SOCIAL HOUSING DEVELOPMENT
EAST WALL, DUBLIN
Traffic and Transport Assessment
TRAFFIC AND TRANSPORT ASSESSMENT

Document status

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<th>Version</th>
<th>Purpose of document</th>
<th>Authored by</th>
<th>Reviewed by</th>
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<tr>
<td>P01</td>
<td>Issue for Review</td>
<td>MF</td>
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<td>24.09.2021</td>
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<tr>
<td>P02</td>
<td>Issue for Review</td>
<td>MF</td>
<td>PmcG</td>
<td>DK</td>
<td>04.02.2022</td>
</tr>
<tr>
<td>P03</td>
<td>Issue for Part 8 Planning</td>
<td>MF</td>
<td>PmcG</td>
<td>DK</td>
<td>03.03.2022</td>
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Approval for issue

DK 3 March 2022

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Prepared by: RPS
Prepared for: Dublin City Council
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## Appendices

Appendix A Traffic Engineering Drawings
1 INTRODUCTION

RPS are the appointed Civil and Structural Engineering advisors for the proposed residential development on East Wall Road, East Wall, Dublin. This project will deliver 68 residential units to Dublin City Council.

RPS developed this Traffic and Transport Assessment (TTA) as part of a Part 8 planning application for the social housing residential development in the East Wall area of Dublin City. The proposed site is located at East Wall Road, North, Co. Dublin, approximately 2km walking distance northeast of Dublin City Centre.

The site location is shown on the Site Location Map in Appendix A and in Figure 1.1 below.

Figure 1.1: Site Location

1.1 Objective

The objective of this TTA is to assess the likely impact of the proposed development on the surrounding road network.

1.2 Reference Documents

This TTA was prepared in accordance with and with cognisance of the following:

- NRA Traffic and Transport Assessment Guidelines (May 2014),
- Dublin City Council - Dublin City Development Plan 2016 - 2022
1.3 Methodology

1.3.1 Approach

This TTA includes the following;
- Relevant policy review,
- Establishment of existing and future traffic flows and development trip generation, and
- Appraisal of predicted traffic flows

1.3.2 Traffic Analysis

Following RPS review of the site and predicted traffic movements, the following junctions were identified as requiring impact analysis:
- East Wall Road (R131)/Annesley Bridge (R105) (Signalised Junction)
- East Wall Road (R131)/Hope Avenue (Priority Junction)

These locations are shown in Figure 1.2.

Figure 1.2: Junctions to be Analysed
1.3.3 Baseline Traffic Flows

Traffic counts were carried out at the junctions listed in Section 1.3.2 by Irish Traffic Surveys Ltd. on 15th June 2021. Whilst it is understood that these traffic counts were carried out during the Covid-19 Pandemic, which has influenced traffic behaviour and outside of the school calendar, it was considered appropriate to obtain traffic counts in the absence of historical data available.

1.3.3.1 Adjustment to Traffic Counts

TII Publications – Project Appraisal Guidelines for National Roads Unit 5.3 – Travel Demand Projections includes alternative future demand scenario growth factors to account for changes in traffic patterns as a result of the Covid-19 Pandemic. The methodology of this assessment aims to assess the requirement for traffic modelling and assessment based on the TII Traffic and Transport Assessment Guidelines May 2014 and the following thresholds within this document in relation to direct effects on traffic volumes that will require a Traffic and Transport Assessment;

- Traffic to and from the development exceeds 10% of the traffic flow on the adjoining road.
- Traffic to and from the development exceeds 5% of the traffic flow on the adjoining road where congestion exists, or the location is sensitive.

These Guidelines also give the below advisory thresholds for Traffic and Transport Assessments to be required.

- 100 trips in / out combined in the peak hours for the proposed development
- Development traffic exceeds 10% of turning movements at junctions with and on National Roads.
- Development traffic exceeds 5% of turning movements at junctions with National Roads if location has potential to become congested or sensitive.

As the adjustment factors in TII Publications – Project Appraisal Guidelines for National Roads Unit 5.3 – Travel Demand Projections are growth factors, it was considered prudent to use the existing traffic counts without these growth factors in order to represent a worst-case scenario when assessing the developments impact in relation to the thresholds within the TII Traffic and Transport Assessment Guidelines May 2014.

