

**consulting  
engineers**

**NRB**

**Transportation  
Assessment  
Report**

*For*

**Proposed New Hotel**

*At*

**'Site D', Liffey Valley,  
Lucan, Dublin 22.**

**SUBMISSION ISSUE**

## Contents

Page	Section	Description
2	--	Executive Summary
3	1.0	Introduction
5	2.0	Existing Conditions, Development Proposals & Parking
10	3.0	Trip Generation Assignment and Distribution
13	4.0	Traffic Impact - Traffic Capacity Analysis Results
15	6.0	Conclusions

### Appendices.....

<b>A</b>	Proposed Development – Site Layout/Plans/TRACKs
<b>B</b>	Original Raw Traffic Survey Output Data
<b>C</b>	TRICS Output Data ( <i>Typical Hotels</i> )
<b>D</b>	Traffic Calculations, Trip Distribution, Network Traffic Flow Diagrams & Projections Based on Traffic Surveys
<b>E</b>	Junction 9 PiCADY Capacity Output – <i>Site Access T-Junction</i>
<b>F</b>	Preliminary Planning Stage Mobility Management Plan (Travel Plan)



## EXECUTIVE SUMMARY

---

NRB Consulting Engineers Ltd were appointed to address the Traffic/Transportation issues associated with a planning application for a new 262 Bedroom Hotel (254 Bedrooms plus 8 suites) at Liffey Valley, Lucan, Dublin 22.

This Transportation Assessment (TA) has been prepared to address any Traffic Impact issues associated with the proposal, and specifically the capacity of the existing road network and the ability of the site access to accommodate the worst-case traffic flows associated with the facility.

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

It is acknowledged that the Liffey Valley junctions are being upgraded, and it is demonstrated herein that this development has no impact upon the operation of the existing and upgraded junctions.

We previously commissioned and undertook traffic surveys of the adjacent road network when schools were fully opened and then applied an industry standard factor to adjust the data to reflect normal and non-pandemic times. This represents industry-standard procedure. This traffic survey data formed the basis of the study.

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

Direct and high-quality pedestrian linkages are provided between the site and the existing pedestrian/cycling facilities on the surrounding road network. The Car and Cycle Parking Quantum has been assessed and is appropriate to meet the requirements of the proposed development.

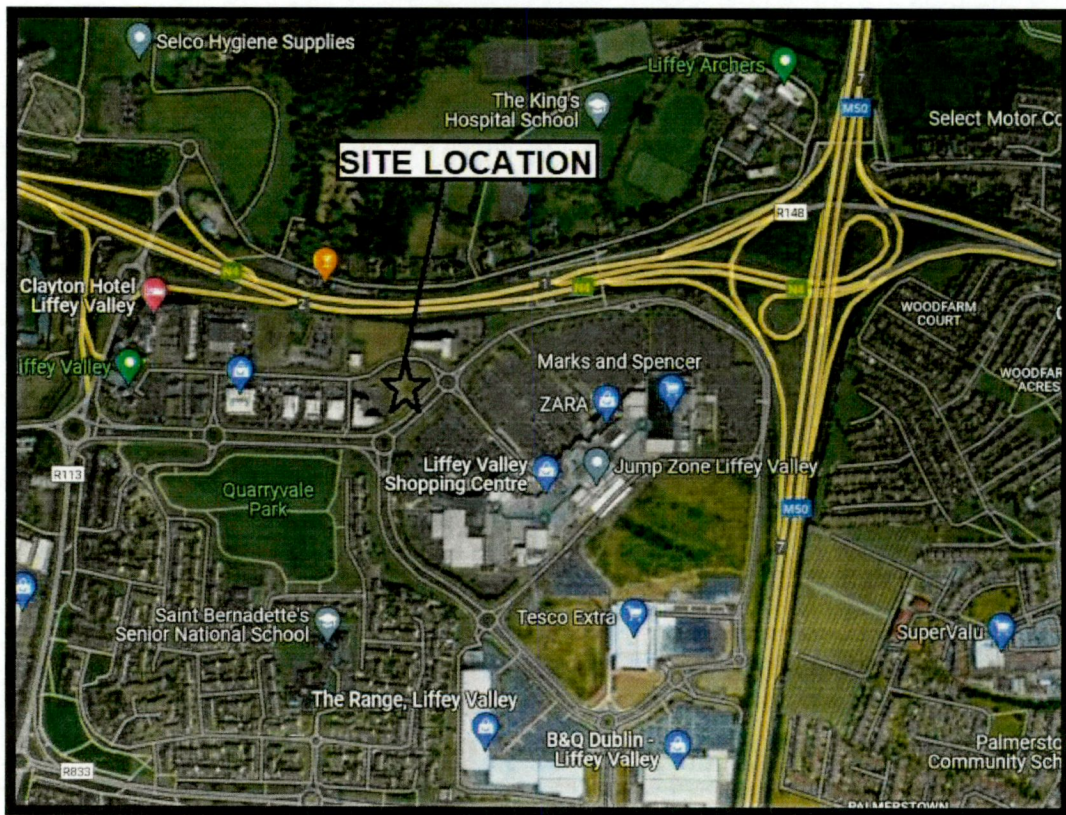
We conclude that there are no adverse traffic/transportation capacity or operational safety issues associated with the construction and operation of the proposed development which would prevent planning permission being granted by South Dublin County Council.



