

Lissenhall East

Local Area Plan

January 2023

Appendix 5: Transport Study

Prepared by O'Connor Sutton Cronin Consulting

Engineers



Appendices

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Lissenhall East Local Area Plan

Appendix 5: Transport Assessment

Summation Report Prepared by O'Connor Sutton Cronin

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Table of Contents

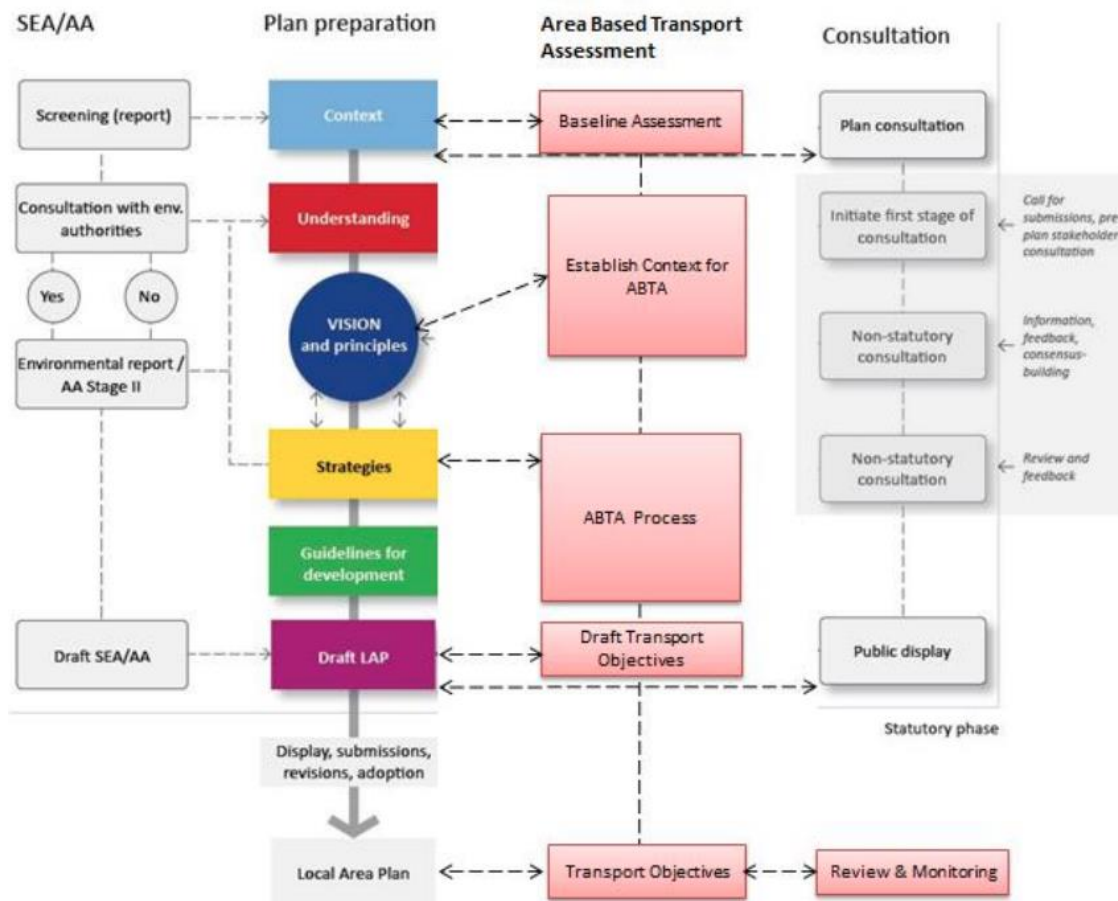
Introduction	1
Baseline Assessment of Plan Area and the Surrounding Area	3
Modelling Background	3
Policy Context.....	3
Plan Area Characteristics	7
Existing Travel Patterns, Transport Infrastructure & Services	8
Walking & Cycling.....	12
Public Transport.....	15
Private Vehicle Usage.....	17
Context of the Transport Assessment	18
Objectives	18
Travel Demand and Travel Patterns.....	19
Planned Infrastructural Upgrades.....	22
Transport Development Options.....	26
R132 Connectivity Project.....	26
GDA Cycling Strategy.....	28
Swords Main Street	29
Broadmeadow Way Greenway Connectivity.....	30
Options Assessment.....	31
3,000 Jobs Scenario.....	33
2,000 Jobs Scenario.....	35
1,000 Jobs Scenario.....	37
Recommended Strategy.....	39

Introduction

This Transport Assessment for the Lissenhall East Area is based on the *Area Based Transport Assessment Guidance Notes* published by Transport Infrastructure Ireland in April 2018 and follows the framework as set out in this document.

