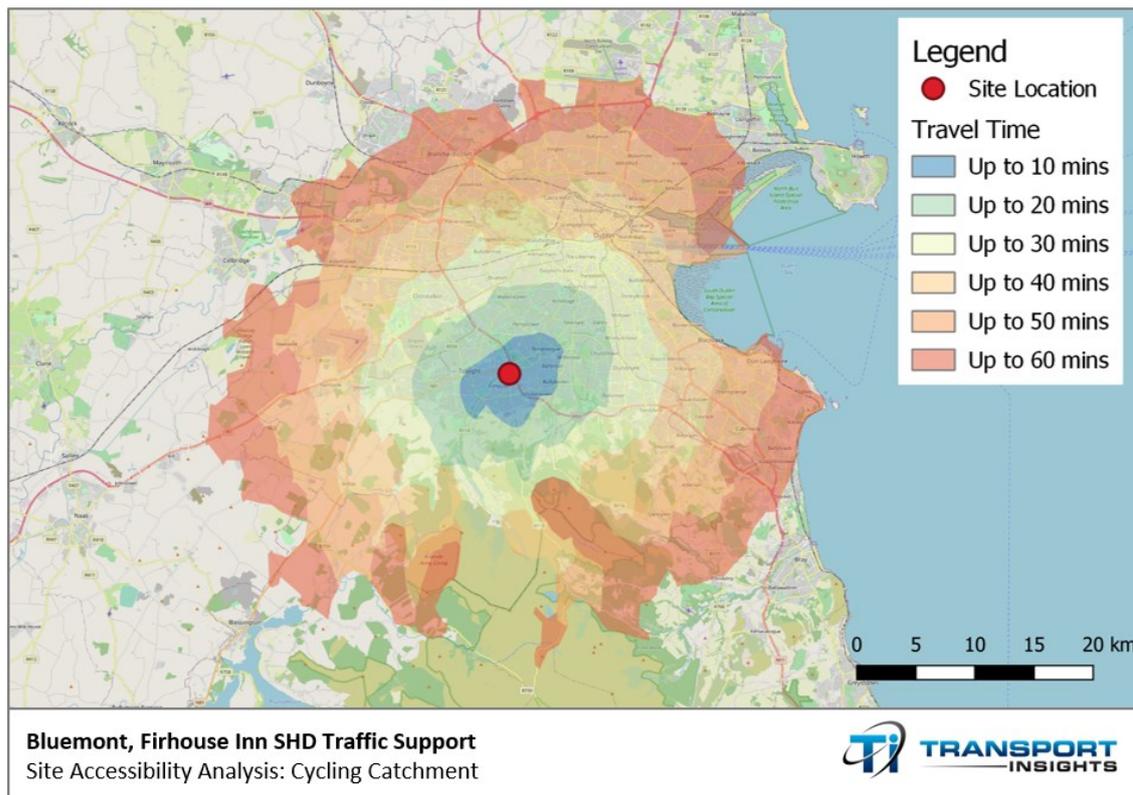
Figure 2.4 Site Accessibility Analysis: Walking Catchment



The application site's mapped 60 minutes' cycling catchment is presented in Figure 2.5 (overleaf). As per analysis presented within this figure, the cycle catchment extends to just south of Dublin Airport in the north, to Dun Laoghaire in the east, the Wicklow Mountains in the south, and to the vicinity of Kill, Co. Kildare in the west. The cycling catchment includes the entirety of the area inside the M50 and a range of employment and education clusters located within the 40 minute's cycling catchment including such destinations as Dublin City Centre, Docklands, Sandyford Business Park, industrial estates such as Cookstown, Hibernian, Ballymount, John F. Kennedy and Robinhood, TU Tallaght Campus etc.

Based on the above analysis, it has been concluded that there are ample such opportunities within the range of a convenient and sustainable commute by cycling.

Figure 2.5 Proposed Development Site’s Cycling Catchment



2.5 Current and Proposed Cycle Network

Current Cycle Network

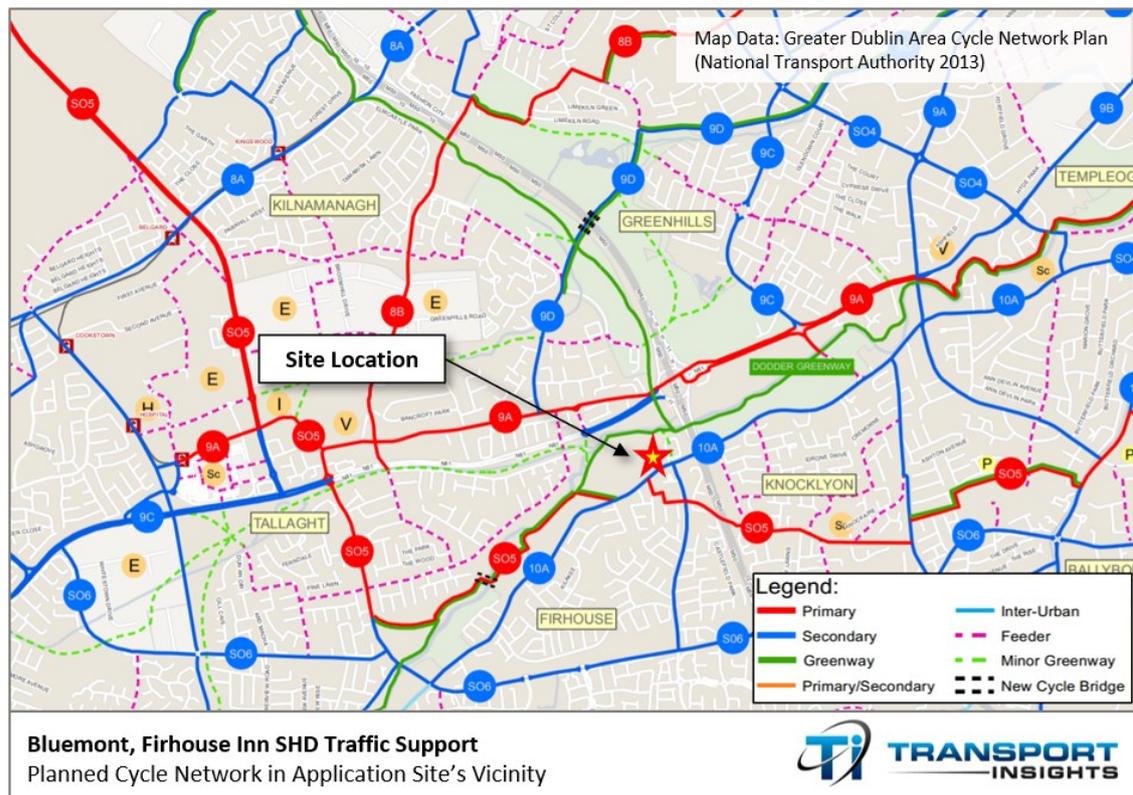
The proposed development site is currently served by well-developed cycle infrastructure. There are existing cycle tracks and cycle lanes on much of Firhouse Road which connect the proposed development site to Old Bawn in the southwest and to Knocklyon, Templeogue, Terenure, Rathmines and ultimately to south Dublin City in the northwest. Cycling infrastructure also connects the site to south Dublin City Centre via Kimmage, Harold’s Cross and Templeogue.

The site is located to the immediate south of Dodder Valley Park within which there is existing infrastructure that allows cyclists to access Old Bawn, the N81, and the northern end of the Knocklyon without interacting with motorised traffic. Via infrastructure located under M50 Junction 11, Tymon Park can be accessed which can be then used to reach areas such as Kilnamanagh, Ballymount Industrial Estate, Limekiln Road and Walkinstown, again fully segregated from motorised vehicular traffic.

Proposed Cycle Network

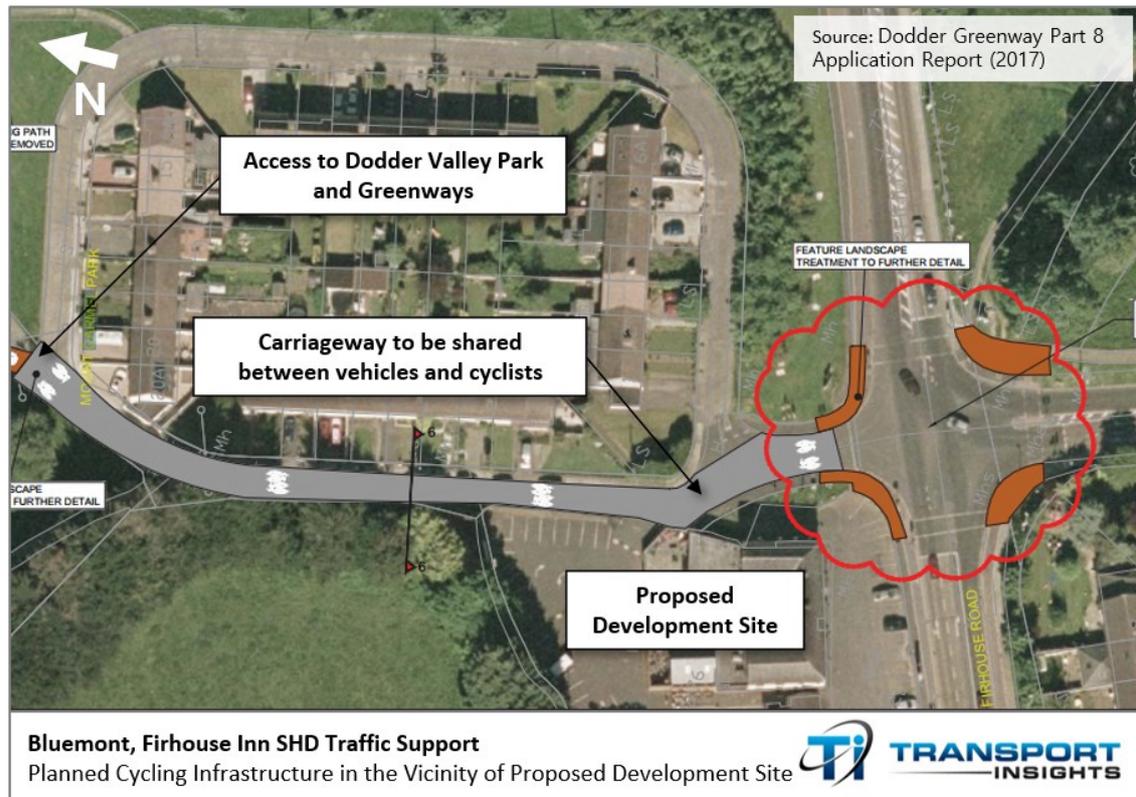
The above-mentioned cycling infrastructure in the site’s environs shall be enhanced by planned future schemes. The planned layout of cycle infrastructure network within Dublin has been set out within the *Greater Dublin Area Cycle Network Plan*, published by the National Transport Authority in 2013. The proposed network in the application site’s vicinity is illustrated in Figure 2.6 which follows.

Figure 2.6 Proposed Cycle Network in Application Site’s Vicinity



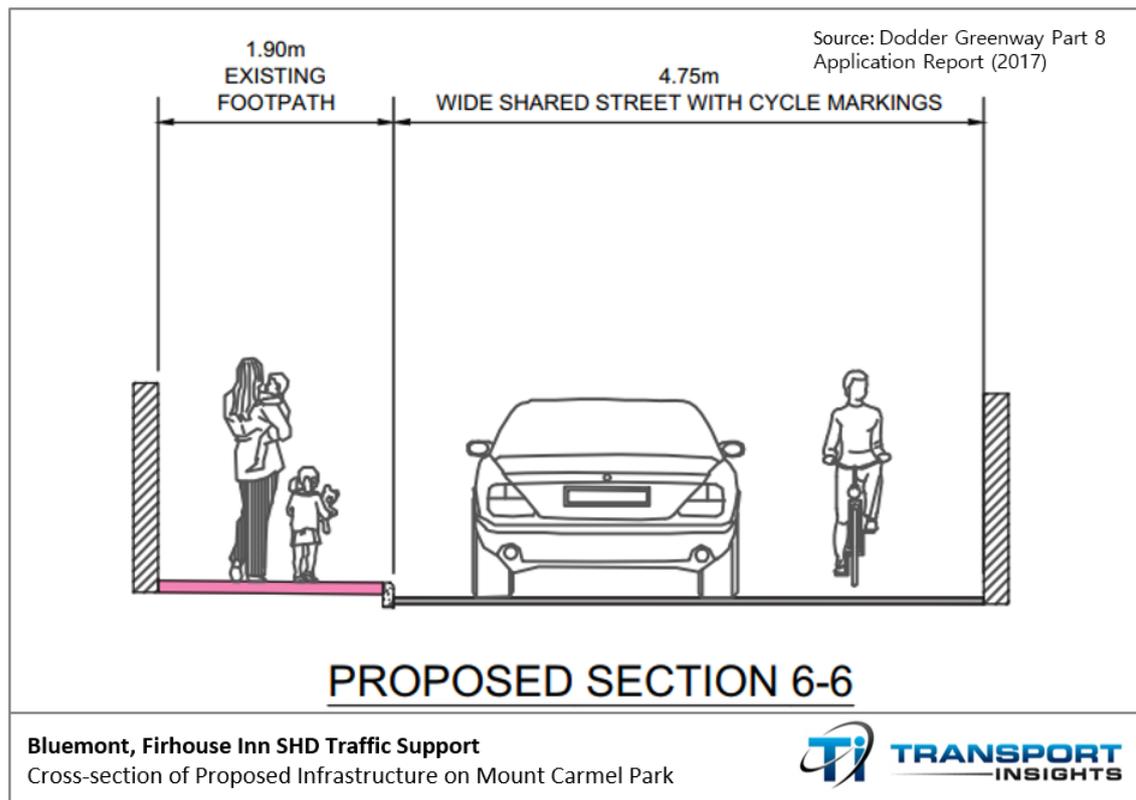
As can be seen from the preceding figure, the proposed development site is ideally located to benefit from high-quality cycling infrastructure. It lies just to the south of a confluence of greenways which will provide full segregated cycling infrastructure, thus making cycling within the application site’s vicinity an attractive, convenient and safe means of sustainable transport. The *Plan* proposes that the subject development site will be connected to the Dodder Greenway by a short minor greenway to the Dodder Greenway in Dodder Valley Park. An extract from the Dodder Greenway Part 8 Application Report (2017), Drawing no. 13_102_00_2211 Proposed Scheme Layout Sheet 11 of 22, is shown in Figure 2.7 (overleaf) and demonstrates the latest proposal for the short section of route between Firhouse Road and Dodder Valley Park. It is understood that the Dodder Greenway has been, as of mid-2020, under construction.