**1.0 INTRODUCTION**

1.1 This Transportation Assessment (TA) has been prepared by NRB Consulting Engineers Ltd and addresses the Traffic/Transportation issues associated with a planning application for a stand-alone 262 Bed Hotel at Liffey Valley, Lucan, Dublin 22.

1.2 The proposed development is located on undeveloped lands within the confines of the overall Liffey Valley Complex, immediately north of and across the road from the Shopping Centre. A site location plan is included below as **Figure 1.1**.



**Figure 1.1 - Site Location within Liffey Valley**

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

- Relatively Small Scale of the revised development in Traffic terms, being a complimentary use to the established District Centre (as reflected in the detailed assessment of traffic generation in this report),
- Location of the development within the confines of an established busy District Centre in close proximity to high quality Public Transport Links,



- Traffic & Transportation impact,
- Capacity of the proposed vehicular accesses to accommodate the worst-case development traffic flows,
- Capacity of & Impact Upon the Existing Road Network & Junctions,
- Adequacy and safety of the existing roads and junctions locally, within the area of influence.

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

- The TII Traffic & Transport Assessment Guidelines,
- Design Manual for Urban Roads and Streets,
- Weekday AM and PM Peak Classified Turning Movements Traffic Survey Data commissioned,
- TII Assessment Guidance,
- TII Permanent Traffic Counter Data from the adjacent N4,
- Our experience in assessing the impact of Developments of this Nature, and
- Site Visits and Observations.

1.5 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.



## 2.0 EXISTING CONDITIONS, DEVELOPMENT PROPOSALS & PARKING

- 2.1 The subject development site is located on the northern boundary of the overall Liffey Valley District Centre. It is bound immediately to the northern side by the local road (Referred to as LV Motor Hall Road), which in turn abuts the N4. It is bound to the west by an Office Block, to the east by the Fonthill Rd/LV Shopping Centre Access junction and to the south by Fonthill Road.
- 2.2 The site fronts onto the local distributor road known as 'Liffey Valley Motor Hall Road', which serves the motor dealerships located to the west of the site. The local road is a wide & high-capacity single carriageway road, provided with footpaths and some intermittent cycle paths along either side.
- 2.3 Images showing the existing site and context are included below as *Figure 2.1* and *Figure 2.2*.