This document focuses on establishing the development potential of the LAP lands Pre-MetroLink based on a detailed analysis using the National Transport Agency’s (NTA) Eastern Regional Model to identify future travel demand, patterns and modal splits based on overall projections for population and employment.). The figure below, taken from the aforementioned *ABTA Guidance Notes* by TII illustrated how an ABTA informs the LAP.

Figure 1: ABTA Informing the LAP Process (adapted from the Manual for Local Area Plans, 2014, Department of Environment, Community & Local Government)



The Transport Assessment was carried out by a specialist consultant appointed by Fingal County Council to support the preparation of this Local Area Plan (LAP). This report has been prepared by O'Connor Sutton Cronin as a summation of this process and the associated results based entirely on the analysis and supporting information provided by SYSTRA Consulting Engineers who were the specialist consultant in this instance. The results of this Transport Assessment subsequently fed into the preparation of the LAP.

Baseline Assessment of Plan Area and the Surrounding Area

This section details the baseline assessment that was undertaken in order to identify existing opportunities and constraints.

Modelling Background

This modelling exercise was commissioned by FCC with the aim of reviewing the quantum of development that can be sustained at Lissenhall in the Pre-Metro Scenario (2028). The land use for this assessment consists of the Swords population and employment updated to 2028, in line with the NPF/RSES forecasts (3,074 jobs Lissenhall east). The modelling assessment entails NTA's Bus Connects (Pre-Metro) model, which is run with updated population and Employment forecasts. Demand for travel to Lissenhall East and KPI indicators are then extracted from the model, and used for analysis.

Policy Context

The following key Movement and Infrastructure objectives as per Chapter 7 of the Fingal Development Plan 2017-2023 are of relevance to the development area:

Objective MT01

Support National and Regional transport policies as they apply to Fingal. In particular, the Council supports the Government's commitment to the proposed new Metro North and DART expansion included in Building on Recovery: Infrastructure and Capital Investment 2016-2021. The Council also supports the implementation of sustainable transport solutions.

Objective MT02

Support the recommendations of the National Transport Authority's Transport Strategy for the Greater Dublin Area 2016-2035 to facilitate the future sustainable growth of Fingal.

Objective MT03

Implement Smarter Travel – A Sustainable Travel Future policy and work to achieve the Key Goals set out in this policy.

Objective MT04

At locations where higher density development is being provided, encourage the development of car-free neighbourhoods, where non-motorised transport is allowed and motorized vehicles have access only for deliveries but must park outside the neighbourhood, creating a much better quality public realm with green infrastructure, public health, economic and community benefits.

Objective MT05

Integrate land use with transportation by allowing higher density development along higher capacity public transport corridors.

Objective MT08

Control on-street parking in the interests of the viability, vitality and amenity of commercial centres by maximising the supply of short stay parking for shoppers, while providing appropriate levels of long-term parking within a reasonable distance for employees.

Objective MT13

Promote walking and cycling as efficient, healthy, and environmentally-friendly modes of transport by securing the development of a network of direct, comfortable, convenient and safe cycle routes and footpaths, particularly in urban areas.

Objective MT14

The Council will work in cooperation with the NTA and adjoining Local Authorities to implement the Greater Dublin Area Cycle Network Plan subject to detailed engineering design and the mitigation measures presented in the SEA and Natura Impact Statement accompanying the NTA Plan.

Objective MT15

Investigate and avail of the opportunities provided by new Metro North and any other public transport infrastructure to provide new cycle and pedestrian links including crossings of the M50 which currently represents a major barrier to active transport modes.

Objective MT16

Promote the provision of adequate, secure and dry bicycle parking facilities and a bike rental scheme at appropriate locations, including stations and other public transport interchanges.

Objective MT19

Design roads and promote the design of roads, including cycle infrastructure, in line with the Principles of Sustainable Safety in a manner consistent with the National Cycle Manual and the Design Manual for Urban Roads and Streets.

Objective MT20

Investigate the use of demand management measures to improve the attractiveness of urban centres for cyclists (and public transport users).

Objective MT22

Improve pedestrian and cycle connectivity to stations and other public transport interchanges.

Objective MT24

Support and advise the NTA and TII on the planning and implementation of public transport infrastructure, in particular by providing an understanding of Fingal's policies, objectives and requirements, including environmental sensitivities.

Objective MT25

Support TII and the NTA in developing a revised design of the proposed new Metro North that addresses the needs of the Swords-Airport-City Centre corridor, environmental sensitivities and securing permission from An Bord Pleanála.

Objective MT28

Facilitate, encourage and promote high quality interchange facilities at public transport nodes throughout the County.