Figure 2.7 Planned Cycling Infrastructure in the Vicinity of Proposed Development Site



As illustrated by Figure 2.7 above, it is proposed that Mount Carmel becomes a “wide shared street”, between Firhouse Road and the existing entry point to Dodder Valley Park, with the vehicular carriageway shared between motorised vehicles and cyclists. Also of note on this figure are the proposed cycle road markings. A proposed cross-section of Mount Carmel Park which accompanies the above is shown in Figure 2.8 (overleaf). Note that the existing ca. 1.9 metres wide pedestrian infrastructure on the eastern side of the vehicular carriageway is proposed to be maintained.

Figure 2.8 Cross-Section of Proposed Infrastructure on Mount Carmel Park



The above greenway will link to the Dodder Greenway, which will then connect the site to Dublin City Centre via Templeogue, Rathfarnham, Ballsbridge and the Docklands while will also give access to minor greenways and feeder routes connecting the proposed development site to Tallaght to the west. The greenway heading north from the proposed development site will also connect the site to the Grand Canal Greenway at a location to the northeast of Clondalkin via Kilnamanagh and the Red Cow, a route which runs approximately parallel to the M50 motorway.

An overview of other planned cycle routes in the vicinity of the proposed development site are:

- Secondary Route 10A: Route 10 will run from Camden Street through Rathmines, Rathgar and Terenure to Rathfarnham, where it splits into several branches, one of which is Route 10A which runs parallel to the River Dodder to Firhouse and Oldcourt beside Old Bawn Bridge on Orbital Route SO6.
- Primary Route 9A: Route 9 runs from Clanbrassil Street to Tallaght via Harold's Cross, where it branches into two routes, one of which is Route 9A which runs via Kimmage Road, Fortfield Road, Wainsfort Road, the N81 to the north of the subject site terminating at Tallaght Town Centre.
- Orbital Route SO5: Dundrum to Tallaght via Ballyboden and Knocklyon and Firhouse.
- Orbital Route SO6: Dun Laoghaire to Tallaght via Ballycullen and Old Bawn.

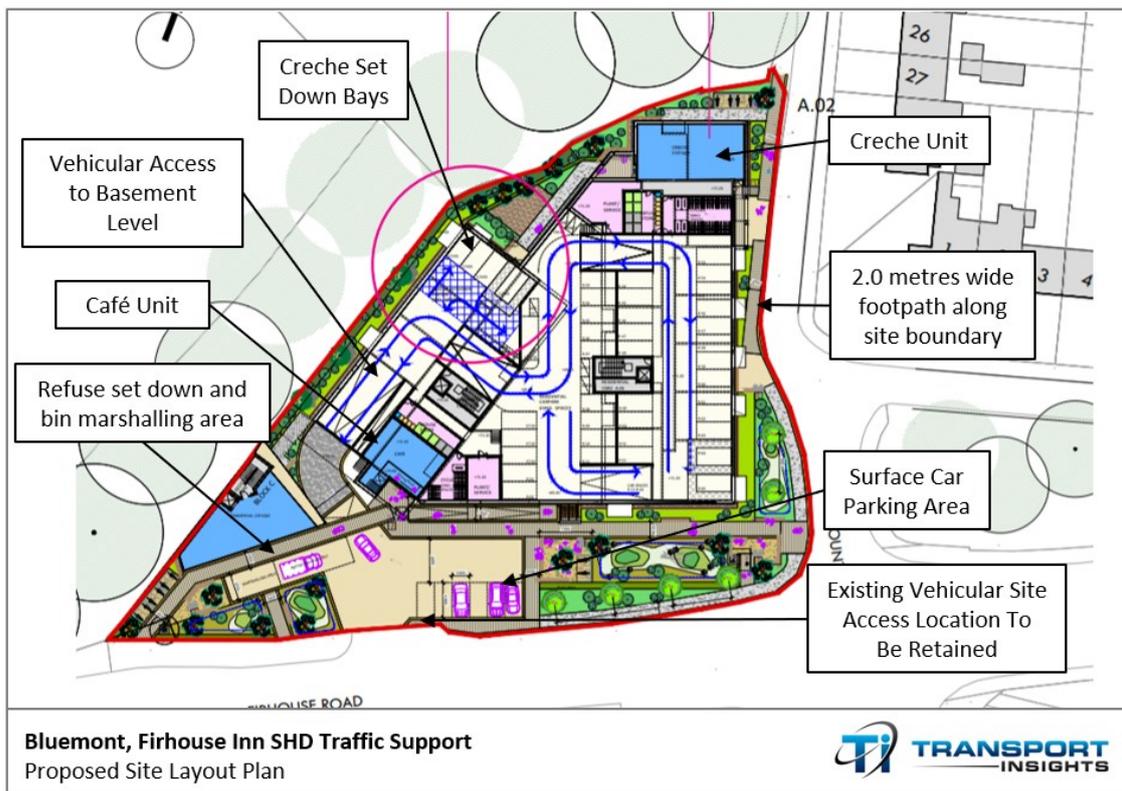
Overall, the proposed cycle network improvements result in the site being ideally located to benefit from high-quality cycle infrastructure, which will contribute to substantial increase in attractiveness and uptake of cycling for both leisure and commuting for both radial trips to areas between the site and Dublin City Centre, and orbital trips to Tallaght, Clondalkin and further afield. This is particularly true of the greenways in the vicinity of the site which offer increased safety and amenity to those who may be apprehensive about cycling on heavily trafficked roads.

3. Development Proposal

3.1 Overview of Proposed Development

The current draft proposed site layout plan prepared by O'Mahony Pike Architects is illustrated in the following Figure 3.1.

Figure 3.1 Draft Proposed Surface Layout Plan (*Extract from Proposed Site Layout Plan (O'Mahony Pike Architects))



Based on initial draft proposed site layout plan illustrated in the preceding Figure 3.1, the proposed development comprises:

- ca. 103 no. apartments incorporating a mix of 2-bed units (52 no.), 1-bed units (48 no.) and studio units (3 no.) over 3 to 4 stories across 3 no. blocks;
- 3 no. ground floor commercial units comprised:

- 1 no. bookmakers (63 sqm)
- 1 no. barbers (ca. 63 sqm)
- 1 no. café (ca. 95 sqm);
- a ground floor creche (ca. 110 sqm);
- 73 no. car parking spaces within a basement car parking level;
- 6 no. car parking spaces at surface level; and
- 140 no. cycle parking spaces to accommodate residents and staff;
- 40 no. short-stay cycle parking spaces at surface level (provided in the form of 20 no. Sheffield stands) to accommodate visitors to the development.

3.2 Car Parking

It is currently envisaged that ca. 79 no. car parking spaces will be provided within the application site's boundary, split between surface level (6 no. spaces) and a new basement level (73 no. spaces). Car parking within the basement shall incorporate the following:

- 65 no. standard car parking bays, measuring 2.4 metres * 5.0 metres including:
 - 61 no. residential car parking spaces
 - 4 no. staff car parking bay to serve the creche, café, bookmakers and barbers (1 no. staff bay each);
- 4 no. accessible residential car parking bays, measuring 2.5 metres * 5.0 metres, with a 1.2 metres buffer provided either side and to the rear of the bays; and
- 4 no. creche set down / visitor car parking bays measuring 2.5 metres * 5.0 metres, with a 1.2 metres buffer provided either side and to the rear of the bays.

4 no. motorcycle parking spaces will also be provided within the basement car park.

Car parking at surface level shall be provided in the form of 6 no. car parking spaces, including 5 no. standard car parking bays and 1 no. accessible car parking bay to accommodate mobility impaired users.

The quantum of car parking set out above equates to a provision of 0.63 no. car parking spaces per residential unit, not including staff, visitor and set-down car parking spaces or motorcycle parking.

The proposed quantity of on-site car parking is deemed appropriate for the following reasons:

- The site's public transport accessibility characteristics, and specifically high frequency bus services currently operating within its vicinity, with local bus services to be further augmented arising from final plans emerging from the National Transport Authority's

recently published *New Dublin Area Bus Network Project*. The application site therefore fulfils a key criterion with the *Sustainable Urban Housing: Design Standards for New Apartments* (DoHPLG 2018) whereby a reduced level of on-site car parking provision is deemed appropriate.

- The ample employment, educational, retail and cultural amenities noted to be located within the application site's walking and cycling catchment, with cycling in particular deemed to offer greatest potential as a means of accommodating resident's day to day travel needs.
- The site's location with respect to existing cycling infrastructure along both Firhouse Road and Dodder Valley Park (immediately to the north), which connect it to areas such as Old Bawn, Knocklyon, Templeogue, Terenure, Rathmines and ultimately to south Dublin City Centre, with extensive segregated cycle infrastructure along the Dodder Dodder Valley Park route.
- Cycling infrastructure will be substantially improved in future arising from proposals contained within the *Greater Dublin Area Cycle Network Plan*. Such proposals include further infrastructure improvements along the Dodder Greenway (under construction), which will connect the site to the Grand Canal Greenway at a location to the northeast of Clondalkin. The Dodder Greenway shall be connected in turn to the application site via a greenway along Mount Carmel Park, which adjoins its eastern boundary.
- The development of a RTP and Car Parking Strategy, which shall accompany the planning application and identify development-specific mobility interventions (incl. physical, management and promotional measures). Together these shall form a comprehensive set of measures aimed at encouraging sustainable mobility choices, and enabling residents adopt car-free and low car owning lifestyles.

As per Section 11.4.3 of the *South Dublin County Council Development Plan 2016 – 2022*, a provision of electric vehicle charging points at a rate of 10% (8 no. spaces) of the overall no. of car parking spaces shall be provided, with 100% of car parking spaces equipped to accommodate charging points as demand for them increases in future.

Accessible car parking spaces will be provided at a rate of 5% (4 no. spaces) of the overall number of car parking spaces as per Technical Guidance Document M of the *Building Regulations 2010* (and as per the requirements of the *South Dublin County Council Development Plan 2016 – 2022*).

3.3 Bicycle Storage and Parking

It is proposed that residents' cycle parking needs will be accommodated on-site, with regard to cycle parking requirements set out within the *South Dublin County Council Development Plan 2016-2022* and the *Sustainable Urban Housing: Design Standards for New Apartments – Guidelines for Planning Authorities* (DoHPLG 2018).

It is proposed that the cycle parking needs of residents of the residential portion of the development and staff members of the commercial units and creche shall be accommodated within the 140 no. long-stay cycle parking spaces provided in secure cycle parking compounds within the basement level/building footprints.

The cycle parking needs of visitors to both the residential and commercial aspects of the proposed development shall be accommodated within the 20 no. Sheffield stands (i.e. 40 no. cycle parking spaces) at surface level.

The above long- and short stay cycle parking facilities equate to an overall cycle parking provision of 180 no. cycle parking spaces.

3.4 Site Access Arrangements

It is proposed that the existing access at the site's southwestern boundary from Firhouse Road shall be maintained to accommodate vehicular access to the proposed development. In addition to representing the established site access, in light of proposals for a wide shared street on Mount Carmel Park as part of the Dodder Greenway outlined in Section 2.5 of this Note, a vehicular site access at this eastern site boundary is not deemed preferential.

Vehicles would enter the proposed development site from Firhouse Road via the three-arm priority junction in order to make access to both surface level and basement car parking within the application site. This access would also continue to accommodate pedestrians and cyclists.

Pedestrian access to the site will be possible via the southern, eastern and western sides of the site. Pedestrian access to the development buildings and creche will be facilitated by 1 no. entrance on the eastern side of the development from Mount Carmel Park. A further access to the development site is proposed at its south-eastern corner, facilitating access for pedestrians on Mount Carmel Park and crossing Firhouse Road at the pedestrian crossing lights.

Pedestrian access will be facilitated from the existing footpath on Firhouse Road via a 2.0 metres wide footpath, located ca. 16.0 metres to the east of the existing site access junction.

Pedestrian access to the podium level will be facilitated by a stairs and by a ramped access which will accommodate the mobility impaired, pedestrians with buggies, etc. This ramped access has

been designed to facilitate wheelchair users and is comprised of two gently sloped paths at a max 1:21.5 gradient with appropriately sized landings.

Internal pedestrian routes provide access to both development buildings from podium level, facilitated by the routes outlined above. A secondary pedestrian access to Block B is proposed to be located adjacent to the café portion of the development. Block C is proposed to be accessed by footpaths located along its eastern and southern boundaries.

Cyclist access to the site is via the main site access junction at the southern boundary of the site which in turn provides access to a dedicated cycle ramp which will provide access to cycle parking facilities at basement level. Cyclists can also access the internal cycle parking facilities at the northern end of the development via the proposed pedestrian access at Mount Carmel Park. This will allow easy cyclist access to and from the proposed shared surface at Mount Carmel Park which will link to the greenway network (proposed as part of the Greater Dublin Area Cycle Network Plan) to the north of the site.

Cyclists can also access the site via the pedestrian access points which provide access to the numerous short-stay cycle parking stands provided throughout the site.

3.5 Site Layout

The current site layout comprises 3 no. blocks, 2 no. of which (Blocks A & B) are over basement with a central landscaped podium level. Block C is proposed in the location of the existing site buildings which comprise the bookmakers and barbers. This block will comprise 6 no. apartment units over the 2 no. ground floor commercial units.

The proposed development site also features a rain garden / play area, pedestrian footways, vehicular parking, public spaces (in the form of 2 no. small piazza including benches), and short-stay cycle parking located adjacent to the commercial units.

3.6 Construction Phase Access Arrangements

It is proposed that construction vehicle access will be accommodated via the existing main access to the site from Firhouse Road. Construction vehicles will most likely access the site from M50 Junction 11 via the Spawell Roundabout and Firhouse Road or from M50 Junction 12 via Ballycullen Road.

3.7 Servicing and Emergency Vehicle Access Requirements

Deliveries and refuse collection activities will be accommodated within the proposed development site. Delivery and refuse vehicles will access the site via the main site access on

Firhouse Road and make use of a loading bay proposed within the surface level car park. This loading bay has been designed to accommodate a 10.2 metres long bin lorry and also includes a bin marshalling area.

Refuse from the commercial (café, bookmakers and barbers) and residential waste stores will be brought to this area and emptied into the bin lorry. The refuse lorry will then egress the site via the main site access. A further bin store will be located adjacent to the creche and refuse will be collected on Mount Carmel Park while residents within Mount Carmel Park are also being serviced.

An AutoTrack analysis of the proposed development shall be carried out for of a large refuse lorry and will assess its ability to access, manoeuvre within and egressing the site.

Emergency vehicle access will be via the main site access junction on Firhouse Road. From this location the southwestern and southern sides of Block A and B and the southern and eastern sides of Block C will be accessible, as will the podium level between Blocks A and B. Block A is also accessible to emergency vehicles along the full length of Mount Carmel Park. Emergency vehicle access needs shall be accommodated with respect to national requirements as defined within the *Building Regulations 2006 Technical Guidance Document B, Fire Safety*).

