

## **Section 5: Traffic and Transportation**

## 5.1 INTRODUCTION

TPS Limited has been retained on behalf of Dublin City Council to carry out a Traffic Impact Assessment (TIA), which forms part of an Environmental Impact Statement, relating to a housing regeneration project at O'Devaney Gardens, Dublin 7.

A full description of the proposed development is set out Chapter 2 of this EIS. In summary, the proposed development comprises Phase 1A of a wider mixed use redevelopment of O'Devaney Gardens incorporating residential development, commercial / retail floorspace and community facilities. The first phase of the re-development (Phase 1A) comprises of 110 no. residential units and 4,680sq.m. neighbourhood park. In addition it is proposed to introduce pedestrian links, public spaces and community facilities in the O'Devaney Gardens area. From a review of the Dublin City Council phasing for this regeneration project it is expected that this proposed development would be complete by 2017.

In this report we will identify the existing traffic conditions and assess the relative level of impact the proposed development is likely to have on the local road network. We will also identify how the traffic associated with the proposed development can be accommodated within O'Devaney Gardens and the surrounding areas. The methodology used within this Traffic Impact Assessment (TIA) complies with best practise for Traffic Impact Assessments indicated within key publications, which include:

- 'Traffic and Transport Assessment Guidelines' National Roads Authority (September 2007)
- 'Guidelines for Traffic Impact Assessments' The Institution of Highways and Transportation.
- A section of the National Roads Authority publication TD 41-42/09 relating to geometric standards for direct vehicular access.

## 5.2 SCOPE AND METHODOLOGY

In this report the existing roads, traffic conditions, public transport and car parking provisions in the vicinity of the proposed development site will be identified and the relative level of impact the proposed development is likely to have on the local road network will be assessed. Where appropriate, measures to address the management of both the existing traffic and the development/construction traffic on the local road network will be discussed.

In this report comment will also be made on the proposed vehicular site access arrangements to serve the proposed development. In addition this report, which addresses the likely traffic impact of the proposed development, will generally be structured as follows:

- Assessment of the existing road/traffic/public transport/car parking conditions on the road network in the vicinity of the proposed development site.
- Assessment of the trip rates for the proposed development.
- Assignment of the trip distribution patterns associated with the proposed development onto the adjacent road network.

- Proposed access arrangements.
- Capacity and operational assessments of the likely impact of the proposed development on the adjacent road network.
- Assessment of construction traffic.

Background information used within this report has been derived from technical information and layout plans prepared by Dublin City Council Planning Department for the scheme.

### 5.3 BASELINE ENVIRONMENT

#### 5.3.1 EXISTING ROAD CONDITIONS

The proposed development site, which has an area of approximately 14 acres and is predominantly residential in use, is located 1km to the west of Dublin city centre. The location of the development site is shown within Photo 5.1 below:



**Photo 5.1: Site Location**

The development site is located to the south east of North Circular Road (NCR) which functions as a regional road (R101) within Dublin City Council's road hierarchy and runs from the IFSC and Dublin Port to the east of the site to Chapelizod to the west of the site. The North Circular Road in the vicinity of O'Devaney Gardens provides access to numerous commercial, retail and residential land uses including the proposed development site.

Vehicular access is also provided to O'Devaney Gardens via Montpellier Gardens and Montpellier Park from Infirmary Road, which functions as a regional road (R101) in the vicinity of the application site.

In addition, a third vehicular access is provided to O'Devaney Gardens via Thor Place residential development towards Stoneybatter.

Thus, it can be considered that the principal of direct vehicular access from the surrounding road network with associated traffic movements to serve land use development (predominantly residential) in this area is well established.

### **5.3.2 EXISTING TRAFFIC CONDITIONS.**

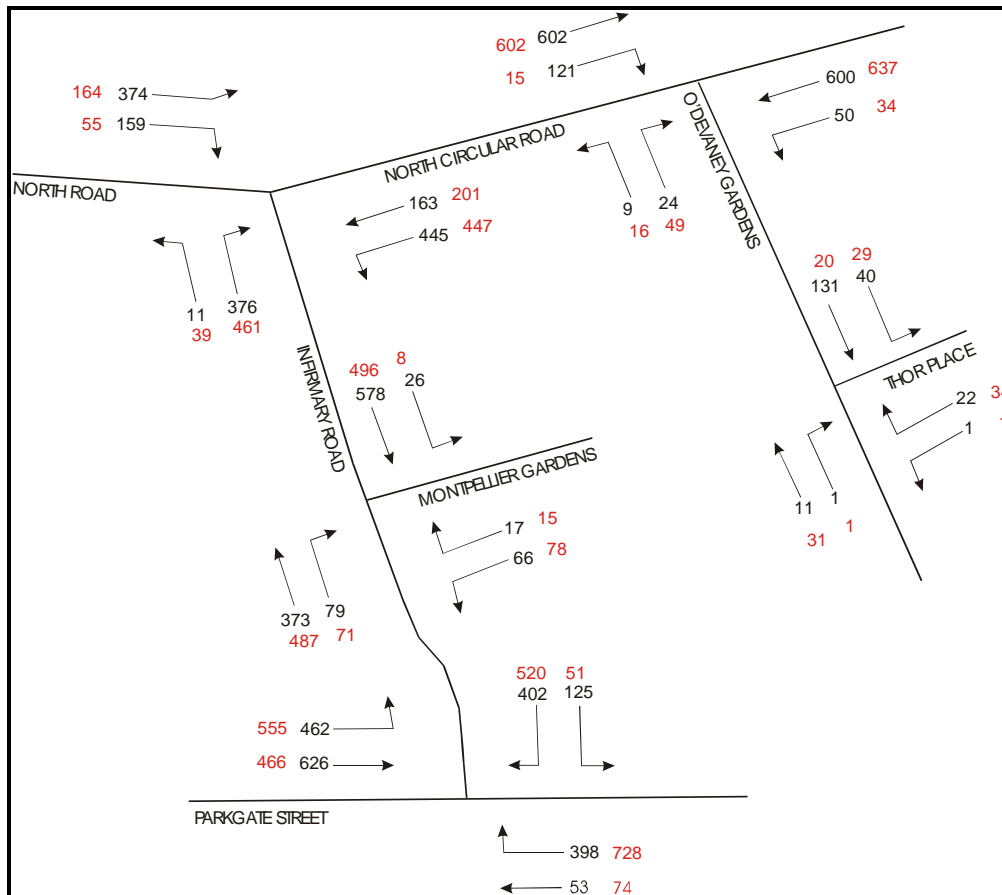
In order to assess the current traffic conditions in the vicinity of the proposed development site traffic and transportation-related surveys were carried out by Nationwide Data Collection (NDC) at the following junctions (which were agreed with Dublin City Council) we consider may be directly impacted upon by the proposed development:

- Infirmary Road/Parkgate Street
- Infirmary Road/North Circular Road
- Montpelier Gardens/Infirmary Road
- O'Devaney Gardens/North Circular Road
- O'Devaney Gardens/Thor Place

These traffic surveys were undertaken on Wednesday 11<sup>th</sup> November 2009 between 0700hrs-1000hrs and 1600hrs-1900hrs. The traffic surveys undertaken in the vicinity of the proposed development site identified that the following peak periods:

- AM Peak 0800hrs-0900hrs
- PM Peak 1700hrs-1800hrs.

Details of these surveyed peak traffic flows occurring on the road network adjacent to the proposed development are shown within Figure 5.1 below:



**Figure 5.1: Existing Friday Peak (AM 0800hrs-0900hrs & PM 1700hrs-1800hrs)**

The above traffic surveys indicate that an element of the traffic routing via the North Circular Road/O'Devaney Gardens junction may not have an origin or destination within this area particularly during the AM peak period. We consider that this traffic may be using these routes to avoid traffic delays along Conyngham Road, Wolfe Tone Quay, Ellis Quay and Arran Quay to the south of the development site and the traffic lights at the junction of North Circular Road/Infirmary Road/Phoenix Park.

In addition to the above we have also undertaken a review of a TIA that was carried out by O'Connor Sutton Cronin in relation to a proposed mixed use development (consisting of residential and commercial units) at Infirmary Road, Dublin 7 located to the south of the proposed O'Devaney Gardens regeneration development. Traffic counts were carried out in 2006 as part of this TIA at the following junctions:

- Infirmary Road/Montpelier Gardens
- Montpelier Gardens/o'Devaney Gardens
- Infirmary Road/Montpelier Gardens
- Temple Street West/Montpelier Hill

We have carried out a comparative assessment between the 2006 AM and PM peak traffic surveys and our 2009 AM and PM peak traffic surveys, which indicate that the traffic on the adjacent road network has remained largely the same during this 4-year period, with no significant

increases or decreases in traffic flows occurring in the vicinity of the O'Devaney Gardens development site.

### **5.3.3 EXISTING PUBLIC TRANSPORT**

The proposed development, which is located to the west of Dublin City Centre, is convenient to an efficient public transport service and facilities are also provided for cyclists and pedestrians in this area, providing a genuine alternative to car borne journeys, especially during peak periods.

#### Dublin Bus.

O'Devaney Gardens is convenient to numerous Dublin Bus stops operating different routes throughout the city centre and outskirts of the city.

Dublin Bus operates the number 10, 10A (from Infirmary Road to UCD Bellfield via city centre) and 46A (from Infirmary Road to Stillorgan Shopping Centre) along North Circular Road, with a bus stop located opposite O'Devaney Gardens. In addition, these routes pass through O'Devaney Gardens (operating as one-way out of the city centre) with a bus stop located at the Military Hospital. During Dublin City Council's meeting with Dublin Bus in November 2010 in relation to the bus service provided through O'Devaney Gardens it was noted that the 46A is now the replacement service for the No. 10 bus service. This service has a 5-minute frequency.