*Figure 2.1 – View of Site (RHS) Looking Eastwards*



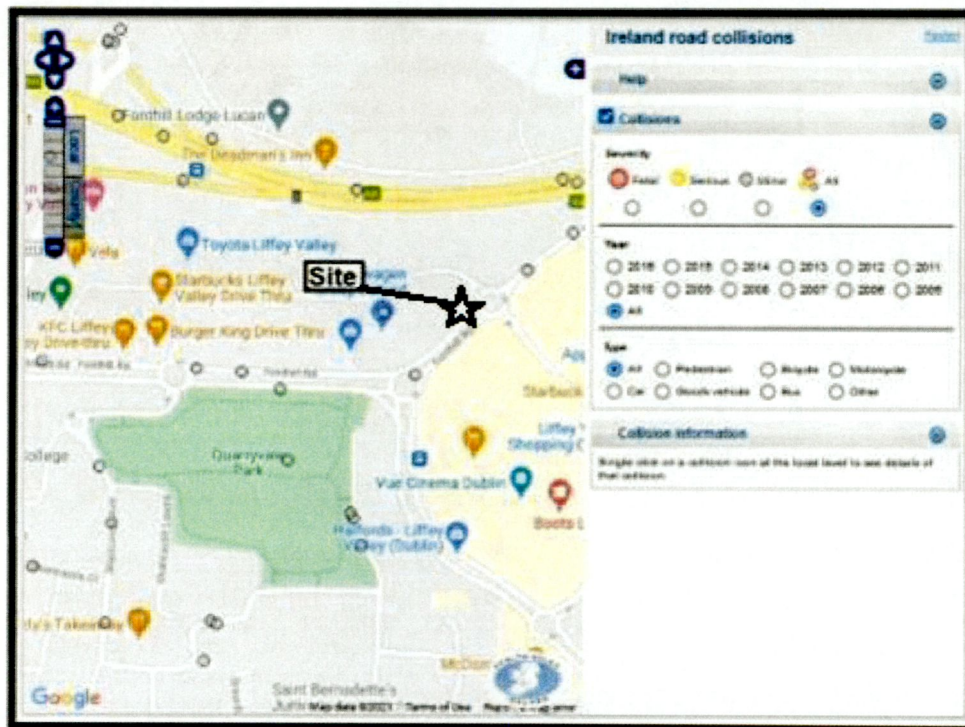


*Figure 2.2 – View of Site (LHS) Looking Westwards*

- 2.4 Whilst of course it is acknowledged that the local roads serving Liffey Valley to the south of the site are heavily trafficked, the Traffic survey & assessment (within **Appendix D**) confirms that the Liffey Valley Motor Hall Road is actually in itself very lightly trafficked indeed. It carries a weekday AM Peak Hour 2-Way traffic flow of approximately 86 Passenger Car Units (PCUs) and a 2-way flow of 140 PCUs in the PM Peak Hour, measured immediately west of the hotel site. In these terms, the road is considered very lightly trafficked in terms of its link-carrying capacity.
- 2.5 To set the above existing flows in context, roads of this nature have a traffic carrying or link capacity of between 1,000 and 1,200 PCUs per-direction per-hour. This link capacity of a typical street of this nature provides a context for the existing conditions pertaining on the road serving the site. Of course, it should be remembered, and it is acknowledged that the capacity or through-put of any road in an urban environment of this nature is generally determined by the capacity of the terminal junctions.
- 2.6 We would also highlight that the proposed development is located within a 5-minute walk of the Liffey Valley Bus terminus AND also the Bus Services on the N4 National Road. These together provide for very high frequency services, and ensure that the site is accessible by bus, on foot or by bicycle for the staff that will be employed. The Non-Car modes of Transportation are addressed in the appended Preliminary MMP.



- 2.7 It is acknowledged that the Liffey Valley junctions to the south are being upgraded, however it is demonstrated herein that this subject development has no impact upon the operation of the current/upgraded junctions.
- 2.8 An examination of the Road Safety Authority (RSA) on-line database of reported road traffic accidents confirms that there have been no relevant accidents on the adjacent affected roads during the reported period 2005 to date, which would be exacerbated by the proposed development. An extract from the RSA Database is included below as **Figure 2.4** below.



**Figure 2.4 – RSA Accident Database Extract**

**Proposed Development**

- 2.9 The proposed development consists of the construction of a 6-7 storey hotel over two levels of basement, on a 5,640 sq.m. (1.4 acre) site in Liffey Valley, known as Site D, Liffey Valley, Dublin 22. The applicant is Winmar Developments UPC.
- 2.10 Annotated drawings showing the proposed Scheme Layout are included herein as **Appendix A**.



**Bicycle & Car Parking Assessment**

2.11 In terms of **Bicycle Parking** the new SDCC Development Plan 2022-2028 now contains the minimum requirements within Table 12.23 (extract below as **Figure 2.5**). This requires 1 space per 5 staff (Long Term) and 1 space per 10 (Short Stay). With an anticipated maximum of 45 staff on a day shift and with 262 bedrooms, this translates to a requirement for 9 'Long Term' spaces and 26 'Short Stay' spaces. There are a total of 36 secure bicycle spaces provided at the entrance area, meeting the requirements of the Development Plan.