3.8 Likely Development Trip Generation and Traffic Impact

Development trip generation and traffic characteristics will be forecast, with the related analytical outputs forming a key part of the TTA. The proposed assessment methodology shall accord with guidance included within *Traffic and Transport Assessment Guidelines (TTA Guidelines, Transport Infrastructure Ireland, May 2014)* and is set out in Section 5 of this Note.

4. Briefing Note Objectives

TTA Guidelines recommend that local authority scoping be completed prior to undertaking a TTA. The objectives of this Briefing Note are to outline and reach agreement in principle with SDCC regarding:

- proposed development car parking, cycle parking and other ancillary transport facilities;
- proposed site access arrangements; and
- the scope of transport impact analysis to be contained within the TTA Report supporting the planning application to ABP.

5. Scope of Development Transport Inputs

5.1 Task 1 Scoping

At the transport scoping stage, the proposed approach set out within this Briefing Note will be shared and discussed with SDCC's Land Use Planning and Transportation Department. At the scoping stage, it is also intended to clarify relevant committed developments within the site's vicinity and any proposed enhancements to the layout of roads, cycling infrastructure or junctions in the vicinity of the site of relevance to the proposed development.

5.2 Task 2 Site Assessment

To inform our understanding of the existing context for the proposed development, a site assessment was undertaken on Tuesday, 06 October 2020. The assessment built upon a prior desktop review and covered roads in the immediate vicinity of the site, with a specific focus on the existing site access arrangements, car parking, the four-arm signal controlled Firhouse Road (R114)/ Ballycullen Road and Mount Carmel Park and access to Dodder Valley Park. In undertaking the site assessment, the following information has been collected:

- adjacent road layout (road width, horizontal and vertical alignment), road markings and signage;
- observations of the extent and composition of general traffic;
- local on- and off-street car parking facilities, related controls and current parking behaviours;
- local pedestrian and cycle infrastructure, with a specific focus on connectivity between the site and local bus stops and key amenities; and
- local bus service provision, including bus priority and bus shelter facilities.

5.3 Task 3 Transport Planning and Policy Review

To ensure the assessment is undertaken with appropriate consideration of national, regional and local transport policy and guidance, relevant documentation shall be reviewed, including the following:

- the *South Dublin County Council Development Plan 2016-2022*;
- the National Transport Authority's *Greater Dublin Area Transport Strategy 2016-2035* (April 2016);
- emerging *BusConnects* infrastructure and service proposals; and
- *Sustainable Urban Housing: Design Standards for New Apartments – Guidelines for Planning Authorities* (DoHPLG 2018).

An overview of transport planning and policy documentation shall be provided within the TTA Report.

5.4 Task 4 Travel Demand, Parking Demand and Accessibility Analysis

To help identify potential residential travel demand, car/ cycle parking demand, and potential for take-up of shared mobility schemes (e.g. car-sharing, bike/ cargo bike-sharing), a data analysis will be undertaken. This shall comprise collation and appraisal of local Central Statistics Office (CSO) Census 2016 commuting and car ownership data, supplemented if necessary, with information sourced from the industry standard TRICS trip generation database. In addition, an accessibility assessment of the proposed development site by walking, cycling, and public transport will be undertaken using Geographic Information Systems (GIS) software, including accessibility to local trip attractors such as shopping centres, schools, public transport nodes, and employment clusters. This shall inform estimation of the proposed development's traffic generation characteristics and associated car parking demand. The data analysis outputs will also inform the proposed development's traffic impact analysis and provide justification for the proposed quantity of on-site car and cycle parking within the development.

5.5 Task 5 Baseline Traffic Survey Data Collection and Analysis

Due to the ongoing COVID-19 pandemic and associated restrictions on travel, traffic levels in the area are understood to be lower than those that would have been present under usual circumstances. Therefore, in order to determine baseline traffic conditions and provide a basis from which the future development's traffic impact can be measured, historical classified junction turning count survey data was obtained for a 12-hour period (07:00hrs-18:59hrs) on a neutral weekday in 2017 at the four-arm signal controlled Firhouse Road (R114)/ Ballycullen Road/ Mount Carmel Park junction.

Due to the age of this data i.e. 4 years, classified junction turning count survey data from 2019 was obtained for the 3-arm Firhouse Road/ Knocklyon Road signalised junction to the east of the site. Analysis of this data showed that traffic volumes, composition and distribution throughout the day on this section of the Firhouse Road had not substantially changed in the intervening period. Therefore, it has been validated that the 2017 classified junction turning count data represents typical pre-COVID-19 conditions on the local road network and is a suitable baseline from which to establish the traffic impact of the proposed development.

Traffic survey data shall be formatted to present base year traffic levels through the junction, from which the proposed development's traffic impact will be assessed for the Year of Opening, Year of Opening + 5 years and Year of Opening + 15 years.

5.6 Task 6 Development Traffic Impact Assessment

Building upon the identification of the proposed development's traffic generation characteristics (Task 5), the proposed development's traffic impacts shall then be assessed with respect to its traffic generation outputs and baseline traffic data emerging from the preceding Task 5 (factored as needed to reflect the development's assumed year of opening and year of opening + 15 years). It is currently envisaged that traffic modelling of the Firhouse Road (R114)/ Ballycullen Road/ Mount Carmel Park signalised junction may be necessary (subject to development exceeding 5% of background traffic through the junction). If so, a LinSig traffic model of this junction will be developed in line with relevant guidance for both AM and PM network peak hours, and the modelling results extracted and presented within the TTA.

5.7 Task 7 Transport Engineering Design Advice

To ensure that the proposed site's internal layout accords with best practice, preliminary transport engineering design advice shall be provided by Transport Insights' project team to O'Mahony Pike Architects. Key guidance and standards which shall inform such advice include the *DMURS* and *Sustainable Urban Housing: Design Standards for New Apartments – Guidelines for Planning Authorities* (DoHPLG 2018).

Design advice provided shall include carriageway and parking aisle widths, footpath layout and widths, internal and external permeability, parking capacity and parking bay dimensions, cycle parking facilities, etc.

As the proposed development incorporates an undercroft and basement car parks, the draft layout shall accord with best practice, namely *Design Recommendations for Multi-Storey and Underground Car Parks (Fourth Edition)*.

A swept path analysis of the proposed layout shall be completed for various vehicle types that would be anticipated to access the site during its operational phase, to demonstrate that their movements can be accommodated safely, with to-scale drawings produced as outputs. Finally, a visibility splay assessment of the site access junction in accordance with the adjacent road's posted speed limit shall be completed and a to-scale drawing produced.

5.8 Task 8 Residential Travel Plan and Car Parking Strategy

A Residential Travel Plan (RTP) for the proposed residential development shall be developed in framework format and shall include an Action Plan to support more sustainable travel choices and reduce car ownership levels among residents of the development. Its component measures will be complementary to car and cycle parking recommendations provided as part of the

preliminary transport engineering design advice task (Task 7). It shall also detail, within a Car Parking Strategy to be contained therein, how car parking spaces shall be assigned and managed so that they support the RTP's sustainable transport objectives and targets.

5.9 Reporting

The analysis' approach and findings will be summarised in form of a TTA Report, which will include the RTP and Car Parking Strategy as chapters.

6. Summary

This Briefing Note summarises the scope of transport related inputs and related reporting proposed to accompany a planning application for a proposed residential development at the former site of The Firhouse Inn, Firhouse Road, Dublin 24.

Appendix B Traffic Survey Data

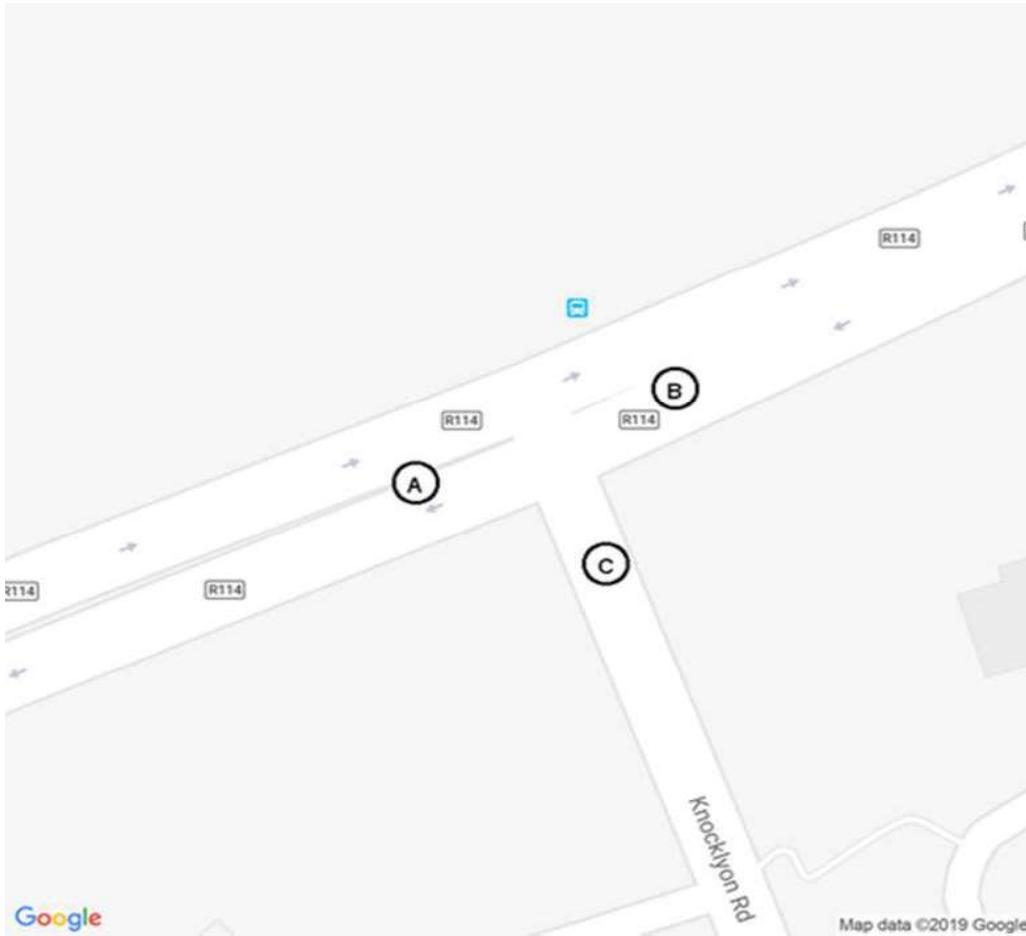


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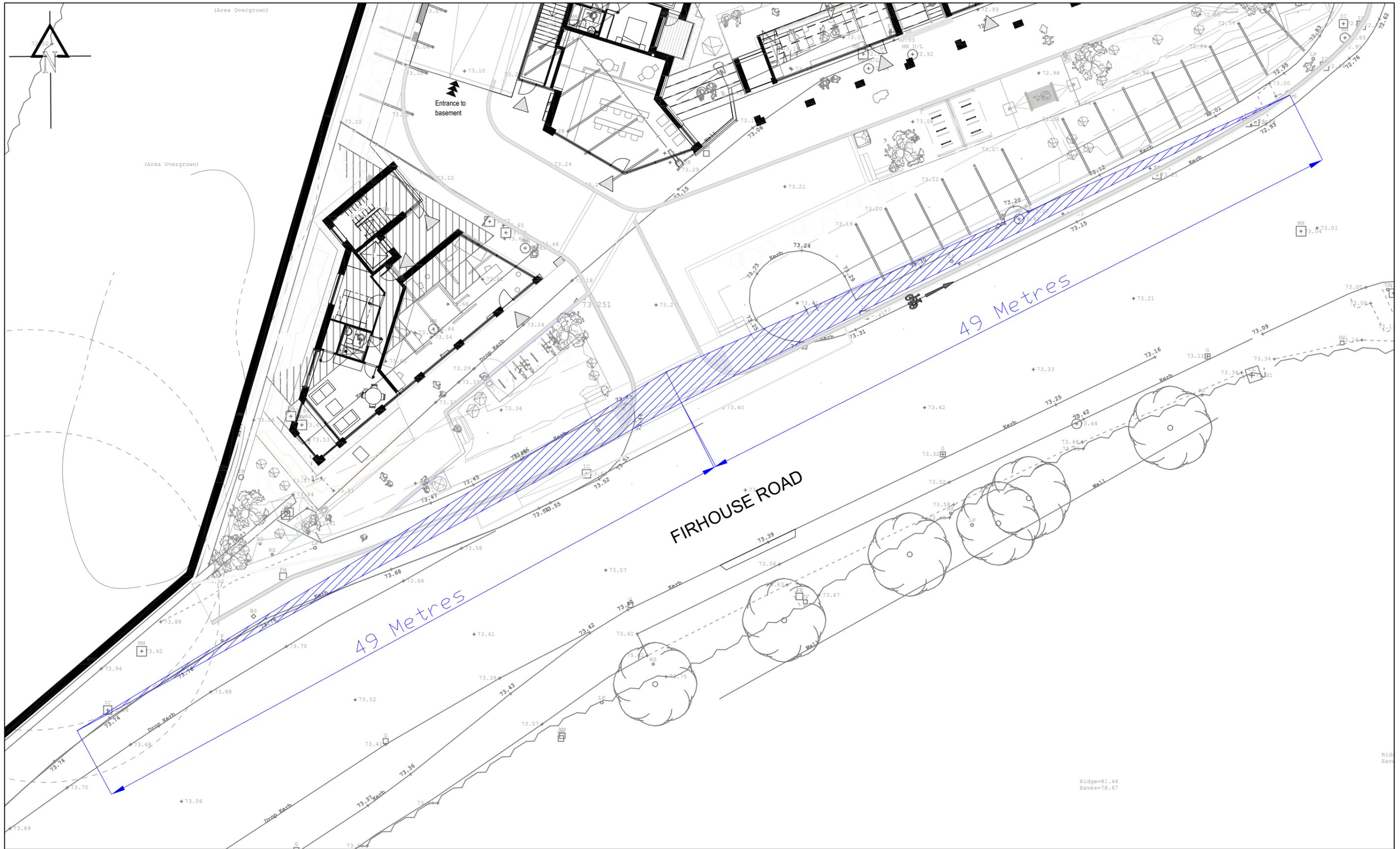
Survey Name: HDR 20130 Firhouse Rd/Ballyculen Rd
 Site: 1341
 Location: Ballyculen Road/Firhouse Road/Mount Camel Park/Firhouse Road
 Date: Tue 30-May-2017