To the south of O'Devaney Gardens a number of bus routes run along Parkgate Street including the 66 (Pearse Street to Maynooth), 66A (Wilton Street to Leixlip), 66B (Pearse Street to Leixlip), 67 (Pearse Street to Celbridge), 67A (Pearse Street to Maynooth via Celbridge), 68 (Aston Quay to Newcastle), 69, 69X (Aston Quay to Rathcoole) all of which route via Chapelizod, approximately 800m (or a 9 minute walk to the south of the site).

#### Rail.

O'Devaney Gardens is situated approximately 1km to the north of Heuston Station which is one of Ireland's main railway stations, serving the south, southwest and west, operating intercity and commuter routes throughout the country. In addition, Heuston Station acts as important transport hub within Dublin city centre offering Luas connections, bus connections and a taxi rank.

#### Luas.

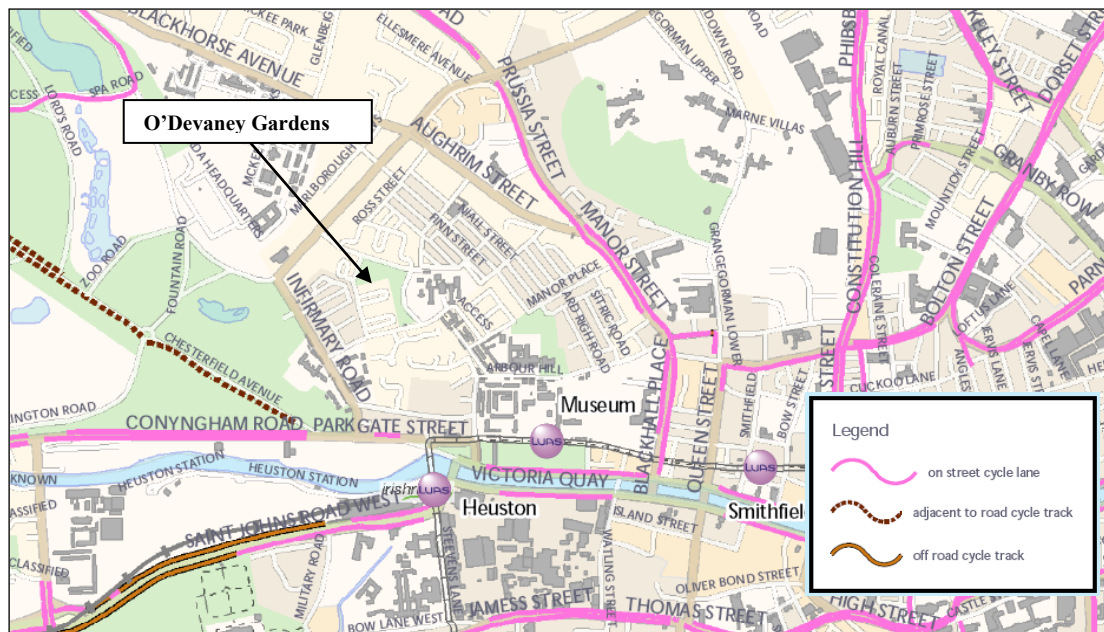
The existing Luas Red Line (Tallaght to Connolly Station) follows a route along Benburb Street a short walking route south of the site (approximately 15 minutes). The Collins Barracks Museum Station and Heuston Station are the closest stops to O Devaney Gardens. The LUAS runs along this line every 4-5 minutes during peak times.

### Walking and Cycling

There are efficient and numerous provisions for pedestrians within Dublin city centre linking the north and south side of the city. Footpaths are provided within O'Devaney Gardens linking the site with pedestrian provisions along North Circular Road, Infirmary Road and Parkgate Street, which enables pedestrians to walk to the city centre shopping districts, Luas stops, bus stops and Heuston station.

Cycle lanes are provided throughout the city (including a dedicated cycle lane provided along North Circular Road adjacent to O'Devaney Gardens) thus reducing car dependency for commuting, school or leisure trips.

The cycle network in the vicinity of the proposed development is shown within an extract of the National Transport Authority Cycle Track and Bus lane Survey Map 5.2 below, which indicates a sufficient cycle network in the vicinity of the application site:



**Map 5.2: North Dublin City Cycle Network**

### Car Parking.

There is ample on-street car parking available along North Circular Road, Infirmary Road, and Parkgate Street with these areas located within the medium demand (€1.60 per hour) or low demand (€1.00 per hour) car parking zones according to the Parking Tariffs map by Dublin City Council Roads and Traffic Department.

In addition, there is a privately operated APCOA car park located on North Circular Road, which is €1.50 per hour.



### 5.3.4 PROPOSED PUBLIC TRANSPORT

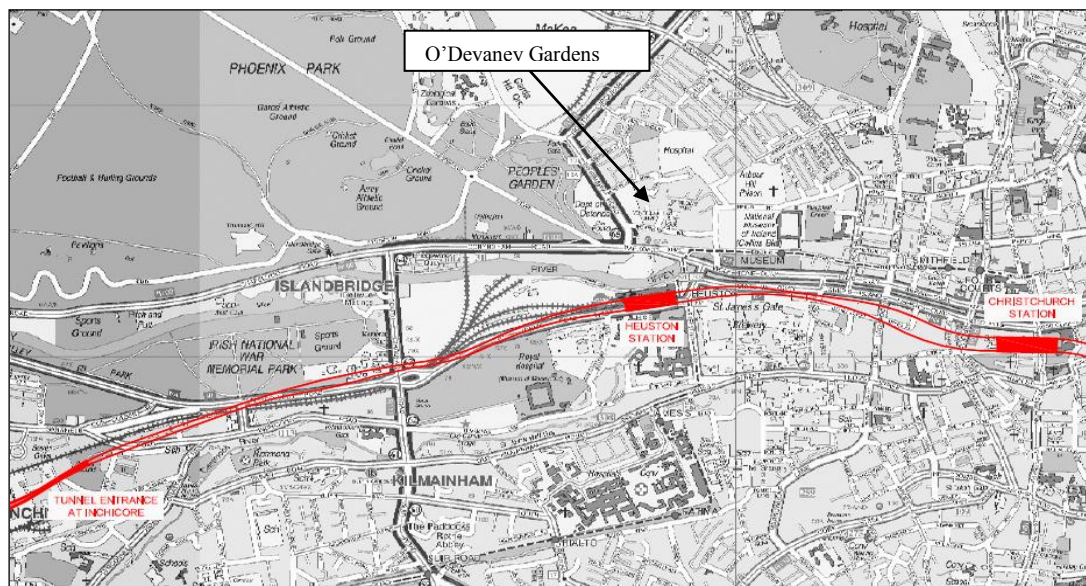
In November 2005, the Government launched Transport 21 which is a strategy for transport in Ireland, geared to deliver an improved transport system that includes seven new Luas Lines and two new Metro Lines.

As previously discussed, the proposed development site benefits from its location proximate to a number of public transport modes. In addition, there are also two major transport projects proposed close to the O'Devaney Gardens site, the DART underground and the Luas BXD Line.

#### DART Underground.

Iarnród Éireann is advancing work on a new underground DART line proposed to run from Docklands to Inchicore, with a proposed stop at Victoria Quay approximately 1.2km (15 minute walk) to the south of the development site. The DART Underground tunnels will be approximately 7.6 km in length and will connect the Northern and Kildare rail lines, with underground stations located at Spencer Dock, Pearse, St. Stephen's Green, Christchurch and Heuston Station, as well as a new surface DART station at Inchicore.

DART Underground will also link all rail modes (DART, Commuter, Intercity, Luas and Metro) to form an integrated transport network. Map 5.3 below shows the proposed alignment of the DART underground in the vicinity of O'Devaney Gardens.



**Map 5.3: Proposed Dart Underground**

A formal application was lodged with An Bord Pleanála for the Railway Order granting planning approval on the 30<sup>th</sup> June 2010. Subject to the granting of the Railway Order it is anticipated that construction will commence in 2012 and that the system will be operational in 2018.



