consulting engineers

NRB

Transportation Assessment Report

(*incl.* Preliminary Travel Plan, DMURS Statement of Consistency & Independent Road Safety Audit including Quality Audit)

for

Proposed Residential Apartment Development

At

Frascati Centre, Frascati Road, Blackrock, Co. Dublin

ABP FINAL ISSUE

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EXECUTIVE SUMMARY

NRB Consulting Engineers Ltd were appointed by IMRF II Frascati Limited Partnership (acting through its general partner Davy IMRF II GP Limited) to address the Traffic & Transportation issues associated with the construction of a total 102-Unit Residential Apartment Development at the Frascati Centre, Frascati Road, Blackrock, Co. Dublin (formerly known as Frascati Shopping Centre).

The proposal relates to alterations to the Phase 1 permission for 45 no. apartments (Reg. Ref.: D17A/0950 & ABP Ref.: 300745-18), from second to fourth floor level of the rejuvenated Frascati Centre. The proposed development also includes the provision of 57 no. additional apartments, as an extension of the Phase 1 permission, located above the existing / permitted podium car park to the north west of the centre, as a Phase 2 residential development. The subject application therefore relates to a total of 102 no. residential units.

The Frascati Centre is a long established part of the Retail District Centre in the heart of Blackrock. The recently redeveloped Centre has a total Gross Floor Area in excess of 16,000m^2 and therefore represents a significant retail destination for the area. There are multiple retail, residential, employment and community facilities which serve the local area in the immediate environs.

The subject site has an extensive public transport and cycle network provision, both existing and proposed, as set out in the Blackrock Local Area Plan 2015-2021. These include bus stops fronting the site on Frascati Road, and also along Rock Hill Road, Carysfort Avenue and Mount Merrion Avenue. Frequent bus services operate past the site, with Frascati Road being one of 16 existing Quality Bus Corridors (QBCs) operating in Dublin. Blackrock DART and Train Station is less ~500m walking distance from the subject site, with bi-directional services to/from the City at less than 10 minute intervals during commuter peak hours.

This Transportation Assessment Report (TA) has been prepared to address the Traffic and Transportation issues associated with the proposal, the capacity of the existing road network and the impact of the increased scale of development locally (conscious that planning was previously granted for 45 Apartment Units as part of the permitted redevelopment of Frascati Centre). It should also be remembered that the site has significant traffic generation characteristics in its own right.

The Report has been prepared in accordance with TII's Traffic & Transportation Assessment Guidelines and addresses the worst case traffic impact of the proposal.

Comprehensive classified turning movement surveys of the existing affected roads and junctions were carried out during the weekday AM and PM Peak Hours in November 2019 during normal school term in advance of the Covid Pandemic. These surveys formed the basis of the study. The analysis undertaken includes the effects of the existing traffic on the local roads and assesses the impact during the traditional peak commuter peaks periods in accordance with Traffic & Transportation Assessment Guidelines. The assessment also includes the effect of traffic associated with the Recent Grant of Planning Permission for Offices at Enterprise House opposite (D16A/0418) and the Recent Grant of Planning Permission for Residential Development on Zoned Lands at St Catherine's to the South (Ref ABP-303804-19).

The Transportation Assessment confirms that the road network and the proposed vehicular access junction arrangement is more than adequate to accommodate the worst case traffic associated with the facility. The assessment also confirms that the construction and full occupation of the 102-Unit residential apartment scheme will have a negligible & unnoticeable impact upon the operation of the adjacent road network.

The assessment includes a Preliminary Travel Plan for the Residential Element which is included & appended herein as a separate report. We have also prepared a Statement of Consistency with DMURS and confirm that the internal layout is compliant with the requirements of DMURS and the National Cycle Manual, and this is included and appended as a separate report.

An independent Stage 1 Road Safety Audit including Quality Audit, together with the Designer Feedback form, has been undertaken for the final submission to An Bord Pleanála and is included and appended as a separate report.

Based on our studies, we conclude that there are no adverse traffic/transportation capacity or operational issues associated with the construction and occupation of the entirety of the proposed residential development that would prevent planning permission being granted by An Bord Pleanála.

1.0 INTRODUCTION

1.1 This Transportation Assessment (TA) has been prepared by NRB Consulting Engineers Ltd and addresses the Traffic/ Transportation issues arising from the construction of a total 102-Unit Residential Apartment Development at the Frascati Centre, Frascati Road, Blackrock, Co. Dublin (formerly known as Frascati Shopping Centre).

1.2 The local area and the subject site, are already a long-established destination, containing commercial, retail and residential development and in these terms has very well established traffic generation characteristics in its own right. The proposed development should be considered in this context. A site location plan for the site is included below for Information as ***Figure 1.1***;

Figure 1.1 - Site Location

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

- Relative Small Scale of the development in the context of the existing road network (Reflected in the demonstrably Low Traffic Generation of the Development),

- Location of the development on a Bus Corridor with high frequency services available and within a short walk of the DART,
- Traffic & Transportation impact,
- Capacity of the established vehicular access arrangement to accommodate the worst-case development traffic flows,
- The previous Reports and Planning Permissions which addressed the issue of Traffic/Transportation impact,
- Pedestrian and cyclist permeability locally,
- Capacity of the Existing Road Network,
- Adequacy and safety of the existing roads and junctions locally, within the area of influence.
- Impact upon the adjacent affected junctions locally.

1.4 A review of the Road Safety Authority (RSA) online collision database indicates that there are no significant accidents on the stretch of road network at the site that will be affected by the subject development. An extract from the RSA on-line collisions record is included below as ***Figure 1.2***.

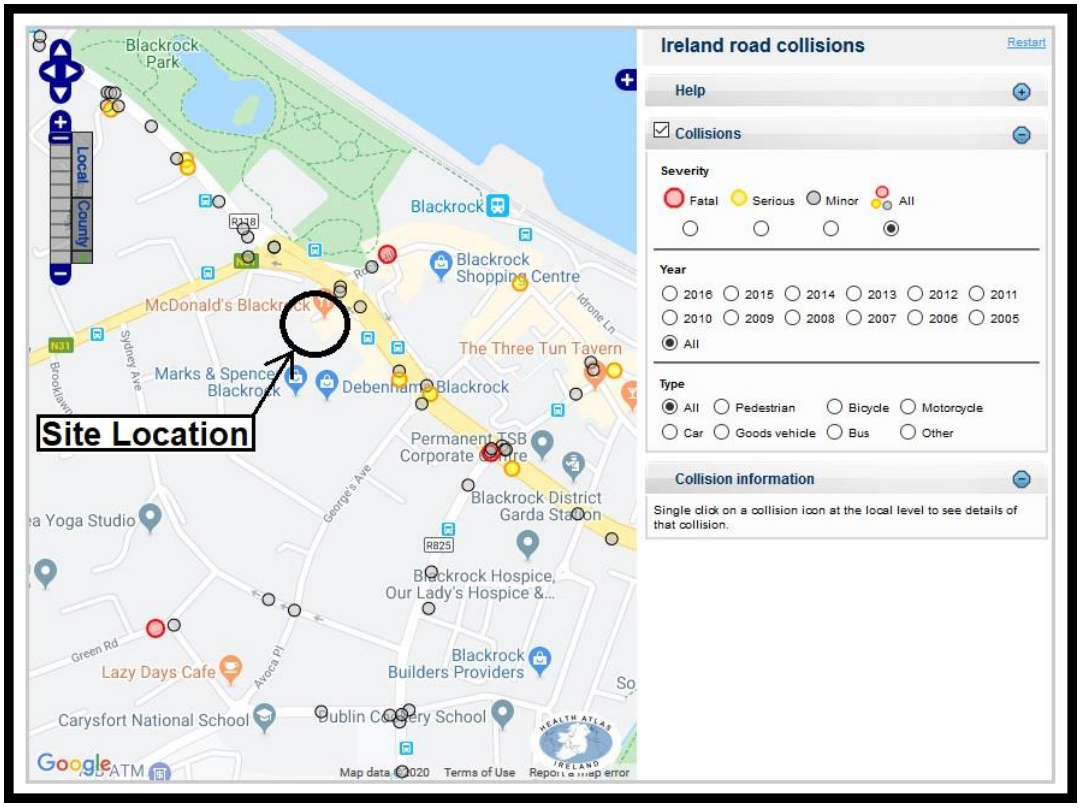


Figure 1.2 - RSA On Line Record of Traffic Collisions

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

- TII Traffic & Transport Assessment Guidelines,
- Design Manual for Urban Roads and Streets,
- Recent Traffic Survey Data commissioned,
- Relevant Design Guidance,
- Transportation Assessment Report for Enterprise House (D16A/0418) prepared by NRB Consulting Engineers Ltd.,
- Transportation Assessment Report for Lands at St Teresa's House (on St Catherine's Lands) (ABP-303804-19) Report also prepared by NRB Consulting Engineers Ltd.,
- Our experience in assessing the impact of Developments of this Nature, and
- Site Visits and Observations.

1.6 The Report has been prepared in accordance with the requirements of the TII's Traffic & Transport Assessment Guidelines. These are the professional Guidelines used to assess the impact of developments on public roads.

1.7 The assessment includes a Preliminary MMP/Travel Plan for the site which is included as a separate report and is appended herewith.

1.8 We have also included a Statement of Consistency with DMURS appended as a separate report. This also confirms consistency with the National Cycle Manual.

1.9 An independent Stage 1 Road Safety Audit including Quality Audit has been undertaken by Specialist Audit Team, and is included herein as a separate, together with the Designer Feedback Form addressing any issues raised. All issues raised are address in the submitted scheme drawings included at Appendix A.

2.0 EXISTING CONDITIONS, DEVELOPMENT PROPOSALS & PARKING

2.1 IMRF II Frascati Limited Partnership (acting through its general partner Davy IMRF II GP Ltd) are applying to An Bord Pleanála for permission for a strategic housing development comprising 102 Apartment Units at the Frascati Centre Blackrock. The proposed development relates to the provision of 57 no. additional apartments, above the permitted podium car park, to the north west of the centre, as a Phase 2 residential development. It is also proposed to make alterations to the permitted Phase 1 permission for 45 no. apartments (Reg. Ref.: D17A/0950 & ABP Ref.: 300745-18), from second to fourth floor level of the rejuvenated Frascati Centre. The subject application therefore relates to a total of 102 no. residential units.

2.2 To the east of the site is the N31 National Secondary Road (Frascati Road) which is one of the main N-S commuter routes feeding the city and also serving Dun Laoghaire, connecting onwards to the N11. The N31 is a wide urban dual carriageway with a series of large traffic signal controlled junctions along its length serving local areas as well as commercial developments such as Blackrock Village, Blackrock Shopping Centre (located opposite the site), and the subject Frascati Centre itself. The N31 is subject to a 50kph urban speed restriction past the site.

2.3 The N31 carries a weekday AM Peak Hour 2-way flow of approximately 2,100 PCUs and a weekday PM Peak Hour 2-Way flow of approximately 2,500 PCUs, and in these terms it can be considered as heavily trafficked, with the capacity governed by the capacity of the signals at the terminal junctions locally. The Frascati Road has been recently upgraded with new pedestrian and cyclist facilities along with modifications to many of the signal controlled junctions to support the permitted Frascati Centre scheme.

2.4 Established Residential Housing along George's Avenue and Frascati Park bounds the site to the south and west. Georges Ave consists of a lightly trafficked street, with restricted left-in left-out only movements from/to the N31 Frascati Road. The junction of George's Avenue and the N31 Frascati Road currently takes the form of a priority controlled junction, with the adjacent on-call pedestrian crossing of the N31 Frascati Road allowing ease of egress from George's Avenue, which also facilitates breaks in the traffic flow allowing drivers to enter and exit safely.

2.5 The site is currently accessed in 2 locations from Frascati Rd. The southern vehicular access is Left-in Only and it has physical constraints preventing prohibiting turning movements from being undertaken. The northern vehicular access to/from Frascati Rd is a multi movement traffic-signal-controlled 4 arm junction (with left-in restricted as this movement is catered for to the south), with Rock Hill road opposite. The junction incorporates a dedicated right turn lane on Frascati Road to serve the subject site. There are no changes proposed to these existing accesses from the public road.

2.6 The proposal relates to alterations to the Phase 1 permission for 45 no. apartments (Reg. Ref.: D17A/0950 & ABP Ref.: 300745-18), from second to fourth floor level of the rejuvenated Frascati Centre. The proposed development also includes the provision of 57 no. additional apartments, as an extension of the Phase 1 permission, located above the existing / permitted podium car park to the north west of the centre, as a Phase 2 residential development. The subject application therefore relates to a total of 102 no. residential units.

2.7 The proposed alterations to the 45 no. apartments (Block A and B) and associated development, permitted under the Phase 1 residential development, includes the following:

- Internal rationalisation of the permitted units, including changes in overall unit size and internal layouts, and associated external alterations including the provision of winter gardens.
- Provision of an external walkway connection between the Phase 1 and Phase 2 residential blocks at second floor level.
- The refuse, car and cycle parking facilities permitted at lower ground floor level will be altered to cater for the additional residential units, including the introduction of a barrier control system.
- The main entrance to the Phase 1 residential scheme from Frascati Road will serve both the permitted and proposed units.
- A concierge facility room to serve the overall residential development is proposed at second floor level near the main core of Phase 1, with an associated minor reduction in the area of the permitted communal terrace at second floor level.
- The communal open space for Phase 1 and 2 will be accessible to all residents.
- Alterations to the cycle parking provision at lower ground floor / basement level and at the first-floor level podium car park.

2.8 The Phase 2 proposal consists of 20 no. studios, 22 no. 1 beds and 15 no. 2 beds (57 no. apartments) in three no. blocks (Block D, E & F), arranged around a central communal courtyard space, above the existing and permitted podium car park to the north west of the centre. Block D is a five storey block, Block E is a part two to part four storey block and Block F is a part two to part three storey block, all above three levels of podium / basement car park. Balconies / winter gardens are provided to all apartments (on the north western, north eastern, south western elevations and into the internal courtyard) and access to the blocks is via stair / lift cores and an external walkway fronting the communal courtyard. A roof terrace is also proposed at fifth floor level of Block E.

2.9 The proposal includes the allocation of 57 no. car parking spaces at lower ground floor level and 214 no. bicycle parking spaces at lower ground and surface level for the 102 no. residential units. The proposal includes alterations to existing surface car parking to provide additional landscaping and bicycle spaces, a bin storage area and stair / lift cores are proposed within the existing / permitted basement / podium car parks below the Phase 2 residential units, and the proposal includes all associated ancillary site development works. The proposal also includes alterations to the location of 30 no. permitted cycle parking spaces associated with the rejuvenation of the Frascati Centre, Reg. Ref.: D14A/0134, as amended.

2.10 A site layout plan showing the development arrangement in relation to the existing site and roads is included herein as ***Appendix A*** along with further details.

2.11 It is anticipated that, consistent with similar apartment residential schemes and current arrangements at the Frascati Centre, the development will be serviced using traditional weekly refuse vehicles as required, using the existing site internal road network, collecting the normal refuse types from the wheeled bin storage areas within the dedicated compounds. Where required, the Management Company will be responsible for the movement of the bins to a collection point which is accessible by the refuse truck on the day of refuse collection. An additional bin storage area is proposed on site for the residential use as shown on the drawings. A separate Waste Management Plan has been prepared and is submitted separately with this application.

2.12 For the day-to-day apartment servicing, it is expected that they will require small transit vans or small-wheelbase trucks for access to the individual units - vehicles which do not have onerous swept-paths and can easily be facilitated in the existing car park and loading areas at the Frascati Centre.

Car Parking Assessment

2.13 The proposed development consists of a residential apartment scheme, which constitutes a very small proportion of the overall development. The **Car Parking** standards to be applied in new residential developments in Dún Laoghaire-Rathdown are set out in Table 8.2.3 of the County Development Plan (2016-2022). These standards are defined as "Standard" requirements, with the provision to be determined in accordance with the DLRCC Development Plan on a case-by-case basis, depending on the particular circumstances.

2.14 In the case of the subject site, there are 102 quality residential apartments proposed within a much greater-scale overall development, immediately beside the N31 Core Radial Bus Route, within a 6-7min walk of Blackrock DART & Train Station. In addition there are high quality walking and cycling links between the site and the city centre. In these terms, the development location is considered to be highly sustainable.

2.15 It is intended that a total of 57 dedicated managed car parking spaces will be set aside and allocated to the apartment residents within the lower ground floor area of development, directly accessible to the apartments. Vehicular access to these 57 car parking spaces will be restricted to residents only access by way of a dedicated car pack entry barrier on entry to the residential area of the car park.

2.16 The residential car parking spaces are proposed to be located at Lower Ground Floor level in addition to cycle parking and storage facilities. The proposed residential spaces at Lower Ground Level will be located at the access to residential block, which facilitates the most direct access via stair cores and lifts.

2.17 In this case, 10 of the 57 spaces are now proposed as electric charging spaces. Within this under-croft car parking area, conduits can be run on the walls, soffits and columns where charging points can also be mounted in the future if demand dictates that additional charging points are required.

2.18 Car parking spaces can easily be upgraded to allow conversion for Electric Vehicles. Where residents request a charging point to be installed, the relevant charging point will be pre-wired back to their home electricity meter in the designated meter location. The socket point will have a lockable cover on it so that only that resident may use the power point. This provision around the parking area allows future charging points to be installed at any of the car parking spaces with minimum works as and when required.

2.19 57 spaces represents a car parking 'Ratio' of 0.56 car parking spaces per residential unit. This lower level of parking is considered appropriate given the highly sustainable location characteristics of the apartment scheme, and in consideration of National Guidance. There will also be 3 *Go-Car* Spaces plus additional managed and paid parking available within the overall Frascati Centre for the use of visitors, which further increases that effective parking supply available to the apartments.

2.20 The recently adopted 'Sustainable Urban Housing: Design Standards for New Apartments Guidelines for Planning Authorities' dated March 2018, updates previous guidance in the context of greater evidence and knowledge of current and likely future housing demand in Ireland. This takes account of the Housing Agency National Statement on Housing Demand and Supply, and projected need for additional housing supply out to 2020, the Government's action programme on housing and homelessness Rebuilding Ireland & National Planning Framework Ireland 2040, (subsequent to 2015 guidelines).

2.21 These new guidelines address car parking and include an objective to 'Remove requirements for car-parking in certain circumstances where there are better mobility solutions and to reduce costs.' Under Car Parking - Section 4.18 the guidelines acknowledge that the quantum of car parking or the requirement for any such provision for apartment developments will vary, having regard to the types of location in cities and towns that may be suitable for apartment development, broadly based on proximity and accessibility criteria. Under Section 4.19 the guidelines note that in larger scale and higher density developments, comprising of apartments in more central locations that are well served by public transport, the default policy is for car parking provision to be wholly eliminated or substantially reduced.

2.22 Specifically Paragraph 4.19 states:

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

2.23 This is to be applied in accessible areas such as in or adjoining city cores or "at a confluence of public transport systems". Section 4.20 describes these suitable locations. These locations are in or adjacent to (i.e. within 15 minutes walking distance of) city centres or centrally located employment locations. This includes 10 minutes walking distance of DART or Luas stops or within 5 minutes walking distance of high frequency (min 10 minute peak hour frequency) bus services. As this site is in the centre of Blackrock and its employment zone, within 6-7 minute walk of the DART plus directly on a Core Radial Bus Corridor, with very high frequency bus services, these guidelines support the case for the partially-reduced parking provision as part of this development.

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

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

2.25 Following our review of the scheme design and location, and following our interpretation of National Policy, we believe that the provision of 57 dedicated managed parking spaces to serve the 102 apartments is appropriate.

2.26 Similar Apartment schemes were recently permitted by ABP. For example, ABP case number 304590 is permitted at “The Walled Garden”, Gort Mhuire, Dundrum, Dublin 14 for a proposed residential scheme which shall provide for 116 number residential apartments, with 34 car parking spaces. This is a ratio of ~0.3 car parking spaces per apartment. ABP case number 305312 is permitted at the former Premier Diaries site, Finglas Road, Finglas, Dublin 11 for a development will shall consist of 245 number apartments with 118 car parking spaces permitted (including 4 Go-Car spaces). This is a ratio of ~0.46 net car parking spaces per apartment on a site adjacent a bus service on the Finglas Road with similar peak frequency and Bus Connect proposals as the Frascati Rd. There are also other similar scheme permitted in Dublin with similar reduced parking ratios.

2.27 Given the lower number of resident car parking spaces provided, the scheme will be actively marketed and promoted as a "Reduced-Car-Dependency" scheme and this will be communicated from the outset as part of sales and marketing. The development will also be managed on an on-going basis to ensure that the reduced dependency nature of the development is continually promoted and enhanced.

2.28 The development will be managed and operated by a Management Company. Car parking will not be an automatic entitlement with the apartments but spaces will be available to rent and purchase. Renting/sales of parking will be allocated to residents, mainly on a first-come first-served basis by the Management Company and will be continually monitored. The allocation of car parking spaces will reviewed/renewed on an annual/ongoing basis to suit demand. Some car parking spaces will be allocated for rent/sale to larger units.

2.29 In this case visitors can easily be accommodated in the 490 'retail' car parking spaces.

2.30 Notwithstanding, in order to provide further reassurance that there are more than adequate parking spaces at the Frascati Centre for the residential use, following construction, demand for residents car parking will be monitored and additional car parking spaces at surface level can be allocated to residential use, if demand arises. Extra demand is not anticipated given the developments highly accessible location by other modes of transport, but gives further reassurance that adequate car parking is available for residents. These spaces would be located at surface level near the rear access to the apartments. Spaces would be signposted for residents use only and controlled by demountable bollards if required.

2.31 Whilst retail car parking is a maximum standard not to be exceed in the DLRCC Development Plan, in order to provide further reassurance that there are more than adequate parking spaces at the Frascati Centre we have included occupancy data for the entire Frascati Centre for an entire year as ***Appendix E.***

2.32 The permitted Frascati Centre development was proposed to have a total of 604 car parking spaces when completed. 604 car parking spaces is the number of car parking spaces permitted in the most recent grant of planning for the Frascati Centre including 45 permitted apartments. No additional car parking is proposed for the additional 57 apartments. The previously permitted split of car parking was 51 allocated for the 45 apartments and 553 for the balance of the Centre

2.33 As above, it is intended that a total of 57 dedicated managed car parking spaces will be set aside and allocated to the apartments within the development. There is also a slight reduction in car parking for the overall Frascati Centre to accommodate new stairs and lift cores, cycle parking, bins store and landscaping. Spaces are to be removed to allow stairs and lift cores for Phase 2 to be 'dropped into' the first floor & ground floor car park decks and for cycle parking. Spaces are to be removed externally to allow for the cycle parking, new Phase 2 bin store, and to accommodate additional landscaping in the north west corner. This leaves a balance of 547 spaces (57 for residents use and 490 for the other Frascati Centre uses including visitors).

2.34 To demonstrate that this is adequate, a full 1 Year Parking Occupancy Survey (for 2019) revealed that the Maximum Parking Demand for the Centre over the duration an any full day (with the permitted 45 apartments not built) was for 505 spaces on the day before Christmas with two other days in the ~470 range. Car parking demand was lower throughout the rest of the year.

2.35 Based on 490 'retail' spaces, the daily average maximum car park occupancy for the development was 52.9%. Furthermore the 95th percentile maximum car park occupancy was 81.0% occupied, the 90th percentile was 74.4% and the 80th percentile was 62.8% occupied.

2.36 In these terms the Annual Occupancy Survey provides significant further assurance that the provision of a total of 547 spaces with 57 managed and controlled spaces dedicated to the proposed apartments (with 490 for the balance of the Centre) is more than adequate to meet the demand of the entire Frascati Centre including the 102 Residential Units.

2.37 There are ~20 spaces (which are hatched Yellow) to facilitate access to the Centre service yards and doorway etc for deliveries. Deliveries are scheduled to be outside Peak Shopping hours and these spaces can be made available by the Centre Management if required, for example on an exceptionally busy day at Christmas.

2.38 This Scheme also includes 'Go Cars' to offset the need for residents and guests to have cars and car parking spaces. It is proposed that 3 parking spaces will be allocated to car club parking spaces (ie *Go-Car* spaces). These are located conveniently on the southern entry to the Frascati Centre for ease for use, as illustrated on drawings included within ***Appendix A*****.** These are located outside the car park barrier system, so Go Car user will not need to pay for parking (there is a 10 minute grace period to enter and exit the car park).

2.39 The Applicant has engaged with *Go-Car* prior to lodgement of the scheme to An Bord Pleanála and a *Go-Car* Letter was obtained and is enclosed at ***Appendix A*** to give assurance of the intent to operate these club car spaces.

Cycle Parking Assessment

2.40 The DLRCC Cycle Policy sets out cycle parking standards and requirements within Dun Laoghaire Rathdown. Table 4.1 'Cycle parking for residential development' sets out the requirements for apartments as 1 long stay parking space per unit plus 1 visitor space per 5 units. In this case 123 cycle parking spaces would be required for 102 apartments.

2.41 However, the 'Sustainable Urban Housing: Design Standards for New Apartments Guidelines for Planning Authorities' dated March 2018 states that 1 bicycle parking space per bed-space plus 1 visitor space per 2 units is the standard requirement. This would indicate that significantly more cycle parking is required than is set out in the DLRCC Cycle Policy. Given 102 apartments with 159 bedrooms, this is a cycle parking requirement of 210 spaces based on the Apartments Guidelines.

2.42 The New Apartments Guidelines also states that any deviation from these standards shall be at the discretion of the planning authority and shall be justified with respect to factors such as location, quality of facilities proposed, flexibility for future enhancement/enlargement, etc. In the case of this development, high quality cycle parking is provided in a location which is within walking distance of many services and public transport options. 'Retail' cycle parking spaces are also available within the Frascati Centre which would be available for use by the residential development, when not filled by other uses in the Centre.

2.43 Despite the volume of retail cycle parking provided on site, the scheme now includes the provision of a total of 214 new dedicated cycle parking spaces which is well over and above the DLRCC requirements, and is in line with new national Design Standards for Apartments. This high level of cycle parking provision is considered appropriate given the highly sustainable location characteristics of the apartment scheme and further supports the case for reduced car parking numbers.

2.44 This includes 148 cycle parking spaces in a secure area at the lower ground level, 144 of which are stacker type two-tier units. The proposed stacker type two-tier system has Sheffield' type stands at the lower levels with a gas-strut mechanism that reduces the lifting weigh to the upper level. This, and similar stacker type two-tier systems, are in use and permitted on other developments throughout the city.

2.45 In additional there are 62 residential cycle parking spaces as 'Sheffield' type stands plus 4 cargo bike spaces distributed at lower ground level and surface level. There are also 170 cycle parking spaces provided for the retail uses in the Frascati Centre including 166 parking spaces as 'Sheffield' type stands.

2.46 Of the 384 cycle parking spaces, 4 are cargo bike spaces and over 300 are 'Sheffield' type stands.

2.47 Within the DLRCC Cycle Policy **Table 4.2** sets out cycle parking standards for non-residential development. The policy notes that 'As part of the cycle parking quantum for various land uses in Table 4.2, consideration should be given to providing some short terms cycle parking for Cargo Bikes or Tricycles, for developments where there may be a demand such as retail.'

2.48 4 Cargo Bike spaces are now included to address this aspect of the DLRCC Cycle Policy.

2.49 Motorcycle spaces are also accommodated in line with DLRCC County Development Plan 2016 - 2022 Section 8.2.4.8 Motorcycle Parking i.e. at a rate of 4% of the number of car parking spaces provided (space for 3 motorcycle spaces are provided in the lower ground floor car park which is in line with 4% of the number of car parking spaces provided).

2.50 Details of the scheme layouts with locations and quantum of cycle stands and car parking are shown on the Architects drawings submitted with this application.

3.0 TRIP GENERATION, ASSIGNMENT & DISTRIBUTION

3.1 The Trip Rate Information Computer System (TRICS) database is ordinarily used to ascertain vehicular trip generation associated with the use of any particular site. This represents industry standard practice for Transportation Assessments in Ireland. In this case the worst case assessment is based on Residential Apartment Developments from within TRICS.

3.2 A robust and onerous assessment has been undertaken of the impact along the N31 Frascati Road Corridor in order to ensure that we thoroughly assess the impact, in terms of stress testing the access junctions and the road capacity impact of the scheme on the link to and from the city. The current established use of the site should be borne in mind in the context of the low levels of traffic generated by the proposed development of 102 apartments replacing the permitted 45 apartments.

3.3 The TRICS Trip Rates applied for the Residential Apartment Development in this case are as set out below as ***Table 3.1***

Table 3.1: TRICS Data Summary, 102 No. Residential Apartments

102 Apartments	Car Arrivals		Car Departures		Total 2-Way Car Traffic Generated
Network Hour	Per Unit	Trips	Per Unit	Trips	
Weekday AM Peak 8-9am	0.049	5	0.210	21	26
Weekday PM Peak 5-6pm	0.197	21	0.074	8	29

3.4 We have included herein as ***Appendix C*** the TRICS data output for Residential Apartments upon which the above are based.

3.5 The TTA Guidelines also requires that Traffic Associated with Developments which are either under construction or which have received Planning Permission is included in any assessment. We have therefore also included the Traffic associated with the Committed Development of Enterprise House opposite the subject site, and the residential development of St Teresa's to the south in the assessment.

3.6 We have extracted the Traffic Generated by these 3rd party developments from the Transportation Reports submitted with these planning applications.

Assignment/Distribution - Future Year Traffic

3.7 We have used hand assignment techniques based on the observed patterns, with the worst case traffic assigned to the roads based on the observed established traffic patterns.

3.8 The standard methodology applied was to firstly ascertain the base background traffic conditions for both the weekday AM and weekday PM Commuter Peak periods. We then used the TII Project Appraisal Guidelines Unit 5.3 (Travel Demand Projections Table 5.3.2) to establish projected occupation/opening year 2022 and design year 2037 traffic conditions 15 years following opening on the local road network. We then added the Traffic associated with the committed developments for opening and design years, again in accordance with industry-standard assessment techniques.

3.9 The worst case traffic based on the contents of Table 3.1 above was then applied in order to establish Opening Year and Design Year Traffic Conditions with the proposed development in place. This is all included in the calculations included herein as ***Appendix D***.

3.10 It should be noted that we have selected an opening year of 2022 as being reasonable and appropriate, however, in our experience varying the opening year and design year by 1-3 years will have no significant impact upon the conclusions of the study given the very small volumes of traffic generated by the subject application.

3.11 Traffic growth factors for future year assessments were calculated from data obtained in the TII Travel Demand Projections Unit 5.3, which provides the recommended method of predicting future year traffic growth on Roads. Calculations of the relevant growth factors are included in ***Table 3.2*** below (based on tabulated 'medium growth' in the DLRCC Area). It should be noted that any requirement to use different or higher growth factors will have no implications on the conclusions of the study.

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

Year	to Year	Unit 5.3
2019	2022	1.015
2022	2037	1.077

3.12 The resulting Traffic Flow Projections and Figures within ***Appendix D*** allowed the assessment of impact of the development to be undertaken.

4.0 TRAFFIC IMPACT - THRESHOLD ASSESSMENT/TRAFFIC CAPACITY ANALYSIS

4.1 The Institution of Highways and Transportation (IHT) Guidelines for Traffic Impact Assessment and the TII Traffic and Transport Assessment Guidelines sets out a mechanism for assessment of developments of this nature and determining whether further assessment is indeed required.

4.2 The TII Traffic and Transport Assessment Guidelines requires a **Threshold Assessment** of the impact on the local roads to be provided in order to determine whether further more detailed modelling and assessment of particular critical junctions is necessary. This is important in this case as the development is located in proximity to an important arterial route for the city.