TIME	D > A										D > B										D > C										D > D											
	P/C	M/C	CAR	LGW	OGV1	OGV2	'S/BUS	TOT	PCU	P/C	M/C	CAR	LGW	OGV1	OGV2	'S/BUS	TOT	PCU	P/C	M/C	CAR	LGW	OGV1	OGV2	'S/BUS	TOT	PCU	P/C	M/C	CAR	LGW	OGV1	OGV2	'S/BUS	TOT	PCU						
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H/TOT	0	0	8	0	0	0	0	8	8	0	0	6	0	0	0	0	6	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
04:00	0	0	1	0	0	0	0	1	1	0	0	3	0	0	0	0	3	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
04:15	1	0	1	0	0	0	0	2	1,2	0	0	2	0	0	0	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
04:30	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
04:45	1	0	1	0	0	0	0	2	1,2	0	0	2	0	0	0	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
H/TOT	2	0	3	0	0	0	0	5	5,4	0	0	8	0	0	0	0	8	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:00	0	0	2	0	0	0	0	2	2	0	0	1	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
05:15	0	0	1	0	0	0	0	2	2	1	0	4	0	0	0	0	1	6	5,2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
05:30	0	0	1	0	0	0	0	1	1	0	0	2	0	0	0	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
05:45	0	0	1	0	0	0	0	1	1	0	0	1	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
H/TOT	0	0	5	1	0	0	0	6	6	1	0	8	0	0	0	1	10	5,2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
06:00	1	0	0	0	0	0	0	1	1,2	0	0	2	0	0	0	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
06:15	0	0	2	0	0	0	0	2	4	2	1	2	1	0	0	0	6	3,8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
06:30	0	0	0	0	0	0	0	2	2	0	0	3	0	0	0	0	3	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
06:45	0	0	2	0	0	0	0	6	8	0	0	6	0	0	0	0	8	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
H/TOT	1	0	4	0	0	0	0	13	16,2	2	1	13	1	0	0	2	19	16,8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
07:00	0	0	7	0	0	0	0	4	11	11	0	7	0	0	0	0	7	7	0	0	1	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	
07:15	0	0	8	2	0	0	0	2	12	12	1	0	7	1	0	0	9	8,2	1	0	1	0	0	0	0	0	2	2	1,2	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30	1	0	9	0	0	0	0	5	14,2	0	1	6	3	0	0	0	11	10,4	0	0	1	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	
07:45	1	0	7	5	0	0	0	2	15	14,2	0	0	20	5	0	0	2	27	27	0	0	1	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	
H/TOT	2	0	23	7	0	0	0	13	53	54,4	1	0	40	9	0	3	54	52,6	2	0	3	0	0	0	0	0	5	5	4,2	0	0	0	0	0	0	0	0	0	0	0	0	
08:00	0	0	17	1	0	0	0	2	21	21,5	0	39	1	1	0	1	45	43,1	1	0	1	0	0	0	0	0	2	1,2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15	0	0	17	1	0	0	0	0	18	18	2	0	40	6	1	1	51	51,2	0	0	1	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:30	1	0	35	6	0	0	0	1	43	42,2	0	0	80	4	0	2	88	90,6	4	0	1	0	0	0	0	0	5	1,8	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:45	1	0	44	3	1	0	0	0	49	48,7	2	1	65	1	1	0	70	68,3	2	0	0	0	0	0	0	0	2	0,4	0	0	0	0	0	0	0	0	0	0	0	0	0	0
H/TOT	2	0	23	2	0	0	0	1	24	24	1	0	30	2	1	0	34	33,7	1	0	3	0	0	0	0	0	4	3,2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:00	1	0	83	5	0	0	0	2	93	90,2	0	92																														

Client : National Transport Authority	Site: 19
Project : 3385-IRE Traffic and Vehicle Occupancy	Lat/ Long: 53.287552,-6.327515 Easting/ Northing: 678139,5907590



Appendix C Visibility Splay Drawing



NOTES :
 1. Do not scale from this drawing.
 2. This drawing is for illustrative purposes only and not for construction.
 3. This drawing is to be read and printed in colour.

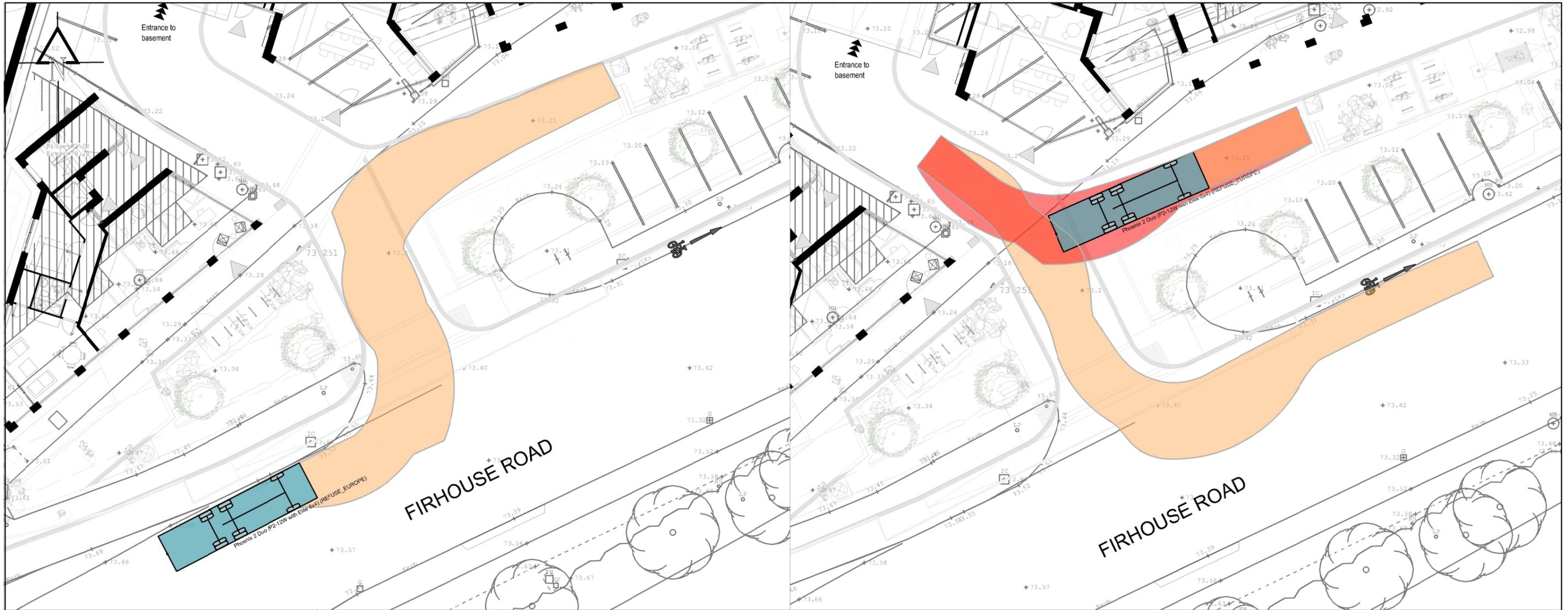
Drawn AK
 Checked SB
 Date 27.05.2022
 Rev ...

Drawing No. 2022 C623_2 v1.1
 Sheet 1 of 1
 Status Prelim. Design
 Client Bluemont Developments (Firhouse) Ltd.

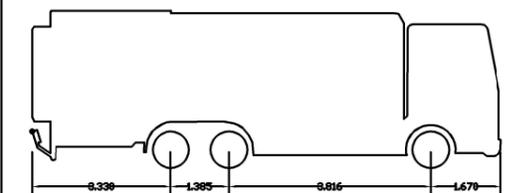
Project OMP Bluemont Firhouse Inn SHD TTA
 Scale 1:250 @ A3
 Title Visibility Splay Analysis



Appendix D Swept Path Analysis



Phoenix 2 Duo (P2-15W with Elite 6x4)



Width: 2.530m
 Front track: 2.500m
 Back track: 2.500m
 Total vehicle length: 10.200m
 Turn time (sec.): 4.0
 Turning circle (curb to curb): 15.602m
 Turning circle (wall to wall): 17.764m

	FORWARD MOVEMENTS
	REVERSE MOVEMENTS

NOTES :
 1. Do not scale from this drawing.
 2. This drawing is for illustrative purposes only and not for construction.
 3. This drawing is to be read and printed in colour.

Drawn AK
 Checked SB
 Date 27.05.2022
 Rev ...

Drawing No. 2021 C623_2 v1
 Sheet 1 of 1
 Status Prelim. Design
 Client Bluemont Developments (Firhouse) Ltd.

Project OMP Bluemont Firhouse Inn SHD TTA
 Scale 1:250 @ A3
 Title Swept Path Analysis



Appendix E TRICS Trip Generation Data

TRIP RATE CALCULATION SELECTION PARAMETERS:

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

Selected regions and areas:

02	SOUTH EAST	
	ES EAST SUSSEX	1 days
03	SOUTH WEST	
	DC DORSET	1 days
04	EAST ANGLIA	
	CA CAMBRIDGESHIRE	1 days
	NF NORFOLK	1 days
	SF SUFFOLK	2 days
05	EAST MIDLANDS	
	DS DERBYSHIRE	1 days
	LE LEICESTERSHIRE	1 days
	NT NOTTINGHAMSHIRE	2 days
07	YORKSHIRE & NORTH LINCOLNSHIRE	
	RI EAST RIDING OF YORKSHIRE	1 days
08	NORTH WEST	
	MS MERSEYSIDE	2 days
09	NORTH	
	CB CUMBRIA	2 days
11	SCOTLAND	
	EB CITY OF EDINBURGH	1 days
	SR STIRLING	1 days
12	CONNAUGHT	
	GA GALWAY	1 days
13	MUNSTER	
	WA WATERFORD	1 days
15	GREATER DUBLIN	
	DL DUBLIN	7 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

Primary Filtering selection:

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

Parameter: No of Dwellings
 Actual Range: 9 to 332 (units:)
 Range Selected by User: 6 to 372 (units:)

Parking Spaces Range: All Surveys Included

Parking Spaces per Dwelling Range: All Surveys Included

Bedrooms per Dwelling Range: All Surveys Included

Percentage of dwellings privately owned: All Surveys Included

Public Transport Provision:

Selection by: Include all surveys

Date Range: 01/01/13 to 23/10/20

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

Selected survey days:

Monday	3 days
Tuesday	13 days
Wednesday	6 days
Thursday	1 days
Friday	4 days

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

Selected survey types:

Manual count	27 days
Directional ATC Count	0 days

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

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

Selected Location Sub Categories:

Development Zone	2
Residential Zone	19
Built-Up Zone	1
No Sub Category	5

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

Secondary Filtering selection:

Use Class:

C3	27 days
----	---------

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

Population within 500m Range:

All Surveys Included

Population within 1 mile:

1,001 to 5,000	3 days
5,001 to 10,000	1 days
10,001 to 15,000	4 days
15,001 to 20,000	1 days
20,001 to 25,000	7 days
25,001 to 50,000	10 days
50,001 to 100,000	1 days

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

Population within 5 miles:

5,001 to 25,000	1 days
25,001 to 50,000	1 days
50,001 to 75,000	6 days
125,001 to 250,000	4 days
250,001 to 500,000	7 days
500,001 or More	8 days

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

Car ownership within 5 miles:

0.5 or Less	1 days
0.6 to 1.0	11 days
1.1 to 1.5	15 days

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

Travel Plan:

No	27 days
----	---------

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

PTAL Rating:

No PTAL Present	27 days
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This data displays the number of selected surveys with PTAL Ratings.

Covid-19 Restrictions	Yes	At least one survey within the selected data set was undertaken at a time of Covid-19 restrictions
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LIST OF SITES relevant to selection parameters

1	AN-03-C-02 BLOCK OF FLATS SUMMERHILL AVENUE BELFAST KNOCK Edge of Town Residential Zone Total No of Dwellings: 22 <i>Survey date: FRIDAY 28/11/14</i>	ANTRIM	<i>Survey Type: MANUAL</i>
2	CA-03-C-03 BLOCKS OF FLATS CROMWELL ROAD CAMBRIDGE Suburban Area (PPS6 Out of Centre) No Sub Category Total No of Dwellings: 82 <i>Survey date: MONDAY 18/09/17</i>	CAMBRI D GESHIRE	<i>Survey Type: MANUAL</i>
3	CB-03-C-02 BLOCK OF FLATS BRIDGE LANE PENRITH Edge of Town No Sub Category Total No of Dwellings: 35 <i>Survey date: WEDNESDAY 11/06/14</i>	CUMBRI A	<i>Survey Type: MANUAL</i>
4	CB-03-C-03 FLATS & BUNGALOWS LOUND STREET KENDAL Suburban Area (PPS6 Out of Centre) Residential Zone Total No of Dwellings: 33 <i>Survey date: MONDAY 09/06/14</i>	CUMBRI A	<i>Survey Type: MANUAL</i>
5	DC-03-C-02 FLATS IN BLOCKS PALM COURT WEYMOUTH SPA ROAD Suburban Area (PPS6 Out of Centre) Residential Zone Total No of Dwellings: 14 <i>Survey date: FRIDAY 28/03/14</i>	DORSET	<i>Survey Type: MANUAL</i>
6	DL-03-C-11 BLOCK OF FLATS WYCKHAM WAY DUBLIN DUNDRUM Neighbourhood Centre (PPS6 Local Centre) Residential Zone Total No of Dwellings: 96 <i>Survey date: TUESDAY 10/09/13</i>	DUBLIN	<i>Survey Type: MANUAL</i>
7	DL-03-C-12 BLOCK OF FLATS BOOTERSTOWN AVENUE DUBLIN Suburban Area (PPS6 Out of Centre) Residential Zone Total No of Dwellings: 47 <i>Survey date: TUESDAY 10/09/13</i>	DUBLIN	<i>Survey Type: MANUAL</i>
8	DL-03-C-13 BLOCK OF FLATS SANDYFORD ROAD DUBLIN Neighbourhood Centre (PPS6 Local Centre) Built-Up Zone Total No of Dwellings: 52 <i>Survey date: TUESDAY 10/09/13</i>	DUBLIN	<i>Survey Type: MANUAL</i>

LIST OF SITES relevant to selection parameters (Cont.)