**Table 12.23: Minimum Bicycle Parking / Storage Rates**

Category	Land-Use	Long Term	Short Stay
Accommodation	Hotel <sup>1</sup>	1 per 5 staff	1 per 10 bedrooms
	Nursing Home	1 per 5 staff	1 per 10 residents
	Residential Apartment	1 per bedroom	1 per two apartments
	Student Accommodation	1 per bedroom	1 per 5 bedrooms

**Figure 2.5 – Annotated Extract from Table 12.23 SDCC Dev Plan (Min Bicycle Parking)**

2.12 In terms of the SDCC Development Plan 2022-2028 and **Car Parking**, the requirements are set out in Table 12.25 with the extract included below as **Figure 2.6**.

→ **Zone 2 (Residential):** More restrictive rates for application within town and village centres, lands zoned REGEN, and brownfield / infill sites within Dublin City and Suburbs settlement boundary within 400-500 metres of a high quality public transport service (includes a train station, Luas station or bus stop with a high quality service).

**Table 12.25: Maximum Parking Rates (Non-Residential)**

Category	Land-Use	Zone 1	Zone 2
Accommodation	Hotel <sup>7</sup>	1 per bedroom	0.5 per bedroom
	Mobile Home Park <sup>8</sup>	1 per unit	1 per unit
	Nursing Home Retirement Home	1 per 4 residents	1 per 8 residents
	Student Accommodation	1 per 10 bed spaces	1 per 20 bed spaces

**Figure 2.6 – Annotated Extract from Table 12.25 SDCC Dev Plan**



2.13 The subject development has 262 Bedrooms, and therefore applying the Guidelines to the Hotel element requires a provision of 131 Car Parking Spaces. There is also a Bar & Function space of approx. 400m<sup>2</sup> Public Area, and the requirements for this element are as per the Table 12.25 extract in **Figure 2.7** below. This requires an additional 10 car parking spaces for the Bar/Function area.

<b>Retail and Retail Service</b>	Café Restaurant	1 per 15 sq m GFA	1 per 20 sq m GFA
	Bar Club <sup>10</sup>	1 per 30 sq m	1 per 40 sq m
	Retail Convenience	1 per 15 sq m	1 per 25 sq m
	Retail Comparison	1 per 25 sq m	1 per 35 sq m
	Retail Warehousing	1 per 50 sq m	1 per 50 sq m
	Vehicle Service Station	1 per 250 sq m GFA	1 per 250 sq m GFA

**Figure 2.7 – Annotated Extract from Table 12.25 (Bar/Function Parking)**

2.14 The proposed Hotel also contains a Business Centre which is approx. 510m<sup>2</sup> in area, expected to accommodate c70 business people, and the requirements for this element are as per the Table 12.25 extract in **Figure 2.8** below. This requires an additional 7 car parking spaces for the Business Centre element.

<b>Venue</b>	Auditoriums	1 per 5 seats	1 per 10 seats
	Cinema		
	Conference Centre		
	Stadium		
	Theatre		

**Figure 2.8 – Annotated Extract from Table 12.25 (Business Centre)**

2.15 Therefore, the total required parking provision consistent with the Development Plan is a maximum provision of 148 Car Parking Spaces (131 + 10 + 7). There are 148 No. car parking spaces proposed, which is the maximum number allowable within the Development Plan.



### 3.0 TRIP GENERATION, ASSIGNMENT & DISTRIBUTION

3.1 In terms of assessing vehicular traffic and the impact of same on the local road network, 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, and indeed is referenced and recommended for use within the TTA Guidelines. We have included as **Appendix C** the TRICS output for traditional Hotels, and this provides a robust estimation of traffic as illustrated in **Table 3.1**.

3.2 The Table summarises the Output from the TRICS database, which is included herein as **Appendix C** (based on the most-recent licensed version of the database) for comparison purposes.