1.3.4 Establishment of Traffic Flows

Traffic generated by the proposed development was calculated using the Trip Rate Information Computer System (TRICS) trip rate calculations. TRICS trip rates are calculated by using surveyed trips to and from similar developments and are explained on TRICS.org as being;

“Trip rates show the number of traffic/people movements in and out of a development (or an average of a number of developments within the same land use category), for a given trip rate parameter factor. For example, when trip rates are calculated by Gross Floor Area (GFA), they are shown per 100m² of GFA. Using this factor, users can apply trip rates to potential developments, and are encouraged to achieve a balance between their selection criteria and the size of their selected data sample to achieve this aim.”

“Trip rates are calculated as follows: Mean average trip rates are calculated when there are at least 2 surveys included in a selected list (trip rates for an individual site can also be calculated). The calculation process consists of 3 parts, and these apply to every hour of the survey duration, for arrivals, departures and totals counts:”
2 EXISTING CONDITIONS

2.1 Existing Site Conditions

The proposed development site is currently a brown field site within a built up urban area site zoned for residential land use in the Dublin City Development Plan 2016 – 2022 as shown in the below Figure 2.1 and 2.2.

Figure 2.1: Existing Site Condition

Figure 2.2: Existing Site Usage
2.2 Existing Surrounding Road Network

The roads surrounding the proposed development site are both regional and local in nature. The R131 which runs adjacent to the proposed developments northern boundary is a link road from Dublin Port to Dublin City Centre and the N1 which links to the M1 Dublin to Belfast Road. To the west of the proposed development the R105 connects the residential area of Marino to the north and the North Strand area to the south of the proposed development.

The surrounding road network is illustrated in Figure 2.3 below.

Figure 2.3: Existing Surrounding Road Network

At the East Wall Road (R131)/Annesley Bridge (R105) signalised junction, right turns are restricted in the following directions:

- From Annesley Bridge, R105 (north) to R131 East Wall (north)
- From R131 East Wall (north) to Annesley Bridge, R105 (north)
- From R105 (south) to R131 East Wall (south)

Left turns are also banned from:

- From R105 (south) to R131 East Wall (north)
2.3 Existing Surrounding Footpath Network

The surrounding road network includes a well-connected network of footpaths which are in good condition on both sides. These footpaths link the proposed development site to a number of local facilities such as schools, shops, bus stops, Clontarf Road train station and Dublin City Centre within a comfortable walking distance of approximately 2km (26 minutes), calculated by Google Maps as shown in the below Figure 2.4. Also present along this network of footpaths are pedestrian crossings in the form of uncontrolled and signal controlled crossings.

Figure 2.4: Existing Footpath Network and Linkages to Amenities
2.4 Existing Public Transport Facilities

2.4.1 Bus

The proposed development site is well serviced by bus. The nearest bus stop is a 2 minute walk away on the R105. This bus stop is on 19 different Dublin Bus routes and a bus can be accessed short frequencies of as low as three minutes. This allows a commuter to access Dublin City Centre within 11 minutes during the AM peak period of 08:00–09:00 from the proposed development site. These services benefit from bus lanes which are present along the vast majority of these routes.

The site is also located approximately 1.5km from the Busáras Central Station which equates to a 20-minute walk or a 6-minute cycle. Additionally, the Airlink 757 and 747 Bus running to Dublin airport can be accessed from Busáras Central Station.

2.4.2 Cycle

The proposed development site is well connected to existing cycle facilities. The local road network adjacent to the proposed development site being residential and having traffic calming measures in place means that cyclists can be comfortable sharing the road carriageway with vehicles. Approximately 75m from the proposed development site, there are segregated cycles lanes northbound and southbound along the R105. Dublin City Centre can be accessed via bicycle from the proposed development site using a mixture of segregated cycle lanes and bus lanes in approximately 10 minutes as measured on Google Maps.

2.4.3 Train

DART services can be accessed via Clontarf Road DART Station from the proposed development site within a 15-minute walking distance (1.2km) as measured on Google Maps. This train service links the proposed development site to the northern and southern parts of the Greater Dublin Area.
Connolly Train Station can be accessed within a 16-minute walk (1.3km) as measured on Google Maps. Connolly Station links the proposed development site with numerous regional rail services within and beyond the Dublin County boundary.