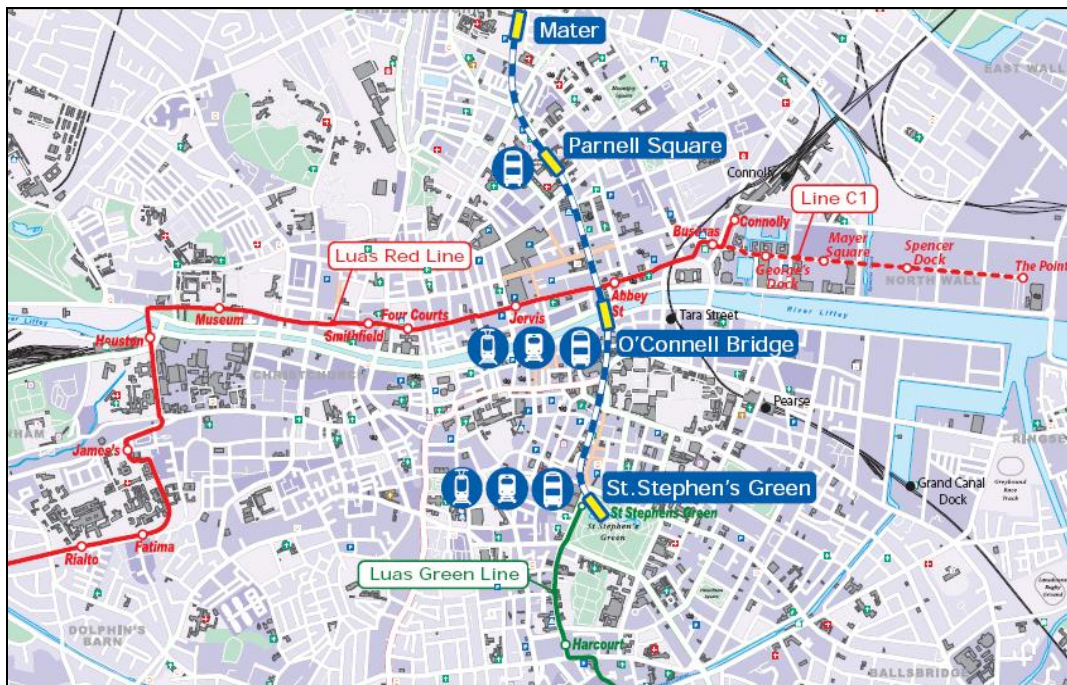
### Metro North

The Metro North line, as part of Transport 21, is planned to run from St Stephen's Green via Dublin Airport to the north of Swords at Belinstown.

Metro North will initially have 15 stops which will be located at St Stephen's Green, O'Connell Bridge, Parnell Square, Mater Hospital, Drumcondra, Griffith Avenue, Dublin City University, Ballymun, Northwood, Dardistown, Dublin Airport, Fosterstown, Swords, Seatown and Belinstown. Two additional stops at Estuary and Lissenhall north of Swords will be provided at a later date.

The Metro is a significant step in the creation of an integrated public transport system for Dublin. This first phase will link together all of the existing rail corridors in Dublin, by interchanging with the DART, the northern, north-western and south-eastern suburban rail lines, and the Luas Red and Green lines and bus services along the route. The closest Metro North stop to the proposed development site would be the O'Connell Street stop, which is approximately a 30 minute walk.

A Railway Order for Metro North was granted by An Bord Pleanála in October 2010. Whilst the scheme was amended by An Bord Pleanála by way of condition, no amendments were made to that part of the scheme relating to the city centre or affecting Dominick Street. The enabling works phase of Metro North is due to commence in March 2011 and the main works one year thereafter. The project is expected to be completed in 2016. The proposed Metro North line is shown within Figure 5.4 below:



**Map 5.4: Proposed Metro North Line**

### Dublin Bus Proposals.

Dublin Bus proposes to implement the Dublin Bus Stage 1 Network Assessment which includes improvements to the 39A and 37A located on North Circular Road within proximity to the O'Devaney Gardens site.

Pedestrian connections encouraged within the street design in Phase 1A encourages permeability to the adjoining residential streets east of the site. These connections will encourage use of public transport and access to new bus stop facilities to the wider residential area. As part of the regeneration of O'Devaney Gardens it is proposed to prioritise the Dublin Bus route through the site by introducing a new road layout which aligns the new main boulevard and traffic calming along this route. It is proposed to introduce 2 new bus stops within the development site including one adjacent to the neighbourhood centre and one at the south end of the new park. A third stop on Montpellier Gardens will be retained as part of this regeneration project.

It is expected that buses will stop on the road in designated cages as opposed to designated laybys which will give priority to buses and reduce traffic speeds.

In addition to the improved Dublin Bus service through the site, the design and realignment of the boulevard through the site will discourage through traffic, resulting in less rat-run traffic through the site.

It should be noted that during the construction phase access will be retained through the site including the existing route for the Dublin Bus service.

## **5.4 PREDICTED IMPACTS OF THE PROPOSED DEVELOPMENT**

As previously discussed, this TIA forms part of the overall EIS relating to the rehousing development in O'Devaney Gardens. This TIA takes into account all phases of the development and possible future development adjacent to the application site in order to assess a thorough traffic situation.

The completion of this regeneration project will involve the de-tenanting and demolition of existing residential units and the construction of new residential units and commercial and community land uses. In addition it is proposed to introduce pedestrian links, public spaces and community facilities around the O'Devaney Gardens area.

This regeneration project would take place over a phased basis including Phase 1A, 1B and Phase 2. It should be noted that Phase 2 of this development includes 2 options consisting of either residential units or a mix of residential and commercial land uses. For the purposes of this TIA and to assess a worst case traffic scenario we have used the option that would generate the higher traffic figures (ie a mix of residential and commercial units). From discussions with Dublin City Council, at present, it is expected that the phasing would take place as follows:

LAND USE	PHASE			TOTALS
	1A	1B	2	
	2011-2013		2014-2017	
Residential Units	110	48	120	278
Park/Open Space	4680	-	-	4680
Retail/Commercial	-	1880	8000	9880
Office	-	585	-	585
Community	-	695	-	695

**Table 5.1: Proposed Development Phasing**

It should be noted that the commercial and community uses will form part of a neighbourhood centre within the O'Devaney Gardens development and it is expected that these land uses will be used predominantly by residents of O'Devaney Gardens.

In order to improve mobility and sustainable transport and to create public spaces and improved pedestrian and cyclist links through the site it is proposed to realign the main access through the site by creating a new boulevard as part of Phase 1A of this development. Once this new boulevard is complete the existing road will be closed. It should be noted that it is not proposed to alter the existing junctions of North Circular Road/O'Devaney Gardens, Montpellier Gardens/Infirmary Road or O'Devaney Gardens/Thor Place that currently provide vehicular access to the site.

In addition to the proposed regeneration of the O'Devaney Gardens, Phase 2 of this regeneration project could have a context where it adjoins new uses on the site at St. Bricin's.

St. Bricin's consists of institutional lands that are currently in the ownership of the Department of Defence for hospital care and other administration uses. The site of St. Bricin's is currently accessed from Infirmary Road via Montpellier Gardens close to the south entrance into O'Devaney Gardens. The site also has a boundary with Thor Place and Moira Road to the north and with Calvary Row, which connects with Arbour Hill to the south.

For the purposes of this TIA, the following assumptions will be made for St Bricin's:

- a) Three vehicular points will disperse traffic generation including the existing site entrance, Thor Place and Calvary Row. No through routes for traffic will be created. Each access would relate to a very specific use and a use that would not generate any significant volume of traffic, particular for Thor Place and Calvary Row. Through routes for pedestrian and cyclists solely will, however, be created for local permeability.
- b) Pedestrian and cyclist links will be encouraged between Phase 2 of O'Devaney Gardens and the centre of St Bricin's. This is important as the frequent No 46A bus service, with a new stop facility close to St Bricin's, will be accessible and in immediate walking distance from any future uses on the site of St Bricin's.

- c) Old military buildings have the potential for re-use and can create important landmarks and focal points for the local area. These buildings could incorporate public, community and artistic/cultural uses, none of which would generate significant traffic.
- d) The main complex of military buildings on site could have a wide range of future uses such as cultural uses, institutional uses, hotel or leisure uses, office uses, educational uses, residential uses etc. For the purposes of assessing cumulative traffic generation, the land use office has been assumed (7,500 m<sup>2</sup> approximately).
- e) An assumption will be made for approximately 120 residential units using access points split between the main existing entrance and a possible connection from Thor Place.
- f) The south end of the site possesses old stable blocks. There may be potential for residential infill, re-use of older buildings for live work, workshop studios, arts and cultural uses etc. Access for vehicles to the south of the site from Calvary Row will be restricted to uses at this end of the site solely. The uses are not likely to be intensive for the purposes of traffic generation.

In order to undertake an assessment of the likely trip generation and attraction associated with the existing O'Devaney Gardens development, the proposed regeneration development and the possible future St. Bricin's development the TRICS 2010(b) trip rate database (Trip Rate Information Computer System) has been reviewed. As a number of residents have already been moved from the O'Devaney Gardens site it was necessary to use the TRICS database in order to quantify the likely trip generation associated with all the residential units in this area, including those that have been demolished. When the O'Devaney Gardens residential development was constructed in the 1950s, 278 flats were accommodated within this development.

TRICS 2010(b) is a database that uses survey information to estimate traffic generation for planning purposes. The database consists of over 5,000 traffic surveys, which therefore yields empirical rather than theoretical trip rate generation figures.

The TRICS 2010(b) Database trips for the historical residential units is shown in Table 5.2 below. We have attached the TRICS 2010(a) output files within Appendix 5.1 to this report.