4.3 The professional guidance referenced above sets out specific increases in traffic volume associated with new development, which, if breached, requires further detailed analysis to be undertaken. The recommendation is that, if the expected increase is greater than 5% for networks that are considered heavily trafficked or congested, then further analysis is warranted. In this case, given the location on the important Frascati Road, the 5% threshold has been applied.

4.4 In this regard, it is demonstrated herein that the proposed occupation of the entire residential development, with very low volumes of vehicular traffic added to a busy network, will not result in any significant level of new trips on the local roads, with all anticipated traffic increases (at and beyond the site accesses) expected to be well below the Industry-Standard levels above which further assessment is required.

4.5 The other established uses on the site should be borne in mind in the context of the low levels of traffic generated by the proposed subject development.

4.6 Our assessment, included within ***Appendix D***, (Refer to ***Page 7*** of Appendix D) confirms that the absolute worst case traffic increase at the adjacent junctions (including for Committed Traffic and with all traffic considered as "New" - ignoring any possible linked/shared trips for robustness) is as summarised below as ***Tables 4.1*** and ***Table 4.2***

Table 4.1: Threshold Assessment, Worst-Case Impact of Development AM Peak Hour

Assessed Road - Scenario - Year/Period	Traffic Increase %
Mt Merrion Ave/Frascati Rd Junction	0.61%
Rockhill/Site Access/Frascati Rd Junction	1.05%
Frascati Rd/Southern Site Access	0.11%
Frascati Rd/Georges Ave Junction	0.55%

Table 4.2: Threshold Assessment, Worst-Case Impact of Development PM Peak Hour

Assessed Road - Scenario - Year/Period	Traffic Increase %
Mt Merrion Ave/Frascati Rd Junction	0.97%
Rockhill/Site Access/Frascati Rd Junction	0.74%
Frascati Rd/Southern Site Access	0.35%
Frascati Rd/Georges Ave Junction	0.53%

4.7 The Threshold assessment clearly confirms that, beyond the site access where the impact is ~1% or less, the worst case traffic increases are in all cases significantly below the IHT and TII recommended level of 5% above which further assessment is warranted. To set these increased levels of traffic which are all less than 1% in context; - the day-to-day variation in traffic volume (due to day of week or weather conditions) is accepted as 10%, so, in this context alone, increases of in all cases less than 1% in Traffic on the local roads will go entirely unnoticed. In simple terms, the Traffic associated with the opening and occupation of 102 apartments will be unnoticeable locally.

4.8 It is clear that the introduction of the proposed development of 102 apartments will have a negligible and unnoticeable impact upon traffic conditions locally.

5.0 RESPONSE TO DLRCC & ABP TRAFFIC/ROADS MATTERS RAISED

5.1 We have reproduced below the specific Traffic/Transportation related issues raised by DLRCC Transportation Planning Divisions numbered 1 to 7, and how these issues are addressed in this application. We have liaised with DLRCC as part of this process.

The Transportation Planning Section recommended that the following details should be addressed within the final application documentation.

1. A total of 105 No. parking spaces to serve the proposed 105 No. residential units would be deemed acceptable. Submitted drawings should also clearly mark the number and location of car parking spaces assigned to visitors, car sharing schemes, deliveries, etc. and that these spaces have been increased proportionally to in accordance with the overall residential parking provision increase. It should also be demonstrated that all residential car parking spaces shall be segregated from retail parking spaces.

As discussed above, the proposed development consists of a residential apartment scheme, which constitutes a very small proportion of the overall development. The **Car Parking** standards to be applied in new residential developments in Dún Laoghaire-Rathdown are set out in Table 8.2.3 of the County Development Plan (2016-2022). These standards are defined as "Standard" requirements, with the provision to be determined in accordance with the DLRCC Development Plan on a case-by-case basis, depending on the particular circumstances.

In the case of the subject site, there are now 102 quality residential apartments proposed within a much greater-scale overall development, in the centre of Blackrock and its employment zone, immediately beside the N31 Core Radial Bus Route, within a 6-7min walk of Blackrock DART & Train Station. In addition there are high quality walking and cycling links between the site and the city centre. In these terms, the development location is considered to be highly sustainable.

It is intended that a total of 57 dedicated managed car parking spaces will be set aside and allocated to the apartment residents within the lower ground floor area of development, directly accessible to the apartments. Vehicular access to these 57 car parking spaces will be restricted to residents only access by way of a dedicated car pack entry barrier on entry to the residential area of the car park.

The residential car parking spaces are proposed to be located at Lower Ground Floor level in addition to cycle parking and storage facilities.

57 spaces represents a car parking 'Ratio' of 0.56 residents car parking spaces per unit. This level of parking is considered appropriate given the highly sustainable location characteristics of the apartment scheme, and in consideration of National Guidance. There will also be 3 *Go-Car* Spaces, plus additional managed and paid parking available within the overall Frascati Centre for the use of visitors which further increases that effective parking supply available to the apartments.

The recently adopted 'Sustainable Urban Housing: Design Standards for New Apartments Guidelines for Planning Authorities' dated March 2018 address car parking and include an objective to 'Remove requirements for car-parking in certain circumstances where there are better mobility solutions and to reduce costs.' Under Car Parking - Section 4.18 the guidelines acknowledge that the quantum of car parking or the requirement for any such provision for apartment developments will vary, having regard to the types of location in cities and towns that may be suitable for apartment development, broadly based on proximity and accessibility criteria. Under Section 4.19 the guidelines note that in larger scale and higher density developments, comprising of apartments in more central locations that are well served by public transport, the default policy is for car parking provision to be wholly eliminated or substantially reduced.

This is to be applied in accessible areas such as in or adjoining city cores or "at a confluence of public transport systems". Section 4.20 describes these suitable locations. These locations are in or adjacent to (i.e. within 15 minutes walking distance of) city centres or centrally located employment locations. This includes 10 minutes walking distance of DART or Luas stops or within 5 minutes walking distance of high frequency (min 10 minute peak hour frequency) bus services. As this site is in the centre of Blackrock and its employment zone, within 6-7 minute walk of the DART plus directly on a Core Radial Bus Corridor, with very high frequency bus services, these guidelines support the case for the partially-reduced parking provision as part of this development.

Following our review of the scheme design and location, and following our interpretation of National Policy, we believe that the provision of 57 dedicated managed parking spaces to serve the 102 apartments is appropriate.

Similar Apartment schemes were recently permitted by ABP. For example, ABP case number 304590 is permitted at "The Walled Garden", Gort Mhuire, Dundrum, Dublin 14 for a proposed residential scheme which shall provide for 116 number residential apartments with 34 car parking spaces. This is a ratio of ~0.3 car parking spaces per apartment. ABP case number 305312 is permitted at the former Premier Diaries site, Finglas Road, Finglas, Dublin 11 for a development will shall consist of 245 number apartments with 118 car parking spaces permitted (including 4 Go-Car spaces). This is a ratio of ~0.46 net car parking spaces per apartment on a site adjacent a bus service on the Finglas Road with similar peak frequency and Bus Connect proposals as the Frascati Rd.

There are also other similar schemes permitted in Dublin with similar ratios including:

- ABP 303435 – Davitt Road, Dublin 12 – 261 units with 119 spaces = ratio of ~0.46
- ABP 304196 – Malahide Road, Dublin 17 – 136 units with 79 spaces= ratio of ~0.58
- ABP 304063 – Fosters Avenue, Blackrock – 123 units with 71 spaces= ratio of ~0.58
- ABP 303911 – First Avenue, Cookstown Ind. Estate – 372 units (BTR & Shared Living) 64 spaces = ratio of ~0.17

The subject site benefit from a central location, DART, Bus, plus additional overspill retail car parking spaces on site.

Given the lower number of residents car parking spaces provided the scheme will be actively marketed and promoted as a "Reduced-Car-Dependency" scheme and this will be communicated from the outset as part of sales and marketing. The development will also be managed on an on-going basis to ensure that the reduced dependency nature of the development is continually promoted and enhanced.

The development will be managed and operated by a Management Company. Car parking will not be an automatic entitlement with the apartments but spaces will be available to rent and purchase. Renting/sales of parking will be allocated to residents mainly on a first come first served basis by the Management Company and will be continually managed by the Management. The allocation of car parking spaces will reviewed/renewed on an annual/ongoing basis to suit demand. Some car parking spaces will be allocated for rent/sale to larger units.

In this case visitors can be accommodated in the 490 other 'retail' car parking spaces. We have demonstrated above that these 490 spaces are more than adequate for both the retail and residential uses by providing the one year survey.

Notwithstanding, in order to provide further reassurance that there are more than adequate parking spaces at the Frascati Centre for the residential use, following construction, demand for residents car parking will be monitored and additional car parking spaces at surface level can be allocated to residential use if demand arises. Extra demand is not anticipated given the developments highly accessible location by other modes of transport, but gives further reassurance that adequate car parking is available for residents. These spaces would be located at surface level near the rear access to the apartments. Spaces would be signposted for residents use only and controlled by demountable bollards if required.

This Scheme also includes 'Go-Cars' to offset the need for residents and guests to have cars and car parking spaces. It is proposed that 3 parking spaces will be allocated to car club parking spaces (e.g. *Go-Car* spaces). These are located conveniently on the southern entry to the Frascati Centre for ease for use, as illustrated on drawings included within ***Appendix A*****.** These are located outside the car park barrier system so Go-Car users will not need to pay for parking (there is a 10 minute grace period to enter and exit the car park).

The Applicant has engaged with *Go-Car* prior to lodgement of the scheme to An Bord Pleanála and a "Go-Car" Letter was obtained and is enclosed at ***Appendix A*** to give assurance of the intent to operate these club car spaces.

Deliveries to the residential elements can be accommodated at existing loading bays on the internal site road network.

2. The location of the proposed residential disabled car parking is located too far from the residential lift core. This should be addressed and demonstrated on submitted amended drawings.

The location of the proposed residential disabled car parking is now relocated close to the residential lift core. This is demonstrated on submitted amended drawings.

The scheme details are updated to address this issue as shown on Reddy Architecture + Urbanism drawings submitted with this application - see RAU drawing numbered 19-202D-AR-08-PL-099 titled 'Proposed Lower Ground Floor Plan(Residential Parking)' showing the lower ground floor car park and the location of the proposed residential disabled car parking spaces.

3. A minimum of 10 No. fully operational electric vehicle charging points to serve the residential car parking spaces shall be demonstrated. Details which outline the proposed type of charging facility should also be submitted.

In response, 10 fully operational electric vehicle charging points have now been included to serve the residential car parking spaces. Within the residential car parking area, conduits can be run on the walls, soffits and columns where charging points can also be mounted in the future if demand dictates that additional charging points are required.

The scheme details are updated to address this issue as shown on Reddy Architecture + Urbanism drawings submitted with this application - see RAU drawing numbered 19-202D-AR-08-PL-099 titled 'Proposed Lower Ground Floor Plan(Residential Parking)' showing the lower ground floor car park and the location of the proposed electric vehicle charging spaces.

The exact details of the proposed type of charging facility can be agreed with the Local Authority prior to commencement of this development. This is evolving technology and charging systems are likely to change and developed further between the making of this application and commencement on site.

4. Revised drawings should be submitted which demonstrate the provision of adequate level of provision of cycle parking in accordance with DHPLG Design Standards for New Apartments - Guidelines for Planning Authorities (March 2018).

As noted above, the scheme now includes 214 new dedicated cycle parking spaces for the residential use as per the DHPLG Design Standards for New Apartments - Guidelines for Planning Authorities (March 2018) which is also know as the 'Sustainable Urban Housing: Design Standards for New Apartments for Planning Authorities' '.

The 'Sustainable Urban Housing: Design Standards for New Apartments Guidelines for Planning Authorities' dated March 2018 states that 1 bicycle parking space per bed-space plus 1 visitor space per 2 units is the standard requirement. Given 102 apartments with 159 bedrooms, this is a cycle parking requirement of 210 spaces.

An independent Stage 1 Road Safety Audit including Quality Audit is included as ***Appendix H***, together with the Designer Feedback Form addressing the issues raised. The recommendations in the Audit have been addressed in the proposed scheme layout. This includes a review of the retail cycle parking layout and adjustments to same as shown on drawings at Appendix A.

The scheme details are updated to address this issue as shown on Reddy Architecture + Urbanism drawings submitted with this application - see RAU drawing numbered 19-202D-AR-08-PL-161 titled 'Proposed Lower Ground Floor Bicycle Parking Plan' and drawing numbered 19-202D-AR-08-PL-162 titled 'Proposed Ground Floor Bicycle Parking Plan' showing the location of cycle at the Frascati Centre.

5. In accordance with Section 3 of DLRCC's *Standards for Cycle Parking and associated Cycling Facilities for New Developments (January 2018)*, stacked cycling parking is not recommended and the preferred type of cycle parking stand is the Sheffield cycle stand. Accordingly, all proposed cycle parking at the development should be of the preferred "Sheffield" type and be constructed in accordance with the DLRCC standard.

As noted above, the scheme now includes 214 new dedicated cycle parking spaces for the residential use. This includes 148 cycle parking spaces in a secure area at the lower ground level, 144 of which are stacker type two-tier units. The proposed stacker type two-tier system has Sheffield' type stands at the lower levels with a gas-strut mechanism that reduces the lifting weigh to the upper level. A typical detail of the system is included below. This and similar stacker type two-tier system are in use and permitted on other schemes in the city.

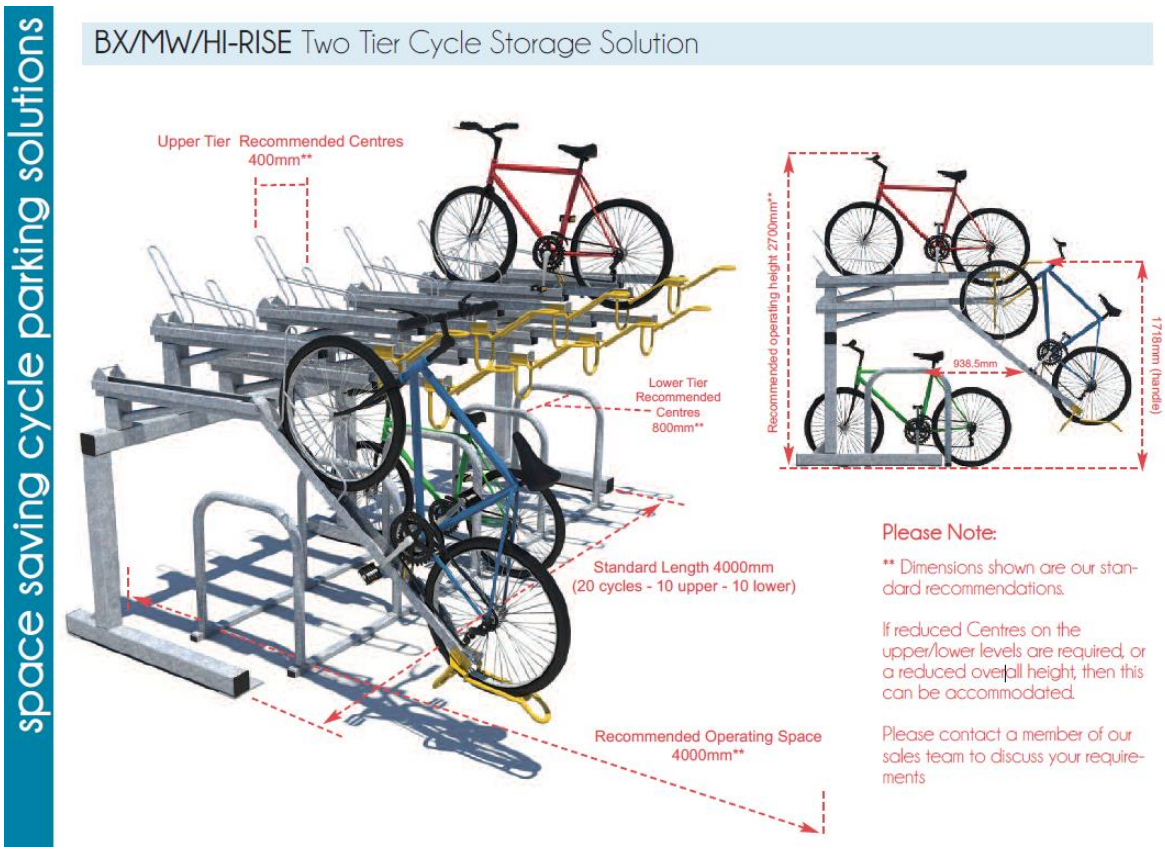


Fig 5.1 - Proposed stacker type two-tier units

In additional there are 62 residential cycle parking spaces as 'Sheffield' type stands plus 4 cargo bike spaces distributed at lower ground level and surface level. There are also 170 cycle parking spaces provided for the retail uses in the Frascati Centre including 166 parking spaces as 'Sheffield' type stands.

Of the 384 cycle parking spaces, 4 are cargo bike spaces and over 300 are 'Sheffield' type stands.

6. Details which demonstrate how residential waste will be removed from the development should be submitted. Swept path analysis drawings shall be provided where necessary.

Response; An updated Waste Management Plan has been prepared by AWN and is submitted with this application.

It is anticipated that, consistent with similar apartment residential schemes and current arrangements at the Frascati Centre, the development will be serviced using traditional refuse vehicles as required, using the existing site internal road network, collecting the normal refuse types from the wheeled bin storage areas within the dedicated compounds. Where required, Management Company will be responsible for the movement of the bins to a collection point which is accessible by the refuse truck on the site on the day of refuse collection. An additional bin storage area is proposed on site for the residential use as shown on the drawings.

The scheme details are revised and updated to show the temporary refuse collection point as shown on Reddy Architecture + Urbanism drawings submitted with this application and on drawings at Appendix A. These locations are accessible via the existing internal site road network which is currently accessible by refuse truck and other vehicles serving the development.

7. A detailed mobility management plan shall be submitted with the application which outlines proposed measures to encourage and enable the use of sustainable transport modes and reduce reliance on the private car as a means of transport to and from the development. The contact details of an appointed Mobility Manager who shall be appointed to implement, monitor and review the plan shall also be provided.

A detailed mobility management plan is submitted with this residential application. It outlines proposed measures to encourage and enable the use of sustainable transport modes and reduce reliance on the private car as a means of transport to and from the residential development. This supports recent DLRCC initiatives in Blackrock and around the county to improve cyclist and pedestrian provision, e.g. making Blackrock and other sections of the coast road one-way, giving more road space to pedestrians and cyclists.

As the development is not yet built or occupied, the person to be appointed as Mobility Manager is not identified at this early stage. The MMP notes at '5.5 The nominated person and their contact details will be provided to the Planning Authority upon occupation of the development.'

Good Travel Planning is not a one-off event, it is instead an on-going iterative process. This submitted Travel Plan assists these efforts by forming an outline framework and providing detailed measures to encourage and enable the use of sustainable transport modes and providing guidance for its success. Monitoring and reviewing the initiatives set out within the plan will form a far greater part of the working Travel Plan.

As Residents are the focus of the plan; their involvement should be sought from the outset following occupation. Successful Travel Plans require marketing and regular review. The measures set out in the Action Plan Summary Table (Chapter 4) will form the basis of a sound, realistic Plan and will be clearly set out and be fully transparent to all users.

The working Travel Plan will be set in motion full residential occupation. The plan will evolve and develop with the development, taking into account changing Residents and their travel preferences and needs. Annual reviews of the Plan will include a full stakeholder survey, providing valuable information for target setting and marketing target groups.

5.2 The ABP Agenda for the meeting dated 5th June 2020 noted that the Traffic/Roads/Parking issues were as follows; -

Item 5. Car Parking and Item 6. Cycle Parking

Response; We believe that this TA Report and Appendices address the issue raised by ABP and DLRCC re Car and Cycle Parking. Both are discussed in detail above. Residential car parking provision is clarified with scope for allocation of additional car parking spaces if demand dictates that additional parking is required.

Retail cycle parking numbers are as previously permitted and now include some cargo cycle spaces as requested by DLRCC. The number of residential cycle parking spaces provided is increased significantly to comply with the requirements of the "Sustainable Urban Housing Design Standards for New Apartments".

5.3 **The ABP Opinion dated June 2020 sought the following information:**

Item 13. Traffic and Transport Impact Analysis, to be prepared in consultation with Dun Laoghaire Rathdown County Council. &

Item 14. Road Safety Audit and Quality Audit.

Response; The previous 'ABP PRE-APP ISSUE' version of this Transportation Assessment Report, which includes Traffic and Transport Impact Analysis, was submitted as part of the pre-application to An Bord Pleanála. The report is updated to reflect the revised scheme now submitted to ABP following on from the consultation meeting and both ABP and DLRCC opinions.

We have engaged and consulted with DLRCC prior to submission of this report. Comments raised by DLRCC on the pre-application are addressed above.

This scheme and its Travel Plan, supports recent DLRCC initiatives in Blackrock and around the county to improve cyclist and pedestrian provision, e.g. making Blackrock and other sections of the coast road one-way, giving more road space to pedestrians and cyclists.

The vehicular traffic impact of the proposed residential scheme to the DLRCC change to Blackrock Main Street to on-way is negligible. There is virtually zero apartment traffic using Blackrock Main Street as shown in the Trip Assignment for the subject Development included at Appendix D. This is unsurprising as vehicular traffic would use Frascati Road to access the development. Blackrock Main Street is a short walk away and would not warrant taking the car.

An independent Stage 1 Road Safety Audit including Quality Audit is included as ***Appendix H***, together with the Designer Feedback Form addressing the issues raised. The recommendations in the Audit have been addressed in the proposed scheme layout. This includes a review of the retail cycle parking layout and adjustments to same as shown on drawings at Appendix A.

6.0 CONCLUSIONS

6.1 This Transportation Assessment Report assesses the Traffic & Transportation issues associated with the construction of a total 102-Unit Residential Apartment Development at the Frascati Centre, Frascati Road, Blackrock, Co. Dublin.

6.2 This Report has been prepared in accordance with the TII Traffic & Transport Assessment Guidelines, and is based on industry standard high Trip Generation Rates, in order to provide an onerous and robust assessment of the impact of the proposed development.

6.3 The impact of the development traffic on the local roads has been modelled and assessed, based on a comprehensive new pre-covid pandemic classified vehicle turning movement survey, undertaken for the purposes of this study. We have included the effects of the traffic associated with the permitted developments of Enterprise House opposite (Ref D16A/0418) and St. Teresa's (lands at St. Catherine's - Ref ABP-303804-19).

6.4 The proposed development is appropriately located adjacent a High Quality Bus Corridor, is within a 6-7 minute walk of Blackrock DART & Train Station and is well served by pedestrian and cycle linkages. The site is ideally well placed to take advantage of non-car modes of travel. Reduced car parking numbers are proposed for the scheme in compliance with the requirements of the "Sustainable Urban Housing Design Standards for New Apartments".

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

6.6 The assessment includes a Preliminary Travel Plan for the site which is included as a separate report which is appended to this report. A Statement of Consistency with DMURS is also provided. An independent Stage 1 Road Safety Audit including Quality Audit is included as ***Appendix H***, together with the Designer Feedback Form addressing the issues raised. All issues raised are address in the submitted scheme drawings.

6.7 It is considered that there are no significant Operational Traffic Safety or Road Capacity issues that prevent a positive determination of the application by An Bord Pleanála.

APPENDICES - CONTENT

APPENDIX A

Proposed Development
Layout, Access, Parking Arrangement & Go Car Letter

IMRF II Frascati Limited Partnership acting through its general partner Davy IMRF II GP Limited
Frascati Centre,
Frascati Road,
Blackrock,
Co. Dublin.

To Whom It May Concern,

This letter confirms that GoCar intends to provide 3 (three) car sharing vehicles in the proposed redevelopment at the Frascati Centre in Blackrock. GoCar representatives have discussed this project with representatives of NRB Consulting Engineers and are excited to develop a service at this location.

It is understood that the vehicles will be shared between residents of the scheme, staff within the commercial elements of the centre, and residents of the surrounding area. GoCar will work with the management company of the development to market and monitor performance of the scheme.

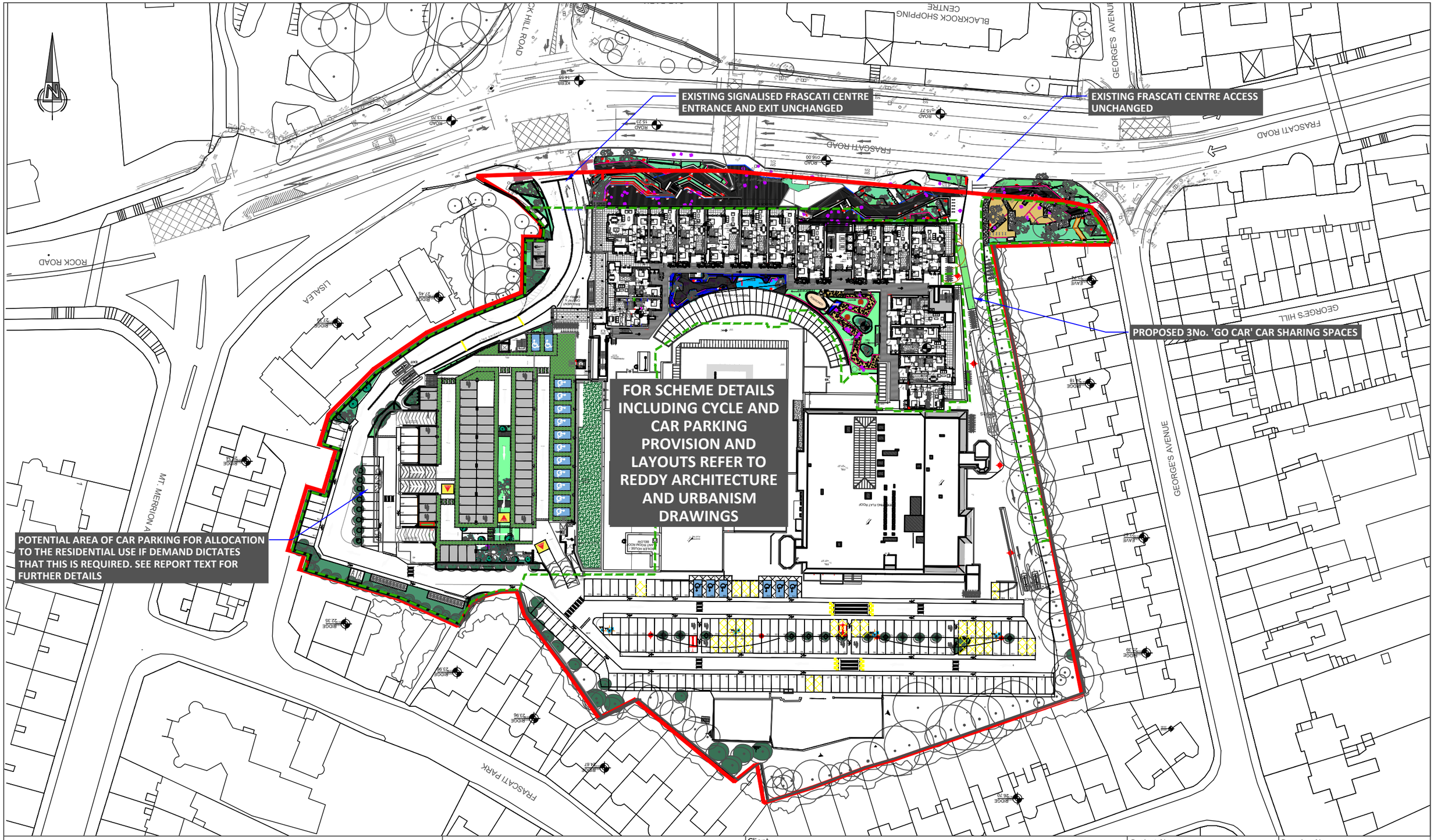
GoCar is Ireland's leading car sharing service with over 60,000 members and over 750 cars and vans on fleet. Each GoCar which is placed in a community has the potential to replace the journeys of up to 15 private cars. The Department of Housing's Design Standards for New Apartments - Guidelines for Planning Authorities 2018 outline: "For all types of location, where it is sought to eliminate or reduce car parking provision, it is necessary to ensure... provision is also to be made for alternative mobility solutions including facilities for car sharing club vehicles."

Carsharing is a sustainable service. By allowing multiple people to use the same vehicle at different times, car sharing reduces car ownership, car dependency, congestion, noise and air pollution. It frees up land which would otherwise be used for additional parking spaces. Most GoCar users only use a car when necessary, and walk and use public transport more often than car owners.

By having GoCar car club vehicles in a residential development such as this, residents will have access to pay-as-you-go driving, in close proximity to their homes, which will increase usership of the service.

I trust that this information is satisfactory. For any queries, please do not hesitate to contact me.

Rob Kearns
Head of Growth
GoCar Carsharing Limited
M: 083 822 3924
E: rob.kearns@gocar.ie



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

This drawing is based upon architects drawing 19-202D-AR-08-PL-003_Proposed Site Layout Plan (final) received 25/08/20. NRB Consulting Engineers Ltd shall not be liable for any inaccuracies or deficiencies.