The Luas tram service has two main routes through Dublin City. The LUAS Green Line is accessible from the proposed development site within a 25-minute walk (2km) as measured by Google Maps. The LUAS Green Line links the north and south axis of Dublin City. The Luas Red Line runs in a predominantly east west direction from Saggart/Tallaght to the Point and has a stop at Connolly Station. Trams operate at 3 - 5 minute frequencies during peak travel times and 12 – 15 minute frequencies during off peak travel times generally between 05:30 – 12:00. It should also be noted the Luas Red Line also provides a connection to Heuston Station.
3 FUTURE CONDITIONS

3.1 Proposed Development

The proposed development, as described in Section 1 is a social housing development and will consist of;

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The proposed development will front on to and be accessed via the East Wall Road to the north. The proposed apartments will consist of three blocks fronting on to a new internal access road arrangement in the central and southern areas of the of proposed apartments.

Parking will be provided in the form of 34 internal perpendicular car parking spaces.

This is illustrated in the Proposed Site Layout Drawing in Appendix A and Figure 3.1 below

Figure 3.1: Proposed Site Layout
3.2 Surrounding Road and Footpath Network

No changes are proposed to the surrounding road or footpath network. The site will be accessed via an existing access point on to the East Wall Road and will connect the internal road and footpath network in the proposed development to the external road and footpath network.
# 4 TRAFFIC ANALYSIS

## 4.1 Existing Traffic

### 4.1.1 Junctions Analysed

As stated previously in Section 1.3.2 the following junctions will be analysed in this assessment.

- East Wall Road (R131)/Annesley Bridge (R105) (Signalised Junction)
- East Wall Road (R131)/Hope Avenue (Priority Junction)

The locations of these junctions and the Arm naming convention used in this analysis are shown below in Figure 4-1.

**Figure 4-1: Junctions Analysed**

### 4.1.2 Units

The existing traffic flows recorded as detailed in Section 1.3.3 were converted to Passenger Car Unit’s (PCU’s) using the below conversion rates:

- Motorcycle, Car, LGV = 1PCU
- OGV1, OGV2 & PSV = 2PCU

PCU’s can be described as the impact a mode of transport has on traffic variables such as headway, speed and density compared to a single car. The breakdown of vehicle classification is shown in Image 4.1 below;
4.1.3 Time Periods Analysed

Traffic volumes in the form of PCU values and turning movements during peak AM peak period (08:00-09:15) and the PM peak period (17:00-18:15) were used in this analysis. These time periods were identified as being the busiest periods of the day for traffic as recorded in the traffic count survey described in Section 1.3.3.

4.1.4 Existing Traffic Flows

Based on the above and the traffic count data described previously, the below peak traffic flows are illustrated in the schematic in Figure’s 4-2 and 4-3 below.
Figure 4-2: Existing AM Peak Period Traffic Flows

East Wall Road (R131)/Annesley Bridge (R105) (Signalised Junction)

East Wall Road (R131)/Hope Avenue (Priority Junction)
4.2 Travel Demand from the New Development

The development will consist of 68 housing units, with a mix of one, two, and three bed housing units, as described in Table 3.1 previously.

4.2.1 Trip Generation

As described in Section 1.3.4, trip rates were obtained using TRICS. This resulted in the following estimated traffic volumes being generated by the development;

- AM Peak Period: 8 Departures, 5 Arrivals
- PM Peak Period: 6 Departures, 9 Arrivals

4.2.2 Trip Distribution

Existing traffic flows were established based on the traffic counts undertaken at the two junctions to be analysed, as described previously in Section 1.3.4. A directional flow for the traffic at each junction was established by calculating the percentage turning ratios at each junction. This is used to determine the directional flow to and from the proposed development site at each junction and to establish a travel pattern for traffic generated by the proposed development based on the existing patterns.
As the Hope Avenue arm of the East Wall Road (R131)/Hope Avenue junction is one-way only and acts mainly as an egress for local traffic due to its direction of flow it is assumed no development traffic will be added to this arm of the junction.

These traffic flow ratios derived are shown in the below Figures 4-4 and 4-5

**Figure 4-4: Existing AM Peak Period Traffic Turning Proportions to and from the Proposed Development**
4.3 Traffic Impact of Proposed Development

4.3.1 TII Traffic and Transport Assessment Guidelines

The TII Traffic and Transport Assessment Guidelines May 2014 gives the following thresholds in relation to direct effects on traffic volumes that will require a Traffic and Transport Assessment:

- Traffic to and from the development exceeds 10% of the traffic flow on the adjoining road.
- Traffic to and from the development exceeds 5% of the traffic flow on the adjoining road where congestion exists, or the location is sensitive.

These Guidelines also give the below advisory thresholds for Traffic and Transport Assessments to be required.