Objective MT33

Facilitate and promote the enhancement of bus services through bus priority measures including bus lanes and bus gates. Support the NTA in the implementation of Bus Rapid Transit from Blanchardstown to Belfield and from Swords to Merrion Square, subject to detailed design.

Objective MT34

Work with public transport providers and State agencies to create bus connectivity between Dublin 15 and Dublin Airport/Swords.

Objective MT36

Maintain and protect the safety, capacity and efficiency of National roads and associated junctions in accordance with the Spatial Planning and National Roads Guidelines for Planning Authorities, DECLG, (2012), the Trans-European Networks (TEN-T) Regulations and with regard to other policy documents, as required.

Objective MT38

Maximise capacities of junctions by using traffic management measures thereby reducing congestion.

Objective MT40

Implement a programme of road construction and improvement works closely integrated with existing and planned land uses, taking into account both car and non-car modes of transport whilst promoting road safety as a high priority. Major road construction and improvement works will include an appraisal of environmental impacts.

Objective MT42

Protect the strategic transport function of national roads, including motorways through the implementation of the DoECLG 'Spatial Planning and National Roads – Guidelines for Planning Authorities.

The table overleaf also shows the Greater Dublin Area Transport Strategy and National Development Plan Schemes relevant to these lands. It is noted that the key elements of the current GDA strategy including MetroLink, Bus Connects, Luas extensions and additions and the GDA Cycle Network Plan continue to be reflected in the current Draft GDA Transport Strategy 2022-2042. The key pre-Metro schemes outlined following are not expected to be impacted by the updated Strategy at this time.

Table 1: GDA Strategy/National Development Plan Schemes

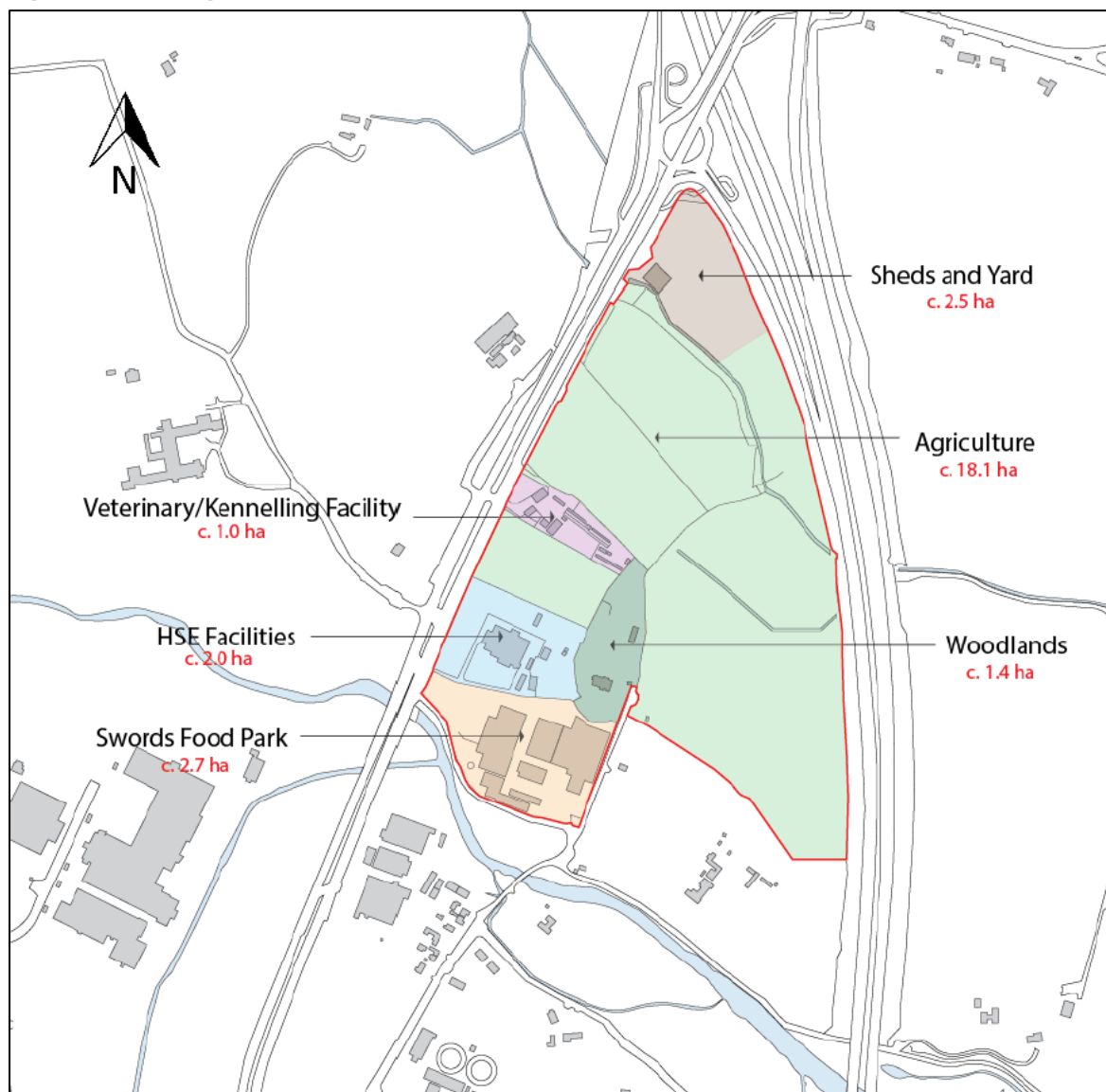
GDA Strategy / National Development Plan Schemes	2028
Description	Pre-Metro
Heavy Rail Infrastructure	
Interim DART Expansion Programme (non-tunnel elements) including additional stations at Cabra, Pelletstown, Woodbrook, Kylemore and Glasnevin	✓
DART Tunnel Element (Kildare Line to Northern Line)	X
Light Rail Infrastructure	
MetroLink (to Charlemont)	X
LUAS Cross City incorporating LUAS Green Line Capacity Enhancement - Phase 1	✓
LUAS Green Line Capacity Enhancement - Phase 2	X
Finglas LUAS (Green Line extension Broombridge to Finglas)	X
Extension of LUAS Green Line to Bray	X
Lucan LUAS	X
Poolbeg LUAS	X
Metro South (MetroLink extension Charlemont to Sandyford on LUAS Green Line alignment)	X
BusConnects	
Radial Core Bus Corridors	✓
BusConnects Fares / Ticketing	✓
BusConnects Routes and Services	✓
Orbital Bus Corridors	X
Park and Ride	
Rail and Bus based P&R provision (partial implementation by 2028)	✓
Cycling	
Greater Dublin Area Cycle Network Plan (excluding Radial Core Bus Corridor elements)	✓
Greater Dublin Area Cycle Network Plan (including Radial Core Bus Corridor elements)	✓
National Roads	
Various National Roads and Junctions Interventions	✓
Regional and Local Roads	
Various Roads and Junctions Interventions	✓
Relevant to Swords: Western Distributor Link Road & Swords Relief Road	✓
Demand Management	
Dublin City Centre Parking Constraint	✓
M50 Demand Management Measures - Variable Speed Limits	✓
M50 Demand Management Measures - Multi-point tolling	X
Implement demand management measures to address congestion issues on the radial national routes approaching the M50 motorway	X
Further demand management measures that ensure that all future growth in travel demand is facilitated by sustainable modes / max. 45% car commuter mode share	X