REV	DATE	AMENDMENTS	DRAWN	CHK	APP

NRB Consulting Engineers Ltd
8 Leopardstown Business Centre
Ballyogan Avenue
Leopardstown
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Phone/Fax: +353 1 292 1941
Email: info@nrb.ie
Web: www.nrb.ie
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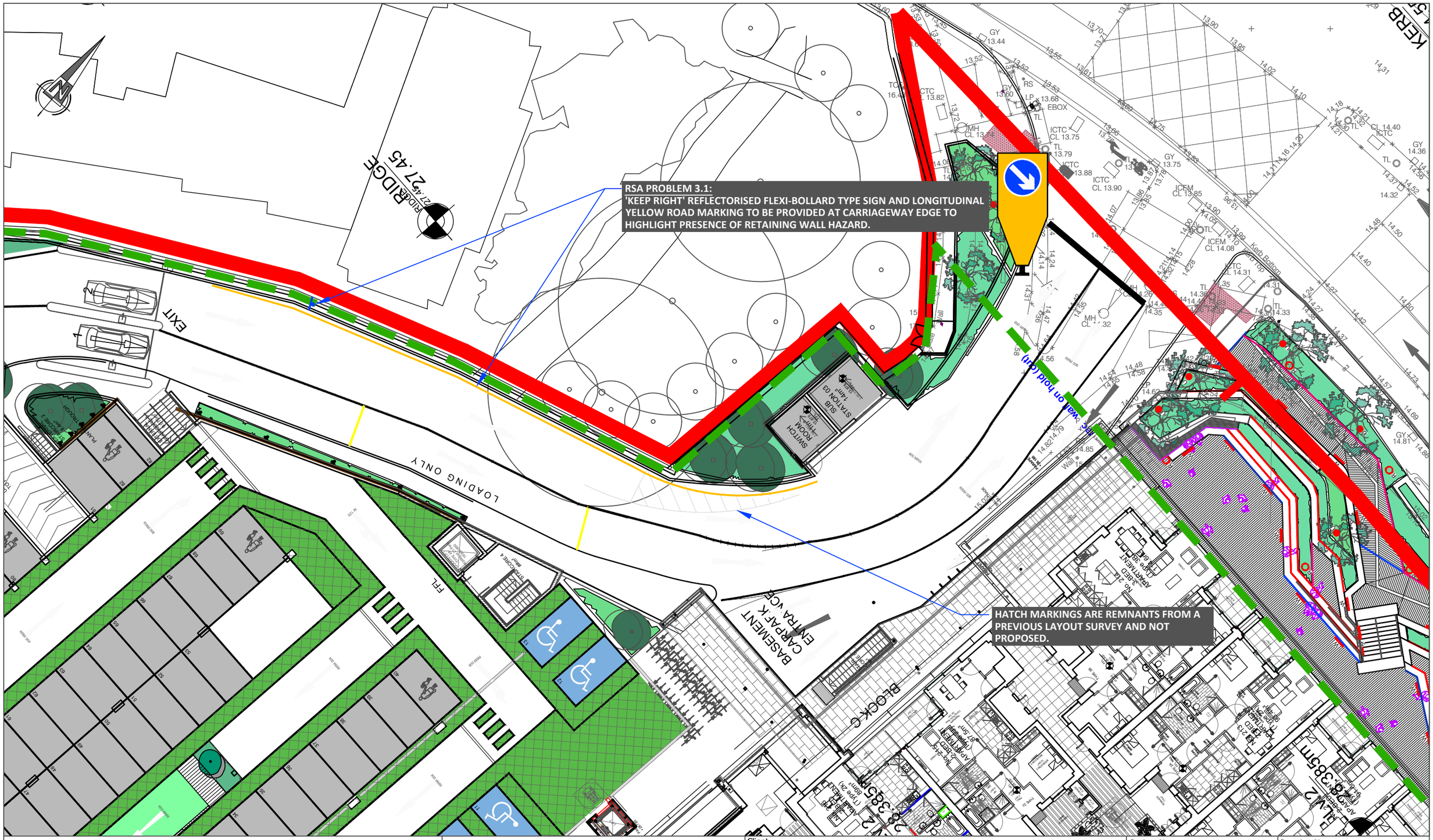
Client		Project No. 19-130	Drawing No. NRB-TA-001
Project	Frascati Centre Phase 2 Residential Proposal	Drawn PB / Checked SN 25/08/20	Approved SN 25/08/20
Title	Proposed Overall Site Location	Date 22-Mar-20	Scale @ A3 1:1000 / Rev -

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



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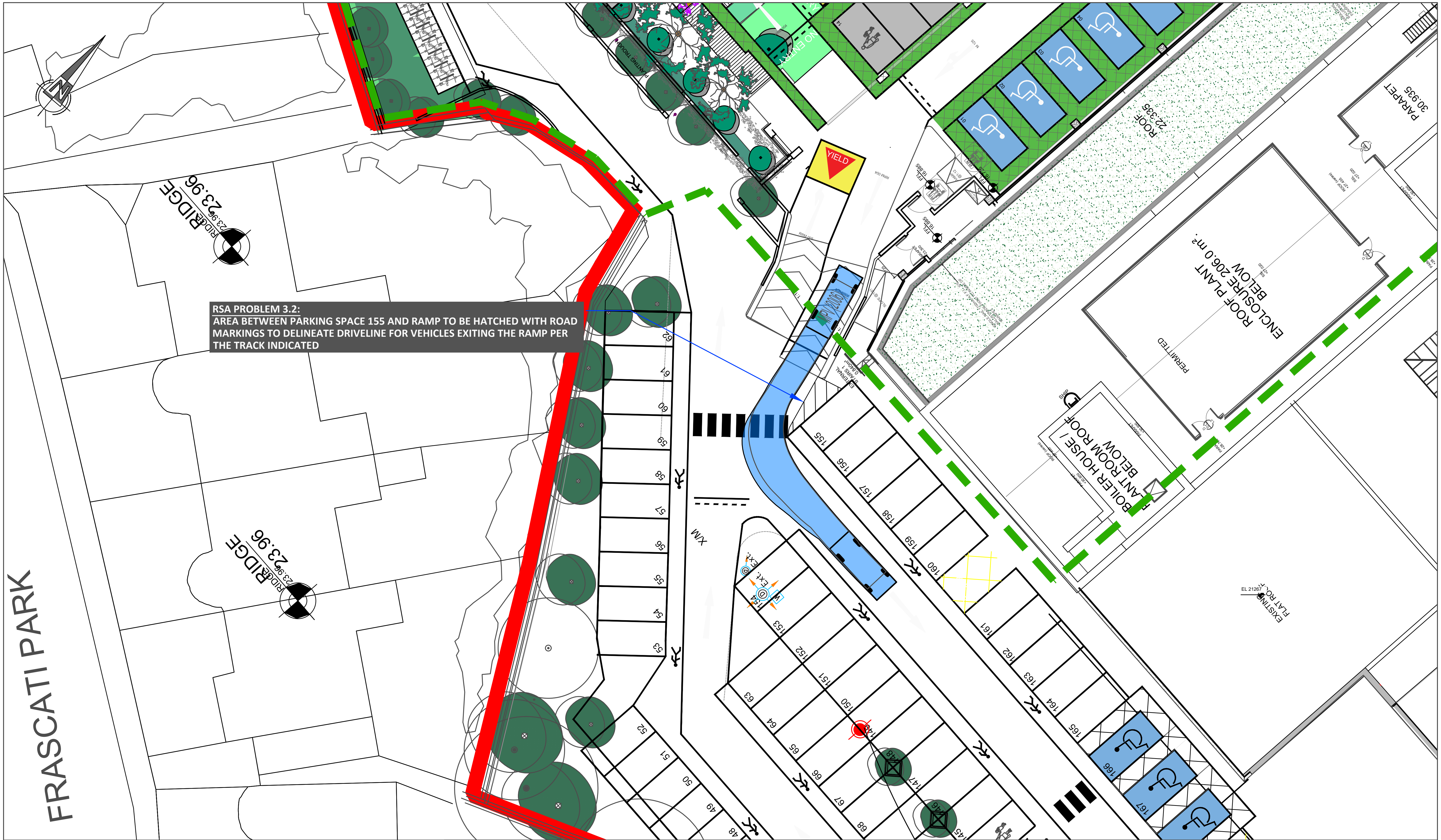
Client		Project No. 19-130	Drawing No. NRB-RSA-001
Project	Frascati Centre Phase 2 Residential Proposal	Drawn PB / Checked SN 25/08/20	Approved SN 25/08/20
Title	Road Safety Audit Response Drawings - Sheet 1 of 5	Date 18-Aug-20	Scale @ A3 1:250 / Rev -

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



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This drawing is based upon drawing Reddy Architects drawing 19-202D-AR-08-PL-003_Proposed Site Layout Plan (final), received 25/08/20. NRB Consulting Engineers Ltd shall not be liable for any inaccuracies or deficiencies.

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Client

Project: Frascati Centre Phase 2 Residential Proposal

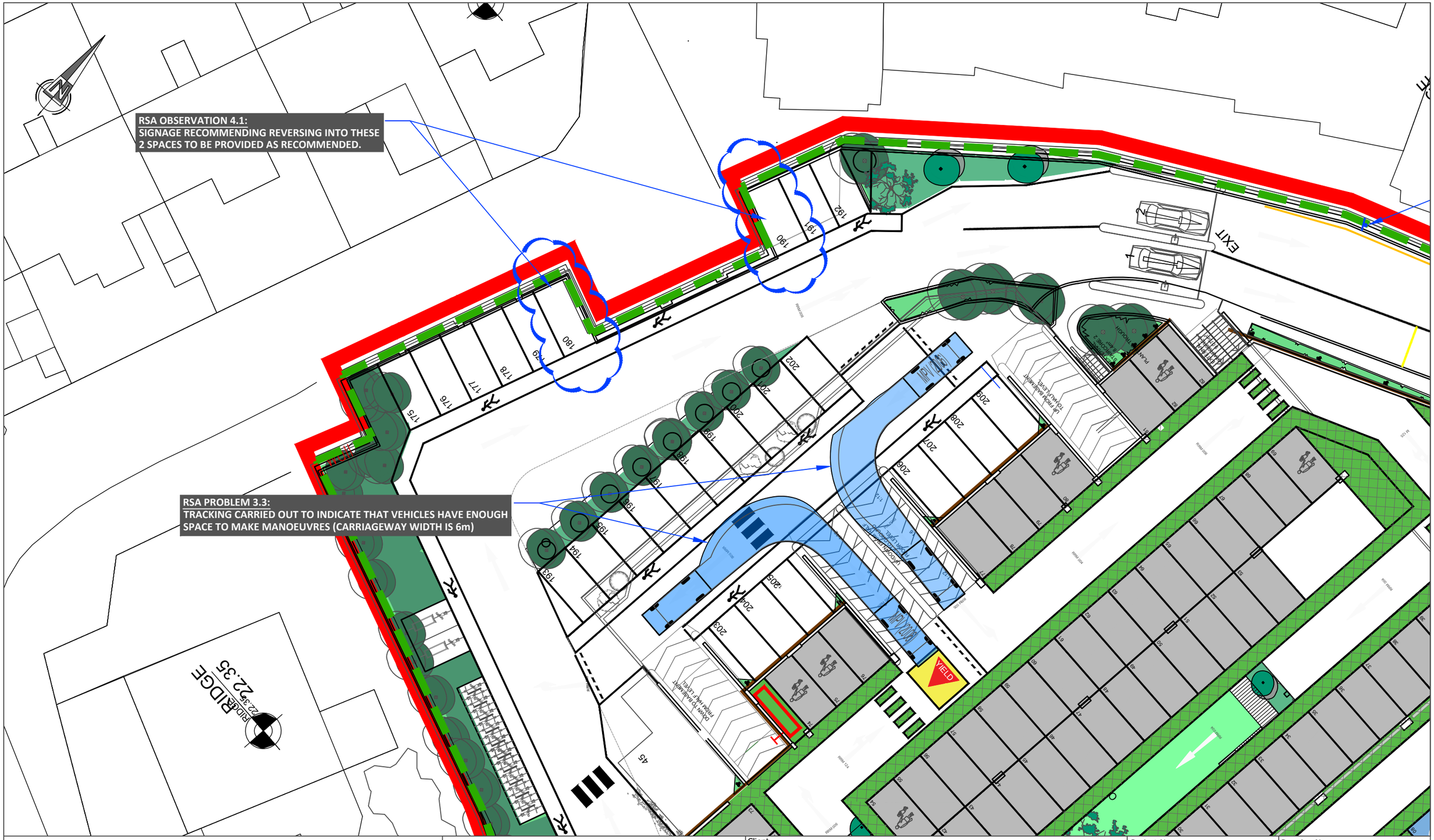
Title: Road Safety Audit Response Drawings - Sheet 2 of 5

Project No.	Drawing No.
19-130	NRB-RSA-002

Drawn	Checked	Approved
PB	SN 25/08/20	SN 25/08/20

Date	Scale @ A3	Rev
25-Aug-20	1:250	-

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



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

This drawing is based upon drawing Reddy Architects drawing 19-202D-AR-08-PL-003_Proposed Site Layout Plan (final), received 25/08/20. NRB Consulting Engineers Ltd shall not be liable for any inaccuracies or deficiencies.

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NRB consulting engineers

Client

Project: Frascati Centre
Phase 2 Residential Proposal

Title: Road Safety Audit Response
Drawings - Sheet 3 of 5

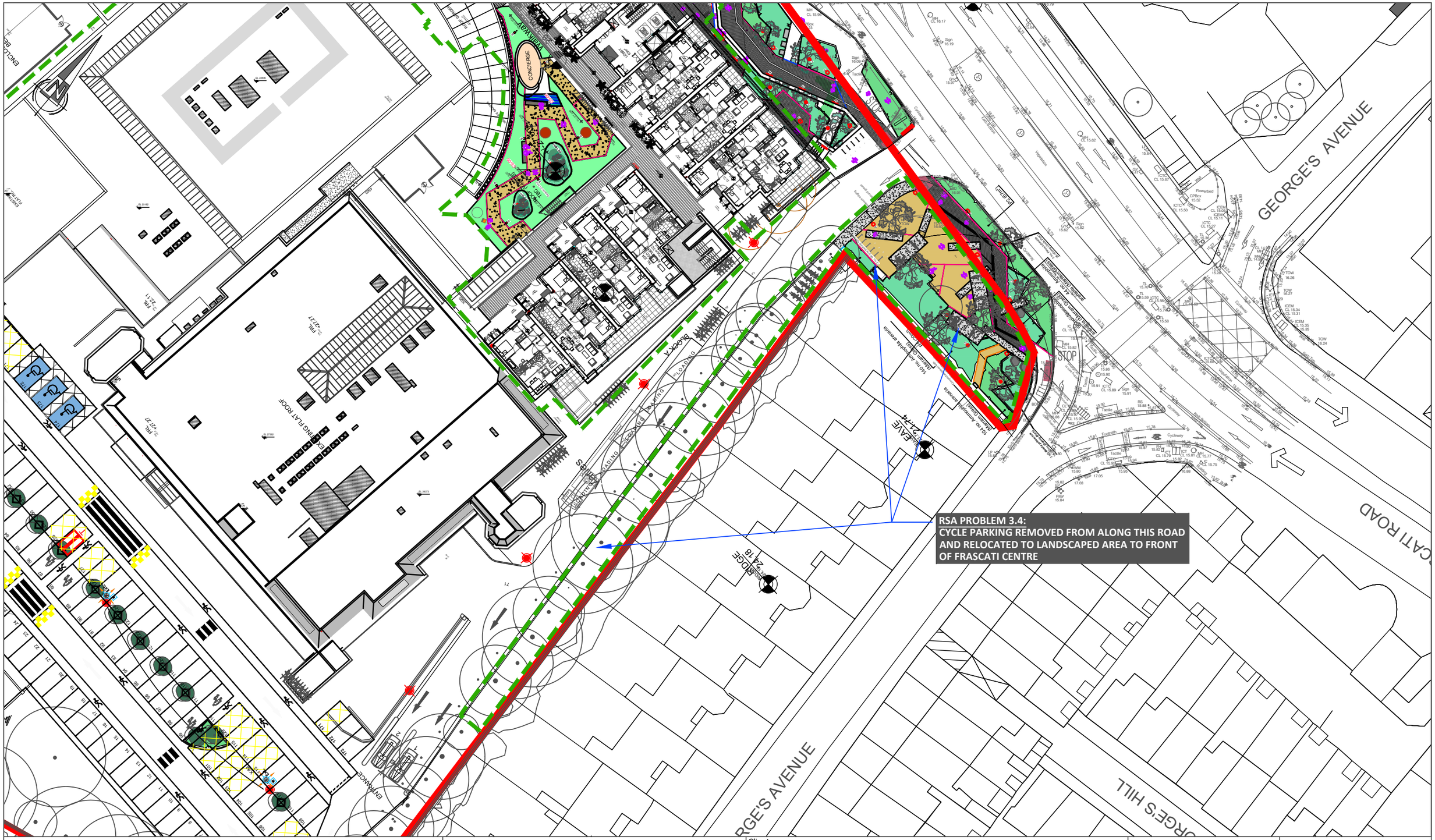
NRB Consulting Engineers Ltd accept no responsibility for any unauthorised amendments to this drawing. Only figured dimensions to be worked to.

Project No.	Drawing No.
19-130	NRB-RSA-003

Drawn	Checked	Approved
PB	SN 25/08/20	SN 25/08/20

Date	Scale @ A3	Rev
25-Aug-20	1:250	-

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



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

This drawing is based upon drawing Reddy Architects drawing 19-202D-AR-08-PL-003_Proposed Site Layout Plan (final), received 25/08/20. NRB Consulting Engineers Ltd shall not be liable for any inaccuracies or deficiencies.

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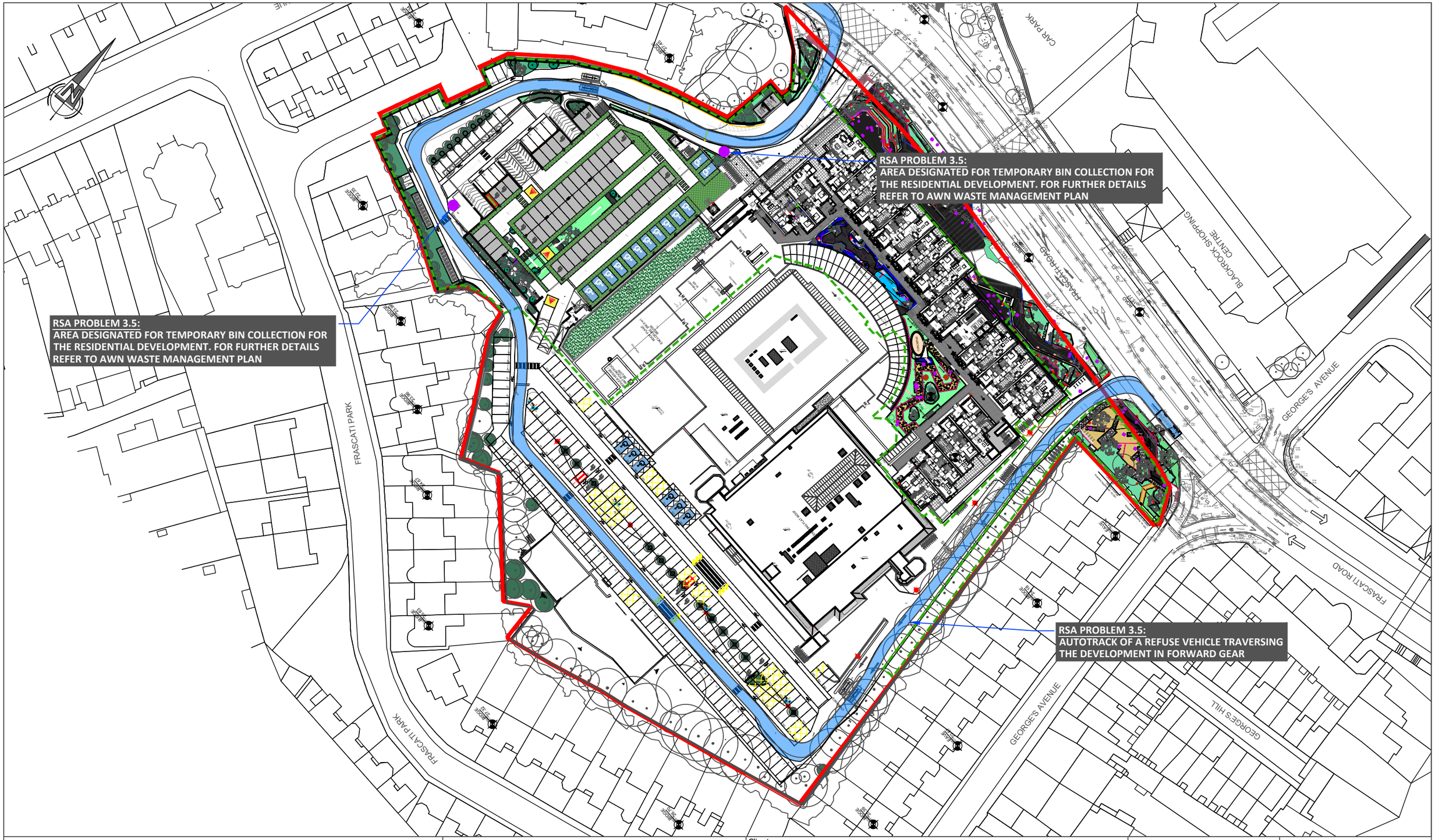
NRB consulting engineers

Client		Project No. 19-130	Drawing No. NRB-RSA-004
Project	Frascati Centre Phase 2 Residential Proposal	Drawn PB / Checked SN 25/08/20	Approved SN 25/08/20
Title	Road Safety Audit Response Drawings - Sheet 4 of 5	Date 25-Aug-20	Scale @ A3 1:500 / Rev -

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



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

This drawing is based upon drawing Reddy Architects drawing 19-202D-AR-08-PL-003_Proposed Site Layout Plan (final), received 25/08/20. NRB Consulting Engineers Ltd shall not be liable for any inaccuracies or deficiencies.

REV	DATE	AMENDMENTS	DRAWN	CHK	APP

NRB Consulting Engineers Ltd
8 Leopardstown Business Centre
Ballyogan Avenue
Leopardstown
Dublin 18

Phone/Fax: +353 1 292 1941
Email: info@nrb.ie
Web: www.nrb.ie
Registered in Ireland No. 491679

Client

Project: Frascati Centre
Phase 2 Residential Proposal

Title: Road Safety Audit Response
Drawings - Sheet 5 of 5

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

Project No.	Drawing No.
19-130	NRB-RSA-005

Drawn	Checked	Approved
PB	SN 25/08/20	SN 25/08/20

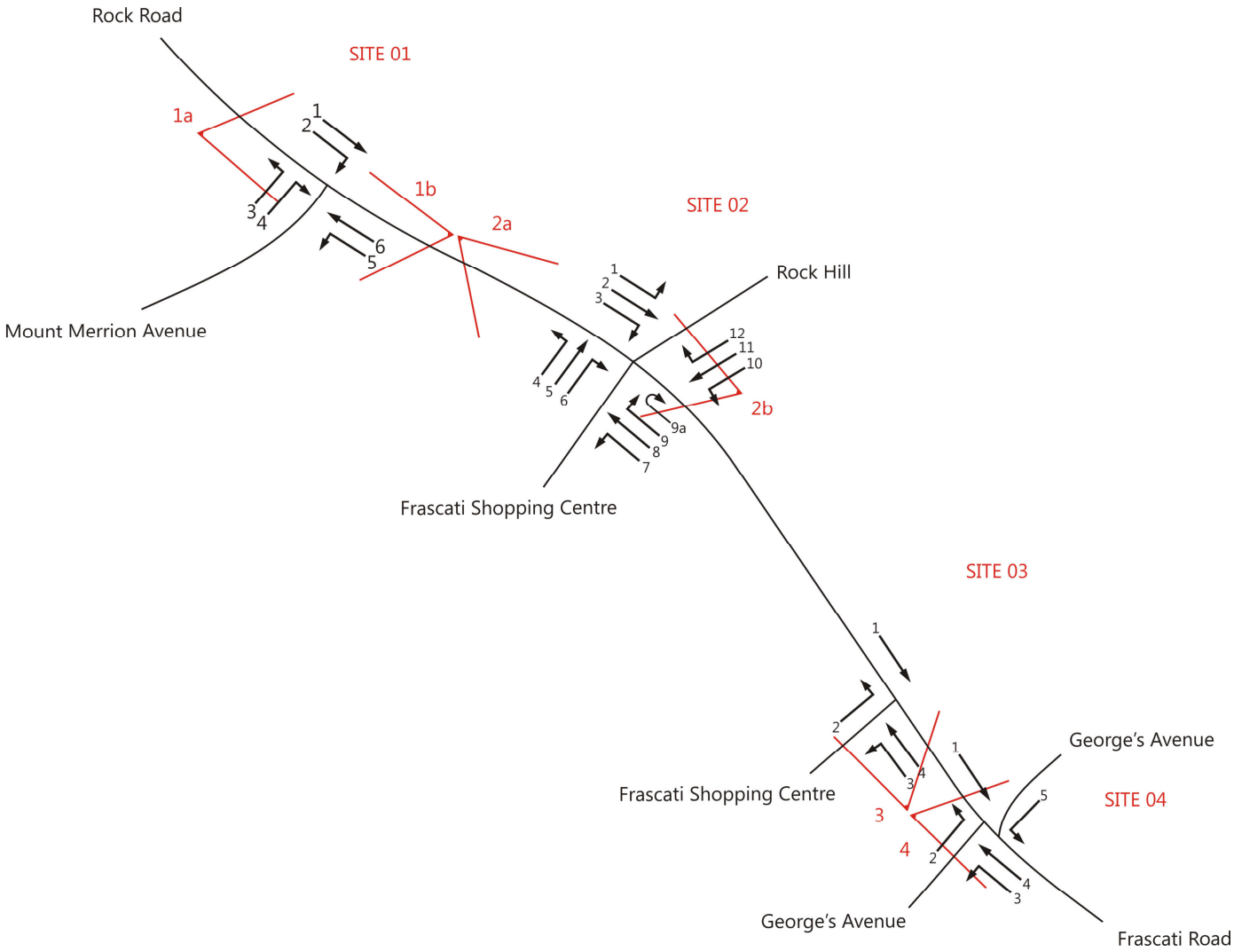
Date	Scale @ A3	Rev
25-Aug-20	1:1000	-

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

APPENDIX B

Traffic Survey Data -
2019 Survey Output Results

Site & Turning Count Movement Numbering



Job number: TRA/19/276	Job date: 28th November 2019	Drawing No: TRA/19/275-02	traffinomics.ie
Client: NRB Consulting Engineers	Job day Thursday	Page 1 of 11	

FRASCATI TRAFFIC COUNTS **NOVEMBER 2019**

MANUAL CLASSIFIED JUNCTION TURNING COUNTS **TRA/19/276**

SITE: 01 DATE: 28th November 2019

LOCATION: Rock Road/Mount Merrion Avenue DAY: Thursday

	MOVEMENT 1								MOVEMENT 2								MOVEMENT 3							
TIME	**PCL**	**MCL**	**CAR**	**LGV**	**HGV**	**BUS**	**TOT**	**PCU**	**PCL**	**MCL**	**CAR**	**LGV**	**HGV**	**BUS**	**TOT**	**PCU**	**PCL**	**MCL**	**CAR**	**LGV**	**HGV**	**BUS**	**TOT**	**PCU**
07:30	5	2	111	17	10	4	149	158	0	0	18	0	4	1	23	28	0	0	36	2	2	0	40	42
07:45	12	0	87	19	5	3	126	124	0	1	21	4	0	0	26	25	4	1	32	1	1	0	39	36
08:00	14	3	159	19	3	3	201	194	0	0	11	0	1	0	12	13	4	0	19	1	1	2	27	27
08:15	13	1	151	12	0	4	181	174	0	0	16	3	1	0	20	21	2	0	19	2	3	0	26	27
H/TOT	44	6	508	67	18	14	657	650	0	1	66	7	6	1	81	87	10	1	106	6	7	2	132	132
08:30	26	5	160	17	3	3	214	196	0	0	27	1	3	0	31	34	2	0	31	2	1	0	36	35
08:45	18	3	140	15	6	4	186	180	1	0	25	1	3	2	32	36	9	0	35	1	0	0	45	38
09:00	15	1	118	20	4	4	162	157	0	0	26	2	4	1	33	38	5	0	34	5	2	1	47	46
09:15	5	5	121	9	11	4	155	163	0	0	22	0	3	0	25	28	1	0	36	4	0	1	42	42
H/TOT	64	14	539	61	24	15	717	696	1	0	100	4	13	3	121	136	17	0	136	12	3	2	170	161
P/TOT	108	20	1047	128	42	29	1374	1347	1	1	166	11	19	4	202	224	27	1	242	18	10	4	302	294

	MOVEMENT 1								MOVEMENT 2								MOVEMENT 3							
TIME	**PCL**	**MCL**	**CAR**	**LGV**	**HGV**	**BUS**	**TOT**	**PCU**	**PCL**	**MCL**	**CAR**	**LGV**	**HGV**	**BUS**	**TOT**	**PCU**	**PCL**	**MCL**	**CAR**	**LGV**	**HGV**	**BUS**	**TOT**	**PCU**
16:30	24	2	205	16	0	3	250	233	0	0	28	5	1	0	34	35	1	0	15	1	0	0	17	16
16:45	20	8	231	9	1	4	273	257	0	0	22	1	0	0	23	23	1	0	11	0	0	0	12	11
17:00	21	3	186	7	3	3	223	210	0	0	36	2	1	0	39	40	0	0	11	0	2	1	14	17
17:15	37	8	218	9	3	2	277	248	0	2	34	2	0	1	39	39	1	0	15	2	0	1	19	19
H/TOT	102	21	840	41	7	12	1023	948	0	2	120	10	2	1	135	137	3	0	52	3	2	2	62	64
17:30	39	7	201	9	2	4	262	233	4	0	23	0	0	0	27	24	0	0	23	0	0	0	23	23
17:45	41	8	230	5	1	4	289	256	0	0	19	1	0	0	20	20	1	1	20	0	0	1	23	23
18:00	44	0	199	3	1	1	248	215	2	0	22	1	0	0	25	23	1	1	24	0	0	0	26	25
18:15	43	5	214	9	0	3	274	240	4	0	29	4	0	1	38	36	0	0	23	1	0	0	24	24
H/TOT	167	20	844	26	4	12	1073	943	10	0	93	6	0	1	110	103	2	2	90	1	0	1	96	94
P/TOT	269	41	1684	67	11	24	2096	1891	10	2	213	16	2	2	245	240	5	2	142	4	2	3	158	158

FRASCATI TRAFFIC COUNTS **NOVEMBER 2019**

MANUAL CLASSIFIED JUNCTION TURNING COUNTS **TRA/19/276**

SITE: 01 DATE: 28th November 2019

LOCATION: Rock Road/Mount Merrion Avenue DAY: Thursday

	MOVEMENT 4								MOVEMENT 5								MOVEMENT 6							
TIME	**PCL**	**MCL**	**CAR**	**LGV**	**HGV**	**BUS**	**TOT**	**PCU**	**PCL**	**MCL**	**CAR**	**LGV**	**HGV**	**BUS**	**TOT**	**PCU**	**PCL**	**MCL**	**CAR**	**LGV**	**HGV**	**BUS**	**TOT**	**PCU**
07:30	1	0	37	2	0	2	42	43	0	1	43	0	0	1	45	45	45	2	229	9	1	2	288	254
07:45	0	1	36	5	0	2	44	45	0	0	59	2	1	0	62	63	53	7	203	10	2	3	278	236
08:00	1	1	61	7	2	1	73	75	2	0	50	7	0	1	60	59	62	4	200	15	1	3	285	237
08:15	0	0	73	0	1	2	76	79	1	0	41	2	1	1	46	47	66	7	198	11	4	2	288	237
H/TOT	2	2	207	14	3	7	235	242	3	1	193	11	2	3	213	215	226	20	830	45	8	10	1139	964
08:30	0	0	57	3	2	2	64	68	1	1	59	5	4	4	74	81	61	16	171	10	1	2	261	206
08:45	0	0	59	2	1	4	66	71	0	0	48	3	1	0	52	53	61	13	185	8	1	4	272	220
09:00	1	0	72	5	3	1	82	85	1	1	49	4	4	2	61	66	34	10	199	7	3	3	256	229
09:15	0	0	58	5	1	0	64	65	0	0	60	6	1	2	69	72	30	6	209	8	4	8	265	249
H/TOT	1	0	246	15	7	7	276	289	2	2	216	18	10	8	256	271	186	45	764	33	9	17	1054	904
P/TOT	3	2	453	29	10	14	511	531	5	3	409	29	12	11	469	486	412	65	1594	78	17	27	2193	1868

	MOVEMENT 4								MOVEMENT 5								MOVEMENT 6							
TIME	**PCL**	**MCL**	**CAR**	**LGV**	**HGV**	**BUS**	**TOT**	**PCU**	**PCL**	**MCL**	**CAR**	**LGV**	**HGV**	**BUS**	**TOT**	**PCU**	**PCL**	**MCL**	**CAR**	**LGV**	**HGV**	**BUS**	**TOT**	**PCU**
16:30	1	1	74	7	0	0	83	82	0	0	86	11	1	1	99	101	11	1	163	12	0	3	190	184
16:45	0	0	57	1	0	2	60	62	1	0	117	5	0	2	125	126	3	2	141	9	0	4	159	159
17:00	0	0	80	5	0	1	86	87	1	0	109	2	0	1	113	113	13	3	177	10	5	3	211	207
17:15	0	1	67	1	0	3	72	74	3	2	85	2	0	3	95	94	9	0	179	36	5	0	229	227
H/TOT	1	2	278	14	0	6	301	305	5	2	397	20	1	7	432	435	36	6	660	67	10	10	789	777
17:30	0	1	61	4	0	0	66	65	0	0	79	2	0	1	82	83	19	6	134	7	1	4	171	157
17:45	2	0	71	1	0	2	76	76	2	0	95	1	0	2	100	100	13	1	149	5	0	1	169	159
18:00	1	1	52	1	0	1	56	56	1	1	73	0	0	4	79	82	10	5	143	11	2	4	175	170
18:15	2	1	53	2	0	1	59	58	3	0	74	1	1	2	81	82	12	0	162	11	0	2	187	179
H/TOT	5	3	237	8	0	4	257	255	6	1	321	4	1	9	342	347	54	12	588	34	3	11	702	666
P/TOT	6	5	515	22	0	10	558	560	11	3	718	24	2	16	774	781	90	18	1248	101	13	21	1491	1442