**Table 3.1: TRICS Data Summary, 262 Bed Hotel**

262 Bed Hotel Network Hour	Arrivals (PCUs)		Departures (PCUs)		Total 2-Way Traffic (PCUs)
	Per Room	Total	Per Room	Total	
Weekday AM Peak Hr 8-9	0.124	32	0.177	46	78
Weekday PM Peak Hr 5-6	0.151	40	0.122	32	72

3.3 The application of TRICS in this case specifically excludes the effect of Shared Visits to other elements within the Liffey Valley Area and quantifies the volumes of traffic on an individual basis with the traffic assigned as 100% primary trips - in these terms the assessment can be considered further robust. In traffic generation terms, the bar/function space and business elements are considered ancillary to the hotel usage and are not anticipated to generate any traffic in their own right.

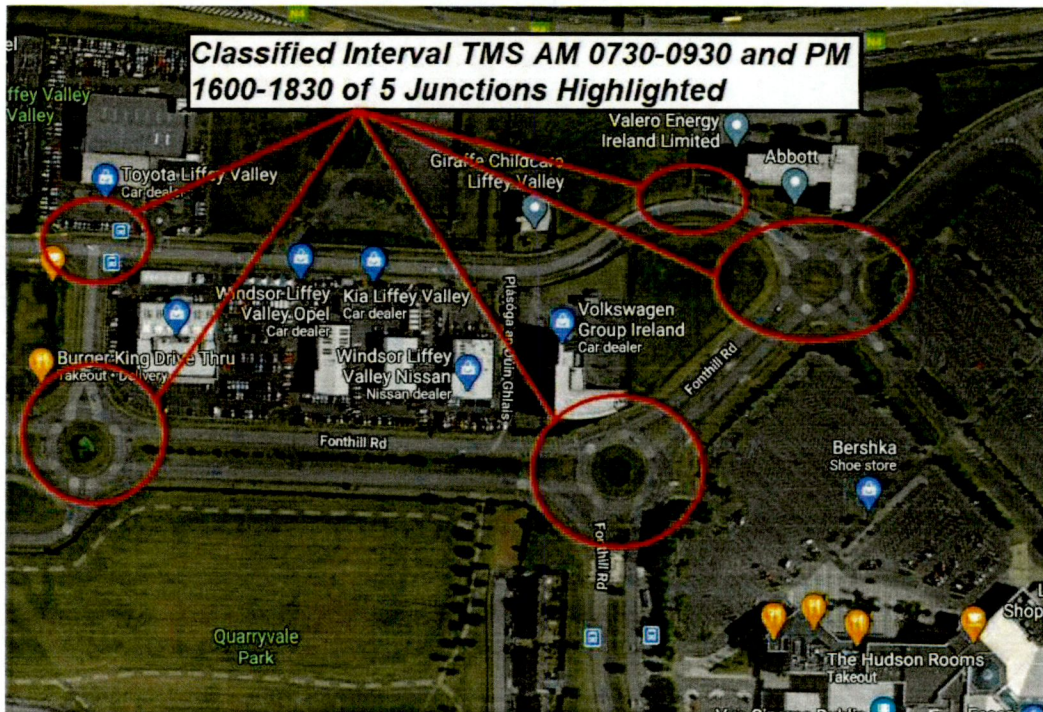
3.4 Therefore, the use of TRICS and the methodology adopted is Robust and Onerous and the Trip Rates applied & used provide for a robust reflection of the expected worst-case traffic generated by the proposed development.

3.5 Notwithstanding, in light of observation of existing capacity conditions, the use of higher Trip Rates, if required would have no impact upon the conclusions of the study. This is particularly the case given the low traffic impact associated with the development during the local network critical weekday PM commuter peak hour at Liffey Valley.



**Assessment Methodology**

- 3.6 We have used hand assignment techniques based on the observed movements, with the worst-case traffic assigned to the roads based on the observed established traffic patterns, being the industry standard methodology. The standard methodology applied was to firstly ascertain the base background traffic conditions for both the weekday AM and weekday PM Commuter Peak periods.
- 3.7 To this end we commissioned and undertook a Traffic Survey of the existing affected roads and junctions in order to establish base background traffic conditions. The Traffic Survey commissioned included the junctions as set out in **Figure 3.1** below.