9	DL-03-C-14	BLOCKS OF FLATS	DUBLIN
	BALLINTEER ROAD		
	DUBLIN		
	DUNDRUM		
	Suburban Area (PPS6 Out of Centre)		
	Residential Zone		
	Total No of Dwellings:	140	
	Survey date: <i>TUESDAY</i>	<i>10/09/13</i>	Survey Type: <i>MANUAL</i>
10	DL-03-C-15	BLOCKS OF FLATS	DUBLIN
	MONKSTOWN ROAD		
	DUBLIN		
	MONKSTOWN		
	Suburban Area (PPS6 Out of Centre)		
	Residential Zone		
	Total No of Dwellings:	20	
	Survey date: <i>WEDNESDAY</i>	<i>01/10/14</i>	Survey Type: <i>MANUAL</i>
11	DL-03-C-16	BLOCKS OF FLATS	DUBLIN
	BOTANIC AVENUE		
	DUBLIN		
	DRUMCONDRA		
	Suburban Area (PPS6 Out of Centre)		
	Residential Zone		
	Total No of Dwellings:	31	
	Survey date: <i>TUESDAY</i>	<i>22/11/16</i>	Survey Type: <i>MANUAL</i>
12	DL-03-C-17	BLOCKS OF FLATS	DUBLIN
	FINGLAS ROAD		
	DUBLIN		
	FINGLAS		
	Suburban Area (PPS6 Out of Centre)		
	Residential Zone		
	Total No of Dwellings:	332	
	Survey date: <i>FRIDAY</i>	<i>23/10/20</i>	Survey Type: <i>MANUAL</i>
13	DS-03-C-03	BLOCKS OF FLATS	DERBYSHIRE
	CAESAR STREET		
	DERBY		
	Suburban Area (PPS6 Out of Centre)		
	Residential Zone		
	Total No of Dwellings:	30	
	Survey date: <i>WEDNESDAY</i>	<i>25/09/19</i>	Survey Type: <i>MANUAL</i>
14	EB-03-C-01	BLOCKS OF FLATS	CITY OF EDINBURGH
	MYRESIDE ROAD		
	EDINBURGH		
	CRAIGLOCKHART		
	Suburban Area (PPS6 Out of Centre)		
	Residential Zone		
	Total No of Dwellings:	32	
	Survey date: <i>TUESDAY</i>	<i>26/05/15</i>	Survey Type: <i>MANUAL</i>
15	ES-03-C-01	BLOCK OF FLATS	EAST SUSSEX
	OLD SHOREHAM RD		
	BRIGHTON		
	HOVE		
	Suburban Area (PPS6 Out of Centre)		
	Residential Zone		
	Total No of Dwellings:	71	
	Survey date: <i>TUESDAY</i>	<i>26/09/17</i>	Survey Type: <i>MANUAL</i>
16	GA-03-C-01	FLATS	GALWAY
	BALLYLOUGHANE ROAD		
	GALWAY		
	Suburban Area (PPS6 Out of Centre)		
	No Sub Category		
	Total No of Dwellings:	34	
	Survey date: <i>THURSDAY</i>	<i>31/10/13</i>	Survey Type: <i>MANUAL</i>
17	LE-03-C-01	BLOCK OF FLATS	LEICESTERSHIRE
	NEW STREET		
	LEICESTER		
	OADBY		
	Neighbourhood Centre (PPS6 Local Centre)		
	Residential Zone		
	Total No of Dwellings:	19	
	Survey date: <i>FRIDAY</i>	<i>16/10/20</i>	Survey Type: <i>MANUAL</i>

LIST OF SITES relevant to selection parameters (Cont.)

18	MS-03-C-02	BLOCKS OF FLATS	MERSEYSIDE
	SOUTH FERRY QUAY		
	LIVERPOOL		
	BRUNSWICK DOCK		
	Suburban Area (PPS6 Out of Centre)		
	Development Zone		
	Total No of Dwellings:	184	
	Survey date: TUESDAY	13/11/18	Survey Type: MANUAL
19	MS-03-C-03	BLOCK OF FLATS	MERSEYSIDE
	MARINERS WHARF		
	LIVERPOOL		
	QUEENS DOCK		
	Suburban Area (PPS6 Out of Centre)		
	Development Zone		
	Total No of Dwellings:	9	
	Survey date: TUESDAY	13/11/18	Survey Type: MANUAL
20	NF-03-C-02	MIXED FLATS & HOUSES	NORFOLK
	HALL ROAD		
	NORWICH		
	LAKENHAM		
	Suburban Area (PPS6 Out of Centre)		
	Residential Zone		
	Total No of Dwellings:	82	
	Survey date: MONDAY	18/11/19	Survey Type: MANUAL
21	NT-03-C-01	HOUSES (SPLIT INTO FLATS)	NOTTINGHAMSHIRE
	LAWRENCE WAY		
	NOTTINGHAM		
	Suburban Area (PPS6 Out of Centre)		
	No Sub Category		
	Total No of Dwellings:	56	
	Survey date: TUESDAY	08/11/16	Survey Type: MANUAL
22	NT-03-C-02	HOUSES (SPLIT INTO FLATS)	NOTTINGHAMSHIRE
	CASTLE MARINA ROAD		
	NOTTINGHAM		
	Suburban Area (PPS6 Out of Centre)		
	No Sub Category		
	Total No of Dwellings:	135	
	Survey date: WEDNESDAY	09/11/16	Survey Type: MANUAL
23	RI-03-C-01	FLATS	EAST RIDING OF YORKSHIRE
	465 PRIORY ROAD		
	HULL		
	Edge of Town		
	Residential Zone		
	Total No of Dwellings:	20	
	Survey date: TUESDAY	13/05/14	Survey Type: MANUAL
24	SF-03-C-03	BLOCKS OF FLATS	SUFFOLK
	TOLLGATE LANE		
	BURY ST EDMUNDS		
	Suburban Area (PPS6 Out of Centre)		
	Residential Zone		
	Total No of Dwellings:	30	
	Survey date: WEDNESDAY	03/12/14	Survey Type: MANUAL
25	SF-03-C-04	BLOCKS OF FLATS	SUFFOLK
	SAINT MARY'S ROAD		
	IPSWICH		
	Suburban Area (PPS6 Out of Centre)		
	Residential Zone		
	Total No of Dwellings:	56	
	Survey date: WEDNESDAY	16/09/20	Survey Type: MANUAL
26	SR-03-C-03	BLOCK OF FLATS & TERRACED	STIRLING
	KERSEBONNY ROAD		
	STIRLING		
	CAMBUSBARRON		
	Edge of Town		
	Residential Zone		
	Total No of Dwellings:	82	
	Survey date: TUESDAY	01/09/20	Survey Type: MANUAL

LIST OF SITES relevant to selection parameters (Cont.)

27 WA-03-C-01 BLOCKS OF FLATS WATERFORD
UPPER YELLOW ROAD
WATERFORD

Suburban Area (PPS6 Out of Centre)
Residential Zone

Total No of Dwellings: 51

Survey date: TUESDAY

12/05/15

Survey Type: MANUAL

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

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

TOTAL VEHICLES

Calculation factor: 1 DWELLS

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	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	27	66	0.049	27	66	0.175	27	66	0.224
08:00 - 09:00	27	66	0.068	27	66	0.223	27	66	0.291
09:00 - 10:00	27	66	0.079	27	66	0.096	27	66	0.175
10:00 - 11:00	27	66	0.055	27	66	0.074	27	66	0.129
11:00 - 12:00	27	66	0.060	27	66	0.074	27	66	0.134
12:00 - 13:00	27	66	0.077	27	66	0.085	27	66	0.162
13:00 - 14:00	27	66	0.081	27	66	0.089	27	66	0.170
14:00 - 15:00	27	66	0.099	27	66	0.086	27	66	0.185
15:00 - 16:00	27	66	0.111	27	66	0.075	27	66	0.186
16:00 - 17:00	27	66	0.124	27	66	0.080	27	66	0.204
17:00 - 18:00	27	66	0.184	27	66	0.085	27	66	0.269
18:00 - 19:00	27	66	0.162	27	66	0.102	27	66	0.264
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			1.149			1.244			2.393

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: 9 - 332 (units:)
Survey date range: 01/01/13 - 23/10/20
Number of weekdays (Monday-Friday): 27
Number of Saturdays: 0
Number of Sundays: 0
Surveys automatically removed from selection: 0
Surveys manually removed from selection: 0

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

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 04 - EDUCATION
 Category : D - NURSERY
 TOTAL VEHICLES

Selected regions and areas:

02	SOUTH EAST	
	ES EAST SUSSEX	1 days
03	SOUTH WEST	
	WL WILTSHIRE	1 days
04	EAST ANGLIA	
	CA CAMBRIDGESHIRE	1 days
05	EAST MIDLANDS	
	DS DERBYSHIRE	1 days
	LE LEICESTERSHIRE	1 days
	LN LINCOLNSHIRE	1 days
06	WEST MIDLANDS	
	WK WARWICKSHIRE	1 days
09	NORTH	
	TV TEES VALLEY	1 days
	TW TYNE & WEAR	1 days
10	WALES	
	BG BRIDGEND	1 days
	MM MONMOUTHSHIRE	1 days
11	SCOTLAND	
	DU DUNDEE CITY	1 days
	SR STIRLING	1 days
12	CONNAUGHT	
	RO ROSCOMMON	1 days

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

Primary Filtering selection:

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

Parameter: Gross floor area
 Actual Range: 150 to 860 (units: sqm)
 Range Selected by User: 120 to 2350 (units: sqm)

Parking Spaces Range: All Surveys Included

Public Transport Provision:

Selection by: Include all surveys

Date Range: 01/01/13 to 27/09/19

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

Selected survey days:

Monday	3 days
Tuesday	3 days
Thursday	3 days
Friday	5 days

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

Selected survey types:

Manual count	14 days
Directional ATC Count	0 days

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

Selected Locations:

Suburban Area (PPS6 Out of Centre)	5
Edge of Town	8
Neighbourhood Centre (PPS6 Local Centre)	1

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

Selected Location Sub Categories:

Industrial Zone	1
Commercial Zone	1

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

Secondary Filtering selection:

Use Class:

E(f) 14 days

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

Population within 500m Range:

All Surveys Included

Population within 1 mile:

1,001 to 5,000	2 days
5,001 to 10,000	2 days
10,001 to 15,000	1 days
15,001 to 20,000	3 days
20,001 to 25,000	1 days
25,001 to 50,000	4 days
50,001 to 100,000	1 days

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

Population within 5 miles:

5,001 to 25,000	1 days
50,001 to 75,000	1 days
75,001 to 100,000	3 days
125,001 to 250,000	5 days
250,001 to 500,000	4 days

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

Car ownership within 5 miles:

0.5 or Less	1 days
0.6 to 1.0	3 days
1.1 to 1.5	9 days
2.1 to 2.5	1 days

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

Travel Plan:

No 14 days

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

PTAL Rating:

No PTAL Present 14 days

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

LIST OF SITES relevant to selection parameters

1	BG-04-D-01 GEORGE STREET BRIDGEND BRIDGEND IND. ESTATE Edge of Town Industrial Zone Total Gross floor area: <i>Survey date: MONDAY</i>	210 sqm 13/10/14	NURSERY BRIDGEND	<i>Survey Type: MANUAL</i>
2	CA-04-D-02 EASTFIELD ROAD PETERBOROUGH Suburban Area (PPS6 Out of Centre) Residential Zone Total Gross floor area: <i>Survey date: TUESDAY</i>	400 sqm 18/10/16	NURSERY CAMBRI D GESHIRE	<i>Survey Type: MANUAL</i>
3	DS-04-D-02 MAXWELL AVENUE DERBY DARLEY ABBEY Edge of Town Residential Zone Total Gross floor area: <i>Survey date: THURSDAY</i>	415 sqm 12/07/18	NURSERY DERBYSHIRE	<i>Survey Type: MANUAL</i>
4	DU-04-D-01 LONGTOWN TERRACE DUNDEE Suburban Area (PPS6 Out of Centre) Residential Zone Total Gross floor area: <i>Survey date: MONDAY</i>	325 sqm 24/04/17	NURSERY DUNDEE CITY	<i>Survey Type: MANUAL</i>
5	ES-04-D-01 CONNAUGHT ROAD BRIGHTON HOVE Neighbourhood Centre (PPS6 Local Centre) Residential Zone Total Gross floor area: <i>Survey date: FRIDAY</i>	185 sqm 22/09/17	NURSERY EAST SUSSEX	<i>Survey Type: MANUAL</i>
6	LE-04-D-01 WIGSTON ROAD LEICESTER OADBY Edge of Town Residential Zone Total Gross floor area: <i>Survey date: THURSDAY</i>	375 sqm 30/10/14	NURSERY LEICESTERSHIRE	<i>Survey Type: MANUAL</i>
7	LN-04-D-01 NEWARK ROAD LINCOLN SWALLOW BECK Suburban Area (PPS6 Out of Centre) Residential Zone Total Gross floor area: <i>Survey date: TUESDAY</i>	600 sqm 31/10/17	NURSERY LINCOLNSHIRE	<i>Survey Type: MANUAL</i>
8	MM-04-D-01 SPOONER CLOSE NEWPORT COEDKERNEW Edge of Town Commercial Zone Total Gross floor area: <i>Survey date: FRIDAY</i>	860 sqm 27/09/19	NURSERY MONMOUTHSHIRE	<i>Survey Type: MANUAL</i>
9	RO-04-D-01 PARK VIEW ROSCOMMON CRUBY HILL Edge of Town Residential Zone Total Gross floor area: <i>Survey date: FRIDAY</i>	500 sqm 26/09/14	NURSERY ROSCOMMON	<i>Survey Type: MANUAL</i>

LIST OF SITES relevant to selection parameters (Cont.)