FRASCATI TRAFFIC COUNTS **NOVEMBER 2019**

MANUAL CLASSIFIED JUNCTION TURNING COUNTS **TRA/19/276**

SITE: 02 DATE: 28th November 2019

LOCATION: Rock Road/Frascati Shopping Centre/Rock Hill DAY: Thursday

	MOVEMENT 1								MOVEMENT 2								MOVEMENT 3							
TIME	**PCL**	**MCL**	**CAR**	**LGV**	**HGV**	**BUS**	**TOT**	**PCU**	**PCL**	**MCL**	**CAR**	**LGV**	**HGV**	**BUS**	**TOT**	**PCU**	**PCL**	**MCL**	**CAR**	**LGV**	**HGV**	**BUS**	**TOT**	**PCU**
07:30	1	0	14	1	2	4	22	27	5	1	133	18	8	2	167	172	0	1	1	0	0	0	2	1
07:45	3	0	18	2	0	2	25	25	9	1	104	22	5	3	144	144	0	0	1	0	0	0	1	1
08:00	3	0	30	4	0	2	39	39	12	4	189	22	5	2	234	229	0	0	1	0	0	0	1	1
08:15	3	0	28	0	1	3	35	37	10	1	190	12	0	3	216	210	0	0	6	0	0	0	6	6
H/TOT	10	0	90	7	3	11	121	127	36	7	616	74	18	10	761	756	0	1	9	0	0	0	10	9
08:30	4	1	43	1	2	1	52	51	22	4	171	19	3	4	223	210	0	0	3	0	0	0	3	3
08:45	8	1	30	2	3	6	50	52	10	2	158	15	4	2	191	188	0	0	11	0	0	0	11	11
09:00	6	0	42	3	4	3	58	60	10	1	140	22	3	2	178	174	0	0	8	0	0	0	8	8
09:15	1	1	28	2	2	1	35	37	4	4	133	12	10	3	166	173	0	0	18	0	0	0	18	18
H/TOT	19	3	143	8	11	11	195	200	46	11	602	68	20	11	758	746	0	0	40	0	0	0	40	40
P/TOT	29	3	233	15	14	22	316	327	82	18	1218	142	38	21	1519	1502	0	1	49	0	0	0	50	49

	MOVEMENT 1								MOVEMENT 2								MOVEMENT 3							
TIME	**PCL**	**MCL**	**CAR**	**LGV**	**HGV**	**BUS**	**TOT**	**PCU**	**PCL**	**MCL**	**CAR**	**LGV**	**HGV**	**BUS**	**TOT**	**PCU**	**PCL**	**MCL**	**CAR**	**LGV**	**HGV**	**BUS**	**TOT**	**PCU**
16:30	3	0	45	1	0	1	50	49	22	3	226	22	0	2	275	258	0	0	8	0	0	0	8	8
16:45	1	1	43	1	0	4	50	53	19	7	236	9	1	2	274	258	0	0	9	0	0	0	9	9
17:00	3	0	52	3	0	2	60	60	18	3	206	9	3	2	241	230	0	0	8	0	0	0	8	8
17:15	0	0	33	4	0	5	42	47	37	9	243	6	3	0	298	266	0	0	9	0	0	0	9	9
H/TOT	7	1	173	9	0	12	202	208	96	22	911	46	7	6	1088	1011	0	0	34	0	0	0	34	34
17:30	6	0	38	2	0	1	47	43	33	8	209	11	2	3	266	240	0	0	15	0	0	0	15	15
17:45	5	0	41	1	0	3	50	49	38	8	250	5	1	3	305	274	0	0	10	0	0	0	10	10
18:00	1	0	36	1	0	2	40	41	44	1	210	3	1	0	259	224	0	0	5	0	0	0	5	5
18:15	3	0	37	2	0	3	45	46	42	6	221	9	0	1	279	243	0	0	9	0	0	0	9	9
H/TOT	15	0	152	6	0	9	182	179	157	23	890	28	4	7	1109	981	0	0	39	0	0	0	39	39
P/TOT	22	1	325	15	0	21	384	387	253	45	1801	74	11	13	2197	1992	0	0	73	0	0	0	73	73

FRASCATI TRAFFIC COUNTS **NOVEMBER 2019**

MANUAL CLASSIFIED JUNCTION TURNING COUNTS **TRA/19/276**

SITE: 02 DATE: 28th November 2019

LOCATION: Rock Road/Frascati Shopping Centre/Rock Hill DAY: Thursday

	MOVEMENT 4								MOVEMENT 5								MOVEMENT 6							
TIME	**PCL**	**MCL**	**CAR**	**LGV**	**HGV**	**BUS**	**TOT**	**PCU**	**PCL**	**MCL**	**CAR**	**LGV**	**HGV**	**BUS**	**TOT**	**PCU**	**PCL**	**MCL**	**CAR**	**LGV**	**HGV**	**BUS**	**TOT**	**PCU**
07:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45	0	0	0	0	2	0	2	4	0	0	0	0	1	0	1	2	0	0	3	0	0	0	3	3
08:00	0	0	2	2	0	0	4	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15	0	0	0	0	2	0	2	4	0	0	0	0	1	0	1	2	0	0	1	0	0	0	1	1
H/TOT	0	0	2	2	4	0	8	12	0	0	0	0	2	0	2	4	0	0	4	0	0	0	4	4
08:30	0	0	5	0	0	0	5	5	0	0	0	0	0	0	0	0	0	0	3	0	1	0	4	5
08:45	0	0	1	1	0	0	2	2	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2	2
09:00	0	0	6	1	1	0	8	9	0	0	1	0	0	0	1	1	0	0	0	1	0	0	1	1
09:15	0	0	3	0	0	0	3	3	0	0	1	0	0	0	1	1	0	0	3	0	0	0	3	3
H/TOT	0	0	15	2	1	0	18	19	0	0	2	0	0	0	2	2	0	0	8	1	1	0	10	11
P/TOT	0	0	17	4	5	0	26	31	0	0	2	0	2	0	4	6	0	0	12	1	1	0	14	15

	MOVEMENT 4								MOVEMENT 5								MOVEMENT 6							
TIME	**PCL**	**MCL**	**CAR**	**LGV**	**HGV**	**BUS**	**TOT**	**PCU**	**PCL**	**MCL**	**CAR**	**LGV**	**HGV**	**BUS**	**TOT**	**PCU**	**PCL**	**MCL**	**CAR**	**LGV**	**HGV**	**BUS**	**TOT**	**PCU**
16:30	0	0	37	3	0	0	40	40	0	1	2	0	0	0	3	2	0	0	20	0	0	0	20	20
16:45	0	0	22	0	0	0	22	22	0	0	5	0	0	0	5	5	0	0	17	0	0	0	17	17
17:00	0	0	23	0	0	0	23	23	0	0	6	0	0	0	6	6	2	0	23	0	0	0	25	23
17:15	0	0	27	1	0	0	28	28	0	0	3	0	0	0	3	3	0	0	10	0	0	0	10	10
H/TOT	0	0	109	4	0	0	113	113	0	1	16	0	0	0	17	16	2	0	70	0	0	0	72	70
17:30	0	0	24	1	0	0	25	25	0	1	2	0	0	0	3	2	0	1	19	1	0	0	21	20
17:45	0	0	22	0	0	0	22	22	0	0	3	0	0	0	3	3	0	0	20	0	0	0	20	20
18:00	0	0	18	0	0	0	18	18	0	0	3	0	0	0	3	3	0	0	26	0	0	0	26	26
18:15	0	0	22	1	0	0	23	23	0	0	2	0	0	0	2	2	0	0	10	0	0	0	10	10
H/TOT	0	0	86	2	0	0	88	88	0	1	10	0	0	0	11	10	0	1	75	1	0	0	77	76
P/TOT	0	0	195	6	0	0	201	201	0	2	26	0	0	0	28	27	2	1	145	1	0	0	149	147

FRASCATI TRAFFIC COUNTS **NOVEMBER 2019**

MANUAL CLASSIFIED JUNCTION TURNING COUNTS **TRA/19/276**

SITE: 02 DATE: 28th November 2019

LOCATION: Rock Road/Frascati Shopping Centre/Rock Hill DAY: Thursday

	MOVEMENT 7								MOVEMENT 8								MOVEMENT 9								U-TURN 9a							
TIME	**PCL**	**MCL**	**CAR**	**LGV**	**HGV**	**BUS**	**TOT**	**PCU**	**PCL**	**MCL**	**CAR**	**LGV**	**HGV**	**BUS**	**TOT**	**PCU**	**PCL**	**MCL**	**CAR**	**LGV**	**HGV**	**BUS**	**TOT**	**PCU**	**PCL**	**MCL**	**CAR**	**LGV**	**HGV**	**BUS**	**TOT**	**PCU**
07:30	0	0	0	0	0	0	0	0	44	2	210	6	1	3	266	234	0	0	1	0	0	0	1	1	0	0	1	0	0	0	1	1
07:45	0	0	0	0	0	0	0	0	51	5	200	11	1	3	271	231	0	0	8	0	1	0	9	10	0	0	0	0	0	0	0	0
08:00	0	0	0	0	0	0	0	0	59	3	188	18	1	4	273	229	0	0	6	1	1	0	8	9	0	0	3	0	0	0	3	3
08:15	0	0	0	0	0	0	0	0	65	3	186	11	3	3	271	223	1	0	6	0	0	0	7	6	0	0	0	0	0	0	0	0
H/TOT	0	0	0	0	0	0	0	0	219	13	784	46	6	13	1081	917	1	0	21	1	2	0	25	26	0	0	4	0	0	0	4	4
08:30	0	0	0	0	0	0	0	0	61	15	160	13	5	4	258	209	0	0	5	0	0	0	5	5	0	0	1	0	0	0	1	1
08:45	0	0	0	0	0	0	0	0	59	13	187	10	2	4	275	226	1	0	7	0	0	0	8	7	0	0	8	0	0	0	8	8
09:00	0	0	2	0	0	0	2	2	33	10	194	9	6	4	256	234	0	0	20	1	0	0	21	21	0	0	7	1	0	0	8	8
09:15	0	0	2	0	0	0	2	2	29	4	234	14	5	10	296	285	0	1	16	0	1	0	18	18	0	0	2	0	0	0	2	2
H/TOT	0	0	4	0	0	0	4	4	182	42	775	46	18	22	1085	954	1	1	48	1	1	0	52	52	0	0	18	1	0	0	19	19
P/TOT	0	0	4	0	0	0	4	4	401	55	1559	92	24	35	2166	1871	2	1	69	2	3	0	77	78	0	0	22	1	0	0	23	23

	MOVEMENT 7								MOVEMENT 8								MOVEMENT 9								U-TURN 9a							
TIME	**PCL**	**MCL**	**CAR**	**LGV**	**HGV**	**BUS**	**TOT**	**PCU**	**PCL**	**MCL**	**CAR**	**LGV**	**HGV**	**BUS**	**TOT**	**PCU**	**PCL**	**MCL**	**CAR**	**LGV**	**HGV**	**BUS**	**TOT**	**PCU**	**PCL**	**MCL**	**CAR**	**LGV**	**HGV**	**BUS**	**TOT**	**PCU**
16:30	0	0	2	0	0	0	2	2	8	1	176	17	1	4	207	205	0	0	9	0	0	0	9	9	0	0	6	0	0	0	6	6
16:45	0	0	2	0	0	0	2	2	4	2	201	14	0	6	227	229	0	0	7	0	0	0	7	7	0	0	2	0	0	0	2	2
17:00	0	0	2	0	0	0	2	2	12	1	222	12	5	4	256	255	0	0	14	0	0	0	14	14	0	0	2	0	0	0	2	2
17:15	0	0	2	0	0	0	2	2	11	2	206	34	5	3	261	259	0	0	7	1	0	0	8	8	0	0	1	1	0	0	2	2
H/TOT	0	0	8	0	0	0	8	8	35	6	805	77	11	17	951	947	0	0	37	1	0	0	38	38	0	0	11	1	0	0	12	12
17:30	0	0	5	0	0	0	5	5	17	5	162	8	1	5	198	187	0	0	8	1	0	0	9	9	0	0	1	0	0	0	1	1
17:45	0	0	2	0	0	0	2	2	14	0	185	5	0	3	207	199	0	0	8	0	0	0	8	8	0	0	1	0	0	0	1	1
18:00	0	0	3	0	0	0	3	3	11	6	166	9	2	8	202	200	0	0	12	0	0	0	12	12	0	0	0	0	0	0	0	0
18:15	0	0	3	0	0	0	3	3	15	0	187	10	1	4	217	210	0	0	9	0	0	0	9	9	0	0	1	0	0	0	1	1
H/TOT	0	0	13	0	0	0	13	13	57	11	700	32	4	20	824	796	0	0	37	1	0	0	38	38	0	0	3	0	0	0	3	3
P/TOT	0	0	21	0	0	0	21	21	92	17	1505	109	15	37	1775	1743	0	0	74	2	0	0	76	76	0	0	14	1	0	0	15	15

FRASCATI TRAFFIC COUNTS **NOVEMBER 2019**

MANUAL CLASSIFIED JUNCTION TURNING COUNTS **TRA/19/276**

SITE: 02 DATE: 28th November 2019

LOCATION: Rock Road/Frascati Shopping Centre/Rock Hill DAY: Thursday

	MOVEMENT 10								MOVEMENT 11								MOVEMENT 12							
TIME	**PCL**	**MCL**	**CAR**	**LGV**	**HGV**	**BUS**	**TOT**	**PCU**	**PCL**	**MCL**	**CAR**	**LGV**	**HGV**	**BUS**	**TOT**	**PCU**	**PCL**	**MCL**	**CAR**	**LGV**	**HGV**	**BUS**	**TOT**	**PCU**
07:30	0	0	0	1	0	0	1	1	0	0	0	0	1	0	1	2	1	1	62	3	0	0	67	66
07:45	0	0	1	0	0	0	1	1	0	0	0	0	0	0	0	0	2	2	62	1	0	0	67	64
08:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	1	60	2	0	0	68	63
08:15	0	0	1	0	0	0	1	1	0	0	0	0	0	0	0	0	2	4	53	2	0	0	61	57
H/TOT	0	0	2	1	0	0	3	3	0	0	0	0	1	0	1	2	10	8	237	8	0	0	263	250
08:30	0	0	1	0	0	0	1	1	0	0	0	0	0	0	0	0	1	2	65	2	0	2	72	72
08:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	45	0	0	0	47	45
09:00	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1	2	1	48	1	0	1	53	52
09:15	0	0	4	0	0	0	4	4	0	0	4	0	0	0	4	4	1	2	32	0	0	0	35	33
H/TOT	0	0	5	0	0	0	5	5	0	0	5	0	0	0	5	5	6	5	190	3	0	3	207	202
P/TOT	0	0	7	1	0	0	8	8	0	0	5	0	1	0	6	7	16	13	427	11	0	3	470	452

	MOVEMENT 10								MOVEMENT 11								MOVEMENT 12							
TIME	**PCL**	**MCL**	**CAR**	**LGV**	**HGV**	**BUS**	**TOT**	**PCU**	**PCL**	**MCL**	**CAR**	**LGV**	**HGV**	**BUS**	**TOT**	**PCU**	**PCL**	**MCL**	**CAR**	**LGV**	**HGV**	**BUS**	**TOT**	**PCU**
16:30	0	0	12	2	0	0	14	14	0	0	2	0	0	0	2	2	3	0	36	3	0	0	42	40
16:45	0	0	14	3	0	0	17	17	0	0	1	0	0	0	1	1	0	0	35	0	0	0	35	35
17:00	0	0	11	2	0	0	13	13	0	0	1	0	0	0	1	1	2	2	41	0	0	0	45	42
17:15	0	0	6	0	0	0	6	6	0	0	2	0	0	0	2	2	1	0	31	3	0	0	35	34
H/TOT	0	0	43	7	0	0	50	50	0	0	6	0	0	0	6	6	6	2	143	6	0	0	157	151
17:30	1	0	10	0	0	0	11	10	0	1	0	0	0	0	1	0	2	1	27	0	0	0	30	28
17:45	0	0	6	0	0	0	6	6	0	0	1	0	0	0	1	1	1	1	37	1	0	0	40	39
18:00	0	0	9	0	0	0	9	9	0	0	4	0	0	0	4	4	0	0	32	2	0	0	34	34
18:15	0	0	9	0	0	0	9	9	0	0	2	0	0	0	2	2	0	0	27	1	0	0	28	28
H/TOT	1	0	34	0	0	0	35	34	0	1	7	0	0	0	8	7	3	2	123	4	0	0	132	128
P/TOT	1	0	77	7	0	0	85	84	0	1	13	0	0	0	14	13	9	4	266	10	0	0	289	279

FRASCATI TRAFFIC COUNTS **NOVEMBER 2019**

MANUAL CLASSIFIED JUNCTION TURNING COUNTS **TRA/19/276**

SITE: 03 DATE: 28th November 2019

LOCATION: Frascati Road/Frascati Shopping Centre DAY: Thursday

	MOVEMENT 1								MOVEMENT 2							
TIME	**PCL**	**MCL**	**CAR**	**LGV**	**HGV**	**BUS**	**TOT**	**PCU**	**PCL**	**MCL**	**CAR**	**LGV**	**HGV**	**BUS**	**TOT**	**PCU**
07:30	5	1	134	19	8	2	169	174	0	0	0	0	0	0	0	0
07:45	9	1	108	22	5	3	148	148	0	0	0	0	0	0	0	0
08:00	12	4	192	22	5	2	237	232	0	0	0	0	0	0	0	0
08:15	10	1	192	12	0	3	218	212	0	0	0	0	0	0	0	0
H/TOT	36	7	626	75	18	10	772	767	0	0	0	0	0	0	0	0
08:30	22	4	176	19	4	4	229	217	0	0	0	0	0	0	0	0
08:45	10	2	168	15	4	2	201	198	0	0	0	0	0	0	0	0
09:00	10	1	147	24	3	2	187	183	0	0	0	0	0	0	0	0
09:15	4	4	142	12	10	3	175	182	0	0	0	0	0	0	0	0
H/TOT	46	11	633	70	21	11	792	781	0	0	0	0	0	0	0	0
P/TOT	82	18	1259	145	39	21	1564	1548	0	0	0	0	0	0	0	0

	MOVEMENT 1								MOVEMENT 2							
TIME	**PCL**	**MCL**	**CAR**	**LGV**	**HGV**	**BUS**	**TOT**	**PCU**	**PCL**	**MCL**	**CAR**	**LGV**	**HGV**	**BUS**	**TOT**	**PCU**
16:30	22	3	264	24	0	2	315	298	0	0	0	0	0	0	0	0
16:45	19	7	269	12	1	2	310	294	0	0	0	0	0	0	0	0
17:00	20	3	242	11	3	2	281	268	0	0	0	0	0	0	0	0
17:15	37	9	260	7	3	0	316	284	0	0	0	0	0	0	0	0
H/TOT	98	22	1035	54	7	6	1222	1143	0	0	0	0	0	0	0	0
17:30	34	9	239	12	2	3	299	271	0	0	0	0	0	0	0	0
17:45	38	8	277	5	1	3	332	301	0	0	0	0	0	0	0	0
18:00	44	1	245	3	1	0	294	259	0	0	0	0	0	0	0	0
18:15	42	6	241	9	0	1	299	263	0	0	1	0	0	0	1	1
H/TOT	158	24	1002	29	4	7	1224	1094	0	0	1	0	0	0	1	1
P/TOT	256	46	2037	83	11	13	2446	2238	0	0	1	0	0	0	1	1

FRASCATI TRAFFIC COUNTS **NOVEMBER 2019**

MANUAL CLASSIFIED JUNCTION TURNING COUNTS **TRA/19/276**

SITE: 03 DATE: 28th November 2019

LOCATION: Frascati Road/Frascati Shopping Centre DAY: Thursday

	MOVEMENT 3								MOVEMENT 4							
TIME	**PCL**	**MCL**	**CAR**	**LGV**	**HGV**	**BUS**	**TOT**	**PCU**	**PCL**	**MCL**	**CAR**	**LGV**	**HGV**	**BUS**	**TOT**	**PCU**
07:30	0	0	9	3	3	0	15	18	44	2	212	6	1	3	268	236
07:45	0	0	7	1	0	0	8	8	51	5	208	11	2	3	280	241
08:00	0	0	6	0	0	0	6	6	59	3	197	19	2	4	284	241
08:15	0	0	4	2	1	0	7	8	66	3	192	11	3	3	278	229
H/TOT	0	0	26	6	4	0	36	40	220	13	809	47	8	13	1110	947
08:30	1	0	13	2	0	0	16	15	61	15	166	13	5	4	264	215
08:45	1	0	16	1	2	0	20	21	60	13	202	10	2	4	291	241
09:00	0	0	21	0	0	0	21	21	33	10	223	11	6	4	287	265
09:15	0	0	24	4	0	0	28	28	29	5	254	14	6	10	318	308
H/TOT	2	0	74	7	2	0	85	85	183	43	845	48	19	22	1160	1029
P/TOT	2	0	100	13	6	0	121	125	403	56	1654	95	27	35	2270	1976

	MOVEMENT 3								MOVEMENT 4							
TIME	**PCL**	**MCL**	**CAR**	**LGV**	**HGV**	**BUS**	**TOT**	**PCU**	**PCL**	**MCL**	**CAR**	**LGV**	**HGV**	**BUS**	**TOT**	**PCU**
16:30	0	0	33	0	0	0	33	33	8	1	193	17	1	4	224	222
16:45	0	0	26	0	0	0	26	26	4	2	212	14	0	6	238	240
17:00	0	0	17	1	0	0	18	18	12	1	240	12	5	4	274	273
17:15	0	0	19	2	0	0	21	21	11	2	216	36	5	3	273	271
H/TOT	0	0	95	3	0	0	98	98	35	6	861	79	11	17	1009	1005
17:30	0	0	15	0	0	0	15	15	17	5	176	9	1	5	213	202
17:45	0	0	21	0	0	0	21	21	14	0	196	5	0	3	218	210
18:00	0	0	21	0	0	0	21	21	11	6	181	9	2	8	217	215
18:15	0	0	19	1	0	0	20	20	15	0	199	10	1	4	229	222
H/TOT	0	0	76	1	0	0	77	77	57	11	752	33	4	20	877	849
P/TOT	0	0	171	4	0	0	175	175	92	17	1613	112	15	37	1886	1854

FRASCATI TRAFFIC COUNTS **NOVEMBER 2019**

MANUAL CLASSIFIED JUNCTION TURNING COUNTS **TRA/19/276**

SITE: 04 DATE: 28th November 2019

LOCATION: Frascati Road/George's Avenue DAY: Thursday

	MOVEMENT 1								MOVEMENT 2							
TIME	**PCL**	**MCL**	**CAR**	**LGV**	**HGV**	**BUS**	**TOT**	**PCU**	**PCL**	**MCL**	**CAR**	**LGV**	**HGV**	**BUS**	**TOT**	**PCU**
07:30	5	1	134	19	8	2	169	174	1	0	21	1	0	0	23	22
07:45	9	1	108	22	5	3	148	148	1	0	25	1	0	0	27	26
08:00	12	4	192	22	5	2	237	232	5	0	26	3	0	0	34	30
08:15	10	1	192	12	0	3	218	212	4	0	21	2	0	0	27	24
H/TOT	36	7	626	75	18	10	772	767	11	0	93	7	0	0	111	102
08:30	22	4	176	19	4	4	229	217	5	2	26	1	0	0	34	29
08:45	10	2	168	15	4	2	201	198	2	0	33	1	0	0	36	34
09:00	10	1	147	24	3	2	187	183	4	1	34	1	0	0	40	36
09:15	4	4	142	12	10	3	175	182	0	0	23	3	1	0	27	28
H/TOT	46	11	633	70	21	11	792	781	11	3	116	6	1	0	137	127
P/TOT	82	18	1259	145	39	21	1564	1548	22	3	209	13	1	0	248	230

	MOVEMENT 1								MOVEMENT 2							
TIME	**PCL**	**MCL**	**CAR**	**LGV**	**HGV**	**BUS**	**TOT**	**PCU**	**PCL**	**MCL**	**CAR**	**LGV**	**HGV**	**BUS**	**TOT**	**PCU**
16:30	22	3	264	24	0	2	315	298	0	0	21	1	0	0	22	22
16:45	19	7	269	12	1	2	310	294	3	0	14	0	0	0	17	15
17:00	20	3	242	11	3	2	281	268	1	0	14	0	0	0	15	14
17:15	37	9	260	7	3	0	316	284	1	0	20	1	0	0	22	21
H/TOT	98	22	1035	54	7	6	1222	1143	5	0	69	2	0	0	76	72
17:30	34	9	239	12	2	3	299	271	1	0	9	0	0	0	10	9
17:45	38	8	277	5	1	3	332	301	2	0	18	0	0	0	20	18
18:00	44	1	245	3	1	0	294	259	1	0	13	0	0	0	14	13
18:15	42	6	241	9	0	1	299	263	1	0	18	0	0	0	19	18
H/TOT	158	24	1002	29	4	7	1224	1094	5	0	58	0	0	0	63	59
P/TOT	256	46	2037	83	11	13	2446	2238	10	0	127	2	0	0	139	131

FRASCATI TRAFFIC COUNTS **NOVEMBER 2019**

MANUAL CLASSIFIED JUNCTION TURNING COUNTS **TRA/19/276**

SITE: 04 DATE: 28th November 2019

LOCATION: Frascati Road/George's Avenue DAY: Thursday

	MOVEMENT 3								MOVEMENT 4								MOVEMENT 5							
TIME	**PCL**	**MCL**	**CAR**	**LGV**	**HGV**	**BUS**	**TOT**	**PCU**	**PCL**	**MCL**	**CAR**	**LGV**	**HGV**	**BUS**	**TOT**	**PCU**	**PCL**	**MCL**	**CAR**	**LGV**	**HGV**	**BUS**	**TOT**	**PCU**
07:30	0	0	0	0	0	0	0	0	43	2	200	8	4	3	260	231	0	0	1	1	1	0	3	4
07:45	0	0	0	0	0	0	0	0	50	5	190	11	2	3	261	223	0	0	2	1	1	0	4	5
08:00	1	0	0	0	0	0	1	0	54	3	177	16	2	4	256	217	0	0	0	0	0	0	0	0
08:15	1	0	0	0	0	0	1	0	62	3	175	11	4	3	258	214	0	0	1	1	1	0	3	4
H/TOT	2	0	0	0	0	0	2	0	209	13	742	46	12	13	1035	885	0	0	4	3	3	0	10	13
08:30	0	0	0	0	0	0	0	0	57	13	153	14	5	4	246	202	0	0	3	1	1	0	5	6
08:45	0	0	0	0	0	0	0	0	59	13	185	10	4	4	275	228	0	0	2	0	2	0	4	6
09:00	0	0	0	0	0	0	0	0	29	9	210	10	6	4	268	249	0	0	3	2	0	0	5	5
09:15	0	0	0	0	0	0	0	0	29	5	255	15	5	10	319	308	0	1	0	3	1	0	5	5
H/TOT	0	0	0	0	0	0	0	0	174	40	803	49	20	22	1108	987	0	1	8	6	4	0	19	22
P/TOT	2	0	0	0	0	0	2	0	383	53	1545	95	32	35	2143	1872	0	1	12	9	7	0	29	35

	MOVEMENT 3								MOVEMENT 4								MOVEMENT 5							
TIME	**PCL**	**MCL**	**CAR**	**LGV**	**HGV**	**BUS**	**TOT**	**PCU**	**PCL**	**MCL**	**CAR**	**LGV**	**HGV**	**BUS**	**TOT**	**PCU**	**PCL**	**MCL**	**CAR**	**LGV**	**HGV**	**BUS**	**TOT**	**PCU**
16:30	0	0	0	0	0	0	0	0	8	1	205	16	1	4	235	233	0	0	3	0	0	0	3	3
16:45	0	0	0	0	0	0	0	0	1	2	224	14	0	6	247	251	0	0	4	0	0	0	4	4
17:00	0	0	0	0	0	0	0	0	11	1	243	13	5	4	277	277	0	0	5	0	0	0	5	5
17:15	0	0	0	0	0	0	0	0	10	2	215	37	5	3	272	271	0	0	8	0	0	0	8	8
H/TOT	0	0	0	0	0	0	0	0	30	6	887	80	11	17	1031	1031	0	0	20	0	0	0	20	20
17:30	0	0	0	0	0	0	0	0	16	5	182	9	1	5	218	208	0	0	4	1	0	0	5	5
17:45	0	0	0	0	0	0	0	0	12	0	199	5	0	3	219	212	0	0	3	1	0	0	4	4
18:00	0	0	0	0	0	0	0	0	10	6	189	9	2	8	224	222	0	0	6	0	0	0	6	6
18:15	0	0	0	0	0	0	0	0	14	0	200	11	1	4	230	224	0	0	2	0	0	0	2	2
H/TOT	0	0	0	0	0	0	0	0	52	11	770	34	4	20	891	867	0	0	15	2	0	0	17	17
P/TOT	0	0	0	0	0	0	0	0	82	17	1657	114	15	37	1922	1898	0	0	35	2	0	0	37	37

APPENDIX C

TRICS Trip Generation Output - Apartments

Calculation Reference: AUDIT-160301-200130-0158

TRIP RATE CALCULATION SELECTION PARAMETERS:

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

Selected regions and areas:

03	SOUTH WEST		
	DC	DORSET	1 days
	DV	DEVON	1 days
04	EAST ANGLIA		
	CA	CAMBRIDGESHIRE	2 days
	NF	NORFOLK	1 days
	SF	SUFFOLK	2 days
05	EAST MIDLANDS		
	NT	NOTTINGHAMSHIRE	2 days
06	WEST MIDLANDS		
	WM	WEST MIDLANDS	1 days
07	YORKSHIRE & NORTH LINCOLNSHIRE		
	RI	EAST RIDING OF YORKSHIRE	1 days
08	NORTH WEST		
	GM	GREATER MANCHESTER	2 days
	MS	MERSEYSIDE	2 days
09	NORTH		
	CB	CUMBRIA	3 days
	TV	TEES VALLEY	1 days
10	WALES		
	CO	CONWY	1 days
	DB	DENBIGHSHIRE	1 days
11	SCOTLAND		
	EB	CITY OF EDINBURGH	1 days
	SA	SOUTH AYRSHIRE	1 days
	SR	STIRLING	2 days
12	CONNAUGHT		
	GA	GALWAY	1 days
13	MUNSTER		
	WA	WATERFORD	1 days
14	LEINSTER		
	LU	LOUTH	3 days
15	GREATER DUBLIN		
	DL	DUBLIN	8 days
16	ULSTER (REPUBLIC OF IRELAND)		
	MG	MONAGHAN	1 days
17	ULSTER (NORTHERN IRELAND)		
	AN	ANTRIM	1 days

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

Secondary Filtering selection:

Use Class:

C3	40 days

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

Population within 1 mile:

1,001 to 5,000	4 days
5,001 to 10,000	3 days
10,001 to 15,000	9 days
15,001 to 20,000	4 days
20,001 to 25,000	5 days
25,001 to 50,000	15 days

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

Population within 5 miles:

5,001 to 25,000	2 days
25,001 to 50,000	4 days
50,001 to 75,000	10 days
75,001 to 100,000	3 days
125,001 to 250,000	4 days
250,001 to 500,000	6 days
500,001 or More	11 days

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

Secondary Filtering selection (Cont.):

Car ownership within 5 miles:

0.6 to 1.0	16 days
1.1 to 1.5	24 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	40 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	40 days

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

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

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	40	65	0.044	40	65	0.170	40	65	0.214
08:00 - 09:00	40	65	0.049	40	65	0.210	40	65	0.259
09:00 - 10:00	40	65	0.068	40	65	0.099	40	65	0.167
10:00 - 11:00	40	65	0.051	40	65	0.069	40	65	0.120
11:00 - 12:00	40	65	0.062	40	65	0.066	40	65	0.128
12:00 - 13:00	40	65	0.079	40	65	0.075	40	65	0.154
13:00 - 14:00	40	65	0.072	40	65	0.082	40	65	0.154
14:00 - 15:00	40	65	0.077	40	65	0.080	40	65	0.157
15:00 - 16:00	40	65	0.103	40	65	0.064	40	65	0.167
16:00 - 17:00	40	65	0.123	40	65	0.071	40	65	0.194
17:00 - 18:00	40	65	0.197	40	65	0.074	40	65	0.271
18:00 - 19:00	40	65	0.154	40	65	0.079	40	65	0.233
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			1.079			1.139			2.218

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

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

Parameter summary

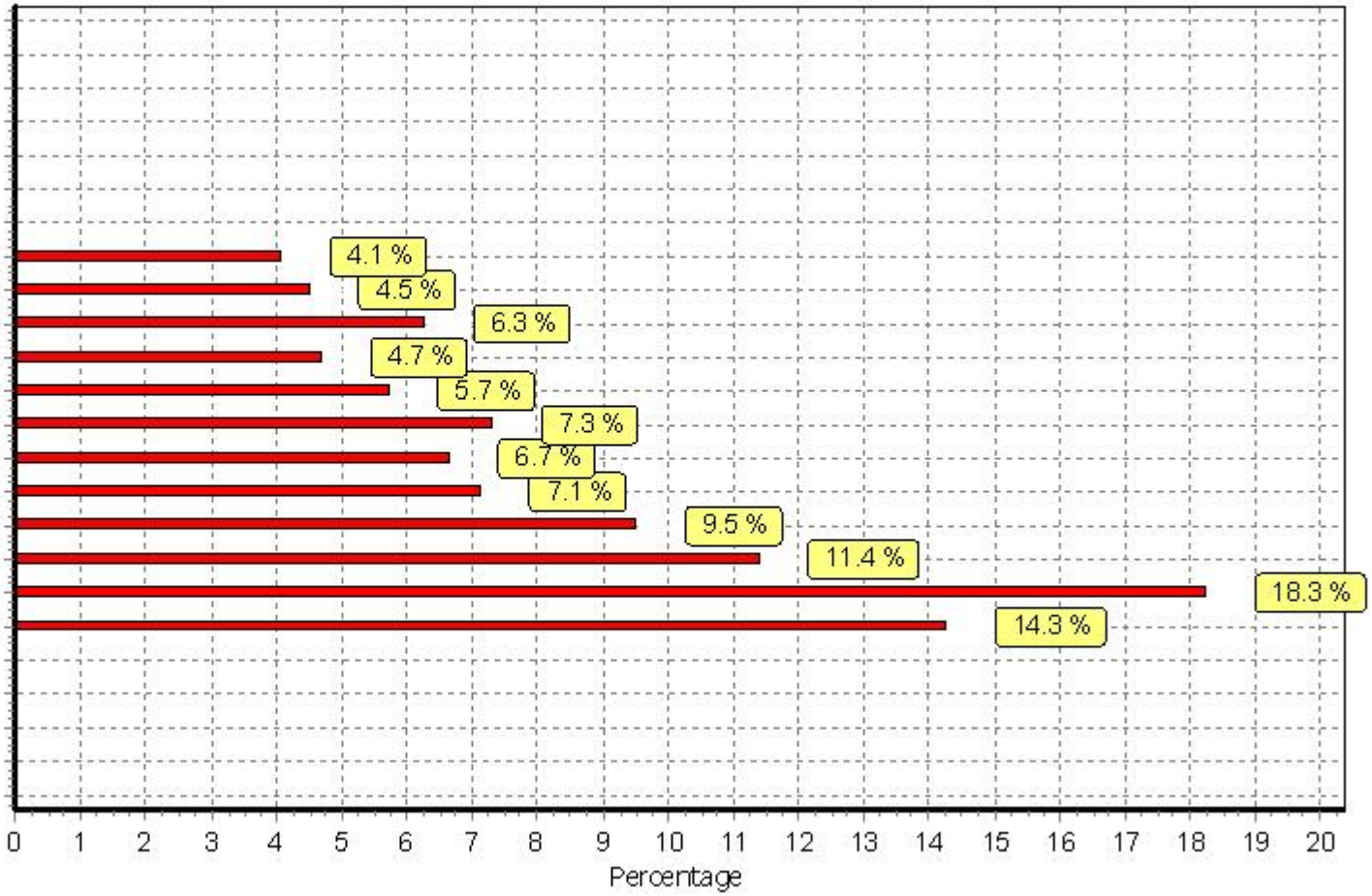
Trip rate parameter range selected:	9 - 340 (units:)
Survey date date range:	01/01/11 - 13/11/18
Number of weekdays (Monday-Friday):	40
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	1
Surveys manually removed from selection:	0

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

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

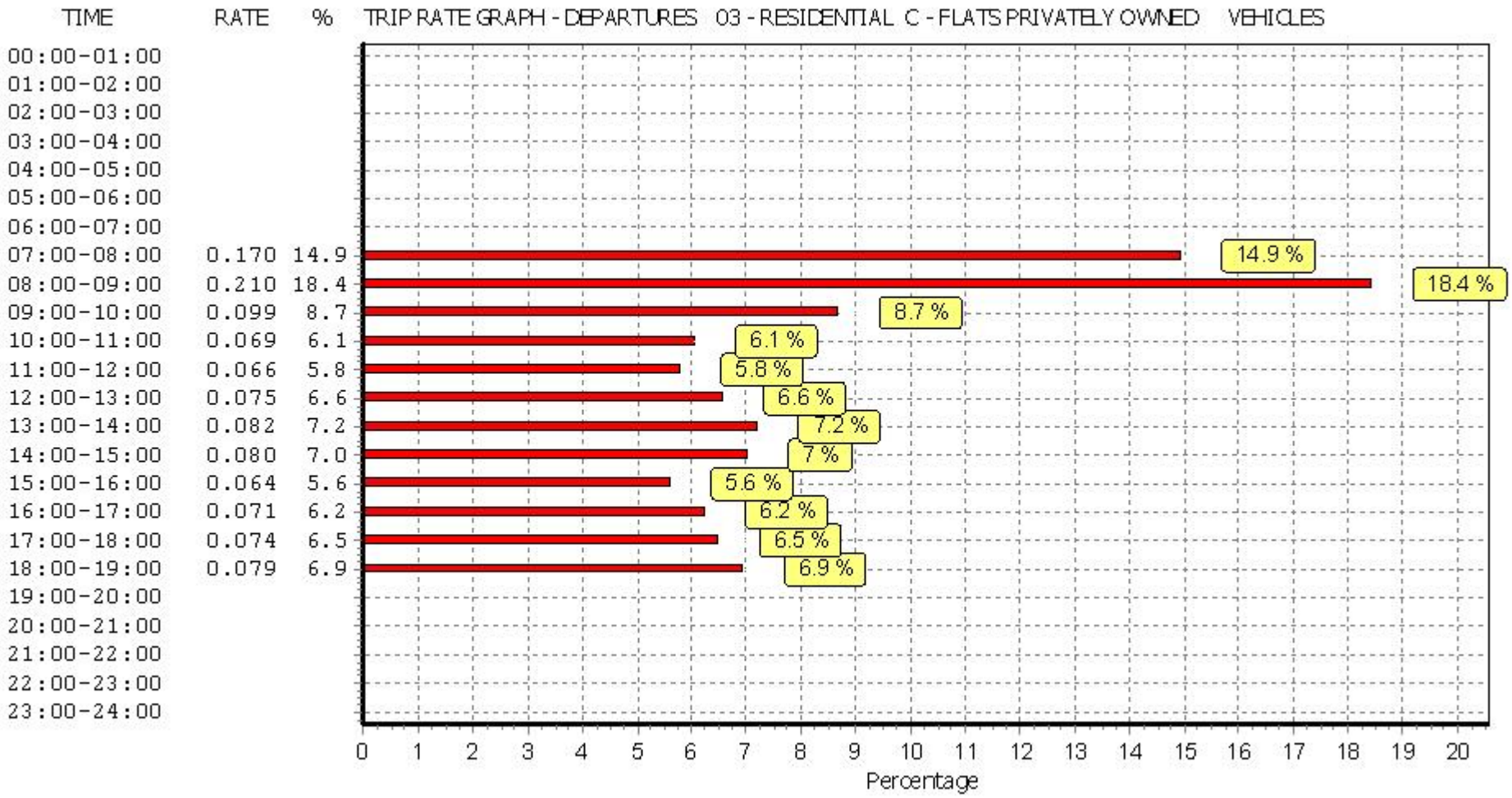
TRIP RATE GRAPH - ARRIVALS 03 - RESIDENTIAL C - FLATS PRIVATELY OWNED VEHICLES

TIME	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	0.044	4.1
08:00-09:00	0.049	4.5
09:00-10:00	0.068	6.3
10:00-11:00	0.051	4.7
11:00-12:00	0.062	5.7
12:00-13:00	0.079	7.3
13:00-14:00	0.072	6.7
14:00-15:00	0.077	7.1
15:00-16:00	0.103	9.5
16:00-17:00	0.123	11.4
17:00-18:00	0.197	18.3
18:00-19:00	0.154	14.3
19:00-20:00		
20:00-21:00		
21:00-22:00		
22:00-23:00		
23:00-24:00		



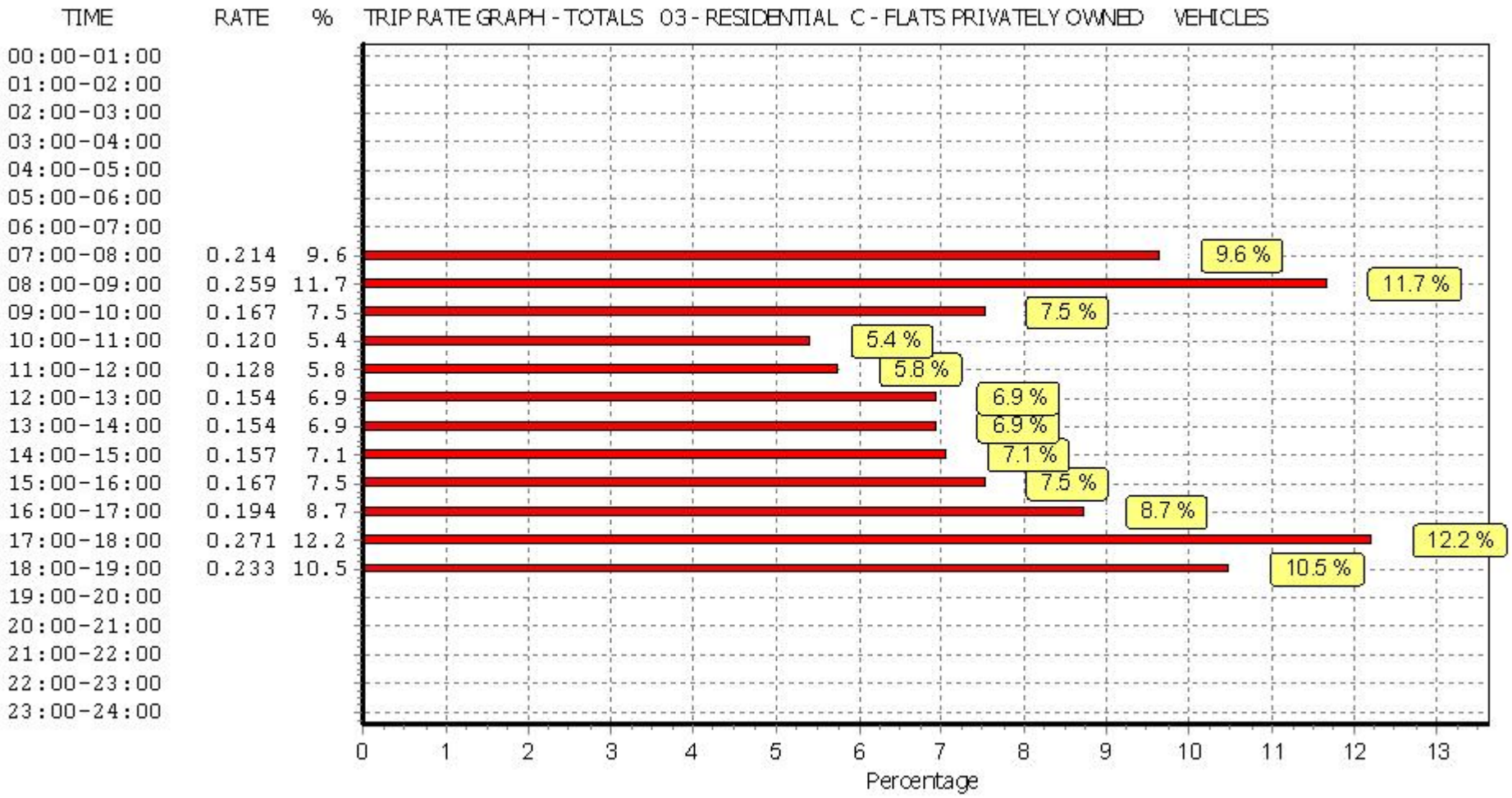
This graph is a visual representation of the trip rate calculation results screen. The same time periods and trip rates are displayed, but in addition there is an additional column showing the percentage of the total trip rate by individual time period, allowing peak periods to be easily identified through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

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



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

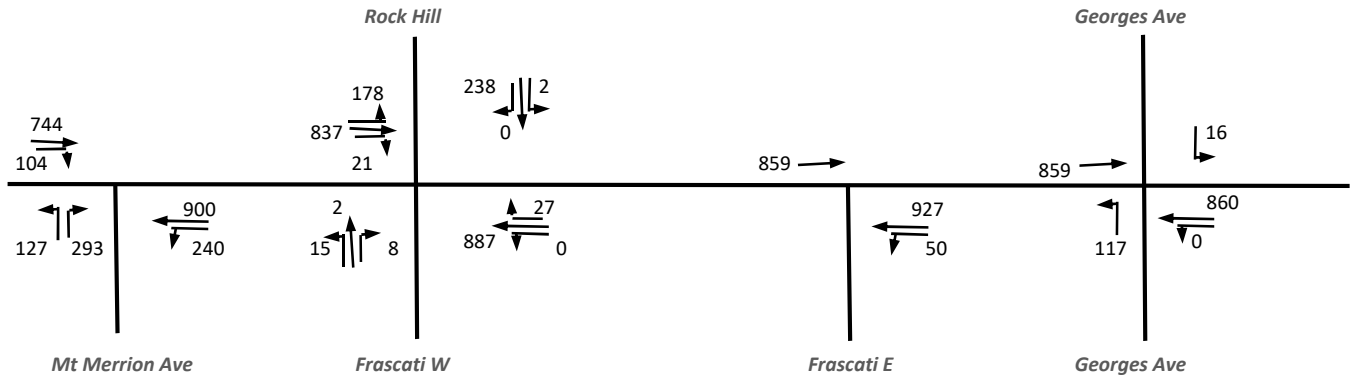
NRB Consulting Engineers Ltd 8 Leopardstown Business Centre, Ballyogan Avenue Dublin 18 Licence No: 160301



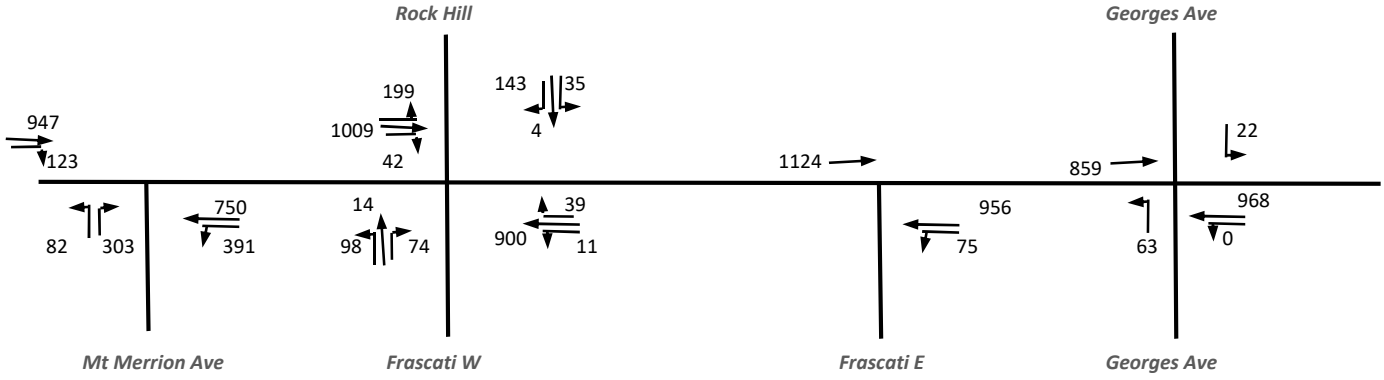
This graph is a visual representation of the trip rate calculation results screen. The same time periods and trip rates are displayed, but in addition there is an additional column showing the percentage of the total trip rate by individual time period, allowing peak periods to be easily identified through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

APPENDIX D

Traffic Surveys, Trip Distribution & Network Traffic Flow Projections & Diagrams



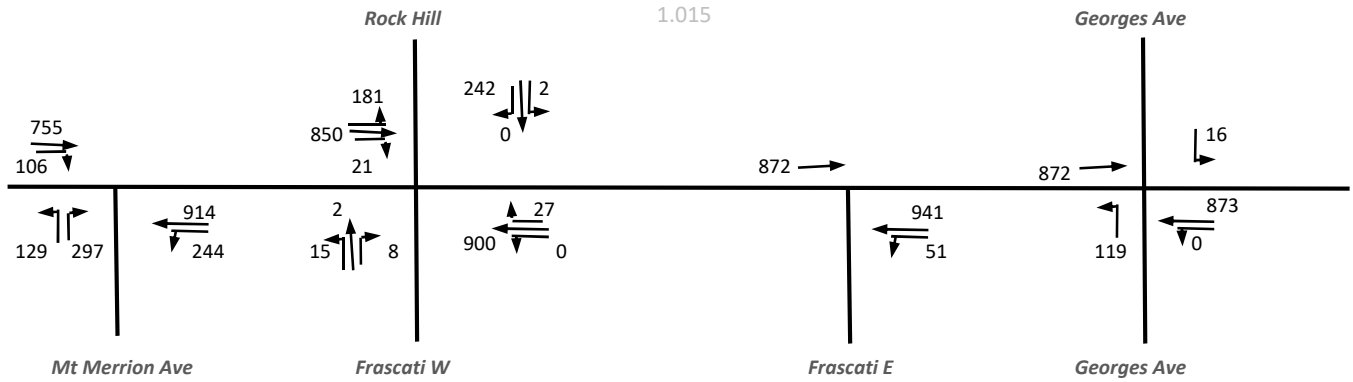
2019 AM PEAK HR 8-9am



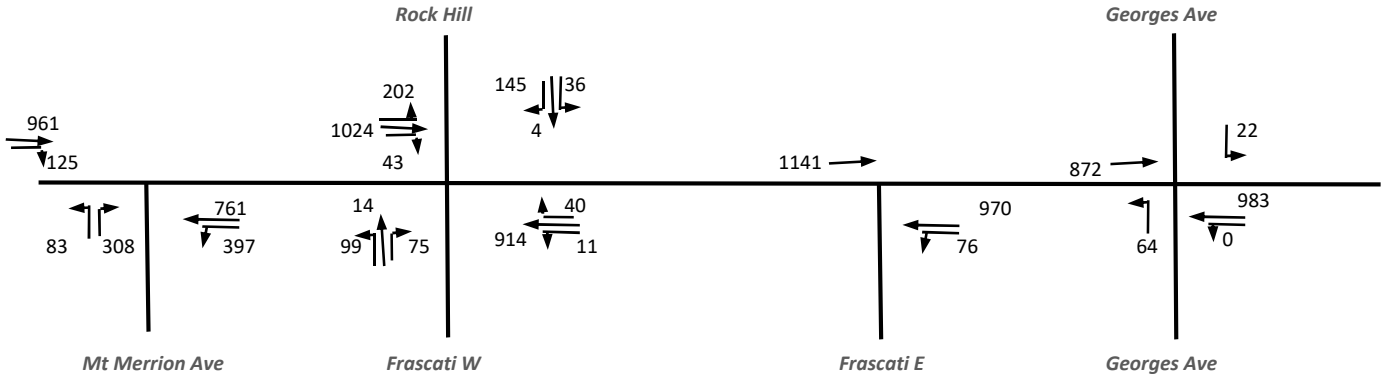
2019 PM PEAK HR 5-6pm

Existing 2019 Weekday Peak Hour Traffic Volumes
As Surveyed (PCUs) - WITHOUT NEW RESIDENTIAL DEVELOPMENT.

TII PE-PAG-02017 Project Appraisal Guidelines for National Roads Unit 5.3 (Travel Demand Projections October 2016, Table 5.3.2: Link-Based Growth Rates: Annual Growth Factors) DLRCC	*2019 to 2022 = 1.015* *2022 to 2037 = 1.077*

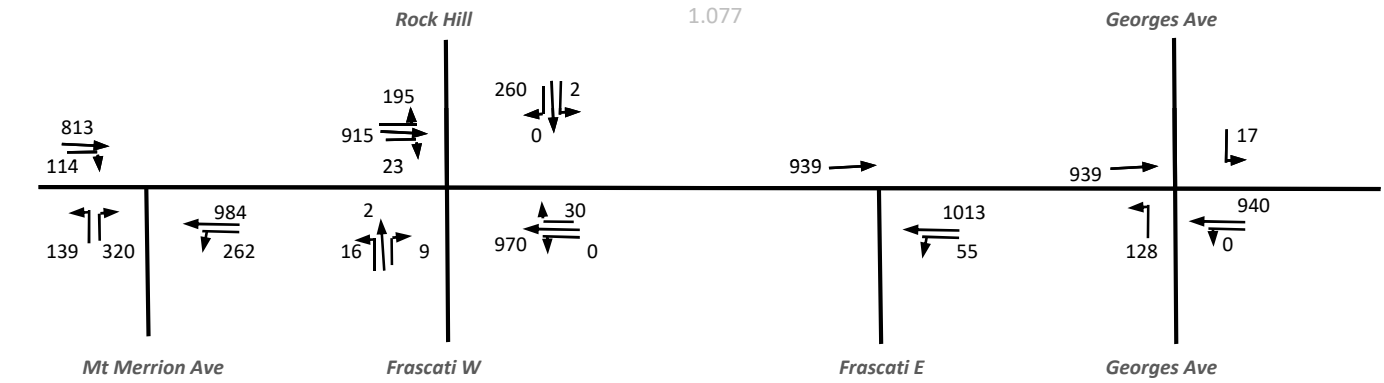


2022 AM PEAK HR 8-9am WITHOUT Residential

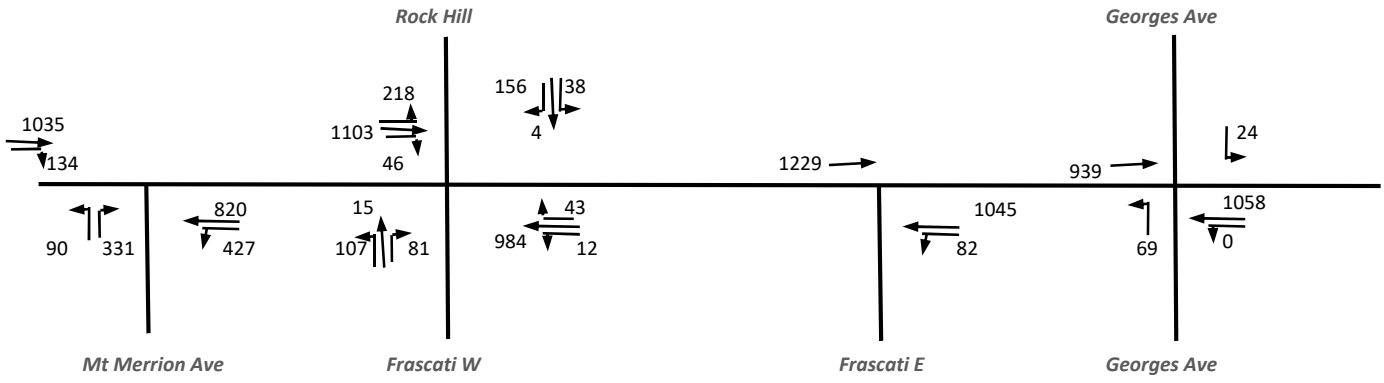


2022 PM PEAK HR 5-6pm WITHOUT Residential

Projected Weekday Peak Hour Traffic Volumes
OPENING YEAR 2022 - WITHOUT NEW RESIDENTIAL DEVELOPMENT.

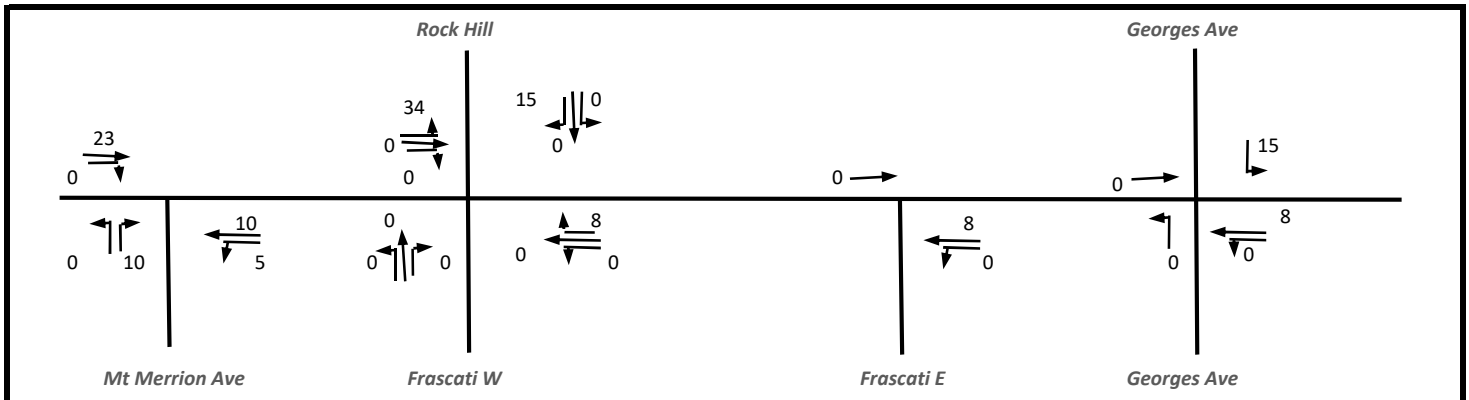


2037 AM PEAK HR 8-9am WITHOUT Residential

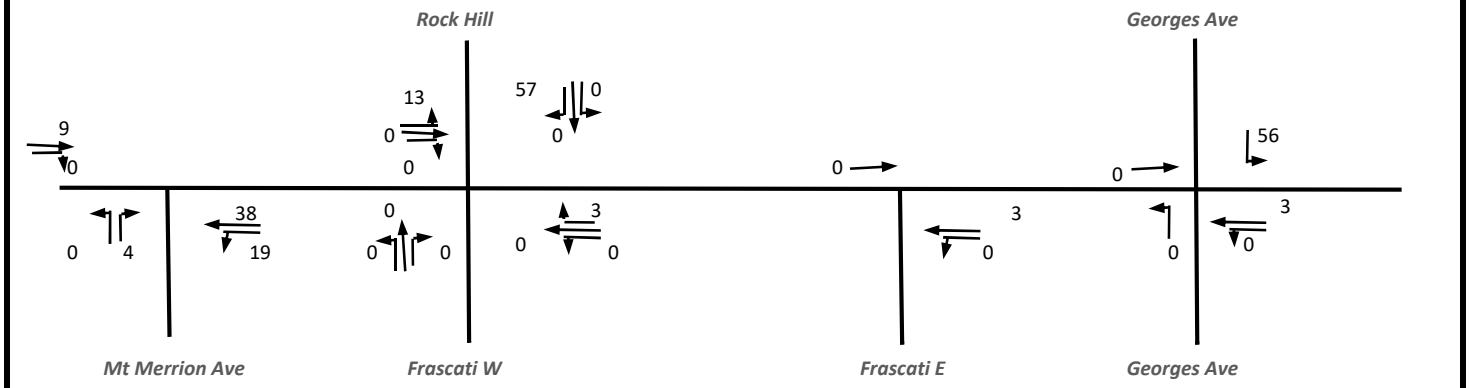


2037 PM PEAK HR 5-6pm WITHOUT Residential

Projected Weekday Peak Hour Traffic Volumes
DESIGN YEAR 2037 - WITHOUT NEW RESIDENTIAL DEVELOPMENT.