- 100 trips in / out combined in the peak hours for the proposed development
- Development traffic exceeds 10% of turning movements at junctions with and on National Roads.
- Development traffic exceeds 5% of turning movements at junctions with National Roads if location has potential to become congested or sensitive.
Based on the above, the below schematics show the traffic generated by the proposed development and the percentages of turning movements generated.

Figure 4-6: AM Peak Period Existing and Proposed Development Traffic Volumes and Percentage Turning Movements for Traffic Departing the Proposed Development

Legend:
Existing Traffic - 00
Development Traffic - 00
4.3.2 Traffic Impact Analysis

From the above schematics the traffic generated by the proposed development accounts for below 5% of the existing turning movements at all junctions and is therefore well below the thresholds for a Traffic and Transport Assessment in terms of direct traffic impact.

Traffic modelling is not considered necessary due to the low traffic impact on these junctions in the opening year scenarios. As future year traffic analysis will show greater traffic volumes on the surrounding road network as growth factors are applied, it is considered unnecessary to assess these years as the impact of the proposed development will further reduce.

To assist a modal shift from car ownership to more sustainable modes of transport a Mobility Management Plan has been developed for the proposed development that will be implemented and monitored by an appointed Mobility Manager who will liaise with Dublin City Council Transportation Department, the National Transport Authority and the residents of the proposed development. The Mobility Management Plan should be reviewed annually to gauge the success of the plan in meeting the modal split targets. Where necessary, new / amended measures should be proposed and implemented. A copy of the Mobility Management Plan is included with this planning application.

4.3.3 Traffic Impact Conclusions

Based on the above traffic analysis, the impact of the traffic generated by the proposed development on the surrounding road network is considered to be negligible at opening year and beyond. The site’s good location in proximity to public transport, cycle and walking infrastructure and local amenities as described previously means car ownership is likely to not be a necessity for occupants.
5 ROAD LAYOUT, PARKING AND VISIBILITY

5.1 Proposed Internal Roads

The internal road network within the development will have a carriageway width of 5.5m and a minimum 1.8m footpath width in accordance with the guidance set out in DMURS. Corner radii will not be greater than 6m and will allow for the swept path of a 7.90m refuse truck and 8.68m fire engine.

5.2 Parking

Parking volume has been provided in accordance with Chapter 16 of the Dublin City Development Plan 2016-2022. Based on this guidance a maximum of 1 space per residential dwelling is required. A total number of 34 parking spaces for the 68 units are proposed for this development. This is considered to be adequate due to the proposed developments proximity to public and sustainable transport modes. A Mobility Management Plan has also been developed which will assist the sufficiency of parking provided. A copy of the Mobility Management Plan is included with this planning application.

5.3 Visibility

A visibility splay of 45m is required based on a speed limit of 50km/h in accordance with DMURS. Visibility splays in excess of this are achieved from the proposed development access to the surrounding road network once site clearance has been completed as shown on the drawing in Appendix A.

5.4 Road Safety Audit

The proposed design and its interaction with the surrounding road network have been audited by a team of Road Safety Auditors and amendments to the general arrangement based on this Road Safety Audit have been incorporated to the current proposed design. A copy of the Road Safety Audit is included with this planning application.
6 CONCLUSION

The traffic impacts resulting from the proposed development were assessed in accordance with the TII Traffic and Transport Assessment Guidelines.

The traffic growth as a result of this development was calculated using TRICS

The traffic impacts as a result of the proposed development are summarised as follows:

- The traffic impact at all junctions is below the thresholds where a TTA would normally be required. The majority of the impact as a result of the proposed development in terms of volume is less than 5% of the individual turning movements at each junction.

- The proposed development is considered to have a low traffic impact based on its proximity to access public transport and sustainable modes of transport to local amenities and Dublin City Centre.

- A Mobility Management Plan has been drafted for the proposed development that will be implemented and monitored by an appointed Mobility Manager who will liaise with Dublin City Council Transportation Department, the National Transport Authority and the residents of the proposed development. The Mobility Management Plan should be reviewed annually to gauge the success of the plan in meeting the modal split targets. Where necessary, new / amended measures should be proposed and implemented.

In conclusion and following this assessment, the construction of this proposed development will not have a negative impact on the surrounding road network.
Appendix A
Traffic Engineering Drawings
SITE ENTRANCE LOCATION

X DISTANCE = 2m
Y DISTANCE = 45m BASED ON A SPEED LIMIT OF 50km/h IN ACCORDANCE WITH DMURS