10	SR-04-D-01	NURSERY		STIRLING
	HENDERSON STREET			
	STIRLING			
	BRIDGE OF ALLAN			
	Edge of Town			
	No Sub Category			
	Total Gross floor area:		250 sqm	
	Survey date:	MONDAY	16/06/14	Survey Type: MANUAL
11	TV-04-D-01	NURSERY		TEES VALLEY
	COTSWOLD DRIVE			
	REDCAR			
	Edge of Town			
	Residential Zone			
	Total Gross floor area:		150 sqm	
	Survey date:	FRIDAY	19/05/17	Survey Type: MANUAL
12	TW-04-D-03	NURSERY		TYNE & WEAR
	JUBILEE ROAD			
	NEWCASTLE UPON TYNE			
	GOSFORTH			
	Suburban Area (PPS6 Out of Centre)			
	Residential Zone			
	Total Gross floor area:		725 sqm	
	Survey date:	TUESDAY	21/05/19	Survey Type: MANUAL
13	WK-04-D-01	NURSERY		WARWICKSHIRE
	THE RIDGEWAY			
	STRATFORD UPON AVON			
	Edge of Town			
	Residential Zone			
	Total Gross floor area:		340 sqm	
	Survey date:	FRIDAY	29/06/18	Survey Type: MANUAL
14	WL-04-D-01	NURSERY		WILTSHIRE
	SHREWSBURY ROAD			
	SWINDON			
	WALCOT			
	Suburban Area (PPS6 Out of Centre)			
	Residential Zone			
	Total Gross floor area:		500 sqm	
	Survey date:	THURSDAY	22/09/16	Survey Type: MANUAL

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

TRIP RATE for Land Use 04 - EDUCATION/D - NURSERY

TOTAL VEHICLES

Calculation factor: 100 sqm

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00	1	400	0.000	1	400	0.000	1	400	0.000
07:00 - 08:00	14	417	2.296	14	417	0.908	14	417	3.204
08:00 - 09:00	14	417	3.907	14	417	3.119	14	417	7.026
09:00 - 10:00	14	417	1.731	14	417	1.560	14	417	3.291
10:00 - 11:00	14	417	0.634	14	417	0.411	14	417	1.045
11:00 - 12:00	14	417	0.703	14	417	0.548	14	417	1.251
12:00 - 13:00	14	417	1.662	14	417	1.714	14	417	3.376
13:00 - 14:00	14	417	1.063	14	417	1.731	14	417	2.794
14:00 - 15:00	14	417	0.823	14	417	0.805	14	417	1.628
15:00 - 16:00	14	417	0.788	14	417	1.097	14	417	1.885
16:00 - 17:00	14	417	1.748	14	417	1.919	14	417	3.667
17:00 - 18:00	14	417	2.468	14	417	3.239	14	417	5.707
18:00 - 19:00	13	437	0.158	13	437	0.897	13	437	1.055
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:			17.981			17.948			35.929

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 - 860 (units: sqm)
Survey date range: 01/01/13 - 27/09/19
Number of weekdays (Monday-Friday): 14
Number of Saturdays: 0
Number of Sundays: 0
Surveys automatically removed from selection: 0
Surveys manually removed from selection: 0

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

Calculation Reference: AUDIT-710101-210513-0552

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 06 - HOTEL, FOOD & DRINK
 Category : K - CAFE
 TOTAL VEHICLES

Selected regions and areas:

01 GREATER LONDON
 LB LAMBETH 1 days

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

Primary Filtering selection:

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

Parameter: No of Employees
 Actual Range: 27 to 27 (units:)
 Range Selected by User: 27 to 27 (units:)

Parking Spaces Range: All Surveys Included

Public Transport Provision:

Selection by: Include all surveys

Date Range: 01/01/13 to 27/11/18

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

Selected survey days:

Tuesday 1 days

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

Selected survey types:

Manual count 1 days
 Directional ATC Count 0 days

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

Selected Locations:

Town Centre 1

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

Selected Location Sub Categories:

Built-Up Zone 1

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

Secondary Filtering selection:

Use Class:

Not Known 1 days

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

Population within 500m Range:

All Surveys Included

Secondary Filtering selection (Cont.):

Population within 1 mile:

100,001 or More 1 days

*This data displays the number of selected surveys within stated 1-mile radii of population.*Population within 5 miles:

500,001 or More 1 days

*This data displays the number of selected surveys within stated 5-mile radii of population.*Car ownership within 5 miles:

0.5 or Less 1 days

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

No 1 days

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

6b (High) Excellent 1 days

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

LIST OF SITES relevant to selection parameters

1	LB-06-K-01	PRÊT À MANGER	LAMBETH
	WATERLOO ROAD		
	WATERLOO		
	Town Centre		
	Built-Up Zone		
	Total No of Employees:	27	
	Survey date: TUESDAY	27/11/18	Survey Type: MANUAL

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

TRIP RATE for Land Use 06 - HOTEL, FOOD & DRINK/K - CAFE

TOTAL VEHICLES

Calculation factor: 1 EMPLOY

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. EMPLOY	Trip Rate	No. Days	Ave. EMPLOY	Trip Rate	No. Days	Ave. EMPLOY	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	1	27	0.037	1	27	0.000	1	27	0.037
07:00 - 08:00	1	27	0.111	1	27	0.074	1	27	0.185
08:00 - 09:00	1	27	0.148	1	27	0.074	1	27	0.222
09:00 - 10:00	1	27	0.037	1	27	0.000	1	27	0.037
10:00 - 11:00	1	27	0.037	1	27	0.037	1	27	0.074
11:00 - 12:00	1	27	0.037	1	27	0.037	1	27	0.074
12:00 - 13:00	1	27	0.000	1	27	0.037	1	27	0.037
13:00 - 14:00	1	27	0.074	1	27	0.000	1	27	0.074
14:00 - 15:00	1	27	0.037	1	27	0.074	1	27	0.111
15:00 - 16:00	1	27	0.074	1	27	0.111	1	27	0.185
16:00 - 17:00	1	27	0.074	1	27	0.000	1	27	0.074
17:00 - 18:00	1	27	0.037	1	27	0.037	1	27	0.074
18:00 - 19:00	1	27	0.000	1	27	0.037	1	27	0.037
19:00 - 20:00	1	27	0.074	1	27	0.074	1	27	0.148
20:00 - 21:00	1	27	0.074	1	27	0.074	1	27	0.148
21:00 - 22:00	1	27	0.000	1	27	0.037	1	27	0.037
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.851			0.703			1.554

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:	27 - 27 (units:)
Survey date range:	01/01/13 - 27/11/18
Number of weekdays (Monday-Friday):	1
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	0
Surveys manually removed from selection:	0

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

Calculation Reference: AUDIT-710101-210513-0529

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 06 - HOTEL, FOOD & DRINK
 Category : I - PUBLIC HOUSE (WITHOUT RESTAURANT)
 TOTAL VEHICLES

Selected regions and areas:

07	YORKSHIRE & NORTH LINCOLNSHIRE	
	WY WEST YORKSHIRE	1 days
08	NORTH WEST	
	GM GREATER MANCHESTER	1 days

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

Primary Filtering selection:

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

Parameter: Gross floor area
 Actual Range: 175 to 600 (units: sqm)
 Range Selected by User: 120 to 750 (units: sqm)

Parking Spaces Range: All Surveys Included

Public Transport Provision:

Selection by: Include all surveys

Date Range: 01/01/13 to 10/07/16

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

Selected survey days:

Tuesday	1 days
Friday	1 days

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

Selected survey types:

Manual count	2 days
Directional ATC Count	0 days

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

Selected Locations:

Edge of Town Centre	1
Edge of Town	1

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

Selected Location Sub Categories:

Residential Zone	1
No Sub Category	1

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

Secondary Filtering selection:

Use Class:

Sui Generis	2 days
-------------	--------

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

Population within 500m Range:

All Surveys Included

Secondary Filtering selection (Cont.):

Population within 1 mile:

1,001 to 5,000	1 days
25,001 to 50,000	1 days

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

Population within 5 miles:

5,001 to 25,000	1 days
125,001 to 250,000	1 days

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

Car ownership within 5 miles:

0.6 to 1.0	1 days
1.1 to 1.5	1 days

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

Travel Plan:

No	2 days
----	--------

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

PTAL Rating:

No PTAL Present	2 days
-----------------	--------

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

LIST OF SITES relevant to selection parameters

1	GM-06-I-01 SYKE ROAD ROCHDALE	PUBLIC HOUSE		GREATER MANCHESTER
	Edge of Town Residential Zone			
	Total Gross floor area:		175 sqm	
	Survey date: <i>TUESDAY</i>		<i>25/11/14</i>	Survey Type: <i>MANUAL</i>
2	WY-06-I-01 HALIFAX ROAD LIVERSEDGE	PUBLIC HOUSE		WEST YORKSHIRE
	Edge of Town Centre No Sub Category			
	Total Gross floor area:		600 sqm	
	Survey date: <i>FRIDAY</i>		<i>25/04/14</i>	Survey Type: <i>MANUAL</i>

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

TRIP RATE for Land Use 06 - HOTEL, FOOD & DRINK/I - PUBLIC HOUSE (WITHOUT RESTAURANT)

TOTAL VEHICLES

Calculation factor: 100 sqm

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00									
08:00 - 09:00									
09:00 - 10:00									
10:00 - 11:00									
11:00 - 12:00	1	175	0.000	1	175	0.000	1	175	0.000
12:00 - 13:00	2	388	0.258	2	388	0.258	2	388	0.516
13:00 - 14:00	2	388	0.774	2	388	0.645	2	388	1.419
14:00 - 15:00	2	388	0.645	2	388	0.387	2	388	1.032
15:00 - 16:00	2	388	1.806	2	388	0.774	2	388	2.580
16:00 - 17:00	2	388	2.194	2	388	1.419	2	388	3.613
17:00 - 18:00	2	388	2.710	2	388	2.065	2	388	4.775
18:00 - 19:00	2	388	1.161	2	388	1.806	2	388	2.967
19:00 - 20:00	2	388	1.677	2	388	2.194	2	388	3.871
20:00 - 21:00	2	388	2.323	2	388	2.065	2	388	4.388
21:00 - 22:00	2	388	1.419	2	388	2.194	2	388	3.613
22:00 - 23:00	2	388	2.194	2	388	2.194	2	388	4.388
23:00 - 24:00	1	175	1.143	1	175	4.571	1	175	5.714
Total Rates:			18.304			20.572			38.876

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: 175 - 600 (units: sqm)
 Survey date range: 01/01/13 - 10/07/16
 Number of weekdays (Monday-Friday): 2
 Number of Saturdays: 0
 Number of Sundays: 0
 Surveys automatically removed from selection: 0
 Surveys manually removed from selection: 0

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

Calculation Reference: AUDIT-710101-220311-0302

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 05 - HEALTH
 Category : J - DENTAL SURGERY
 TOTAL VEHICLES

Selected regions and areas:

02	SOUTH EAST	
	RE READING	1 days
04	EAST ANGLIA	
	NF NORFOLK	1 days
07	YORKSHIRE & NORTH LINCOLNSHIRE	
	WY WEST YORKSHIRE	1 days
08	NORTH WEST	
	GM GREATER MANCHESTER	1 days
10	WALES	
	BG BRIDGEND	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

Primary Filtering selection:

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

Parameter: Gross floor area
 Actual Range: 60 to 600 (units: sqm)
 Range Selected by User: 60 to 600 (units: sqm)

Parking Spaces Range: All Surveys Included

Public Transport Provision:

Selection by: Include all surveys

Date Range: 01/01/13 to 02/06/21

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

Selected survey days:

Monday	2 days
Tuesday	1 days
Thursday	2 days
Friday	1 days

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

Selected survey types:

Manual count	6 days
Directional ATC Count	0 days

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

Selected Locations:

Suburban Area (PPS6 Out of Centre)	2
Neighbourhood Centre (PPS6 Local Centre)	4

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

Selected Location Sub Categories:

Residential Zone	6
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This data displays the number of surveys per location sub-category within the selected set. The location sub-categories consist of Commercial Zone, Industrial Zone, Development Zone, Residential Zone, Retail Zone, Built-Up Zone, Village, Out of Town, High Street and No Sub Category.

Secondary Filtering selection:

Use Class:

E(e) 6 days

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

Population within 500m Range:

All Surveys Included

Population within 1 mile:

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

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

Population within 5 miles:

50,001 to 75,000	1 days
75,001 to 100,000	1 days
250,001 to 500,000	3 days
500,001 or More	1 days

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

Car ownership within 5 miles:

0.6 to 1.0	3 days
1.1 to 1.5	3 days

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

Travel Plan:

No 6 days

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

PTAL Rating:

No PTAL Present 6 days

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

LIST OF SITES relevant to selection parameters

1	AN-05-J-04 MALONE ROAD BELFAST	DENTAL SURGERY		ANTRIM
	Neighbourhood Centre (PPS6 Local Centre) Residential Zone Total Gross floor area: 600 sqm <i>Survey date: THURSDAY 27/11/14</i>			
2	BG-05-J-01 WHITETHORN DRIVE BRIDGEND BRACKLA	DENTAL SURGERY		BRIDGEND
	Neighbourhood Centre (PPS6 Local Centre) Residential Zone Total Gross floor area: 300 sqm <i>Survey date: MONDAY 13/10/14</i>			
3	GM-05-J-01 ROCH VALLEY WAY ROCHDALE	DENTAL SURGERY		GREATER MANCHESTER
	Suburban Area (PPS6 Out of Centre) Residential Zone Total Gross floor area: 225 sqm <i>Survey date: TUESDAY 20/10/15</i>			
4	NF-05-J-01 WOOTON ROAD KINGS LYNN GAYWOOD	DENTAL SURGERY		NORFOLK
	Neighbourhood Centre (PPS6 Local Centre) Residential Zone Total Gross floor area: 289 sqm <i>Survey date: THURSDAY 11/12/14</i>			
5	RE-05-J-01 WOKINGHAM ROAD READING EARLEY	DENTAL SURGERY		READING
	Suburban Area (PPS6 Out of Centre) Residential Zone Total Gross floor area: 60 sqm <i>Survey date: FRIDAY 20/11/15</i>			
6	WY-05-J-01 BURLEY ROAD LEEDS	DENTAL SURGERY		WEST YORKSHIRE
	Neighbourhood Centre (PPS6 Local Centre) Residential Zone Total Gross floor area: 120 sqm <i>Survey date: MONDAY 19/10/15</i>			

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

TRIP RATE for Land Use 05 - HEALTH/J - DENTAL SURGERY

TOTAL VEHICLES

Calculation factor: 100 sqm

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	5	261	0.383	5	261	0.000	5	261	0.383
08:00 - 09:00	6	266	2.447	6	266	0.502	6	266	2.949
09:00 - 10:00	6	266	2.008	6	266	1.694	6	266	3.702
10:00 - 11:00	6	266	2.196	6	266	2.258	6	266	4.454
11:00 - 12:00	6	266	1.694	6	266	1.882	6	266	3.576
12:00 - 13:00	6	266	1.506	6	266	2.070	6	266	3.576
13:00 - 14:00	6	266	1.380	6	266	1.004	6	266	2.384
14:00 - 15:00	6	266	1.694	6	266	1.631	6	266	3.325
15:00 - 16:00	6	266	2.258	6	266	2.196	6	266	4.454
16:00 - 17:00	6	266	1.192	6	266	1.631	6	266	2.823
17:00 - 18:00	6	266	0.502	6	266	1.882	6	266	2.384
18:00 - 19:00	6	266	0.000	6	266	0.439	6	266	0.439
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			17.260			17.189			34.449

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:	60 - 600 (units: sqm)
Survey date range:	01/01/13 - 02/06/21
Number of weekdays (Monday-Friday):	6
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	0
Surveys manually removed from selection:	0

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

Calculation Reference: AUDIT-710101-220311-0323

TRIP RATE CALCULATION SELECTION PARAMETERS:

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

Selected regions and areas:

02	SOUTH EAST	
	ES EAST SUSSEX	1 days
	HF HERTFORDSHIRE	1 days
03	SOUTH WEST	
	DV DEVON	1 days
	WL WILTSHIRE	1 days
04	EAST ANGLIA	
	NF NORFOLK	1 days
05	EAST MIDLANDS	
	DS DERBYSHIRE	1 days
	LE LEICESTERSHIRE	1 days
	NT NOTTINGHAMSHIRE	1 days
06	WEST MIDLANDS	
	WM WEST MIDLANDS	2 days
08	NORTH WEST	
	CH CHESHIRE	1 days
	GM GREATER MANCHESTER	1 days
09	NORTH	
	TW TYNE & WEAR	3 days
10	WALES	
	CF CARDIFF	1 days
11	SCOTLAND	
	FI FIFE	2 days
	GC GLASGOW CITY	1 days
15	GREATER DUBLIN	
	DL DUBLIN	2 days
17	ULSTER (NORTHERN IRELAND)	
	AN ANTRIM	2 days

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

Primary Filtering selection:

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

Parameter: Gross floor area
 Actual Range: 215 to 1400 (units: sqm)
 Range Selected by User: 40 to 2900 (units: sqm)

Parking Spaces Range: All Surveys Included

Public Transport Provision:

Selection by: Include all surveys

Date Range: 01/01/13 to 22/06/21

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

Selected survey days:

Monday	2 days
Tuesday	5 days
Wednesday	6 days
Thursday	1 days
Friday	9 days

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

Selected survey types:

Manual count	23 days
Directional ATC Count	0 days

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

Selected Locations:

Suburban Area (PPS6 Out of Centre)	8
Neighbourhood Centre (PPS6 Local Centre)	15

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

Selected Location Sub Categories:

Residential Zone	18
Village	3
High Street	1
No Sub Category	1

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

Secondary Filtering selection:

Use Class:

E(e) 23 days

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

Population within 500m Range:

All Surveys Included

Secondary Filtering selection (Cont.):

Population within 1 mile:

1,000 or Less	1 days
1,001 to 5,000	3 days
10,001 to 15,000	2 days
15,001 to 20,000	2 days
20,001 to 25,000	2 days
25,001 to 50,000	13 days

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

Population within 5 miles:

5,001 to 25,000	1 days
25,001 to 50,000	2 days
50,001 to 75,000	1 days
75,001 to 100,000	1 days
100,001 to 125,000	2 days
125,001 to 250,000	4 days
250,001 to 500,000	7 days
500,001 or More	5 days

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

Car ownership within 5 miles:

0.6 to 1.0	9 days
1.1 to 1.5	12 days
1.6 to 2.0	1 days
2.1 to 2.5	1 days

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

Travel Plan:

No	23 days
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This data displays the number of surveys within the selected set that were undertaken at sites with Travel Plans in place, and the number of surveys that were undertaken at sites without Travel Plans.