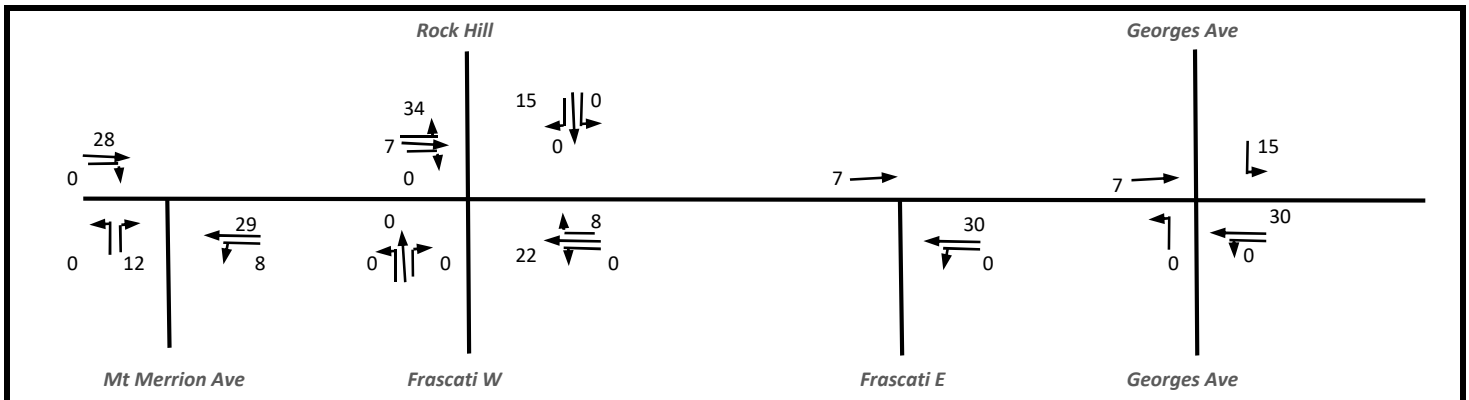


Opening Year 8-9am



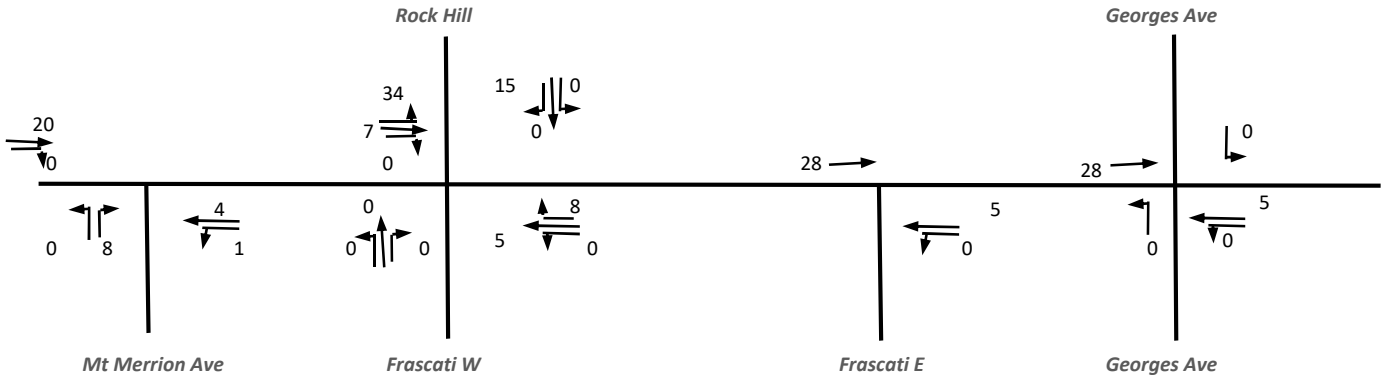
Opning Year 5-6pm

Assignment of Traffic Associated with COMMITTED Redevelopment of Enterprise House D16A/0418 (*Source TA for Application*)



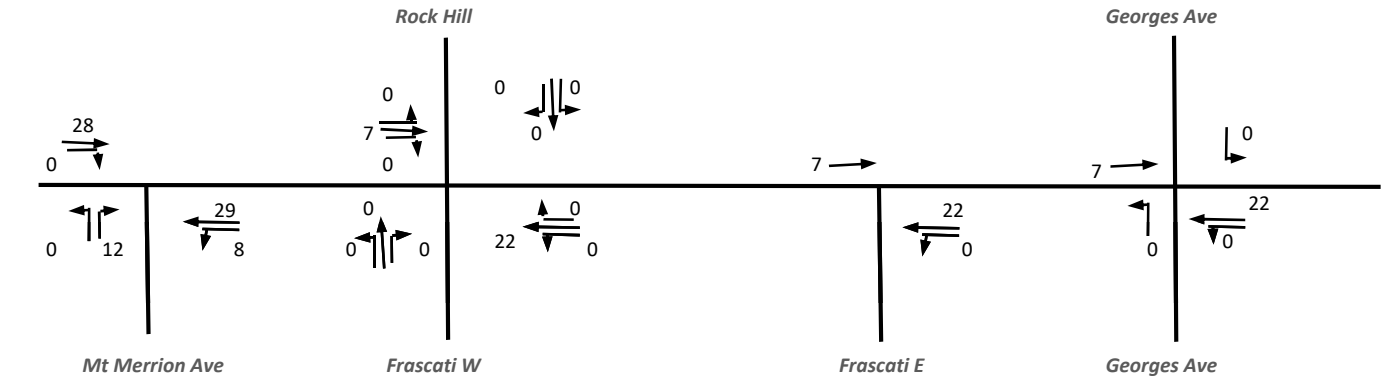
Opening Year 8-9am

Assignment of Traffic Associated with COMMITTED Residential Development on St Catherines ABP-303804-19 (*Source TA for Application*)

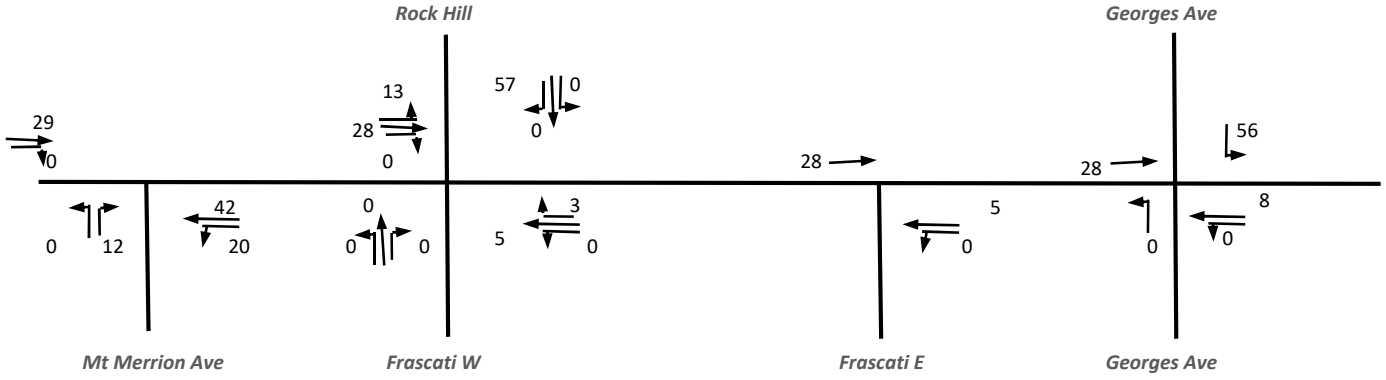


Opning Year 5-6pm

Assignment of Traffic Associated with COMMITTED Residential Development on St Catherines ABP-303804-19 (*Source TA for Application*)

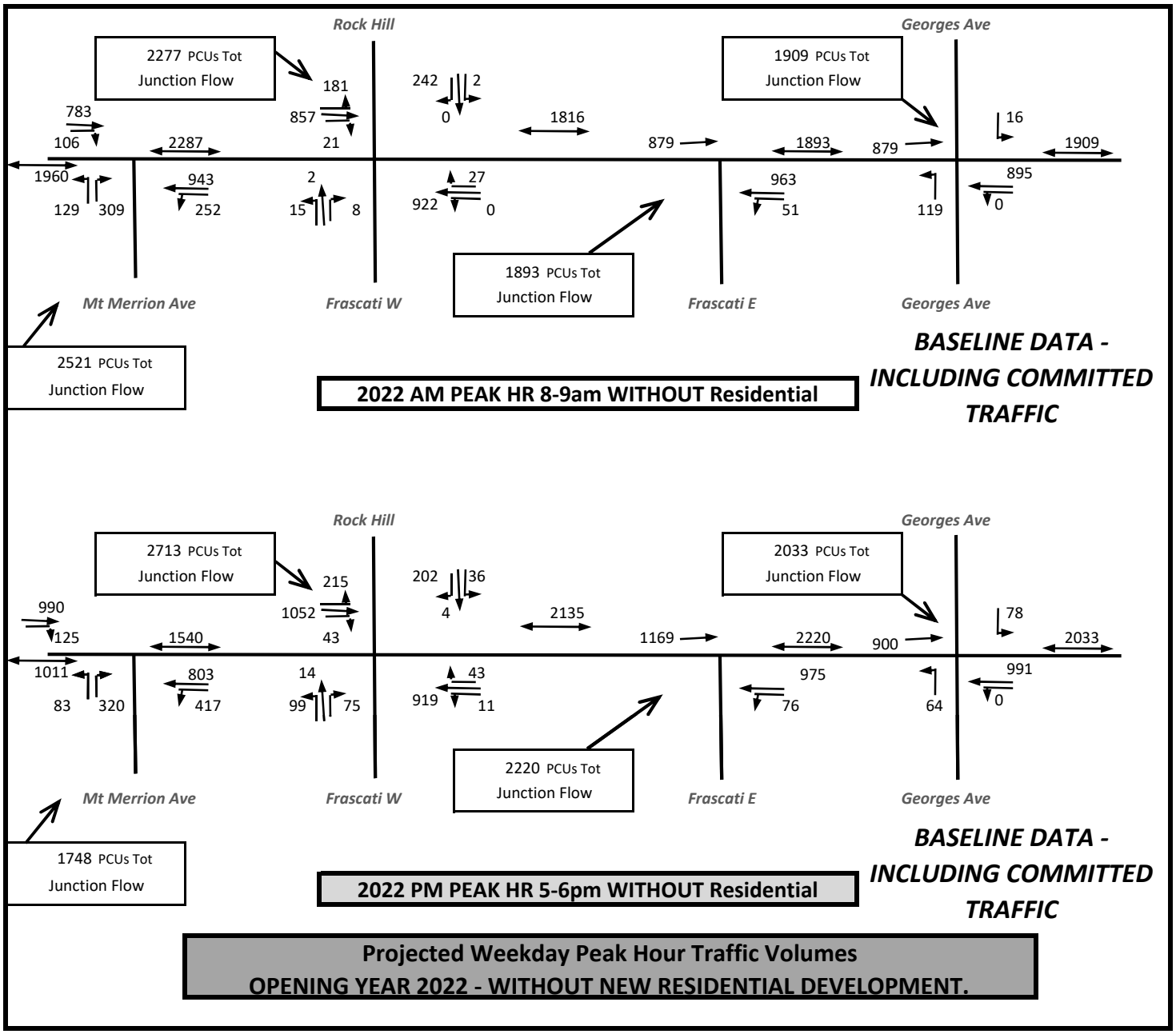


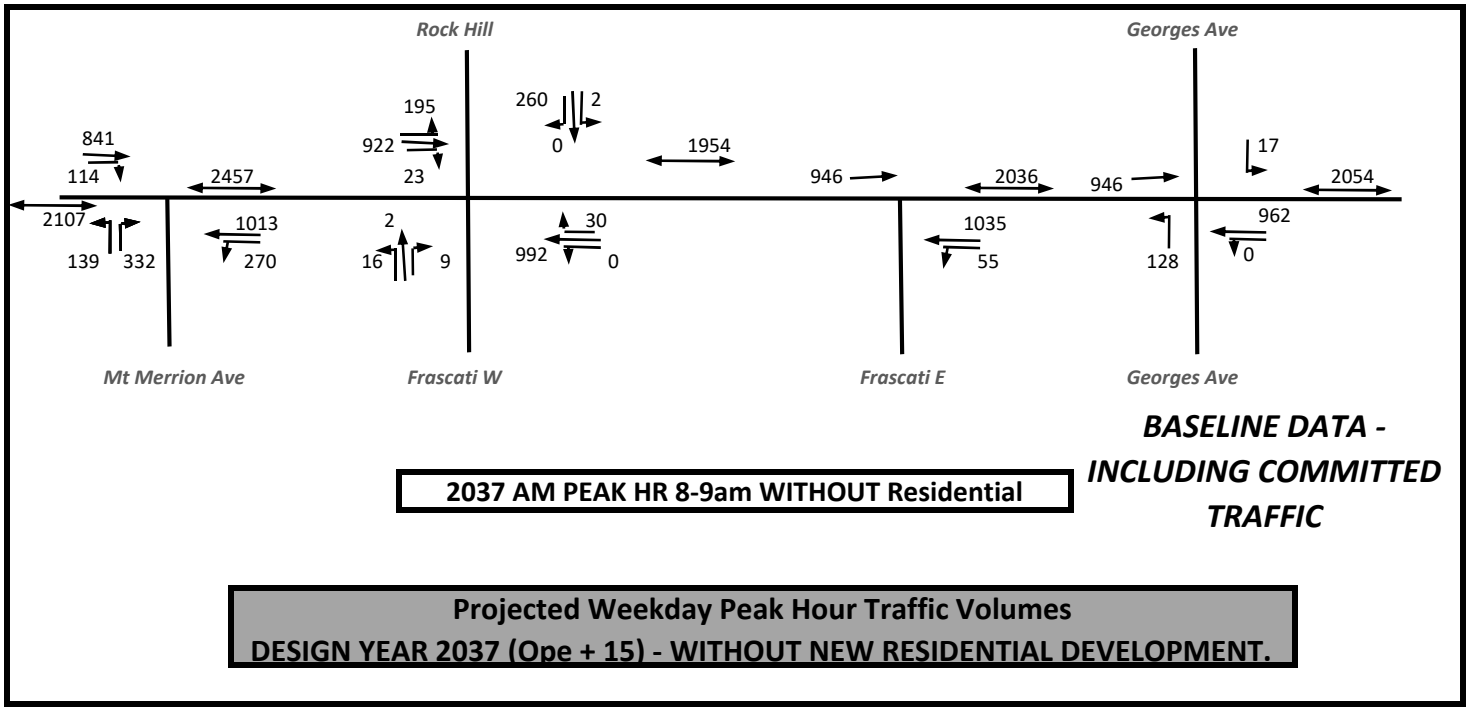
Opening Year 8-9am

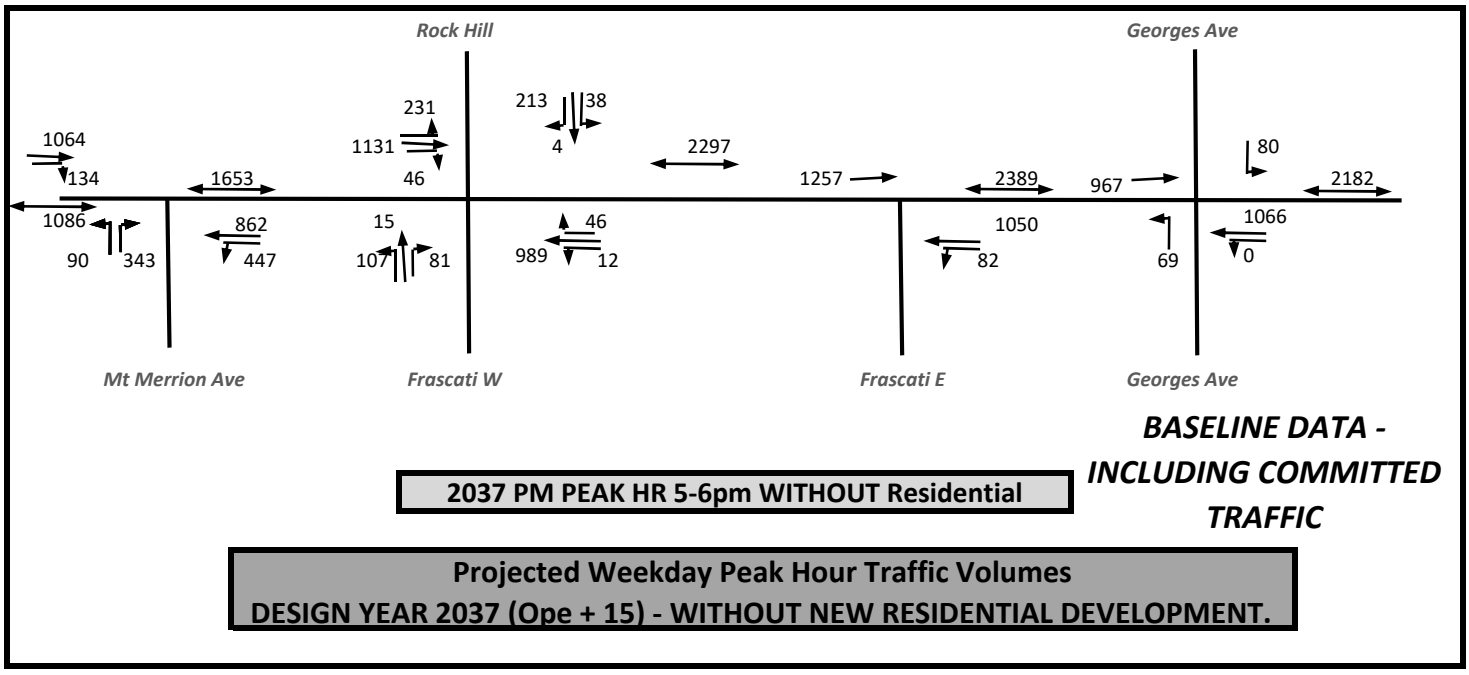


Opning Year 5-6pm

COMBINED TOTAL COMMITTED TRAFFIC - ENTERPRISE AND ST CATHERINES


Rock Hill
Georges Ave
2277 PCUs Tot
Junction Flow
1909 PCUs Tot
Junction Flow
783
106
2287
181
857
21
242
2
0
1816
879
1893
879
16
1909
1960
129
309
943
252
2
15
8
27
922
0
963
51
119
895
0
1893 PCUs Tot
Junction Flow
Mt Merrion Ave
Frascati W
Frascati E
Georges Ave
2521 PCUs Tot
Junction Flow
2022 AM PEAK HR 8-9am WITHOUT Residential
BASELINE DATA - INCLUDING COMMITTED TRAFFIC
Rock Hill
Georges Ave
2713 PCUs Tot
Junction Flow
2033 PCUs Tot
Junction Flow
990
125
1540
215
1052
43
202
36
4
2135
1169
2220
900
78
2033
1011
83
320
803
417
14
99
75
43
919
11
975
76
64
991
0
2220 PCUs Tot
Junction Flow
Mt Merrion Ave
Frascati W
Frascati E
Georges Ave
1748 PCUs Tot
Junction Flow
2022 PM PEAK HR 5-6pm WITHOUT Residential
BASELINE DATA - INCLUDING COMMITTED TRAFFIC
Projected Weekday Peak Hour Traffic Volumes
OPENING YEAR 2022 - WITHOUT NEW RESIDENTIAL DEVELOPMENT.


Rock Hill
Georges Ave
841
114
2457
195
922
23
260
2
0
1954
946
2036
946
17
2054
2107
139
332
1013
270
2
16
9
30
992
0
1035
55
128
962
0
Mt Merrion Ave
Frascati W
Frascati E
Georges Ave
2037 AM PEAK HR 8-9am WITHOUT Residential
BASELINE DATA - INCLUDING COMMITTED TRAFFIC
Projected Weekday Peak Hour Traffic Volumes
DESIGN YEAR 2037 (Ope + 15) - WITHOUT NEW RESIDENTIAL DEVELOPMENT.



BASELINE DATA - INCLUDING COMMITTED TRAFFIC

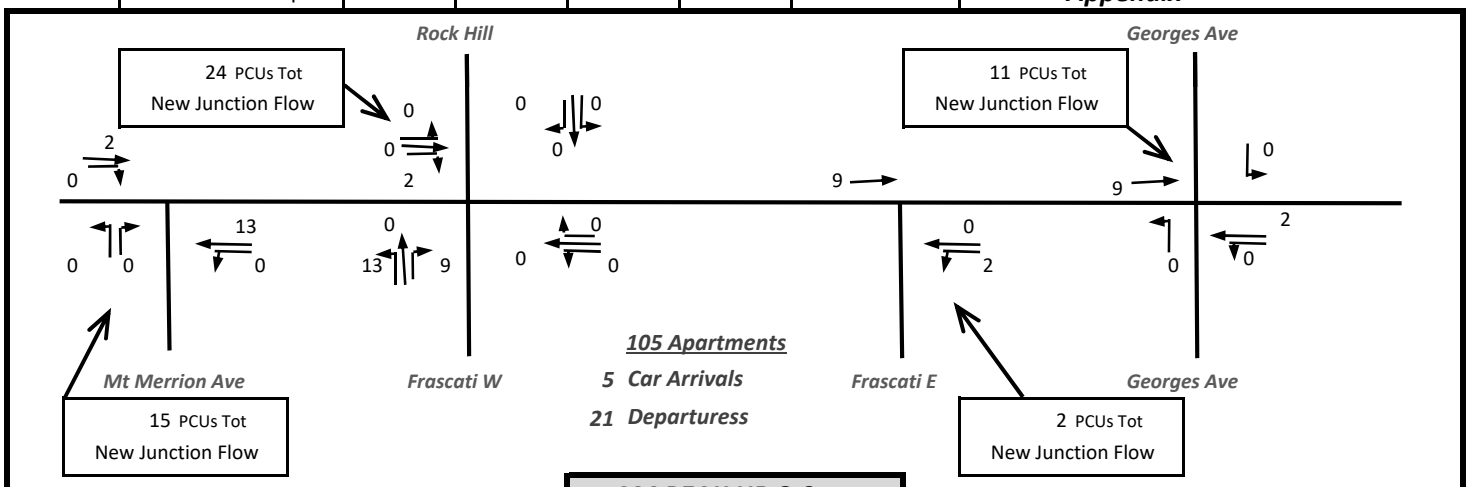
2037 PM PEAK HR 5-6pm WITHOUT Residential

Projected Weekday Peak Hour Traffic Volumes
DESIGN YEAR 2037 (Ope + 15) - WITHOUT NEW RESIDENTIAL DEVELOPMENT.

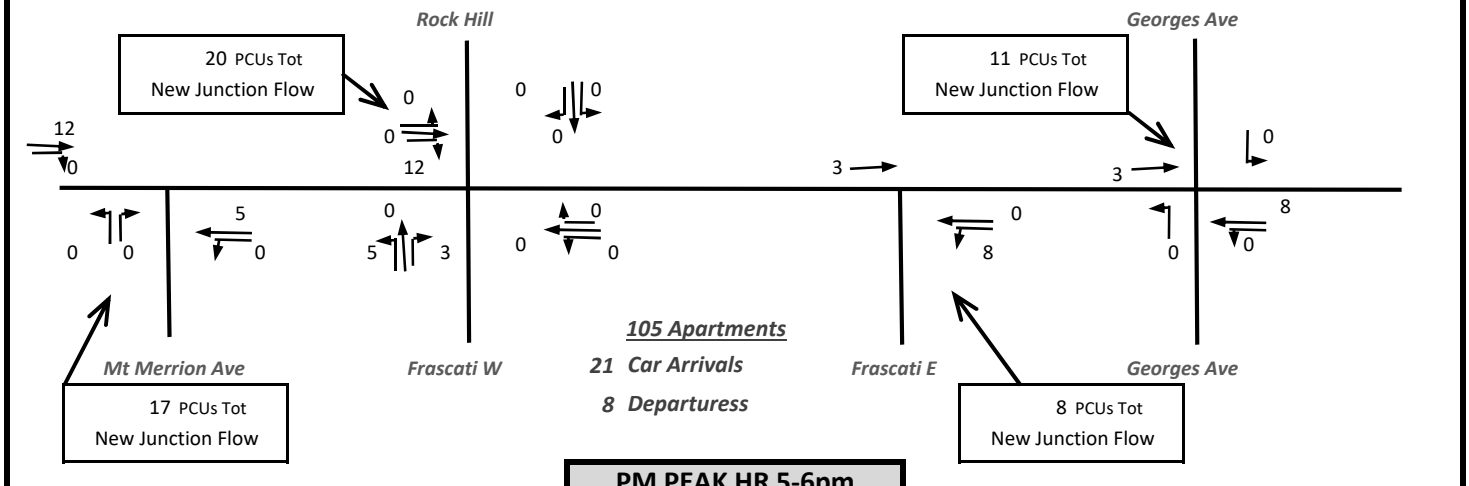
TRICS ASSESSMENT OF WORST-CASE TRAFFIC GENERATED - 102 APTS
(Previously Approved 45 Aparts PLUS Now-Proposed 57 Extra on the Site)

102 Apts/Duplex	Car Arrivals		Car Departures		Total 2-Way Traffic
Network Period	Per Unit	Total	Per Unit	Total	
AM Peak Hr 8-9am	0.049	5	0.210	21	26
PM Peak Hr 5-6pm	0.197	21	0.074	8	29

Apart/Duplex Trip Rates as Extracted from TRICS Output Data in Separate Appendix

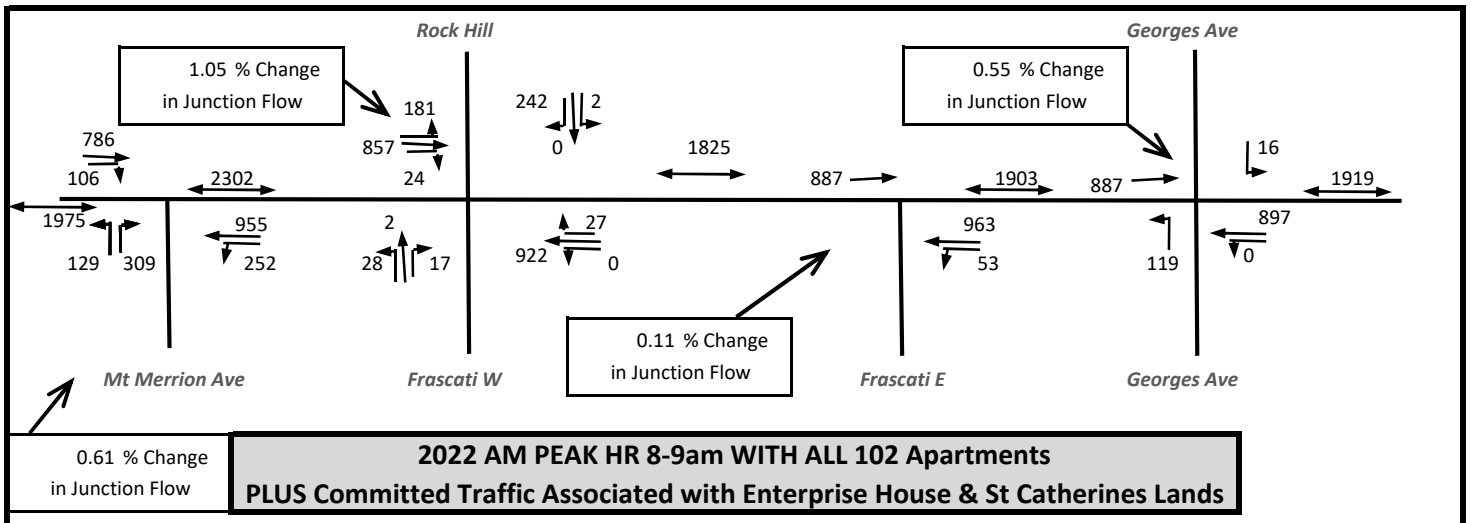


AM PEAK HR 8-9am

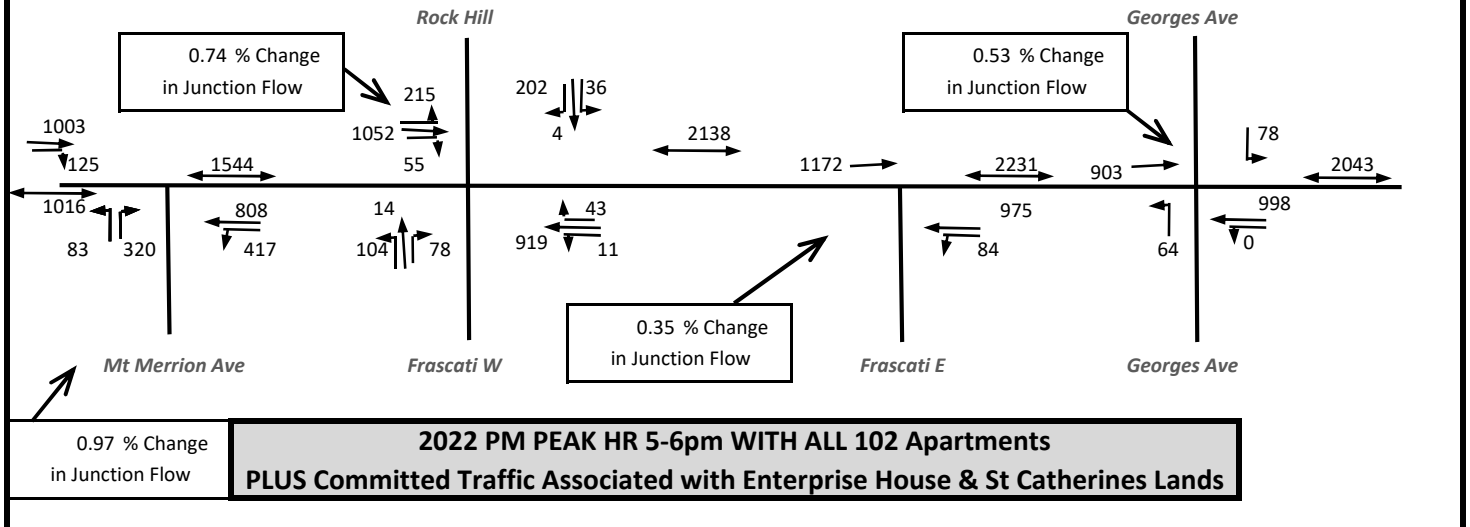


PM PEAK HR 5-6pm

ASSIGNMENT OF SUBJECT DEVELOPMENT TRAFFIC (102 APARTMENTS)

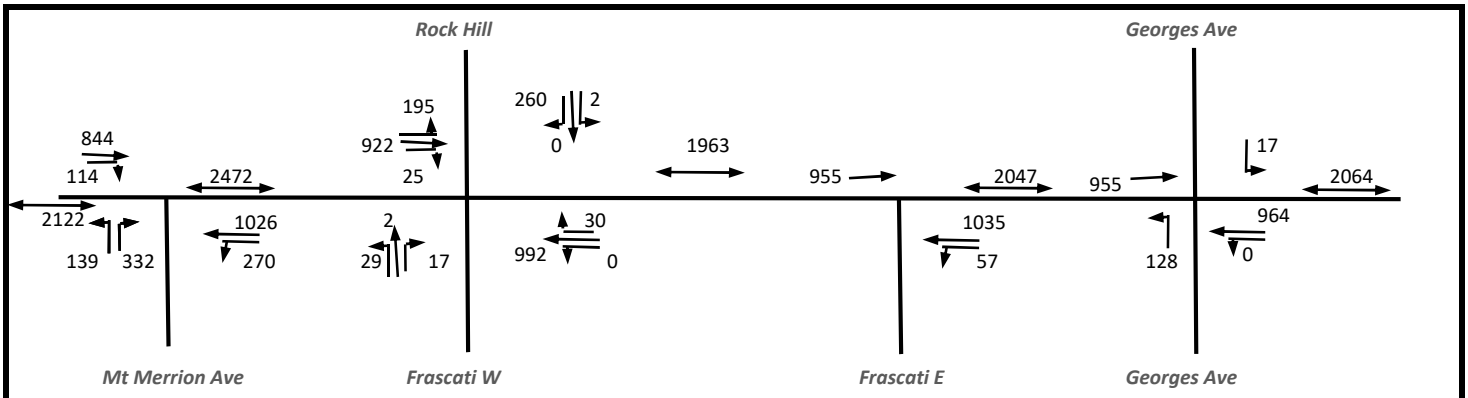


2022 AM PEAK HR 8-9am WITH ALL 102 Apartments
PLUS Committed Traffic Associated with Enterprise House & St Catherines Lands

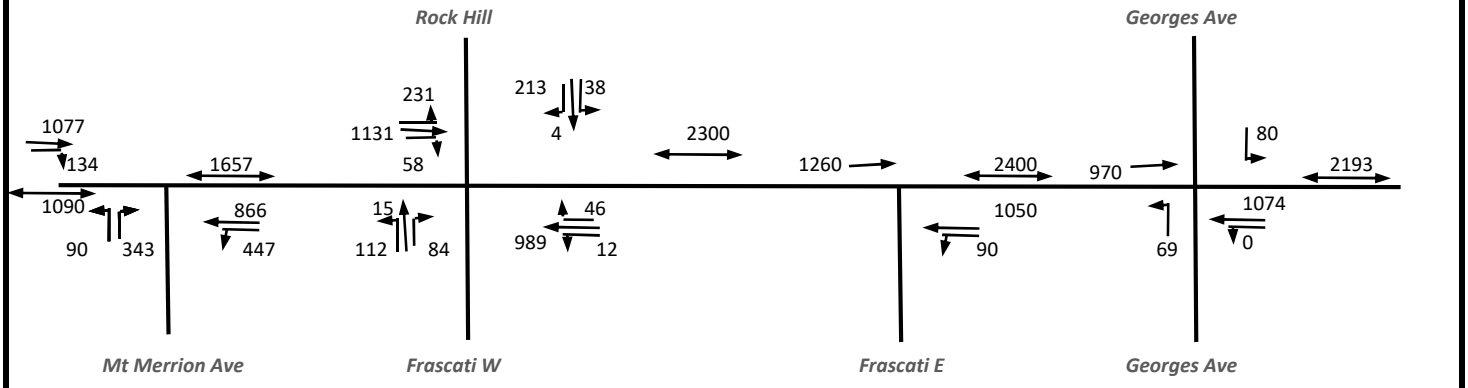


2022 PM PEAK HR 5-6pm WITH ALL 102 Apartments
PLUS Committed Traffic Associated with Enterprise House & St Catherines Lands

Projected Weekday Peak Hour Traffic Volumes
OPENING YEAR 2022 - WITH ALL 102 APARTMENTS OPEN/OCCUPIED.