**Figure 3.1 – Traffic Surveys Commissioned**

- 3.8 Using this data, we then applied a calculated Covid Factor based on accurate data extracted from the TII Permanent Traffic Counter data on the N4 nearest the site. This represents a pragmatic industry-standard approach in these times when Planning Applications have statutory timeframes during a Pandemic. Details of the traffic surveys are included as **Appendix B** and are reproduced as commuter peak hour Stick Diagrams as **Appendix D**.



- 3.9 We then used the TII PE-PAG-02017 Project Appraisal Guidelines for National Roads Unit 5.3 (Travel Demand Projections 2021, Table 6.1: Central Growth Rates: Annual Growth Factors, Metropolitan Dublin), to establish projected occupation/opening year 2024 and design year 2039 traffic conditions 15 years following opening on the local road network. The worst-case traffic based on the content of **Table 3.1** above was then applied in order to establish Opening Year and Design Year Traffic Conditions with the proposed development in place and fully occupied. This is all included in the calculations included herein as **Appendix D**.
- 3.10 It should be noted that we have selected an opening year of 2024 as being reasonable and appropriate. However, in our experience, varying the opening year and design year by 1-3 years, if required for whatever reason, would have no significant impact upon the conclusions of the study. In addition, given the favourable results reported in this study, if required to apply higher background traffic conditions for any reason we would not anticipate any changes to the conclusions. Traffic growth factors for future year assessments were calculated from data obtained in the TII PE-PAG-02017 Project Appraisal Guidelines for National Roads Unit 5.3 which provides the recommended method of predicting future year traffic growth on Roads.
- 3.11 Calculations of the relevant growth factors are included in **Table 3.2** below (based on tabulated 'Central Growth' for Metropolitan Dublin). It should be noted that any requirement to use different or higher growth factors will also have no implications for the conclusions of the study.

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

Year	to Year	Table 6.1:
Surveyed	2024	1.049
2024	2039	1.152



#### 4.0 TRAFFIC IMPACT - TRAFFIC CAPACITY RESULTS

- 4.1 The TII Traffic and Transport Assessment Guidelines set out a strict mechanism for assessment of developments of this nature and determining whether further assessment is indeed required. This Guideline requires a **Threshold Assessment** of the impact on the local roads to be provided in order to determine whether additional more detailed modelling and assessment of particular critical junctions is necessary.
- 4.2 We have assessed the impact of the proposed development with a wide area of influence included, as set out in **Figure 3.1** above. The professional guidance referenced above sets out specific increases in traffic volume associated with new development, which, when breached, requires further detailed analysis to be undertaken. The recommendation is that, if the expected increase is **5%** for networks that are considered heavily trafficked or congested, then further analysis is warranted. In this case, given the location within the Liffey Valley Area, for robustness, the 5% threshold has been applied.
- 4.3 In this regard, it is demonstrated herein that the proposed operation of the facility, with very low volumes of vehicular traffic added to a busy network, will not result in any significant or noticeable level of new trips on the local roads, with all anticipated traffic increases beyond the Proposed Access junction expected to be **well below** the Industry-Standard level of 5% above which further assessment is required. This underlines the low levels of traffic in comparison with the established road network traffic volumes. The increases are more pronounced on the road frontage, the 'Liffey Valley Motor Hall Road', due to the low existing background traffic volumes here.
- 4.4 Our assessment confirms that the absolute worst case traffic increases on the adjacent road network junctions, with the hotel operational, undertaken in accordance with Guidelines, is as summarised below as **Table 4.1**.

**Table 4.1: Hotel Operational - Threshold Assessment, Worst-Case Impact - AM & PM Peak Hours 2024**

Assessed Road or Junction	Traffic Increase %		COMMENT
	AM Pk Hr	PM Pk Hr	
LV SC/LV Spine Rd R'Abt to the East	4.9%	3.4%	<5% No Further Assessment Required
LV SC Exit/Fontill Rd R'Abt to South	3.3%	2.2%	<5% No Further Assessment Required
LV Motor Hall Rd/T Junct to West	2.9%	2.3%	>5% So Capacity Assessment Undertaken
Fonhill Rd/LV Spine Rd R'Abt to SW	4.4%	2.7%	<5% No Further Assessment Required