PTAL Rating:

No PTAL Present	23 days
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This data displays the number of selected surveys with PTAL Ratings.

Covid-19 Restrictions	Yes	At least one survey within the selected data set was undertaken at a time of Covid-19 restrictions
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LIST OF SITES relevant to selection parameters

1	AN-05-G-04 GROSVENOR ROAD BELFAST	GP SURGERY		ANTRIM
	Suburban Area (PPS6 Out of Centre) Residential Zone Total Gross floor area: 1186 sqm <i>Survey date: FRIDAY 25/09/15</i>			
	<i>Survey Type: MANUAL</i>			
2	AN-05-G-05 DOURY ROAD BALLYMENA	GP SURGERY		ANTRIM
	Suburban Area (PPS6 Out of Centre) Residential Zone Total Gross floor area: 1110 sqm <i>Survey date: TUESDAY 22/06/21</i>			
	<i>Survey Type: MANUAL</i>			
3	CF-05-G-01 CAMBRIDGE STREET CARDIFF	GP SURGERY		CARDIFF
	Suburban Area (PPS6 Out of Centre) Residential Zone Total Gross floor area: 1200 sqm <i>Survey date: FRIDAY 05/05/17</i>			
	<i>Survey Type: MANUAL</i>			
4	CH-05-G-05 KINGSMEAD SQUARE NORTHWICH KINGSMEAD	GP SURGERY		CHESHIRE
	Neighbourhood Centre (PPS6 Local Centre) Residential Zone Total Gross floor area: 650 sqm <i>Survey date: FRIDAY 07/06/19</i>			
	<i>Survey Type: MANUAL</i>			
5	DL-05-G-02 SAINT BRIGID'S ROAD LOWER DUBLIN DRUMCONDRA	GP SURGERY		DUBLIN
	Suburban Area (PPS6 Out of Centre) Residential Zone Total Gross floor area: 308 sqm <i>Survey date: WEDNESDAY 23/11/16</i>			
	<i>Survey Type: MANUAL</i>			
6	DL-05-G-03 THE DUNES PORTMARNOCK BURROW	GP SURGERY		DUBLIN
	Neighbourhood Centre (PPS6 Local Centre) Residential Zone Total Gross floor area: 230 sqm <i>Survey date: WEDNESDAY 20/06/18</i>			
	<i>Survey Type: MANUAL</i>			
7	DS-05-G-01 OSMASTON ROAD DERBY	GP SURGERY		DERBYSHIRE
	Suburban Area (PPS6 Out of Centre) No Sub Category Total Gross floor area: 676 sqm <i>Survey date: WEDNESDAY 25/09/19</i>			
	<i>Survey Type: MANUAL</i>			

LIST OF SITES relevant to selection parameters (Cont.)

8	DV-05-G-01 MOUNT PLEASANT ROAD EXETER	GP SURGERY	DEVON
	Suburban Area (PPS6 Out of Centre) Residential Zone Total Gross floor area: 1319 sqm <i>Survey date: WEDNESDAY 03/04/19</i>		
9	ES-05-G-02 JUZIERS DRIVE EAST HOATHLY	MEDICAL CENTRE	EAST SUSSEX
	Neighbourhood Centre (PPS6 Local Centre) Village Total Gross floor area: 215 sqm <i>Survey date: WEDNESDAY 13/07/16</i>		
10	FI-05-G-02 MAIN ROAD NEAR DUNFERMLINE CHARLESTOWN	GP SURGERY	FIFE
	Neighbourhood Centre (PPS6 Local Centre) Village Total Gross floor area: 325 sqm <i>Survey date: FRIDAY 29/05/15</i>		
11	FI-05-G-03 IZATT AVENUE DUNFERMLINE HOSPITAL HILL	GP SURGERY	FIFE
	Neighbourhood Centre (PPS6 Local Centre) Residential Zone Total Gross floor area: 425 sqm <i>Survey date: MONDAY 21/03/16</i>		
12	GC-05-G-01 POLLOKSHAWS ROAD GLASGOW SHAWLANDS	GP SURGERY	GLASGOW CITY
	Neighbourhood Centre (PPS6 Local Centre) Residential Zone Total Gross floor area: 480 sqm <i>Survey date: TUESDAY 26/11/19</i>		
13	GM-05-G-02 MOORSIDE ROAD SALFORD SWINTON	GP SURGERY	GREATER MANCHESTER
	Neighbourhood Centre (PPS6 Local Centre) Residential Zone Total Gross floor area: 1160 sqm <i>Survey date: FRIDAY 21/06/19</i>		
14	HF-05-G-01 CHELLS WAY STEVENAGE	GP SURGERY	HERTFORDSHIRE
	Suburban Area (PPS6 Out of Centre) Residential Zone Total Gross floor area: 830 sqm <i>Survey date: FRIDAY 28/06/19</i>		
15	LE-05-G-02 THE SANDS NEAR MELTON MOWBRAY LONG CLAWSON	GP SURGERY	LEICESTERSHIRE
	Neighbourhood Centre (PPS6 Local Centre) Village Total Gross floor area: 363 sqm <i>Survey date: TUESDAY 29/11/16</i>		

LIST OF SITES relevant to selection parameters (Cont.)

16	NF-05-G-03 MILE END ROAD NORWICH MOUNT PLEASANT Neighbourhood Centre (PPS6 Local Centre) Residential Zone Total Gross floor area: 600 sqm <i>Survey date: FRIDAY 08/11/19</i>	GP SURGERY	NORFOLK	<i>Survey Type: MANUAL</i>
17	NT-05-G-01 MANSFIELD ROAD NOTTINGHAM Suburban Area (PPS6 Out of Centre) Residential Zone Total Gross floor area: 460 sqm <i>Survey date: WEDNESDAY 24/06/15</i>	GP SURGERY	NOTTINGHAMSHIRE	<i>Survey Type: MANUAL</i>
18	TW-05-G-02 BIDDLESTONE ROAD NEWCASTLE HEATON Neighbourhood Centre (PPS6 Local Centre) Residential Zone Total Gross floor area: 878 sqm <i>Survey date: FRIDAY 13/11/15</i>	GP SURGERY	TYNE & WEAR	<i>Survey Type: MANUAL</i>
19	TW-05-G-03 CHURCH ROAD NEWCASTLE GOSFORTH Neighbourhood Centre (PPS6 Local Centre) High Street Total Gross floor area: 678 sqm <i>Survey date: MONDAY 29/04/19</i>	GP SURGERY	TYNE & WEAR	<i>Survey Type: MANUAL</i>
20	TW-05-G-04 MANOR WALK NEWCASTLE UPON TYNE BENTON Neighbourhood Centre (PPS6 Local Centre) Residential Zone Total Gross floor area: 1400 sqm <i>Survey date: THURSDAY 18/10/18</i>	GP SURGERY	TYNE & WEAR	<i>Survey Type: MANUAL</i>
21	WL-05-G-01 CRICKDALE ROAD SWINDON BOROUGH C. Neighbourhood Centre (PPS6 Local Centre) Residential Zone Total Gross floor area: 300 sqm <i>Survey date: FRIDAY 23/09/16</i>	GP SURGERY	WILTSHIRE	<i>Survey Type: MANUAL</i>
22	WM-05-G-01 LEACH HEATH LANE BIRMINGHAM RUBERY Neighbourhood Centre (PPS6 Local Centre) Residential Zone Total Gross floor area: 250 sqm <i>Survey date: TUESDAY 10/11/15</i>	GP SURGERY	WEST MIDLANDS	<i>Survey Type: MANUAL</i>
23	WM-05-G-04 STOURBRIDGE ROAD DUDLEY Neighbourhood Centre (PPS6 Local Centre) Residential Zone Total Gross floor area: 600 sqm <i>Survey date: TUESDAY 21/11/17</i>	GP SURGERY	WEST MIDLANDS	<i>Survey Type: MANUAL</i>

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

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

TOTAL VEHICLES

Calculation factor: 100 sqm

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00	2	1115	0.538	2	1115	0.000	2	1115	0.538
07:00 - 08:00	22	690	0.817	22	690	0.211	22	690	1.028
08:00 - 09:00	23	680	2.352	23	680	1.163	23	680	3.515
09:00 - 10:00	23	680	2.902	23	680	2.359	23	680	5.261
10:00 - 11:00	23	680	2.781	23	680	2.742	23	680	5.523
11:00 - 12:00	23	680	2.180	23	680	2.480	23	680	4.660
12:00 - 13:00	23	680	1.592	23	680	2.167	23	680	3.759
13:00 - 14:00	23	680	1.585	23	680	1.752	23	680	3.337
14:00 - 15:00	23	680	2.148	23	680	1.969	23	680	4.117
15:00 - 16:00	23	680	2.090	23	680	2.186	23	680	4.276
16:00 - 17:00	23	680	1.969	23	680	2.020	23	680	3.989
17:00 - 18:00	23	680	1.042	23	680	1.656	23	680	2.698
18:00 - 19:00	22	682	0.400	22	682	0.954	22	682	1.354
19:00 - 20:00	2	1039	0.096	2	1039	0.337	2	1039	0.433
20:00 - 21:00	1	1400	0.000	1	1400	0.000	1	1400	0.000
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			22.492			21.996			44.488

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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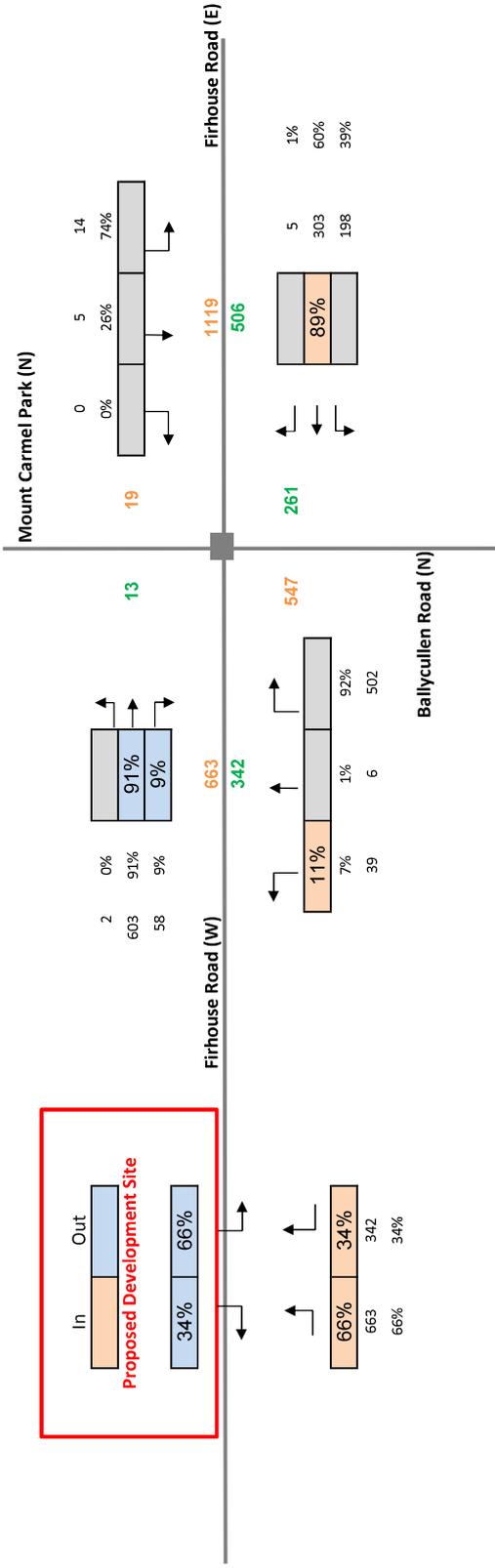
Parameter summary

Trip rate parameter range selected:	215 - 1400 (units: sqm)
Survey date range:	01/01/13 - 22/06/21
Number of weekdays (Monday-Friday):	23
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	0
Surveys manually removed from selection:	0

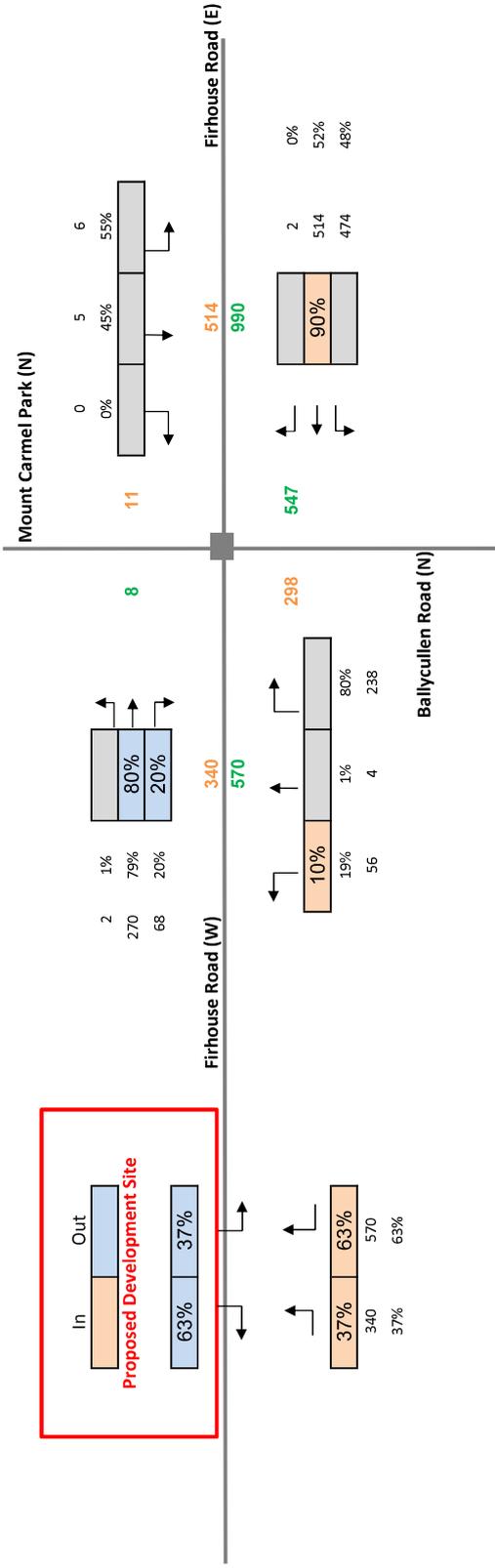
This section displays a quick summary of some of the data filtering selections made by the TRICS® user. The trip rate calculation parameter range of all selected surveys is displayed first, followed by the range of minimum and maximum survey dates selected by the user. Then, the total number of selected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

Appendix F Traffic Distribution Diagrams

AM (08:15-09:14Hrs) Trip Distribution



PM (17:45-18:44hrs) Trip Distribution



Appendix G Stage 1 & 2 Road Safety Audit

Title: STAGE 1&2 ROAD SAFETY AUDIT

For;

Proposed Strategic Housing Development, No. 2 Firhouse Road and former 'The Firhouse Inn', Firhouse Road, Dublin 24.