2037 AM PEAK HR 8-9am WITH ALL 102 Apartments PLUS
Committed Traffic Associated with Enterprise House & St Catherines Lands



2037 PM PEAK HR 5-6pm WITH ALL 102 Apartments PLUS
Committed Traffic Associated with Enterprise House & St Catherines Lands

Projected Weekday Peak Hour Traffic Volumes
DESIGN YEAR 2037 (Ope +15) - WITH ALL 102 APARTMENTS OPEN/OCCUPIED.

APPENDIX E

Frascati Centre Car Park Occupancy Data

Frascati Shopping Centre - 2019 Occupancy Data

490 = No. Of Non-Apartment spaces

Date	PEAK DEMAND	% Occupancy of Proposed Centre spaces not incl Apartment Spaces	
01/01/2019	0	0%	New Years Day
02/01/2019	220	45%	
03/01/2019	229	47%	
04/01/2019	247	50%	
05/01/2019	256	52%	
06/01/2019	179	37%	
07/01/2019	196	40%	
08/01/2019	221	45%	
09/01/2019	246	50%	
10/01/2019	254	52%	
11/01/2019	239	49%	
12/01/2019	247	50%	
13/01/2019	195	40%	
14/01/2019	213	43%	
15/01/2019	214	44%	
16/01/2019	225	46%	
17/01/2019	230	47%	
18/01/2019	251	51%	
19/01/2019	266	54%	
20/01/2019	179	37%	
21/01/2019	184	38%	
22/01/2019	219	45%	
23/01/2019	213	43%	
24/01/2019	278	57%	
25/01/2019	257	52%	
26/01/2019	238	49%	
27/01/2019	216	44%	
28/01/2019	233	48%	
29/01/2019	276	56%	
30/01/2019	258	53%	
31/01/2019	265	54%	
01/02/2019	271	55%	
02/02/2019	215	44%	
03/02/2019	189	39%	
04/02/2019	208	42%	
05/02/2019	251	51%	
06/02/2019	226	46%	
07/02/2019	273	56%	
08/02/2019	258	53%	
09/02/2019	228	47%	
10/02/2019	205	42%	
11/02/2019	240	49%	

Frascati Shopping Centre - 2019 Occupancy Data

490 = No. Of Non-Apartment spaces

Date	PEAK DEMAND	% Occupancy of Proposed Centre spaces not incl Apartment Spaces
12/02/2019	281	57%
13/02/2019	302	62%
14/02/2019	359	73%
15/02/2019	335	68%
16/02/2019	324	66%
17/02/2019	229	47%
18/02/2019	180	37%
19/02/2019	222	45%
20/02/2019	231	47%
21/02/2019	227	46%
22/02/2019	280	57%
23/02/2019	197	40%
24/02/2019	190	39%
25/02/2019	223	46%
26/02/2019	250	51%
27/02/2019	277	57%
28/02/2019	324	66%
01/03/2019	328	67%
02/03/2019	389	79%
03/03/2019	309	63%
04/03/2019	306	62%
05/03/2019	227	46%
06/03/2019	236	48%
07/03/2019	265	54%
08/03/2019	268	55%
09/03/2019	259	53%
10/03/2019	186	38%
11/03/2019	241	49%
12/03/2019	228	47%
13/03/2019	258	53%
14/03/2019	279	57%
15/03/2019	271	55%
16/03/2019	232	47%
17/03/2019	173	35%
18/03/2019	180	37%
19/03/2019	220	45%
20/03/2019	234	48%
21/03/2019	262	53%
22/03/2019	274	56%
23/03/2019	221	45%
24/03/2019	188	38%
25/03/2019	227	46%

Frascati Shopping Centre - 2019 Occupancy Data

490 = No. Of Non-Apartment spaces

Date	PEAK DEMAND	% Occupancy of Proposed Centre spaces not incl Apartment Spaces	
26/03/2019	250	51%	
27/03/2019	233	48%	
28/03/2019	213	43%	
29/03/2019	265	54%	
30/03/2019	254	52%	
31/03/2019	204	42%	
01/04/2019	233	48%	
02/04/2019	225	46%	
03/04/2019	242	49%	
04/04/2019	284	58%	
05/04/2019	332	68%	
06/04/2019	220	45%	
07/04/2019	177	36%	
08/04/2019	200	41%	
09/04/2019	240	49%	
10/04/2019	242	49%	
11/04/2019	267	54%	
12/04/2019	313	64%	
13/04/2019	281	57%	
14/04/2019	264	54%	
15/04/2019	266	54%	
16/04/2019	289	59%	
17/04/2019	264	54%	
18/04/2019	245	50%	
19/04/2019	233	48%	
20/04/2019	211	43%	
21/04/2019	0	0%	Easter Sunday
22/04/2019	127	26%	
23/04/2019	208	42%	
24/04/2019	211	43%	
25/04/2019	239	49%	
26/04/2019	265	54%	
27/04/2019	242	49%	
28/04/2019	221	45%	
29/04/2019	212	43%	
30/04/2019	251	51%	
01/05/2019	265	54%	
02/05/2019	266	54%	
03/05/2019	268	55%	
04/05/2019	238	49%	
05/05/2019	169	34%	
06/05/2019	192	39%	

Frascati Shopping Centre - 2019 Occupancy Data

490 = No. Of Non-Apartment spaces

Date	PEAK DEMAND	% Occupancy of Proposed Centre spaces not incl Apartment Spaces
07/05/2019	259	53%
08/05/2019	287	59%
09/05/2019	275	56%
10/05/2019	307	63%
11/05/2019	230	47%
12/05/2019	184	38%
13/05/2019	244	50%
14/05/2019	243	50%
15/05/2019	290	59%
16/05/2019	282	58%
17/05/2019	346	71%
18/05/2019	280	57%
19/05/2019	175	36%
20/05/2019	224	46%
21/05/2019	227	46%
22/05/2019	258	53%
23/05/2019	287	59%
24/05/2019	268	55%
25/05/2019	207	42%
26/05/2019	169	34%
27/05/2019	227	46%
28/05/2019	267	54%
29/05/2019	287	59%
30/05/2019	216	44%
31/05/2019	274	56%
01/06/2019	241	49%
02/06/2019	139	28%
03/06/2019	164	33%
04/06/2019	235	48%
05/06/2019	339	69%
06/06/2019	350	71%
07/06/2019	398	81%
08/06/2019	279	57%
09/06/2019	169	34%
10/06/2019	220	45%
11/06/2019	284	58%
12/06/2019	276	56%
13/06/2019	292	60%
14/06/2019	298	61%
15/06/2019	241	49%
16/06/2019	167	34%
17/06/2019	200	41%

Frascati Shopping Centre - 2019 Occupancy Data

490 = No. Of Non-Apartment spaces

Date	PEAK DEMAND	% Occupancy of Proposed Centre spaces not incl Apartment Spaces
18/06/2019	198	40%
19/06/2019	268	55%
20/06/2019	268	55%
21/06/2019	301	61%
22/06/2019	219	45%
23/06/2019	215	44%
24/06/2019	241	49%
25/06/2019	258	53%
26/06/2019	248	51%
27/06/2019	263	54%
28/06/2019	267	54%
29/06/2019	245	50%
30/06/2019	207	42%
01/07/2019	227	46%
02/07/2019	242	49%
03/07/2019	238	49%
04/07/2019	234	48%
05/07/2019	261	53%
06/07/2019	254	52%
07/07/2019	136	28%
08/07/2019	211	43%
09/07/2019	230	47%
10/07/2019	256	52%
11/07/2019	290	59%
12/07/2019	295	60%
13/07/2019	217	44%
14/07/2019	135	28%
15/07/2019	208	42%
16/07/2019	239	49%
17/07/2019	258	53%
18/07/2019	248	51%
19/07/2019	299	61%
20/07/2019	278	57%
21/07/2019	378	77%
22/07/2019	211	43%
23/07/2019	223	46%
24/07/2019	254	52%
25/07/2019	286	58%
26/07/2019	258	53%
27/07/2019	223	46%
28/07/2019	142	29%
29/07/2019	232	47%

Frascati Shopping Centre - 2019 Occupancy Data

490 = No. Of Non-Apartment spaces

Date	PEAK DEMAND	% Occupancy of Proposed Centre spaces not incl Apartment Spaces
30/07/2019	264	54%
31/07/2019	233	48%
01/08/2019	254	52%
02/08/2019	261	53%
03/08/2019	334	68%
04/08/2019	290	59%
05/08/2019	217	44%
06/08/2019	237	48%
07/08/2019	220	45%
08/08/2019	237	48%
09/08/2019	312	64%
10/08/2019	289	59%
11/08/2019	257	52%
12/08/2019	173	35%
13/08/2019	230	47%
14/08/2019	281	57%
15/08/2019	279	57%
16/08/2019	293	60%
17/08/2019	227	46%
18/08/2019	207	42%
19/08/2019	302	62%
20/08/2019	360	73%
21/08/2019	290	59%
22/08/2019	405	83%
23/08/2019	271	55%
24/08/2019	215	44%
25/08/2019	185	38%
26/08/2019	218	44%
27/08/2019	245	50%
28/08/2019	257	52%
29/08/2019	319	65%
30/08/2019	372	76%
31/08/2019	286	58%
01/09/2019	232	47%
02/09/2019	249	51%
03/09/2019	219	45%
04/09/2019	271	55%
05/09/2019	232	47%
06/09/2019	366	75%
07/09/2019	244	50%
08/09/2019	191	39%
09/09/2019	228	47%

Frascati Shopping Centre - 2019 Occupancy Data

490 = No. Of Non-Apartment spaces

Date	PEAK DEMAND	% Occupancy of Proposed Centre spaces not incl Apartment Spaces
10/09/2019	236	48%
11/09/2019	261	53%
12/09/2019	298	61%
13/09/2019	278	57%
14/09/2019	257	52%
15/09/2019	289	59%
16/09/2019	264	54%
17/09/2019	245	50%
18/09/2019	270	55%
19/09/2019	251	51%
20/09/2019	285	58%
21/09/2019	244	50%
22/09/2019	203	41%
23/09/2019	247	50%
24/09/2019	282	58%
25/09/2019	296	60%
26/09/2019	283	58%
27/09/2019	457	93%
28/09/2019	259	53%
29/09/2019	234	48%
30/09/2019	237	48%
01/10/2019	332	68%
02/10/2019	264	54%
03/10/2019	275	56%
04/10/2019	371	76%
05/10/2019	358	73%
06/10/2019	230	47%
07/10/2019	279	57%
08/10/2019	276	56%
09/10/2019	252	51%
10/10/2019	295	60%
11/10/2019	313	64%
12/10/2019	255	52%
13/10/2019	274	56%
14/10/2019	264	54%
15/10/2019	317	65%
16/10/2019	275	56%
17/10/2019	302	62%
18/10/2019	338	69%
19/10/2019	369	75%
20/10/2019	251	51%
21/10/2019	239	49%

Frascati Shopping Centre - 2019 Occupancy Data

490 = No. Of Non-Apartment spaces

Date	PEAK DEMAND	% Occupancy of Proposed Centre spaces not incl Apartment Spaces
22/10/2019	287	59%
23/10/2019	300	61%
24/10/2019	285	58%
25/10/2019	360	73%
26/10/2019	297	61%
27/10/2019	208	42%
28/10/2019	279	57%
29/10/2019	307	63%
30/10/2019	288	59%
31/10/2019	334	68%
01/11/2019	318	65%
02/11/2019	396	81%
03/11/2019	225	46%
04/11/2019	273	56%
05/11/2019	307	63%
06/11/2019	320	65%
07/11/2019	422	86%
08/11/2019	371	76%
09/11/2019	339	69%
10/11/2019	305	62%
11/11/2019	280	57%
12/11/2019	294	60%
13/11/2019	351	72%
14/11/2019	390	80%
15/11/2019	407	83%
16/11/2019	361	74%
17/11/2019	309	63%
18/11/2019	263	54%
19/11/2019	312	64%
20/11/2019	326	67%
21/11/2019	372	76%
22/11/2019	411	84%
23/11/2019	433	88%
24/11/2019	272	56%
25/11/2019	294	60%
26/11/2019	369	75%
27/11/2019	389	79%
28/11/2019	374	76%
29/11/2019	414	84%
30/11/2019	412	84%
01/12/2019	288	59%
02/12/2019	287	59%

Frascati Shopping Centre - 2019 Occupancy Data

490 = No. Of Non-Apartment spaces

Date	PEAK DEMAND	% Occupancy of Proposed Centre spaces not incl Apartment Spaces	
03/12/2019	302	62%	
04/12/2019	347	71%	
05/12/2019	376	77%	
06/12/2019	368	75%	
07/12/2019	329	67%	
08/12/2019	338	69%	
09/12/2019	387	79%	
10/12/2019	339	69%	
11/12/2019	316	64%	
12/12/2019	436	89%	
13/12/2019	385	79%	
14/12/2019	397	81%	
15/12/2019	405	83%	
16/12/2019	349	71%	
17/12/2019	369	75%	
18/12/2019	429	88%	
19/12/2019	438	89%	
20/12/2019	470	96%	3rd highest
21/12/2019	441	90%	
22/12/2019	405	83%	
23/12/2019	505	103%	Peak
24/12/2019	473	97%	2nd highest
25/12/2019	0	0%	
26/12/2019	69	14%	
27/12/2019	221	45%	
28/12/2019	297	61%	
29/12/2019	209	43%	
30/12/2019	294	60%	
31/12/2019	319	65%	

95th Percentile	81.0%
90th Percentile	74.4%
80th Percentile	62.8%
Average = 50th Percentile	52.9%

APPENDIX F

Preliminary Travel Plan

consulting engineers

NRB

Travel Plan

(Mobility Management Plan)

for

Proposed Residential Apartment Development

at

Frascati Centre, Frascati Road, Blackrock, Co. Dublin

ABP FINAL ISSUE

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Registered in Ireland No. 491679

Contents

Enclosure;

- ***Site Location Map and Local Transport Facilities,***
- ***Bus Connects Route 15 - Emerging Preferred Route at Frascati Centre***

1.0 INTRODUCTION

1.1 NRB Consulting Engineers have been commissioned to prepare a Travel Plan in support of an application for a 102 Unit Residential Apartment Development at the Frascati Centre, Frascati Road, Blackrock, Co. Dublin (formerly known as Frascati Shopping Centre). This report is prepared in order to explain the applicants commitment to the promotion of more sustainable and cost effective travel habits among the end occupiers/residents of the scheme.

1.2 The proposed development relates to the provision of 57 no. additional apartments, above the permitted podium car park, to the north west of the centre, as a Phase 2 residential development. It is also proposed to make alterations to the Phase 1 permission for 45 no. apartments (Reg. Ref.: D17A/0950 & ABP Ref.: 300745-18), from second to fourth floor level of the rejuvenated Frascati Centre. The subject application therefore relates to a total of 102 no. residential units.

What is a Travel Plan?

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

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

Aims and Objectives of this Travel Plan

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

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

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

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

Methodology

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

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

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

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

2.0 ACCESS TO THE SITE - BY MODE

2.1 The development consists of the construction of a 102-Unit Residential Apartment Development at the Frascati Centre, Frascati Road, Blackrock, Co. Dublin (formerly known as Frascati Shopping Centre). The scheme is in the heart of Blackrock, within easy walking distance of Dublin Bus Stops and Blackrock Rail / Dart Station.

2.2 The proposed development relates to the provision of 57 no. additional apartments, above the permitted podium car park, to the north west of the centre, as a Phase 2 residential development. It is also proposed to make alterations to the Phase 1 permission for 45 no. apartments (Reg. Ref.: D17A/0950 & ABP Ref.: 300745-18), from second to fourth floor level of the rejuvenated Frascati Centre. The subject application therefore relates to a total of 102 no. residential units

2.3 It is essential for the successful Travel Planning to concentrate on journeys associated with work and school commuting patterns. These are the groups which can most practically be encouraged to use modes of transport other than the car.

2.4 Notwithstanding this, the development is located in the heart of Blackrock and is in very close proximity to the range of public and alternative transport services in Blackrock.

Cycling and Walking Facilities

2.5 At present, pedestrian/cycle traffic at/to the existing site is served by an extensive network of recently upgraded footpaths and cycle lanes. The development includes sensible and simple at grade links to these facilities which are immediately adjacent the development.

2.6 The key to cycle accessibility is convenient safe links, with secure and carefully sited cycle parking. Cycling is ideal for shorter journeys. Dún Laoghaire-Rathdown County Council (DLR) have developed their Cycle Policy - Smarter travel - Better Living. This is subject to review. As part of the 2012 review, it was noted that a significant amount of work has been carried out in the provision of facilities for Cyclists in DLR (more that 200km of cycle facilities has been provided to date).

2.7 To help meet the target set in Ireland's first National Cycle Policy Framework launched in April 2009 (that 10% of all journeys will be by bike by 2020), DLRCC stated their intention to do the following:

- Improve cycling conditions on primary cycle routes in the County as per the County Cycle Network;
- Develop new cycle route/ greenways through parks and open spaces;
- Improve connectivity/permeability from cycle routes to key destinations
- Provide 30kph zones within residential areas and other suitable locations;

- Provide new secure cycle parking;
- Continue cycle training in schools;
- Ensure that cycling is a key element of all development; and
- Monitor trends in cycle number using cycle counter data.

2.8 The DLRCC Cycling Policy outlines the various objectives and actions to be carried out in line with the 19 specific objectives in the National Cycle Policy Framework. The proposed residential development on the subject site, through good design, will assist in the promotion of cycling as a primary mode of travel.

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

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

Cycle Parking

2.11 It is expected that a significant number of residents will be willing to cycle to work or school, if safe links and secure parking are in place, and that is reflected in the provision of a total of 214 new dedicated cycle parking spaces for the residential use. This includes 148 cycle parking spaces in a secure area at the lower ground level mostly as stacker type two-tier units plus 62 parking spaces as 'Sheffield' type stands plus 4 cargo bike spaces distributed at lower ground level and surface level. In addition there are 170 cycle parking spaces provided for the retail uses in the Frascati Centre.

2.12 Cycle parking provision is over and above the DLR Cycle Policy requirements (1 long stay cycle space per apartment plus 1 short stay visitor cycle space per 5 apartments) and in line with new national Design Standards for Apartments. There are additional cycle parking spaces available in the Frascati Centre for the other uses as previously permitted. Once occupied, advice can be provided on routes by the appointed Travel Plan Coordinator, possibly with the help of a bicycle user group. This can be further facilitated in consultation with the DLR Unit, as the ongoing provision of cycle facilities is fully implemented.

2.13 It is acknowledged that cyclists need to be confident that their cycles will not be tampered with while they are in storage. With this in mind, it is proposed to install the cycle parking in prominent and visible locations with racks which allow both frame and wheels to be secured. These cycle racks are located in secure, active, well lit & security monitored places or where they can be seen by a security guard, either directly, or by closed circuit television. Within the lower ground floor, the arriving and departing cyclists will be required to dismount and walk to the cycle racks with their cycles in a safe manner (something which occurs without any difficulty at similar facilities in cities throughout the world).

Bus & Rail Provision

2.14 The proposed development is located within the heart of Blackrock and is well placed to take advantage of the existing Dublin Bus services, with several stops in close proximity to the site along the site frontage with Frascati Road (N31) with additional bus stops and routes on Rock Hill Road, Carysfort Avenue and Mount Merrion Avenue.

2.15 The development is currently very well serviced by a number of frequent Dublin Bus services along with other services such as Bus Éireann and Aircoach. There are currently bus lanes on many of the approach roads to Blackrock. Real time information is available at the nearby Dublin Bus Stops, and information is available through the use of Bus Passenger Apps for Mobile Phones.

2.16 The new ***Bus Connects*** Network Changes were recently announced and this network included a very significant improvement in the service for Blackrock, with Bus Connects Route 15 passing the site. An extract including the plan for Route 15 is enclosed.

2.17 All of the Dublin Bus routes currently passing the development are operated using new low-floor wheelchair accessible city buses. Detail of route, timetable and fares are provided on www.dublinbus.ie, on the Dublin Bus App, and on the Transport for Ireland National Journey Planner App.

2.18 The site is also within easy walking commuting distance of Blackrock Dart & Train Station, (Blackrock being within ~500m of the site). This represents an easy 6-7 minute walk time for commuting workers who chose to use the Dart and / or the train, using existing services making this a very accessible development by rail. The route is illustrated below as ***Figure 2.1***

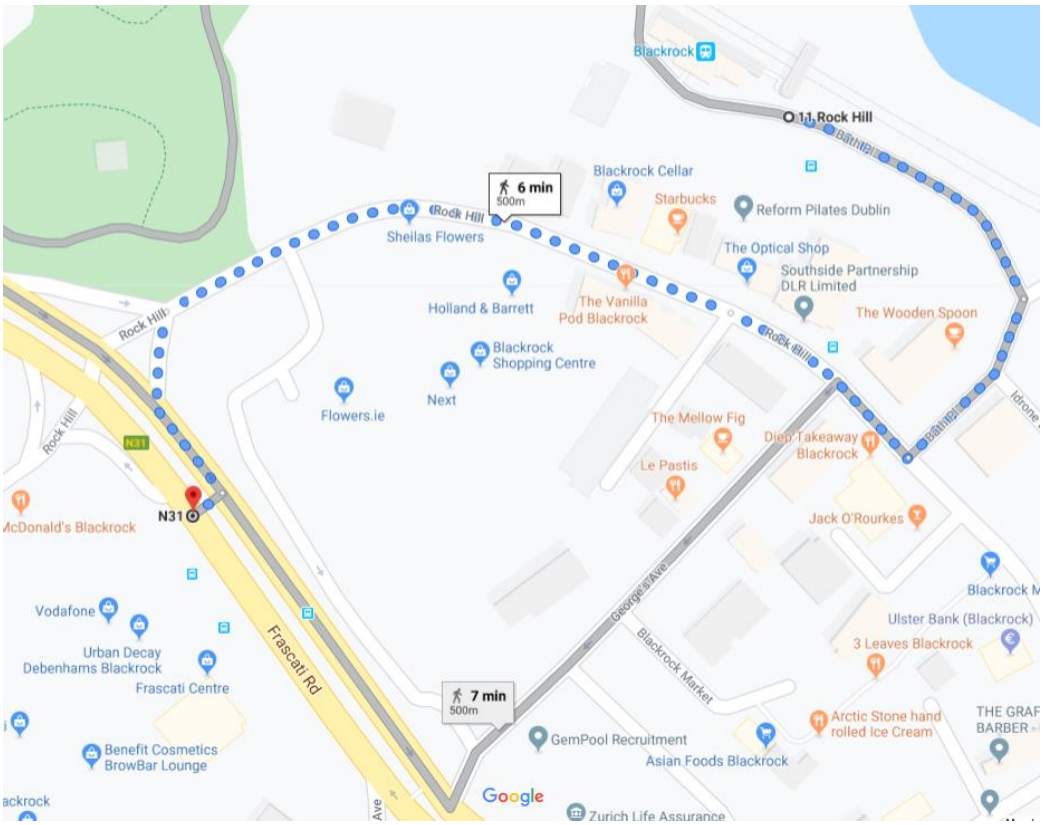


Figure 2.1 - Blackrock Dart Walk Distance

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

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

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

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

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

LUAS

2.24 Whilst LUAS does not extend to Blackrock, Dublin Bus and DART services link with the LUAS. The LUAS lines are now linked by the new LUAS Cross City Line. LUAS also provides an ideal mode of transport for residents arriving in the City Centre or possibly those who may wish to avail of park and ride services available at a number of LUAS stops on both the Green and Red lines.

2.25 The LUAS Red Line connects Busarus Bus Depot with the mainline train stations at Heuston Station and train & DART at Connolly Station. This allows connections to suburban and outer-urban areas by way of Bus, DART and main-line rail.

Go Car

2.26 Go Car is a pay as you go car rental scheme which is easy to join with multiple locations around the city including in the vicinity of the subject development with free parking at Dublin on-street pay and display spaces. This is another option available to residents and visitors. Additional Go Car spaces are proposed at the Frascati Centre to support this development.

Accessibility By Taxi

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

Car Parking

2.28 Some car parking spaces are to be reallocated to residential use and a slight reduction in the number of car parking spaces in the overall centre is proposed relative to the numbers previously permitted. This is an effective demand management measure in itself. Details of the justification of the parking provision are set out in the main body of the Transportation Assessment Report Section 2.0. However, it is clear that the lower provision of car parking will act as a demand management measure, ensuring that the development is occupied in the most sustainable manner being reliant on non-car modes of travel.

2.29 It is proposed that parking spaces will be allocated to car club parking spaces (e.g. Go Car spaces). These will be located near the access for ease for use for end occupiers/residents.

DLR Proposals

2.30 Within the *DLR Development Plan 2016-2022*, the Council acknowledges that making provision for walking and cycling within an overall integrated transportation strategy is critical to the success of the strategy providing for safe routes to school, places of employment, the town centre and key connections

to public transport and local services. Given the compact urban form of Dublin, there is huge potential for a modal change from the private car..

2.31 The location of relatively dense residential development on a site of this nature provides a critical mass of public transport users that affect the commercial viability of services in a positive way. The transportation network proposed for Dublin is based on linking primary attractions within Dún Laoghaire-Rathdown. This has been taken into account when assessing the accessibility options for the proposed development.

Communication

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

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

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

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

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

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

3.0 COLLECTION OF BASELINE INFORMATION

Possible Travel Pattern Questionnaires

3.1 The development is a 102-Unit Residential Apartment Development at the Frascati Centre, Frascati Road, Blackrock, Co. Dublin (formerly known as Frascati Shopping Centre). The scheme is in the heart of Blackrock, within easy walking distance of Dublin Bus Stops and Blackrock Rail / DART Station.

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

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

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

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

4.0 THE TRAVEL PLAN

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

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

Walking

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

Table 4.1 – Key Information: Walking

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

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

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

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

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

Cycling

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

Table 4.2 : Key Information - Cycling

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

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

4.9 Some positive aspects of cycling are listed following:

- **C** - Cycling is fun! - Cycling is a great form of transport but it's also a great recreational activity. Cycling is a skill that stays with you for life and it's a fantastic way to explore your local community.
- **Y** - You save time & money - cycling reduces the need to travel by car thus reducing fuel costs and freeing up road space for more cyclists;
- **C** - Confidence building - travelling as an independent cyclist can give people

increased confidence proving beneficial in all aspects of life;

- **L** - Less congestion - If you leave the car at home and cycle there are fewer cars on the road which makes it safer for those who cycle and walk;
- **I** - Interpersonal skills - Cycling can be a great way to meet other cyclists and share the experience;
- **N** - New adventures - Cycling is a great way to learn about your local environment and community. It helps people to understand where they live and how their actions affect their local environment;
- **G** - Get fit and stay active - cycling helps people incorporate physical activity into their daily routines. Research shows that regular physical activity can benefit your body and mind.

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

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

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

Public Transport

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

Table 4.3: Key Information: Public Transport

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

- Personal Opportunities – Public transportation provides personal mobility and freedom;
- Saving fuel – Every full standard bus can take more than 50 cars off the road, resulting in fuel savings from reduced congestion;
- Reducing congestion – The more people who travel on public transport, especially during peak periods, the less people travelling by private car;
- Saving money – Taking public transport is a lot cheaper than travelling by car and saves the cost of buying, maintaining and running a vehicle;
- Reducing fuel consumption – A full standard bus uses significantly less fuel per passenger than the average car;
- Reducing carbon footprint – Public transport is at least twice as energy efficient as private cars. Buses produce less than half the CO2 emissions per passenger kilometre compared to cars and a full bus produces 377 times less carbon monoxide than a full car;
- Get fit and stay active - Walking to public transport helps people incorporate physical activity into their daily routines. Research shows that regular physical activity can benefit your body and mind.
- Less stress – Using public transport can be less stressful than driving yourself, allowing you to relax, read, or listen to music.

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

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

Go-Car/Car Sharing

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

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

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

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

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

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

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

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

Action Plan Summary Table

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

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

Action Plan Summary Table

5.0 IMPLEMENTING THE PLAN

Background

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

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

The Travel Plan Coordinator

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

5.5 To ensure the plan is effective it is essential for a Travel Plan Coordinator to be appointed for the Development upon occupation. The nominated person and their contact details will be provided to the Planning Authority upon occupation of the development.

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

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

Promoting the Travel Plan

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

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

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

- **Brand the Plan** – as part of communicating the Travel Plan, visually brand all work relating to it with a consistent look, slogan, identity or logo.

- **Identify the Target Audience** – 'segment the audience' (e.g. shift workers, school travel, sedentary workers, people travelling long/ short distances, mode used, members of a walking club or green team) so you can target the message and events towards these different groups.

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

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

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

5.14 The plan should be about promoting equity among modes and offering choice and accessibility.

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

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

6.0 CONCLUSIONS

6.1 The development forming the subject of this application accords with the principles of sustainable development, being located within an established town centre within clear and easy access to alternative modes of travel. With very little additional car parking provided this also acts as a demand management measure. The Operator, once the development is occupied, will utilise pragmatic measures that encourage safe and viable alternatives to the private car for accessing the development.