Land Use 03 - RESIDENTIAL M - MIXED PRIVATE/NON-PRIVATE HOUSING												
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VEHICLES <input checked="" type="checkbox"/> Estimate TRIP rates												
Estimated TRIP rate value per 278 DWELLS Estimated TRIP rates shown in shaded column (for 278 DWELLS)												
TRIP RATE VALUE PER 1 DWELLS	ARRIVALS Total Rate: 1,953 Peak: 17:00-18:00			Total 543.253	DEPARTURES Total rate: 1,982 Peak: 08:00-09:00			Total 551.056	TOTALS Total rate: 3,935 Peak: 17:00-18:00			Total 1094.309
	No. Days	Ave. DWELLS	Trip Rate	Estimated Trip rate	No. Days	Ave. DWELLS	Trip Rate	Estimated Trip rate	No. Days	Ave. DWELLS	Trip Rate	Estimated Trip rate
05:00-06:00	0	0	0.000	0.000	0	0	0.000	0.000	0	0	0.000	0.000
06:00-07:00	0	0	0.000	0.000	0	0	0.000	0.000	0	0	0.000	0.000
07:00-08:00	27	119	0.065	18.123	27	119	0.160	44.483	27	119	0.225	62.606
08:00-09:00	27	119	0.119	33.211	27	119	0.239	66.422	27	119	0.358	99.633
09:00-10:00	27	119	0.131	36.419	27	119	0.163	45.264	27	119	0.294	81.683
10:00-11:00	27	119	0.134	37.286	27	119	0.142	39.454	27	119	0.276	76.740
11:00-12:00	27	119	0.136	37.893	27	119	0.144	40.061	27	119	0.280	77.954
12:00-13:00	27	119	0.151	41.882	27	119	0.148	41.188	27	119	0.299	83.070
13:00-14:00	27	119	0.150	41.795	27	119	0.155	43.183	27	119	0.305	84.978
14:00-15:00	27	119	0.159	44.223	27	119	0.153	42.402	27	119	0.312	86.625
15:00-16:00	27	119	0.192	53.502	27	119	0.168	46.825	27	119	0.360	100.327
16:00-17:00	27	119	0.221	61.306	27	119	0.158	43.876	27	119	0.379	105.182
17:00-18:00	27	119	0.270	75.180	27	119	0.170	47.258	27	119	0.440	122.438
18:00-19:00	27	119	0.225	62.433	27	119	0.182	50.640	27	119	0.407	113.073
19:00-20:00	0	0	0.000	0.000	0	0	0.000	0.000	0	0	0.000	0.000
20:00-21:00	0	0	0.000	0.000	0	0	0.000	0.000	0	0	0.000	0.000
21:00-22:00	0	0	0.000	0.000	0	0	0.000	0.000	0	0	0.000	0.000
22:00-23:00	0	0	0.000	0.000	0	0	0.000	0.000	0	0	0.000	0.000
23:00-24:00	0	0	0.000	0.000	0	0	0.000	0.000	0	0	0.000	0.000

Table 5.2: Historical Residential Units

The likely traffic associated with the proposed regeneration of the O'Devaney Gardens and the possible redevelopment of the St. Bricin's area is shown within Tables 5.3 to 5.8 below:

Land Use 03 - RESIDENTIAL M - MIXED PRIVATE/NON-PRIVATE HOUSING												
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Estimated TRIP rate value per 278 DWELLS Estimated TRIP rates shown in shaded column (for 278 DWELLS)												
TRIP RATE VALUE PER 1 DWELLS	ARRIVALS Total Rate: 1,953 Peak: 17:00-18:00			Total 543.253	DEPARTURES Total rate: 1,982 Peak: 08:00-09:00			Total 551.056	TOTALS Total rate: 3,935 Peak: 17:00-18:00			Total 1094.309
	No. Days	Ave. DWELLS	Trip Rate	Estimated Trip rate	No. Days	Ave. DWELLS	Trip Rate	Estimated Trip rate	No. Days	Ave. DWELLS	Trip Rate	Estimated Trip rate
05:00-06:00	0	0	0.000	0.000	0	0	0.000	0.000	0	0	0.000	0.000
06:00-07:00	0	0	0.000	0.000	0	0	0.000	0.000	0	0	0.000	0.000
07:00-08:00	27	119	0.065	18.123	27	119	0.160	44.483	27	119	0.225	62.606
08:00-09:00	27	119	0.119	33.211	27	119	0.239	66.422	27	119	0.358	99.633
09:00-10:00	27	119	0.131	36.419	27	119	0.163	45.264	27	119	0.294	81.683
10:00-11:00	27	119	0.134	37.286	27	119	0.142	39.454	27	119	0.276	76.740
11:00-12:00	27	119	0.136	37.893	27	119	0.144	40.061	27	119	0.280	77.954
12:00-13:00	27	119	0.151	41.882	27	119	0.148	41.188	27	119	0.299	83.070
13:00-14:00	27	119	0.150	41.795	27	119	0.155	43.183	27	119	0.305	84.978
14:00-15:00	27	119	0.159	44.223	27	119	0.153	42.402	27	119	0.312	86.625
15:00-16:00	27	119	0.192	53.502	27	119	0.168	46.825	27	119	0.360	100.327
16:00-17:00	27	119	0.221	61.306	27	119	0.158	43.876	27	119	0.379	105.182
17:00-18:00	27	119	0.270	75.180	27	119	0.170	47.258	27	119	0.440	122.438
18:00-19:00	27	119	0.225	62.433	27	119	0.182	50.640	27	119	0.407	113.073
19:00-20:00	0	0	0.000	0.000	0	0	0.000	0.000	0	0	0.000	0.000
20:00-21:00	0	0	0.000	0.000	0	0	0.000	0.000	0	0	0.000	0.000
21:00-22:00	0	0	0.000	0.000	0	0	0.000	0.000	0	0	0.000	0.000
22:00-23:00	0	0	0.000	0.000	0	0	0.000	0.000	0	0	0.000	0.000
23:00-24:00	0	0	0.000	0.000	0	0	0.000	0.000	0	0	0.000	0.000

Table 5.3: Proposed Residential Units



Land Use 01 - RETAIL M - MIXED SHOPPING MALLS												
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VEHICLES <input type="checkbox"/> Estimate TRIP rates												
Estimated TRIP rate value per 9880 SQM Estimated TRIP rates shown in shaded column (for 9880 SQM)												
TRIP RATE VALUE PER 100 SQM	ARRIVALS Total rate: 18,090 Peak: 12:00-13:00			Total 1787.142	DEPARTURES Total rate: 18,182 Peak: 16:00-17:00			Total 1796.299	TOTALS Total rate: 36,272 Peak: 12:00-13:00			Total 3583.441
	No. Days	Ave. GFA	Trip Rate	Estimated Trip rate	No. Days	Ave. GFA	Trip Rate	Estimated Trip rate	No. Days	Ave. GFA	Trip Rate	Estimated Trip rate
05:00-06:00	0	0	0.000	0.000	0	0	0.000	0.000	0	0	0.000	0.000
06:00-07:00	2	26800	0.004	0.369	2	26800	0.000	0.000	2	26800	0.004	0.369
07:00-08:00	4	16493	0.095	9.435	4	16493	0.033	3.295	4	16493	0.128	12.730
08:00-09:00	7	11393	0.425	41.997	7	11393	0.196	19.326	7	11393	0.621	61.323
09:00-10:00	8	11664	1.408	139.134	8	11664	0.726	71.685	8	11664	2.134	210.819
10:00-11:00	8	11664	1.714	169.312	8	11664	1.256	124.098	8	11664	2.970	293.410
11:00-12:00	8	11664	1.904	188.159	8	11664	1.688	166.770	8	11664	3.592	354.929
12:00-13:00	8	11664	2.030	200.548	8	11664	1.878	185.512	8	11664	3.908	386.060
13:00-14:00	8	11664	1.862	183.924	8	11664	1.943	191.971	8	11664	3.805	375.895
14:00-15:00	8	11664	1.893	186.994	8	11664	1.988	196.418	8	11664	3.881	383.412
15:00-16:00	8	11664	1.790	176.829	8	11664	1.922	189.853	8	11664	3.712	366.682
16:00-17:00	8	11664	1.656	163.594	8	11664	1.996	197.160	8	11664	3.652	360.754
17:00-18:00	7	11393	1.308	129.211	7	11393	1.591	157.209	7	11393	2.899	286.420
18:00-19:00	7	11393	0.816	80.649	7	11393	1.302	128.592	7	11393	2.118	209.241
19:00-20:00	5	13476	0.453	44.721	5	13476	0.758	74.926	5	13476	1.211	119.647
20:00-21:00	1	35000	0.466	46.013	1	35000	0.551	54.481	1	35000	1.017	100.494
21:00-22:00	1	35000	0.266	26.253	1	35000	0.354	35.003	1	35000	0.620	61.256
22:00-23:00	0	0	0.000	0.000	0	0	0.000	0.000	0	0	0.000	0.000
23:00-24:00	0	0	0.000	0.000	0	0	0.000	0.000	0	0	0.000	0.000