Client: Bluemont Developments (Firhouse) Ltd.

Date: May 2022

Report reference: 1440R01

VERSION: FINAL (2-6-2022)

Prepared By:

Bruton Consulting Engineers Ltd

Glaspistol

Clogherhead

Drogheda

Co. Louth.

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CONTENTS SHEET

Contents

1.0	Introduction	2
2.0	Background	3
3.0	Issues Identified in This Road Safety Audit.	6
3.1	Problem.....	6
3.2	Problem.....	6
3.3	Problem.....	7
4.0	Observations	7
4.1	Observation.....	7
5.0	Audit Statement.....	8
	Appendix A – Problem Location Map	9
	Appendix B	10
	Appendix C	11

1.0 Introduction

This report was prepared in response to a request from Mr. Seán Byron, Transport Insights, for a Combined Stage 1&2 Road Safety Audit of the proposed strategic housing development at No. 2 Firhouse Road, Dublin 24.

The Road Safety 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 Road Safety Audit comprised an examination of the drawings and other material provided and a site visit by the Audit Team, on the 29th of March 2022.

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

This Stage 1&2 Road Safety Audit has been carried out in accordance with the requirements of TII Publication Number GE-STY-01024, dated December 2017.

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 safety 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.

A location map showing where each problem occurs is provided in **Appendix A**.

A list of the documents provided to the Audit Team is provided in **Appendix B**.

The feedback form to be completed by the Design Team Leader is provided in **Appendix C**.

2.0 Background

It is proposed to construct a strategic housing development (SHD) at the site of the Firhouse Inn, Firhouse Road, Dublin 24. The proposed scheme is comprised of;

- 101 no. apartments incorporating a mix of 1-bed units (50 no.), 2-bed units (47 no.) and 3-bed units (4 no.)
- 5 no. small ground floor commercial units, ca. 295 sqm in total;
- a ground floor creche (ca. 110 sqm);
- 87 no. car parking spaces within a 2-storey basement car park;
- Refuse/delivery set down area at surface level;

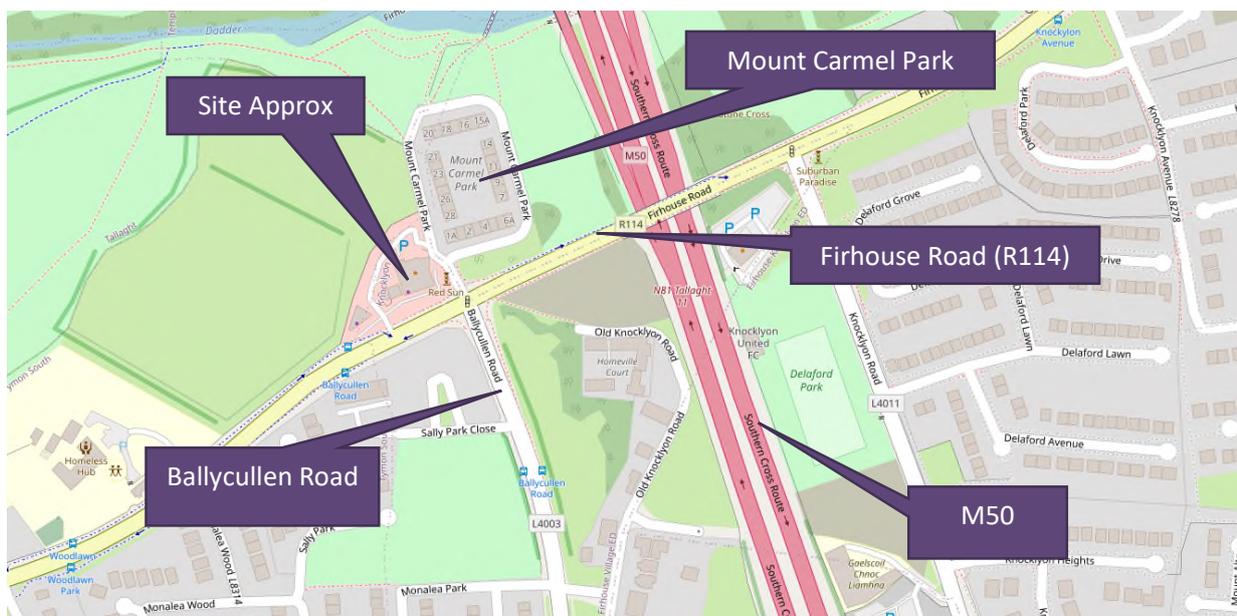
Firhouse Road is a single carriageway road with footpaths and cycle lanes on both sides. The junction of Firhouse Road and Ballycullen Road/Mount Carmel Park is signalised with pedestrian crossings on each arm.

It is not proposed to change the location of the vehicular access from the exiting access. Some improvements will be carried out however to provide a DMURS compliant layout including the reduction of the corner radii to 4.0m. The off-road cycle lane will be ramped down to on-road across the access.

A footpath will be provided along the site extents which will be continuous across the vehicular access to prioritise pedestrians.

There will be separate vehicular and cycle accesses to the basement car park.

The site location is shown below.



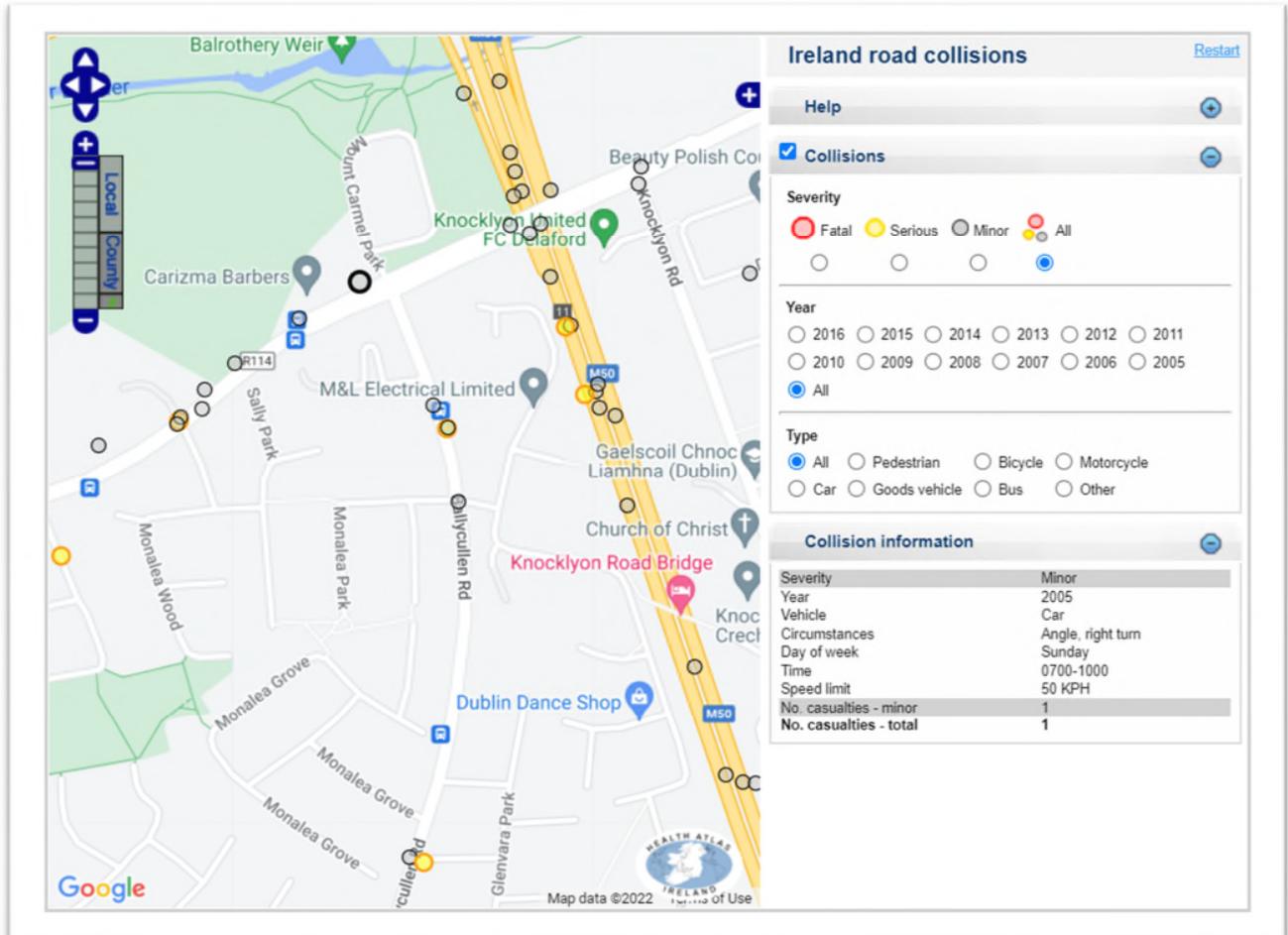
Imagery courtesy of [Openstreetmap.org](https://openstreetmap.org)

The actual site boundary is shown in the graphic below courtesy of Transport Insights.



STAGE 1&2 RSA – FIRHOUSE SHD
TRANSPORT INSIGHTS

The Road Safety Authority’s website www.rsa.ie shows that there was one minor injury collision recorded in the 12-year period 2005 to 2016 to the west of Mount Carmel Park. There is no evidence of trends or clusters of collisions.



3.0 Issues Identified in This Road Safety Audit.

3.1 Problem

LOCATION

Firhouse Road, Site observation.

PROBLEM

The existing yellow box on Firhouse road is faded and may not be clearly visible to drivers. This could lead to access being restricted to the development at peak times leading to queuing through the signalised junction resulting in side-impact collisions.

RECOMMENDATION

It is recommended that the yellow box on Firhouse Road be retained and renewed.

3.2 Problem

LOCATION

Mount Carmel Park

PROBLEM

It is proposed to provide a 2m wide footpath along the boundary of Mount Carmel Park. The footpath will however stop at the site boundary. Pedestrians will have to cross the carriageway to access the footpath on the opposite side. This could lead to trips and falls on the kerbs. The signalised crossing will be too far off the desire line to be used for those travelling to the Park/Dodder etc. to the North.



RECOMMENDATION

It is recommended that an uncontrolled pedestrian crossing be provided.

3.3 Problem

LOCATION

Cyclist Access

PROBLEM

The main cyclist access is located at the vehicular access on Firhouse Road. There are no facilities for westbound cyclists to turn right into the main access. The signalised pedestrian crossing is not wide enough to cater for cyclists (even if dismounted) and pedestrians and the pedestrian access at Mount Carmel Park may not be able to cater for the volumes of cyclists and pedestrians at peak periods.

This may lead to cyclists trying to cross Firhouse road along with vehicular traffic which could lead to collisions.

RECOMMENDATION

It is recommended that westbound cyclists be provided with facilities and adequate space for entering the development.

4.0 Observations

4.1 Observation

Kerb height details, use of tactile paving and public lighting details were not provided to the Audit Team.

5.0 Audit Statement

We certify that we have examined the site on the 29th of March 2022. The examination has been carried out with the sole purpose of identifying any aspects of the design which could be added, 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: 2-6-2022

Owen O'Reilly Signed: 
(Audit Team Member) Dated: 2-6-2022

Appendix A – Problem Location Map



Appendix B

Information Supplied to the Audit Team

- Drawing20022-OMP-ZZ-00-DR-A-1103
- ABP Opinion
- Inspector's Report
- Bluemont Firhouse Inn SHD TTA v1.15
- Drawing20022-OMP-ZZ-00-DR-A-1100
- Drawing20022-OMP-ZZ-00-DR-A-1101
- Drawing20022-OMP-ZZ-00-DR-A-1102



Appendix C

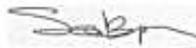
Feedback Form

Scheme: Firhouse Road SHD

Stage: 1&2 Road Safety Audit

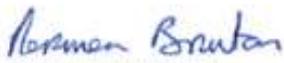
Date Audit (Site Visit) Completed: 29-3-2022

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		
3.2	Yes	Yes		
3.3	Yes	Yes		

Signed.....

Design Team Leader

Date.....02/06/2022

Signed.....

Audit Team Leader

Date.....2-6-2022

Signed.....
Developer/ Employer *on behalf of*

Sean Corrigan

Date.....2/6/22



NOTES :

1. Do not scale from this drawing.
2. This drawing is for illustrative purposes only and not for construction.
3. This drawing is to be read and printed in colour.

Drawn AK
 Checked SB
 Date 27.05.2022
 Rev ...

Drawing No. 2022 C623_2 v1.2
 Sheet 1 of 1
 Status Prelim. Design
 Client Bluemont Developments (Firhouse) Ltd.

Project OMP Bluemont Firhouse Inn SHD TTA
 Scale 1:500 @ A3
 Title Works to be agreed with SDCC