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

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

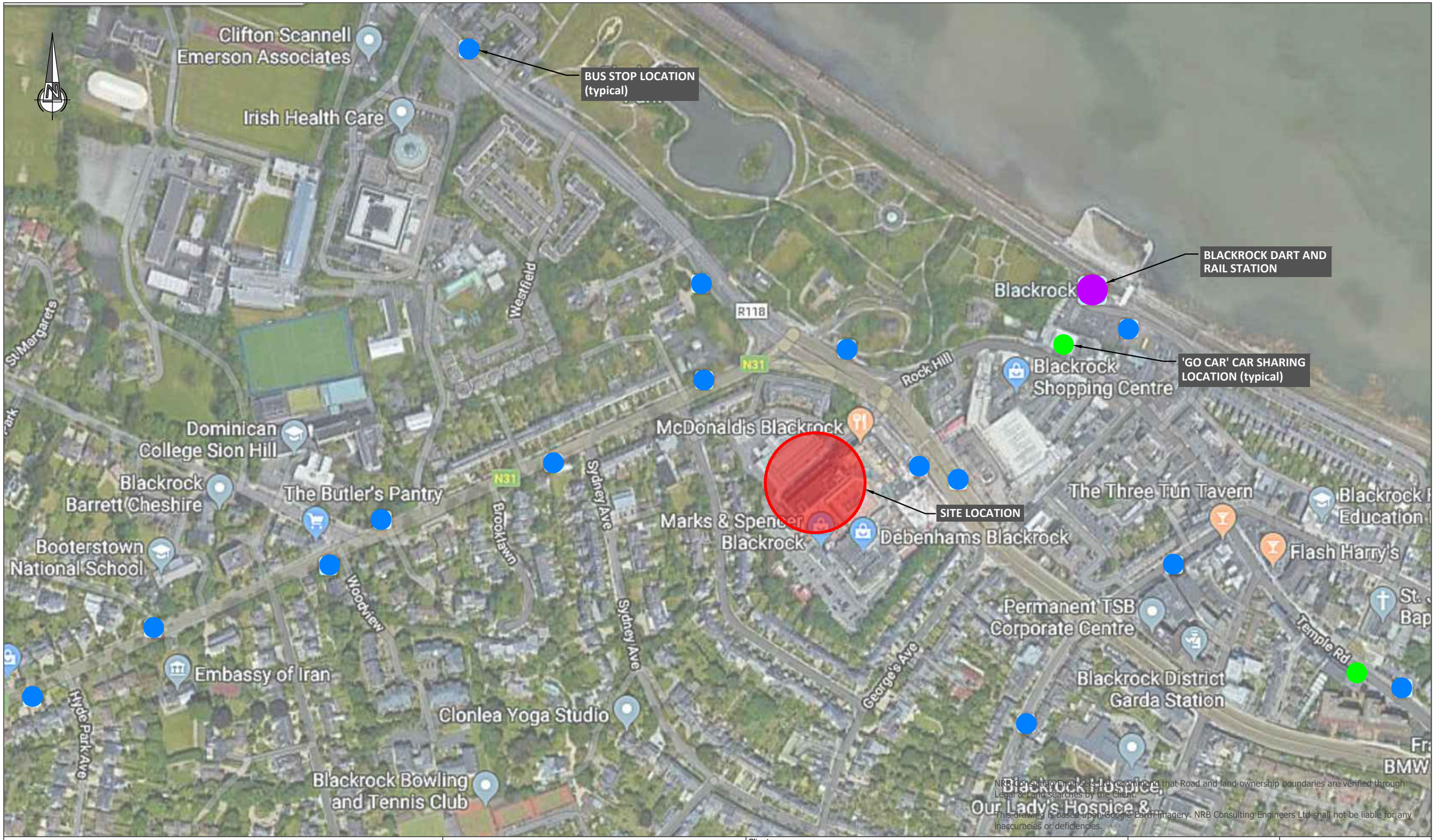
6.4 As Residents are the focus of the plan; their involvement should be sought from the outset following occupation. To this end, the Plan Coordinator should be assisted and supported by the Operator and Residents. This will serve to spread the work load, and also give the Residents a valuable input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

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

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

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

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



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

This drawing is based upon Google Earth imagery. NRB Consulting Engineers Ltd shall not be liable for any inaccuracies or deficiencies.

LEGEND:

- **DENOTES BUS STOP LOCATION**
- **DENOTES GO-CAR CAR SHARING LOCATION**
- **DENOTES DART/TRAIN STATION LOCATION**

REV	DATE	AMENDMENTS	DRAWN	CHK	APP

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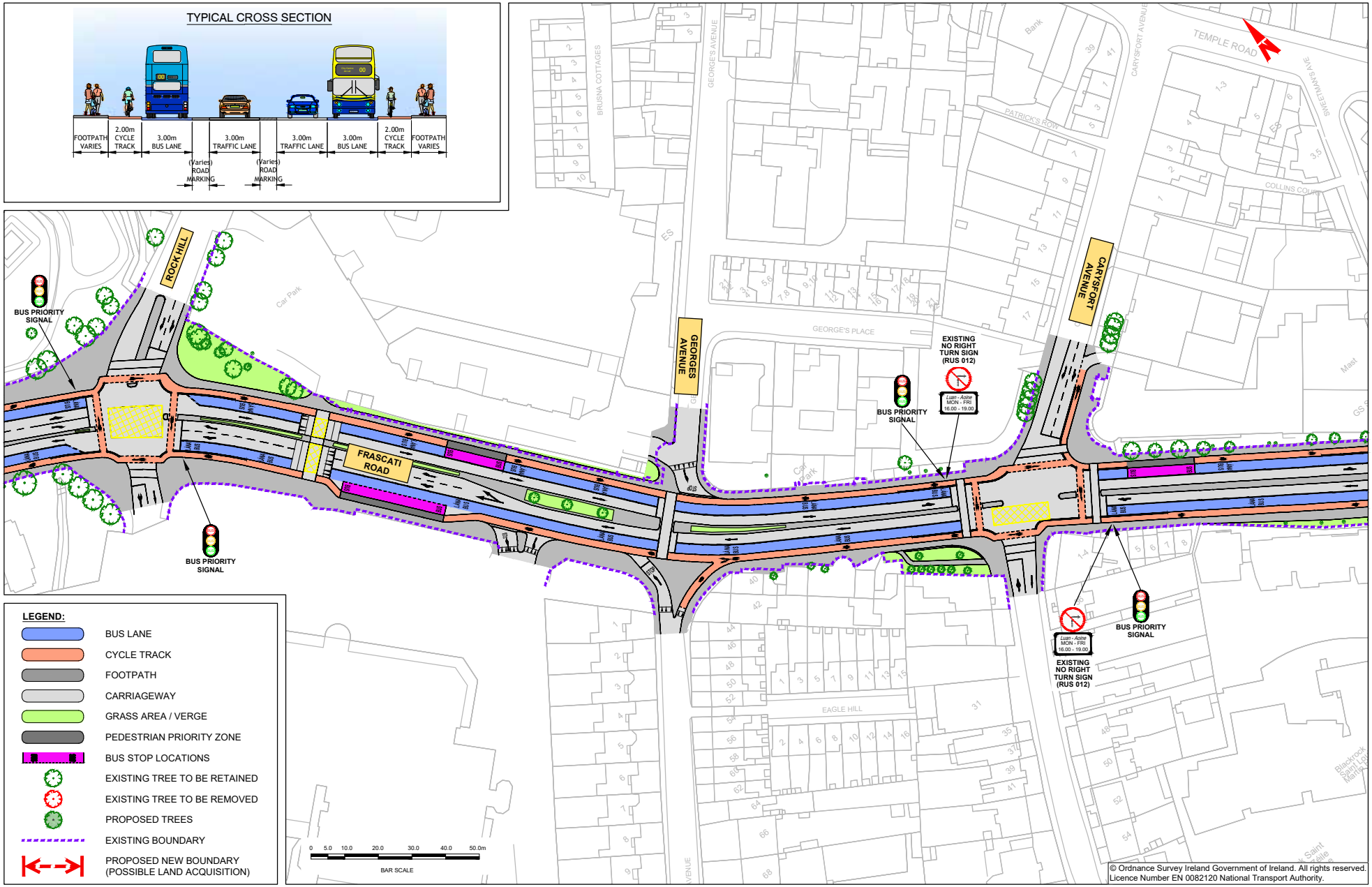
Client		Project No. 19-130	Drawing No. NRB-MMP-001	
Project	Frascati Centre Phase 2 Residential Proposal	Drawn PB	Checked SN 13/03/20	Approved SN 13/03/20
Title	Local Transport Facilities	Date 5-Feb-20	Scale @ A3 n.t.s.	Rev -

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

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



APPENDIX G

DMURS Statement of Consistency

consulting engineers

NRB

DMURS Design Statement
Technical Note

for

Proposed Residential Apartment Development

at

Frascati Centre, Frascati Road, Blackrock, Co. Dublin

ABP FINAL ISSUE

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Registered in Ireland No. 491679

1.0 INTRODUCTION

1.1 It is NRB's opinion that the proposed Apartment development at the Frascati Centre is consistent with both the principles and guidance outlined within the *Design Manual for Urban Roads and Streets* (DMURS) 2013, as amended in 2019. The scheme proposals are the outcome of an integrated design approach. This approach seeks to implement a sustainable community connected by well-designed links, layout and accesses - which combined deliver attractive, convenient and safe access in addition to promoting modal shift and viable alternatives to car based journeys.

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

1.3 The proposed development is also consistent with both the principles and guidance outlined within the *National Cycle Manual*. The following section also discusses design features which are incorporated within the proposed scheme with the objective of delivering a design that is consistent with the principles of the National Cycle Manual.

2.0 DESIGN ATTRIBUTES

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

2.2 High Quality Connections between the proposed development and the local section of the N31 Frascati which is a main arterial route connecting to Dublin City, are currently provided at the Frascati Centre and these are to be used to access the subject Apartments. The site road layout itself is designed to deliver a hierarchy which provides safe access within / across the proposed new residential community, linking the site and community with the established network. Vehicular access to the car parking is separate from the pedestrian accesses to the development.

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

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

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

a) Vehicular access to the development is separate from the pedestrian accesses to the development and the open space.

b) Through the provision of two dedicated vehicle access / egress points onto the N31 Frascati Road, the plan offers a well-connected but permeable network,

c) Under ***Section 3.4.1 Vehicle Permeability***, DMURS states that 'Permeable layouts provide more frequent junctions which have a traffic-calming effect as drivers slow and show greater levels of caution'.

d) DMURS also goes on to state that 'Designers may be concerned that more permeable street layouts will result in a higher rate of collisions. However, research has shown that there is no significant difference in the collision risk attributable to more permeable street layouts in urban areas and that more frequent and less busy junctions need not lead to higher numbers of accidents.' This supports the case for the existing dedicated vehicular accesses to this site from Frascati Road

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

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

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

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

i) At the more heavily trafficked N31 Frascati Road serving the site, formal signalised controlled crossings are currently provided for the benefit of both pedestrians and cyclists. These connect with the Pedestrian, Cyclists and Bus Stop facilities running along the boundary of the N31 Frascati Road.

j) All informal pedestrian crossing facilities are at least 2.0m wide, whilst all controlled pedestrian crossings are a minimum of 2.4m wide.

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

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

m) The N31 Frascati Road includes cycle lanes which will provide access to the development. Within the development, as required cyclists will share the carriageway with other street users as per the NCM guidance for such situations and best practice.

n) Any required street signage and road markings will be in accordance with the Department of Transport Traffic Signs Manual, and the location and form will be agreed in advance with Dun Laoghaire Rathdown County Council.

APPENDIX H

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

Title: **ROAD SAFETY AUDIT & QUALITY AUDIT**

For;

Proposed Residential Apartment Development, Frascati Centre, Frascati Road, Blackrock, Co. Dublin.

Client: **NRB Consulting Engineers Ltd.**

Date: **August 2020**

Report reference: **0819R01**

VERSION: **FINAL**

Prepared By:

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CONTENTS SHEET

Contents

1.0 Introduction

This report was prepared in response to a request from Mr. Seamus Nolan of NRB Consulting Engineers Ltd for a Road Safety Audit and Quality Audit of the proposed Strategic Housing Development at the existing Frascati Centre, Blackrock, Co. Dublin.

The Road Safety Audit and Quality Audit has been carried out in accordance with the guidance in the Design Manual for Urban Roads and Streets (DMURS), produced by Department of Transport Tourism and Sport in March 2013 and updated in June 2019.

This Quality Audit includes a road safety audit, an access audit, a walking audit and a cycling audit.

The Road Safety and Quality Audit Team comprised of;

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

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

The Road Safety Audit and Quality Audit involved the examination of drawings and other material provided by NRB and a site visit by both team members, together on the 23rd July 2020.

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

The problems raised in this Quality Audit may belong to more than one of the categories of Audit named above. A table has been provided at the start of Section 3 of this report detailing which category of audit each problem is associated with.

Recommendations have been provided to help improve the quality of the design with regard to the areas described above. A feedback form has also been provided for the designer to complete indicating whether or not he/she will accept those recommendations or provide alternative recommendations for implementation.

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

A feedback form for the Designer to complete is contained in **Appendix B.**

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

2.0 Background

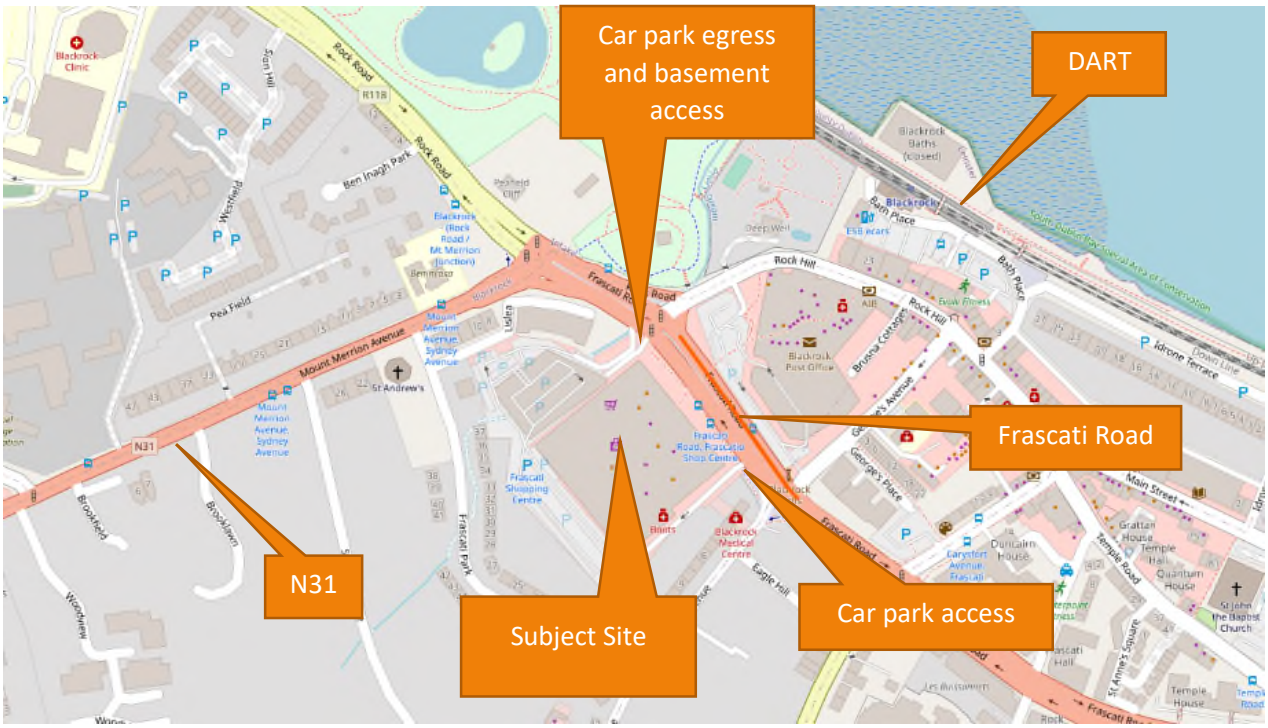
It is proposed to construct 102 apartments as part of a strategic housing development at the existing Frascati Centre in Blackrock, Co. Dublin. The apartments will be constructed above the existing building/car park. Additional car parking and bicycle parking is to be provided.

The Frascati Centre is located along Frascati Road (N31). This is an urban dual carriageway with signalised crossing facilities. There are footpaths and cycle lanes on both sides. The speed limit is 50km/hr.

The car park for the centre is generally a one way system with the access on the southern side and the egress on the northern side. There is access to the basement car park from the northern side which is facilitated by a right turning lane on Frascati Road.

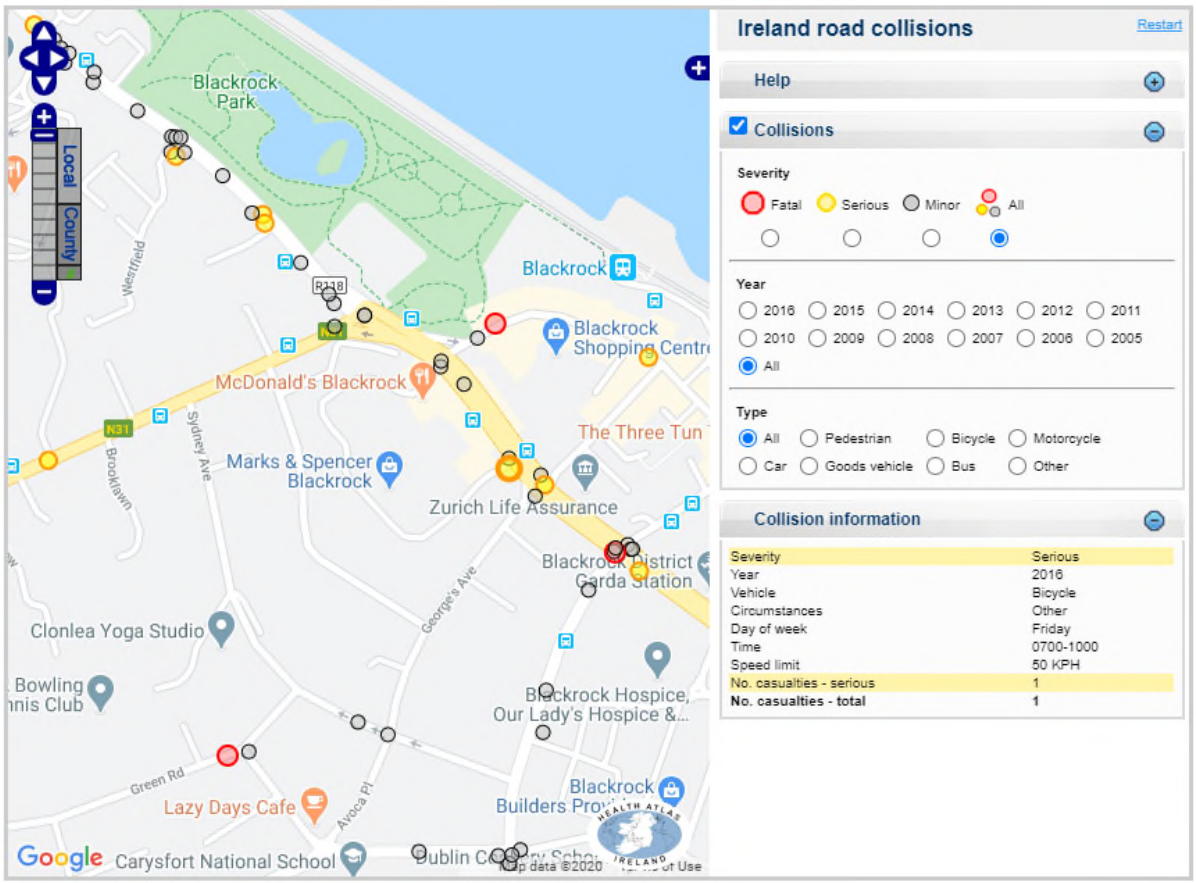
The area is very well served with public transport including the Dart line with the Blackrock station as outlined in the NRB, Transport Assessment Report.

The location of the site is shown below.



Site Location Map (courtesy of openstreetmap.org).

A review of the Road Safety Authority's website shows that between the years 2005 and 2016 there has been one serious injury collision and four minor injury collisions along Frascati Road in the vicinity of the site. The serious injury collision occurred in 2016 and involved a cyclist. The minor injury collisions all involved vehicles.



3.0 Main Report

Summary Table of Problem Categories

Problem Reference	Access Audit	Walking Audit	Cycling Audit	Road Safety Audit	Quality Audit
3.1				✓	✓
3.2				✓	✓
3.3	✓			✓	✓
3.4			✓		✓
3.5	✓	✓			✓

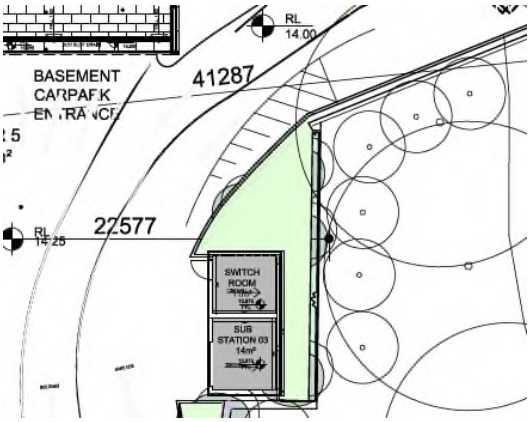
3.1 Problem

LOCATION

Drawing P19-202D 100-8 Reddy Architecture and Urbanism

PROBLEM

There is a substantial retaining wall at the edge of the car park egress on the northern side. There is a risk that it will be struck by passing vehicles given how close to the edge of the carriageway it is, especially at the left turn at the end of the wall and during the hours of darkness when it might not be obvious to drivers. The hatched road markings shown on the drawing on approach to the turn are assumed to be from a previous topographical survey from a previous layout and are no longer valid.



RECOMMENDATION

If this recommended that a permanent sign is placed at the start of the wall where the temporary traffic management sign was positioned at the time of the site visit to highlight the wall's presence. A continuous road marking should be provided along the carriageway edge to encourage drivers not to travel so close to the wall.

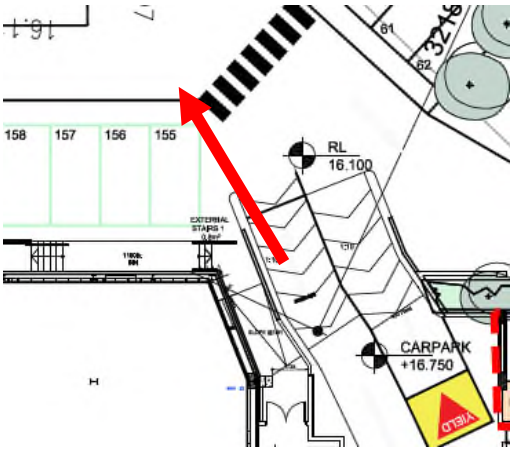
3.2 Problem

LOCATION

Drawing P19-202D 100-8 Reddy Architecture and Urbanism

PROBLEM

When a vehicle is parked in space 155 it may partially block the route of vehicles descending the ramp from the ground floor car park. This could lead to material damage, side-swipe collisions.



RECOMMENDATION

It is recommended that the swept path of the vehicles exiting the ramp does not interfere with a parked vehicle in space 155.

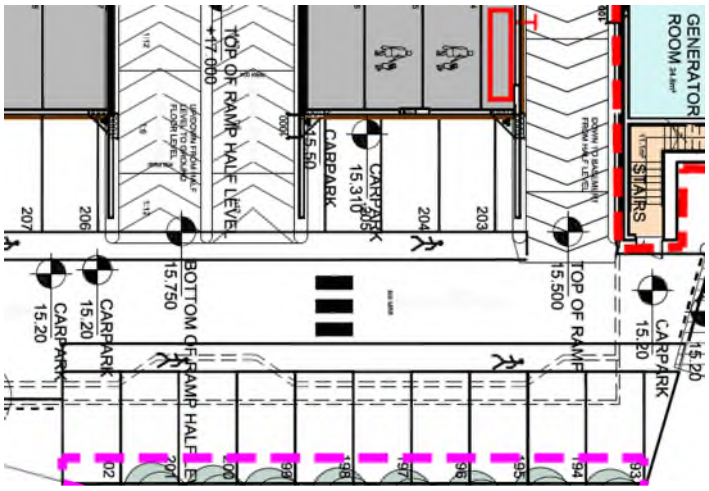
3.3 Problem

LOCATION

Drawing P19-202D 100-8 Reddy Architecture and Urbanism

PROBLEM

It is unclear if vehicles will be able to easily undertake the manoeuvres associated with the half level ramp to the ground floor car park or the basement car park due to the proximity of the parking spaces 92 to 102. It is also unclear if there is any structural elements that will obscure visibility to pedestrians for drivers at the top and bottom of the half ramps.



RECOMMENDATION

It is recommended that a swept path analysis and visibility splay analysis (vehicular and pedestrian) be undertaken for these ramps.

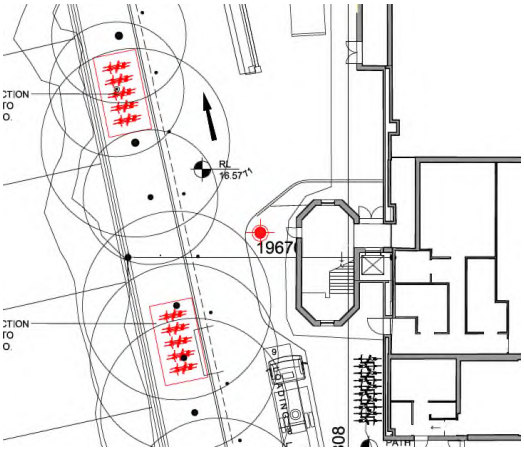
3.4 Problem

LOCATION

Drawing P19-202D 100-8 Reddy Architecture and Urbanism

PROBLEM

Additional bicycle parking is to be provided along the southern verge of the car park access to the south of the Frascati Centre. Once the cyclists dismount at these parking spaces there is no clear path for them to reach their destination. The loading bays would be an unsuitable environment to cross given the hazardous nature of the loading/unloading operations.



RECOMMENDATION

It is recommended that a clearly defined route for the dismounted cyclists to the building access points be provided.

3.5 Problem

LOCATION

Drawing P19-202D 100-8 Reddy Architecture and Urbanism

PROBLEM

It is unclear where the residential refuse bins will be brought to on collection day. If they are left at an inappropriate location then they could be a hazard for pedestrians or cyclists.

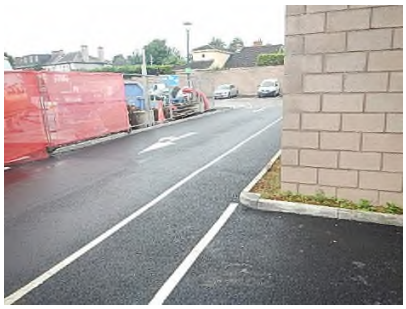
RECOMMENDATION

It is recommended that the location for storage of the bins is defined and refuse truck analysis be carried out to ensure that no hazards are created for any road users.

4.0 Observations

4.1 Observation

Drivers in car parking spaces 180 & 190 have limited visibility to pedestrians travelling along the section between them due to the presence of the boundary wall. The Audit Team acknowledge that this is an existing situation. It would be beneficial if drivers using these spaces were advised to reverse into their spaces.



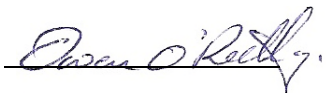
Quality Audit Statement

This quality Audit has been carried out in accordance with the guidance given in DMURS and takes into consideration the principles approaches and standards of that Manual.

The quality 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:** 

(Quality Audit Team Leader) **Dated: 25/8/2020**

Owen O'Reilly **Signed:** 

(Quality Audit Team Member) **Dated: 25/8/2020**

Appendix A

List of Material Supplied for this Road Safety Audit & Quality Audit;

- Drawing 19-202D-AR-08-PL-003
- Drawing 19-202D-AR-08-PL-098
- Drawing 19-202D-AR-08-PL-099
- Drawing 19-202D-Ar-08-PL-100
- Drawing 19-202D-Ar-08-PL-161
- Drawing 19-202D-Ar-08-PL-162
- For Info – NRB Pre App Transport Assessment, Dated Mar 2020.

Appendix B

Feedback Form

QUALITY/SAFETY AUDIT FORM – FEEDBACK ON AUDIT REPORT

Scheme: Proposed Residential Apartment Development, Frascati Centre, Frascati Road, Blackrock, Co. Dublin.
Stage: Quality Audit
Date Audit (Site Visit) Completed: 23rd July 2020

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	Y	Y - Continuous yellow road marking in reflectorised thermoplastic paint will be provided along the carriageway edge and a permanent road sign (reflectorised keep right flexi-bollard type sign) to be provided in advance of the retaining wall		
3.2	Y	Y - swept path of vehicles checked and road markings added to guide vehicles away from space 155.		
3.3	Y	Y - tracking carried out for large cars entering and exiting the ramp and sightlines checked. These are existing ramps.		
3.4	Y	Y – cycle parking removed from the area on the opposite side of the road from the loading bays and relocated to the landscaped area adjacent Frascati Road nearer the main front Centre entrance.		
3.5	Y	Y – bin collection points identified for bin collection day and managed by the management company. Tracking for refuse vehicles carried out at proposed bin collection area locations along the existing internal road network.		

Observations:

4.1 A sign advising users of spaces 180 and 190 to reverse into spaces will be erected at construction stage.

Seamus Nolan

Signed……**Date**……24.08.20…….

Design Team Leader

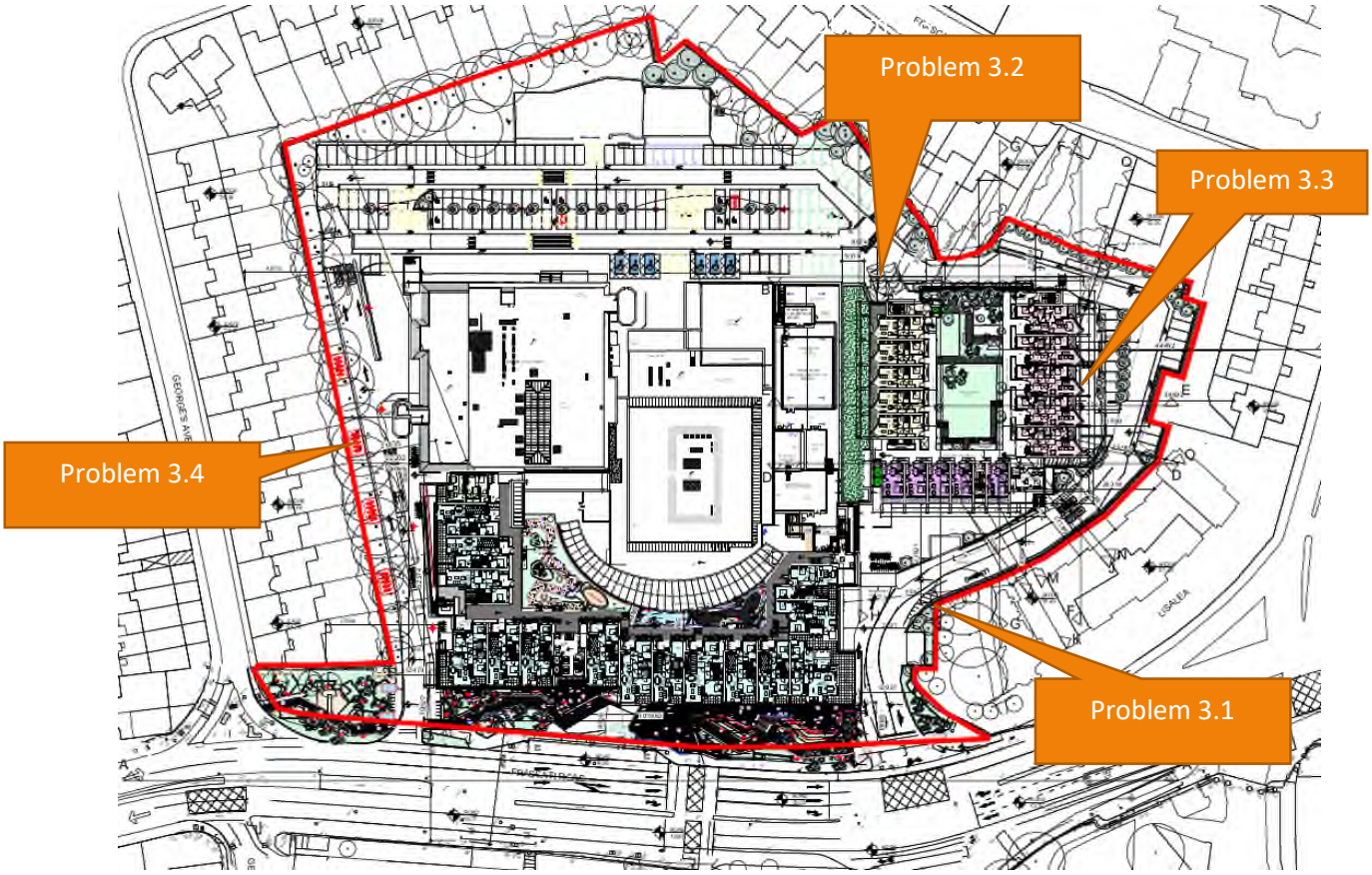
Norman Brunton

Signed……**Date**…25/8/2020……

Audit Team Leader

Appendix C

Problem Location Plan.


Problem 3.2
Problem 3.3
Problem 3.4
Problem 3.1