Table 5.4: Proposed Commercial (Retail) Units

Land Use 02 - EMPLOYMENT A - OFFICE												
<div> <div>Rank</div> <div>Graph</div> <div>Copy Data</div> <div>Print</div> <div>Selection</div> <div>Cross Test</div> <div>Help</div> <div>Previous Screen</div> </div>												
<div> <div>TRAFFIC/MULTI-MODAL</div> <div>FILTERING STAGE 1</div> <div>FILTERING STAGE 2</div> <div>FILTERING STAGE 3</div> <div>FILTERING STAGE 4</div> <div>COUNT TYPE</div> <div>RESULTS</div> </div>												
VEHICLES <input checked="" type="checkbox"/> Estimate TRIP rates												
Estimated TRIP rate value per 585 SQM Estimated TRIP rates shown in shaded column (for 585 SQM)												
TRIP RATE VALUE PER 100 SQM	ARRIVALS Total rate: 6,166 Peak: 06:30-07:00			Total 36.066	DEPARTURES Total rate: 5,605 Peak: 17:00-17:30			Total 32.797	TOTALS Total rate: 11,771 Peak: 06:30-07:00			Total 68.863
	No. Days	Ave. GFA	Trip Rate	Estimated Trip rate	No. Days	Ave. GFA	Trip Rate	Estimated Trip rate	No. Days	Ave. GFA	Trip Rate	Estimated Trip rate
06:30-07:00	2	45133	0.676	3.953	2	45133	0.188	1.102	2	45133	0.864	5.055
07:00-07:30	63	8220	0.219	1.279	63	8220	0.048	0.282	63	8220	0.267	1.561
07:30-08:00	63	8220	0.401	2.346	63	8220	0.077	0.450	63	8220	0.478	2.796
08:00-08:30	63	8220	0.609	3.561	63	8220	0.105	0.616	63	8220	0.714	4.177
08:30-09:00	63	8220	0.659	3.856	63	8220	0.103	0.602	63	8220	0.762	4.458
09:00-09:30	64	8107	0.478	2.797	64	8107	0.111	0.652	64	8107	0.589	3.449
09:30-10:00	64	8107	0.294	1.718	64	8107	0.104	0.607	64	8107	0.398	2.325
10:00-10:30	64	8107	0.183	1.068	64	8107	0.103	0.603	64	8107	0.286	1.671
10:30-11:00	64	8107	0.168	0.982	64	8107	0.105	0.617	64	8107	0.273	1.599
11:00-11:30	64	8107	0.142	0.830	64	8107	0.114	0.665	64	8107	0.256	1.495
11:30-12:00	64	8107	0.136	0.796	64	8107	0.119	0.699	64	8107	0.255	1.495
12:00-12:30	64	8107	0.128	0.749	64	8107	0.181	1.060	64	8107	0.309	1.809
12:30-13:00	64	8107	0.154	0.903	64	8107	0.187	1.095	64	8107	0.341	1.998
13:00-13:30	64	8107	0.161	0.943	64	8107	0.166	0.969	64	8107	0.327	1.912
13:30-14:00	64	8107	0.177	1.034	64	8107	0.131	0.766	64	8107	0.308	1.800
14:00-14:30	64	8107	0.169	0.989	64	8107	0.142	0.833	64	8107	0.311	1.822
14:30-15:00	64	8107	0.134	0.786	64	8107	0.168	0.985	64	8107	0.302	1.771
15:00-15:30	64	8107	0.131	0.767	64	8107	0.208	1.214	64	8107	0.339	1.981
15:30-16:00	64	8107	0.134	0.781	64	8107	0.257	1.504	64	8107	0.391	2.285
16:00-16:30	64	8107	0.113	0.661	64	8107	0.429	2.509	64	8107	0.542	3.170
16:30-17:00	64	8107	0.109	0.639	64	8107	0.478	2.795	64	8107	0.587	3.434
17:00-17:30	63	8220	0.103	0.600	63	8220	0.662	3.873	63	8220	0.765	4.473
17:30-18:00	63	8220	0.072	0.419	63	8220	0.415	2.429	63	8220	0.487	2.848
18:00-18:30	63	8220	0.050	0.294	63	8220	0.253	1.481	63	8220	0.303	1.775

Table 5.5: Proposed Office Units



Land Use

07 - LEISURE Q - COMMUNITY CENTRE

Rank

Graph

Copy Data

Print

Selection

Cross Test

Help

Previous Screen

TRAFFIC/ MULTI-MODAL

FILTERING STAGE 1

FILTERING STAGE 2

FILTERING STAGE 3

FILTERING STAGE 4

COUNT TYPE

RESULTS

VEHICLES

☒ Estimate TRIP rates

Estimated TRIP rate value per

695

SQM

Estimated TRIP rates shown in shaded column (for 695 SQM)

TRIP RATE VALUE PER 100 SQM	ARRIVALS Total rate: 11.595 Peak: 18:00-19:00			Total 80.598	DEPARTURES Total rate: 11.948 Peak: 21:00-22:00			Total 83.041	TOTALS Total rate: 23.543 Peak: 18:00-19:00			Total 163.639
	No. Days	Ave. GFA	Trip Rate	Estimated Trip rate	No. Days	Ave. GFA	Trip Rate	Estimated Trip rate	No. Days	Ave. GFA	Trip Rate	Estimated Trip rate
03:00-04:00	0	0	0.000	0.000	0	0	0.000	0.000	0	0	0.000	0.000
04:00-05:00	0	0	0.000	0.000	0	0	0.000	0.000	0	0	0.000	0.000
05:00-06:00	0	0	0.000	0.000	0	0	0.000	0.000	0	0	0.000	0.000
06:00-07:00	0	0	0.000	0.000	0	0	0.000	0.000	0	0	0.000	0.000
07:00-08:00	1	900	0.111	0.772	1	900	0.111	0.772	1	900	0.222	1.544
08:00-09:00	7	468	0.549	3.818	7	468	0.244	1.697	7	468	0.793	5.515
09:00-10:00	7	468	1.190	8.271	7	468	0.671	4.666	7	468	1.861	12.937
10:00-11:00	7	468	0.488	3.393	7	468	0.397	2.757	7	468	0.885	6.150
11:00-12:00	7	468	0.610	4.242	7	468	0.885	6.150	7	468	1.495	10.392
12:00-13:00	6	509	1.016	7.059	6	509	0.917	6.376	6	509	1.933	13.435
13:00-14:00	6	509	0.524	3.644	6	509	0.459	3.188	6	509	0.983	6.832
14:00-15:00	6	509	0.950	6.604	6	509	0.852	5.921	6	509	1.802	12.525
15:00-16:00	6	509	0.885	6.148	6	509	1.311	9.109	6	509	2.196	15.257
16:00-17:00	6	509	0.262	1.822	6	509	0.491	3.416	6	509	0.753	5.238
17:00-18:00	6	509	0.983	6.832	6	509	0.754	5.238	6	509	1.737	12.070
18:00-19:00	6	509	1.802	12.525	6	509	1.048	7.287	6	509	2.850	19.812
19:00-20:00	6	509	1.474	10.247	6	509	1.114	7.742	6	509	2.588	17.989
20:00-21:00	6	509	0.426	2.960	6	509	1.114	7.742	6	509	1.540	10.702
21:00-22:00	5	430	0.325	2.261	5	430	1.580	10.980	5	430	1.905	13.241
22:00-23:00	0	0	0.000	0.000	0	0	0.000	0.000	0	0	0.000	0.000

Table 5.6: Proposed Community Centre

Land Use 02 - EMPLOYMENT A - OFFICE													
<div><div><div><div><div></div><div>Rank</div></div><div><div></div><div>Graph</div></div><div><div></div><div>Copy Data</div></div><div><div></div><div>Print</div></div><div><div></div><div>Selection</div></div><div><div></div><div>Cross Test</div></div><div><div></div><div>Help</div></div><div><div></div><div>Previous Screen</div></div></div></div></div>													
TRAFFIC/ MULTI-MODAL  FILTERING STAGE 1  FILTERING STAGE 2  FILTERING STAGE 3  FILTERING STAGE 4  COUNT TYPE  RESULTS													
VEHICLES <input checked="" type="checkbox"/> Estimate TRIP rates													
Estimated TRIP rate value per 7500 SQM Estimated TRIP rates shown in shaded column (for 7500 SQM)													
TRIP RATE VALUE PER 100 SQM	ARRIVALS Total rate: 6.166 Peak: 06:30-07:00			Total 462.377	DEPARTURES Total rate: 5.605 Peak: 17:00-17:30			Total 420.453	TOTALS Total rate: 11.771 Peak: 06:30-07:00			Total 882.830	
	No. Days	Ave. GFA	Trip Rate	Estimated Trip rate	No. Days	Ave. GFA	Trip Rate	Estimated Trip rate	No. Days	Ave. GFA	Trip Rate	Estimated Trip rate	
06:00-06:30	2	45133	0.676	50.684	2	45133	0.188	14.125	2	45133	0.864	64.809	
06:30-07:00	63	8220	0.219	16.395	63	8220	0.048	3.621	63	8220	0.267	20.016	
07:00-07:30	63	8220	0.401	30.082	63	8220	0.077	5.764	63	8220	0.478	35.846	
08:00-08:30	63	8220	0.609	45.651	63	8220	0.105	7.893	63	8220	0.714	53.544	
08:30-09:00	63	8220	0.659	49.431	63	8220	0.103	7.720	63	8220	0.762	57.151	
09:00-09:30	64	8107	0.478	35.864	64	8107	0.111	8.355	64	8107	0.589	44.219	
09:30-10:00	64	8107	0.294	22.030	64	8107	0.104	7.777	64	8107	0.398	29.807	
10:00-10:30	64	8107	0.183	13.689	64	8107	0.103	7.734	64	8107	0.286	21.423	
10:30-11:00	64	8107	0.168	12.591	64	8107	0.105	7.907	64	8107	0.273	20.498	
11:00-11:30	64	8107	0.142	10.639	64	8107	0.114	8.529	64	8107	0.256	19.168	
11:30-12:00	64	8107	0.136	10.205	64	8107	0.119	8.962	64	8107	0.255	19.167	
12:00-12:30	64	8107	0.128	9.598	64	8107	0.181	13.588	64	8107	0.309	23.186	
12:30-13:00	64	8107	0.154	11.579	64	8107	0.187	14.036	64	8107	0.341	25.615	
13:00-13:30	64	8107	0.161	12.085	64	8107	0.166	12.417	64	8107	0.327	24.502	
13:30-14:00	64	8107	0.177	13.255	64	8107	0.131	9.815	64	8107	0.308	23.070	
14:00-14:30	64	8107	0.169	12.677	64	8107	0.142	10.682	64	8107	0.311	23.359	
14:30-15:00	64	8107	0.134	10.075	64	8107	0.168	12.634	64	8107	0.302	22.709	
15:00-15:30	64	8107	0.131	9.830	64	8107	0.208	15.568	64	8107	0.339	25.398	
15:30-16:00	64	8107	0.134	10.018	64	8107	0.257	19.283	64	8107	0.391	29.301	
16:00-16:30	64	8107	0.113	8.471	64	8107	0.429	32.163	64	8107	0.542	40.634	
16:30-17:00	64	8107	0.109	8.196	64	8107	0.478	35.835	64	8107	0.587	44.031	
17:00-17:30	63	8220	0.103	7.691	63	8220	0.662	49.648	63	8220	0.765	57.339	
17:30-18:00	63	8220	0.072	5.373	63	8220	0.415	31.139	63	8220	0.487	36.512	