- 4.5 Apart from the local junctions along LV Motor Hall Access Road where the base flows are very low, these worst-case traffic increases are all below the Guideline & industry-standard level above which further assessment is required, in accordance with the Guidelines. **The effect of the hotel is clearly more pronounced in the AM Peak hour, the period when LV Traffic Flows are naturally lower due to shopping trends.**
- 4.6 To set these increased levels of traffic in context, the day-to-day variation in traffic volume (due to day-of-week or weather conditions, for example) is accepted as 10%, so, in this context alone, increases of less than 5% will go entirely unnoticed and this underscores the negligible impact of the operational hotel traffic.
- 4.7 We have undertaken traffic modelling of the site access junction for the weekday AM and PM Periods (2024 Opening Year and 2039 Design Year +15) purely to confirm & demonstrate adequate capacity exists to accommodate the worst-case traffic associated with the development.

**T-Junction - Capacity Modelling**

- 4.8 We have used the TII-approved software package 'Junctions 9' PiCADY' (Priority Intersection Capacity And Delay) software package (as part of the TRL Package 'Junction 9') to assess the capacity of the access junction. PiCADY produces results based on a ratio of flow to capacity (RFC) and queue length. An RFC greater than 1.00 indicates that a junction is operating at or above capacity, with 0.85 considered to be the optimum RFC value. We have appended the detailed computer simulation model results for the proposed site access as **Appendix E**.
- 4.9 The detailed output of the site access capacity model is summarised below as **Table 4.2**.

**Table 4.2:** Hotel Site Access T Junction - PiCADY Results, Weekday AM & PM Pk Hours - 2024 & 2039

Modelled Scenario	Period Mean Max Q (PCUs)	Period Max RFC
Opening Year 2024 AM Peak Hr	<1	0.09
Opening Year 2024 PM Peak Hr	<1	0.07
Design Year 2039 AM Peak Hr	<1	0.1
Design Year 2039 PM Peak Hr	<1	0.07

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



## 5.0 CONCLUSIONS

---

- 5.1 NRB Consulting Engineers Ltd were appointed to address the Traffic/Transportation issues associated with a planning application for a new 262 Bedroom Hotel at Liffey Valley, Lucan, Dublin 22.
- 5.2 This Transportation Assessment (TA) has been prepared to address any Traffic Impact issues associated with the proposal, and specifically the capacity of the existing road network and the ability of the site access to accommodate the worst-case traffic flows associated with the facility.
- 5.3 The Report has been prepared in accordance with TII's Traffic & Transportation Assessment Guidelines and addresses the worst-case traffic impact of the proposal. This TA addresses the adequacy of the existing and improved local road network to safely and appropriately accommodate the worst-case vehicular demands with the development fully operational, taking account of the existing transportation demands locally. It is acknowledged that the Liffey Valley junctions are being upgraded, and it is demonstrated herein that this development has no impact upon the operation of the existing and upgraded junctions.
- 5.4 An assessment of Car Parking and Bicycle Parking quantum and design provided has been undertaken, and the provision is considered sufficient to cater for the level of development proposed and is consistent with the maximum requirements of the SDCC Development Plan.
- 5.5 This report demonstrates that the proposed Development will have an absolutely negligible impact upon the established local traffic conditions and can easily be accommodated on the road network without any capacity concerns arising.
- 5.6 The assessment confirms that the proposed access junction is of more than adequate capacity to accommodate the worst-case traffic associated with the proposed development during the selected year of opening and the design year 15 years following opening.
- 5.7 A Preliminary Mobility Management Plan for the Hotel has been prepared and is included as **Appendix F**.
- 5.8 It is considered that there are no significant Operational Traffic Safety or Road Capacity issues, affecting the established road network, that prevent a positive determination of the hotel application by South Dublin County Council.



## APPENDICES - CONTENT

<b>A</b>	Proposed Development – Site Layout/Plans/TRACKs
<b>B</b>	Original Raw Traffic Survey Output Data
<b>C</b>	TRICS Output Data ( <i>Typical Hotels</i> )
<b>D</b>	Traffic Calculations, Trip Distribution, Network Traffic Flow Diagrams & Projections Based on Traffic Surveys
<b>E</b>	Junction 9 PiCADY Capacity Output – <i>Site Access T-Junction</i>
<b>F</b>	Preliminary Planning Stage Mobility Management Plan (Travel Plan)



**APPENDIX A**

**Proposed Development  
Site Layout/Plans/TRACKS**