Table 5.7: Possible Office Units (St. Bricin's)

Land Use 03 - RESIDENTIAL C - FLATS PRIVATELY OWNED												
<div> Rank Graph Copy Data Print Selection Cross Test Help Previous Screen </div>												
TRAFFIC/MULTI-MODAL FILTERING STAGE 1 FILTERING STAGE 2 FILTERING STAGE 3 FILTERING STAGE 4 COUNT TYPE RESULTS												
VEHICLES <input checked="" type="checkbox"/> Estimate TRIP rates												
Estimated TRIP rate value per 120 DWELLS Estimated TRIP rates shown in shaded column (for 120 DWELLS)												
TRIP RATE VALUE PER 1 DWELLS	ARRIVALS Total Rate: 0.976 Peak: 17:00-18:00				DEPARTURES Total Rate: 1.075 Peak: 08:00-09:00				TOTALS Total Rate: 2.051 Peak: 18:00-19:00			
	No. Days	Ave. DWELLS	Trip Rate	Estimated Trip rate	No. Days	Ave. DWELLS	Trip Rate	Estimated Trip rate	No. Days	Ave. DWELLS	Trip Rate	Estimated Trip rate
05:00-06:00	0	0	0.000	0.000	0	0	0.000	0.000	0	0	0.000	0.000
06:00-07:00	0	0	0.000	0.000	0	0	0.000	0.000	0	0	0.000	0.000
07:00-08:00	49	77	0.026	3.087	49	77	0.112	13.397	49	77	0.138	16.484
08:00-09:00	49	77	0.049	5.855	49	77	0.165	19.825	49	77	0.214	25.680
09:00-10:00	49	77	0.051	6.173	49	77	0.086	10.278	49	77	0.137	16.451
10:00-11:00	49	77	0.051	6.078	49	77	0.065	7.860	49	77	0.116	13.938
11:00-12:00	49	77	0.057	6.810	49	77	0.062	7.478	49	77	0.119	14.288
12:00-13:00	49	77	0.059	7.128	49	77	0.079	9.483	49	77	0.138	16.611
13:00-14:00	49	77	0.063	7.574	49	77	0.074	8.846	49	77	0.137	16.420
14:00-15:00	49	77	0.063	7.574	49	77	0.058	6.905	49	77	0.121	14.479
15:00-16:00	49	77	0.074	8.910	49	77	0.063	7.542	49	77	0.137	16.452
16:00-17:00	49	77	0.086	10.278	49	77	0.061	7.351	49	77	0.147	17.629
17:00-18:00	49	77	0.139	16.738	49	77	0.072	8.592	49	77	0.211	25.330
18:00-19:00	49	77	0.133	15.975	49	77	0.086	10.278	49	77	0.219	26.253
19:00-20:00	1	294	0.071	8.571	1	294	0.058	6.939	1	294	0.129	15.510
20:00-21:00	1	294	0.054	6.531	1	294	0.034	4.082	1	294	0.088	10.613
21:00-22:00	0	0	0.000	0.000	0	0	0.000	0.000	0	0	0.000	0.000
22:00-23:00	0	0	0.000	0.000	0	0	0.000	0.000	0	0	0.000	0.000
23:00-24:00	0	0	0.000	0.000	0	0	0.000	0.000	0	0	0.000	0.000

Table 5.8: Possible Residential Units (St. Bricin's)

## Operational Impacts

The AM peak (0800hrs-0900hrs) and PM peak (1700hrs-1800hrs) trip attraction and generation associated with the existing and proposed land uses based on TRICS 2010(b) is further summarised within Tables 5.9 to 5.11 below:

Land Use	AM Peak		PM Peak	
	Arrivals	Departures	Arrivals	Departures
Residential Units	33	66	75	47

Table 5.9: Existing AM and PM Peak Trip Generation.

Land Use	AM Peak		PM Peak	
	Arrivals	Departures	Arrivals	Departures
Residential Units	33	66	75	47
Retail Units	42	19	129	157
Office Units	8	2	1	6
Community	4	2	7	5
Totals	87	89	212	215

Table 5.10: Proposed AM and PM Peak Trip Generation.

Land Use	AM Peak		PM Peak	
	Arrivals	Departures	Arrivals	Departures
Residential Units	6	20	17	9
Office Units	94	16	13	81
Totals	100	36	30	

Table 5.11 Possible St. Bricin's AM and PM Peak Trip Generation.

It should be noted that while all traffic cannot be considered as new trips onto the road network, our assessments add these trips as wholly new traffic onto the adjacent road network in order to assess a worse case traffic scenario.

It should be noted that, for the purposes of this report, the land use 'retail' has been assumed where commercial units are proposed within the O'Devaney Gardens development. From discussions with Dublin City Council it is expected that these units could accommodate office or public and community services. However, retail land uses would generate higher traffic figures than these potential land uses thereby resulting in a worst case traffic scenario.

In addition, the commercial units, community facilities and open spaces would be used mainly by residents of O'Devaney Gardens and therefore would not generate traffic on the surrounding road network. However, our assessments assume that these land uses would create wholly new trips onto the adjacent road network with an origin and destination outside of O'Devaney Gardens and do not take account of non-car borne trips.

As previously discussed, the realigned boulevard through the O'Devaney Gardens site would discourage through traffic within the site thus reducing the amount of traffic rat-running through the site. Again, in order to assess a worst case traffic scenario we have included the rat-run traffic within our assessments.

For the purposes of our assessments it is assumed that the proposed housing regeneration development would be complete by 2017.

As previously discussed, it has been identified that traffic on the adjacent road network has remained largely the same in the past 5 years. For the purposes of this TIA and in order to take account of possible future developments such as the St. Bricin's development and other developments in the vicinity of the application site future year traffic growth indices have been applied to the recorded traffic figures 5 years and 15 years following the year of completion of the proposed development.

Traffic growth indices according to Table 15 of the 'Future Traffic Growth Forecasts 2002-2040' published by the National Roads Authority have been applied to the recorded traffic flows on the surrounding road network and take account of traffic growth associated with economic development and new development in the vicinity of O'Devaney Gardens, such as the new Courts Services development located at the junction of Parkgate Street/Infirmary Road and a residential development (granted planning permission by Dublin City Council in 2007, Planning Ref: 2363/06) at Infirmary Road, Motpellier Hill and Montpellier Gardens.

The traffic growth expected on the surrounding road network due to new development and economic growth at 2017, 2022 and 2032, using a base year of 2009, is indicated within the timeline below:

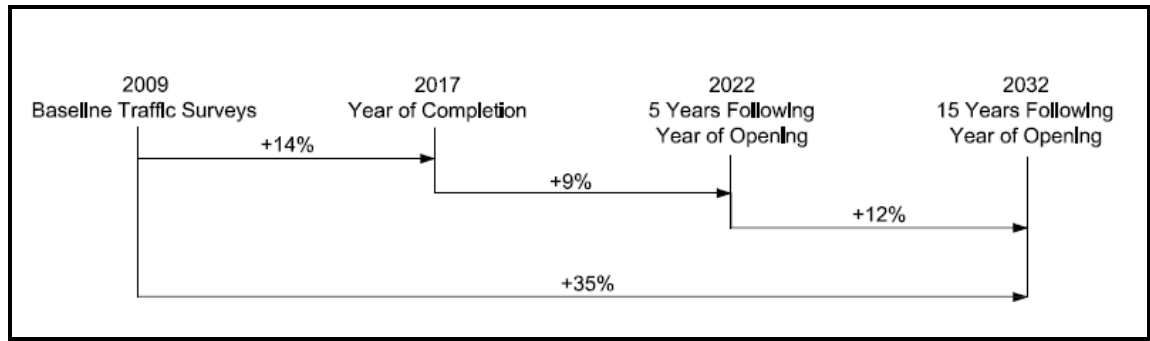


Figure 5.2: Traffic Growth Timeline

We have applied this traffic growth to the recorded existing AM and PM peak traffic levels identified within the existing traffic surveys. The distribution of all of this traffic (based on existing traffic flows) and 100% of the AM and PM peak trip generation associated with the proposed development at completion in 2032, including 35% traffic growth is shown within Figures 5.3 and 5.4 below:

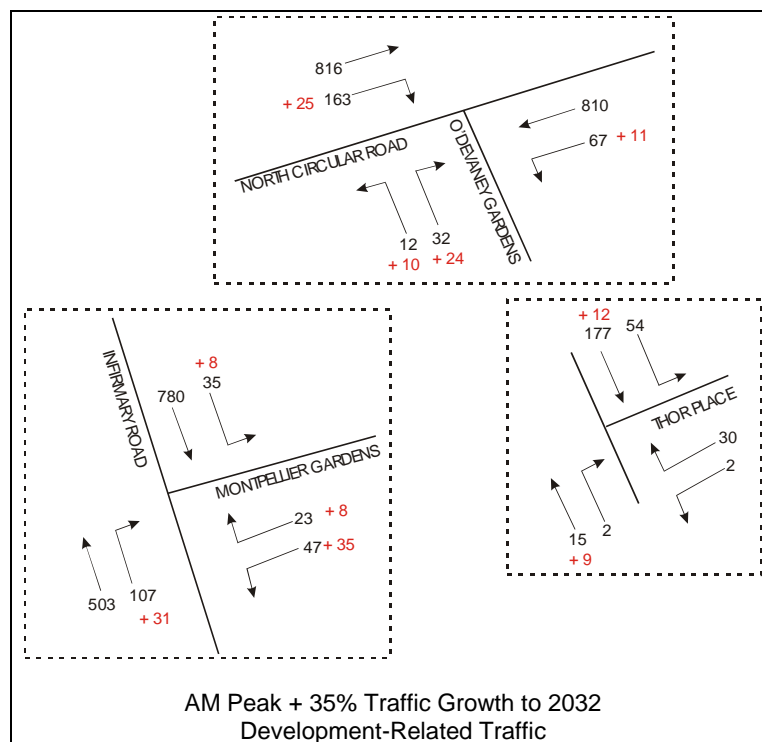
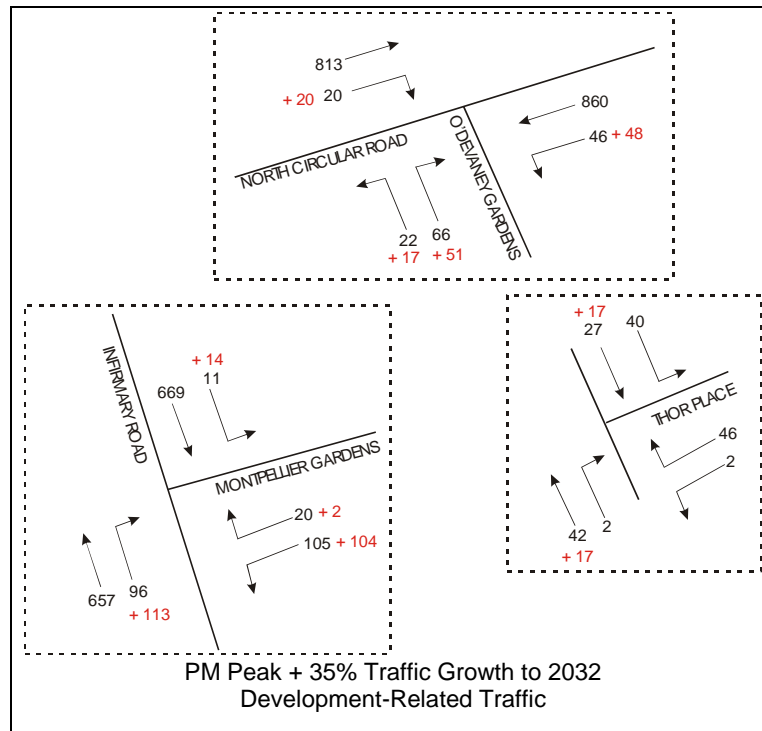


Figure 5.3: AM Peak Impact of Proposed Development on Critical Junctions.



**Figure 5.4: PM Peak Impact of Proposed Development on Critical Junctions.**

In order to assess the impact of the traffic associated with the proposed development and possible future developments on the critical road links and junctions in the vicinity of the proposed development, this being the existing North Circular Road/O'Devaney Gardens junction and the Infirmary Road/Montpellier Gardens junction (which are the junctions that yield the highest traffic flows) we have modelled these junctions using the computer modelling program PICADY5. This is a program developed by the Transport Research Laboratory and used by traffic engineers to assess the capacity and delay at priority junctions.

PICADY5 output results consist of tables of demand flows for each time segment of the time-period analysis. These tables contain start and finish times for each arm, traffic demand data, capacity, ratio of flow to capacity findings, start queue length, end queue length, and queuing delay.

This traffic-modelling period covers the busiest recorded critical AM and PM peak period at 2032 (15 years following the year of opening) with 35% traffic growth on the adjacent road network and 100% of development traffic added as wholly new trips to the road network. These assessments also include the worse case traffic scenarios previously discussed.

A copy of the AM and PM PICADY5 data and results are attached as Appendix 5.2 to this report with a summary of the output results shown within Table 12.0 below:

Traffic Stream	Total Demand		Queuing Delay		Queue Veh.	Max RFC
	Veh	Veh/Hr	Min	Min/veh		
B-AC	107.4	71.6	68.5	0.64	1.7	0.679
C-A	1123.2	748.8	-	-	-	-
C-B	258.8	172.5	73.0	0.28	1.9	0.571
A-B	107.4	71.6	-	-	-	-
A-C	1114.9	743.3	-	-	-	-

Arm A – North Circular Road East, Arm B – O'Devaney Gardens, Arm C – North Circular Road West. AM Peak 2032.

**Table 5.12: AM PICADY 2032**

Traffic Stream	Total Demand		Queuing Delay		Queue Veh.	Max RFC
	Veh	Veh/Hr	Min	Min/veh		
B-AC	214.7	143.1	232.5	1.08	1.7	0.979
C-A	1119.0	746.0	-	-	-	-
C-B	55.1	36.7	9.6	0.17	1.9	0.127
A-B	129.4	86.3	-	-	-	-
A-C	1183.7	789.2	-	-	-	-

Arm A – North Circular Road East, Arm B – O'Devaney Gardens, Arm C – North Circular Road West. PM Peak 2032.

**Table 5.13: PM PICADY 2032**

Traffic Stream	Total Demand		Queuing Delay		Queue Veh.	Max RFC
	Veh	Veh/Hr	Min	Min/veh		
B-AC	155.5	103.7	34.6	0.22	1.7	0.379
C-A	692.3	461.6	-	-	-	-
C-B	203.7	135.8	45.8	0.22	1.9	0.431
A-B	63.3	42.2	-	-	-	-
A-C	1073.6	715.7	-	-	-	-

Arm A – Infirmary Road North. Arm B – Montpellier Gardens. Arm C – Infirmary Road South. AM Peak 2032.

**Table 5.14: AM PICADY 2032**

Traffic Stream	Total Demand		Queuing Delay		Queue Veh.	Max RFC
	Veh	Veh/Hr	Min	Min/veh		
B-AC	318.0	212.0	80.9	0.25	1.5	0.609
C-A	904.3	602.9	-	-	-	-
C-B	287.7	191.8	72.8	0.25	1.2	0.559
A-B	33.0	22.0	-	-	-	-
A-C	920.8	613.9	-	-	-	-

Arm A – Infirmary Road North. Arm B – Montpellier Gardens. Arm C – Infirmary Road South. AM Peak 2032.

**Table 5.15: PM PICADY 2032**

From the above summary tables it is indicated that the existing critical North Circular Road/O'Devaney Gardens junction and the Infirmary Road/Montpellier Gardens junction can accommodate the 35% traffic growth (which takes account of possible future developments and recently opened developments) at 2032 and 100% of the projected levels of traffic associated with the proposed development. These tables also indicate that during the peak traffic periods these junctions operate with reserve capacity of 20% during the critical peak traffic periods at 2032.

As the existing junctions can cater for the proposed development and traffic growth to 2032 there are no proposals to alter the existing access arrangements serving O'Devaney Gardens as part of this planning application.



In addition, due to the development's location proximate to the city centre and the ample availability of public transport, pedestrian and cyclist provisions within the vicinity of the application site it is expected that the majority of residents and employees would utilise these modes of transport as alternatives to car borne transport. Considering the above it is evident that the proposed regeneration development would have a negligible effect on the surrounding road links junctions in the vicinity of the application site.

### **Construction Impacts**

As previously discussed, it is proposed to regenerate the O'Devaney Gardens area by replacing existing housing units with social and affordable housing and a community centre which includes commercial units. This regeneration project will take place over a phased basis with the level of construction traffic varying during this period. It is expected that the construction phase will take place over an 18-month period.

On average, during the overall construction of this development it is expected that approximately 120-150 construction personnel would arrive and depart the site. This level of construction personnel would vary throughout the construction of this development. It is expected that the majority of personnel would arrive and depart the site by car/van with an element of car sharing taking place. It is also expected, due to the efficient public transport provisions in the vicinity of the application site, that a number of personnel would utilise these services.

Our research indicates that construction workers generally arrive at and depart from development sites outside the peak traffic periods on the adjacent road network. It is expected that construction work would take place at the site between 0800hrs and 1800hrs from Monday to Friday with a half day on Saturday from 0800hrs-1300hrs. Thus we do not anticipate any onerous traffic generation or delay factors associated with this aspect of the project.

It is expected that construction vehicles would arrive and depart the site at various times throughout the working day removing and importing varying volumes of materials over the course of construction. The majority of these construction vehicles would consist of 3-4 axle heavy vehicles, typically carrying 8m<sup>3</sup> loads of removal or import material. Construction vehicles with more than 5 axles will be subject to the 5-axle ban through the city between 0700hrs and 1900hrs.

Over the course of the construction phase the level of construction vehicles arriving at and departing from the site would vary depending on the stage of construction (ie demolition, removal of materials, import of materials, construction, fit out). Simultaneous removal and import of materials would occur during the first 4-6 months of the construction phase with a reduction in heavy vehicles occurring during the latter stages of the construction phase.

The expected average daily, weekly and monthly heavy vehicle trips expected during the 18-month construction period are shown within Table 5.16 below:

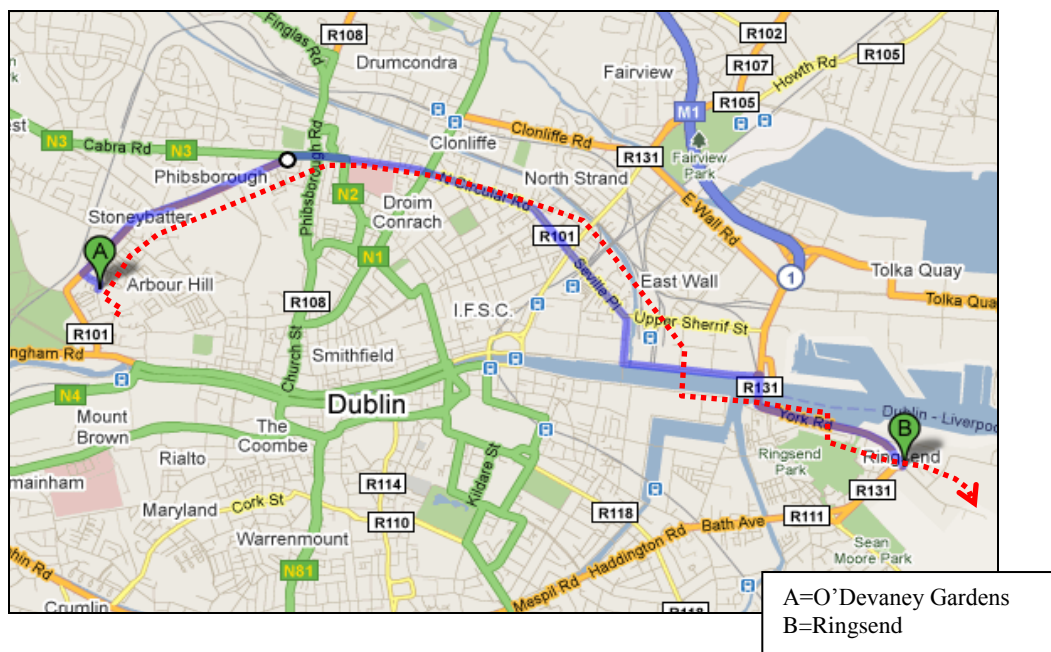
Average	Arrivals	Departures
Daily	55	55
Weekly	305	305
Monthly	3660	3660

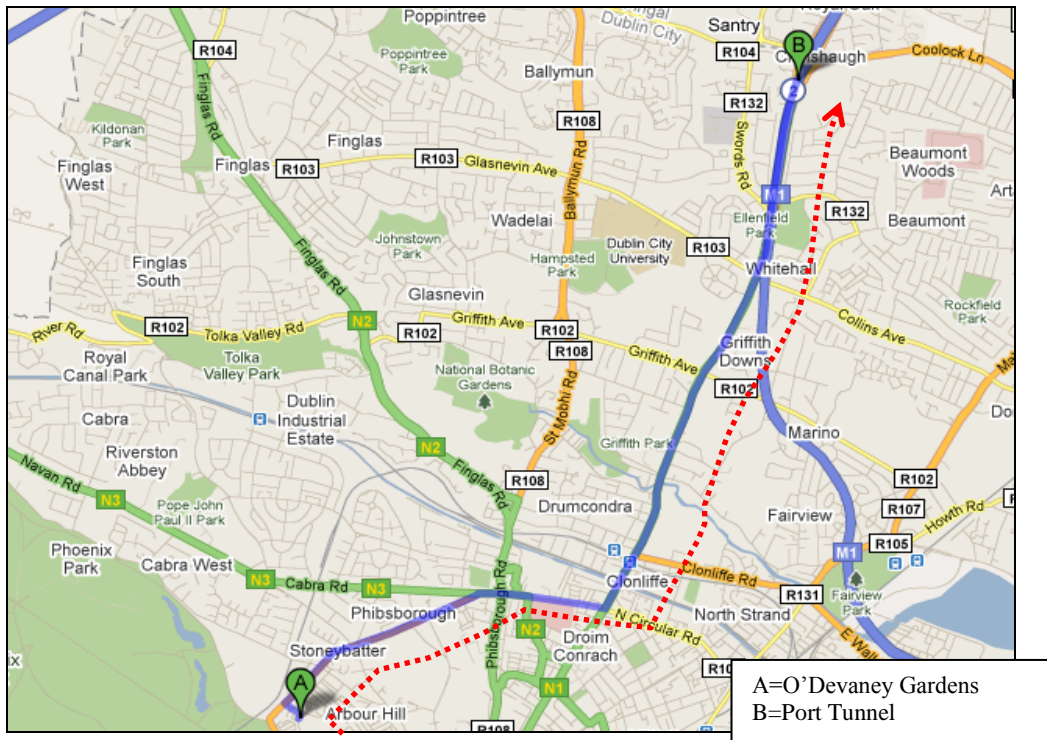
**Table 5.16: Construction Vehicle Trips.**

Mitigation measures will be implemented to ensure that the construction of this development does not impact on the adjacent road network. Wheel wash facilities will be provided to minimise the spread of material from the area of the excavation. In addition the site roads will be regularly cleaned. These steps will ensure that material will not be transferred to the surrounding road network.

Road signage will be provided on the surrounding road network to advise motorists of construction activity. In addition, a Traffic Management Plan (to be agreed with Dublin City Council) will be in operation when necessary.

As part of the construction of this proposed development it is expected that construction vehicles would travel inbound and outbound via the R101. It is expected that steel removed from the site would be transported to a metal recycling facility in Ringsend via the East Link Toll Bridge. Waste material removed from the site would be transported to a crushing plant via the Port Tunnel. These haul routes are shown within Maps 5.4 and 5.5 below:





**Map 5.5: Haul Route 2.**

\*Note: These haul routes are to be agreed with Dublin City Council.

## 5.5 OTHER TRAFFIC MATTERS

### Car Parking

O'Devaney Gardens falls within Area 2 of the car parking standards set down within Chapter 15 of Dublin City Council Development Plan 2005-2011. These car parking standards recommend that 1 space per dwelling is provided to serve a residential land use. In addition, it is suggested that 1 space per 275m<sup>2</sup> is provided for "other retail and main street financial offices etc". The proposed car parking to serve the development is also addressed in Chapter 2 Section 2.6.5 of the EIS.

It is proposed to provide 100 car parking spaces to serve the neighbourhood centre proposed under Phase 1B. In addition 1 space per dwelling will also be provided to serve the residential element of this development.

It is expected that car parking serving the various proposed land uses within the O'Devaney Gardens area will comply with the standards set down within the Dublin City Council Development Plan 2005-2011.

It is stated within Section 15.35.0 of the Development Plan that:

*"An increased density of development may be permitted in certain instances in locations in zone 1 and those parts of zone 2 where the development is in close proximity to good public transport links".*

As previously discussed, the proposed development site is located proximate to ample existing public transport provisions including regular Dublin Bus and Luas services.

Section 17.40 of the Draft Dublin City Development Plan 2011-2017 states that the car parking standards set out in Table 17.1 shall be generally regarded as the maximum parking provision and parking provision in excess of these minimum standards shall only be permitted in exceptional circumstances e.g boundary areas or where necessary for the sustainable development of a regeneration area.

This parking strategy at Masterplan level and for Phase 1B neighbourhood uses is considered appropriate for the site taking into account:

- The lack of on street space in general for additional on street parking on residential streets adjoining the site.
- The importance of orderly parking for future phases that may generate wider local interest (community and commercial uses on Phase 1B). It is important that parking does not overspill onto new streets or adjoining streets that would detract from their environment.
- The traffic generated will be a local level on account of the nature of uses proposed. The facility is not otherwise likely to attract commuter parking.

## **5.6 MITIGATION MEASURES**

As previously discussed it is expected that the construction phase of this development would take place over an 18-month period, with the level of construction traffic varying over this period. Mitigation measures (such as wheel wash facilities, road signage and designate haul routes) will be put in place during the construction phase to ensure that the adjacent road network is not affected by vehicular spoil or traffic delays.

On completion of the proposed development it is expected that, due to the limited traffic levels associated with the development and the availability of numerous forms of existing and proposed public transport and pedestrian and cyclist facilities, the proposed development would not impact on the operation of the surrounding road network.

## **5.7 MONITORING**

No transportation monitoring is required following the implementation of the development.

## **5.8 RESIDUAL IMPACTS.**

The residual impact of proposed development in terms of traffic can be considered as neutral.

### **5.9 DIFFICULTIES ENCOUNTERED**

No difficulties were encountered in preparing the TIA that forms part of the EIS.

### **5.10 CONCLUSIONS**

The methodology used within this report has been discussed and agreed with Dublin City Council regarding the extent of the traffic study, the database utilised to determine the trip generation associated with the proposed development and the traffic modelling assessments. The site is served by existing regular, efficient public transport links that are proposed to be upgraded.

In this report we have identified the existing traffic conditions and assessed the level of impact the proposed development is likely to have on the adjacent road network. We have also identified how the proposed development can be accommodated within this road network.

The capacity of the critical junctions in the vicinity of the development site has been modelled with the projected traffic conditions for the completed development at 2032. The results indicate that these junctions can operate within capacity and can accommodate the traffic associated with the proposed development and possible future developments.

From the above we conclude that the existing junction arrangements to access the application can operate satisfactorily in accommodating the levels of traffic likely to be generated by the development in terms of traffic capacity.