Plan Area Characteristics

The Lissenhall East lands cover an area of ca. 27.7 hectares located east of the R132 (Old Swords Road), south of the M1 intersection, and west of the M1 within the existing northern development boundary of Swords.

The lands are strategically located approximately 5km north of Dublin Airport and adjacent to the M1 within the Dublin-Belfast economic corridor. Planned significant public transport upgrades which will enhance the connectivity of the LAP lands include Bus Connects and the MetroLink project.

Figure 2: Existing Land Uses



There are several existing buildings in the west of the LAP lands accessed from the R132 comprising: HSE buildings incorporating the Swords National Ambulance Service Base and day-care facilities; a veterinary/kennelling facility; and food logistics facilities including a temperature-controlled storage facility.

In the northern section of the LAP lands, there is an existing yard and sheds accessed from the R132. These were used as a depot during the construction of the adjacent M1. The remainder of the LAP lands are in agricultural use (approx. 18.1ha).

The lands already contribute to the local economy through existing established businesses. Leveraging the lands further, with its pivotal location and employment-generating potential, will provide new employment opportunities for Swords in accordance with regional and local planning policy.

Existing Travel Patterns, Transport Infrastructure & Services

As part of an initial study commissioned by the FCC, modelling was carried out to ascertain the existing travel patterns. The following figures (shown overleaf) were produced through this exercise:

- Trip Length: Origin to Lissenhall (AM Peak): This figure indicates the average trip length in kilometres as compared to the number of trips to Lissenhall.
- Trip Demand: Origin to Lissenhall (AM Peak): This figure shows the existing travel patterns to the Lissenhall area from the surrounding areas.
- Trip Demand by Mode: Origin to Lissenhall (AM Peak): This figure shows the trip destined to Lissenhall during the morning peak by mode.

Figure 3: Trip Length: Origin to Lissenhall (AM Peak)

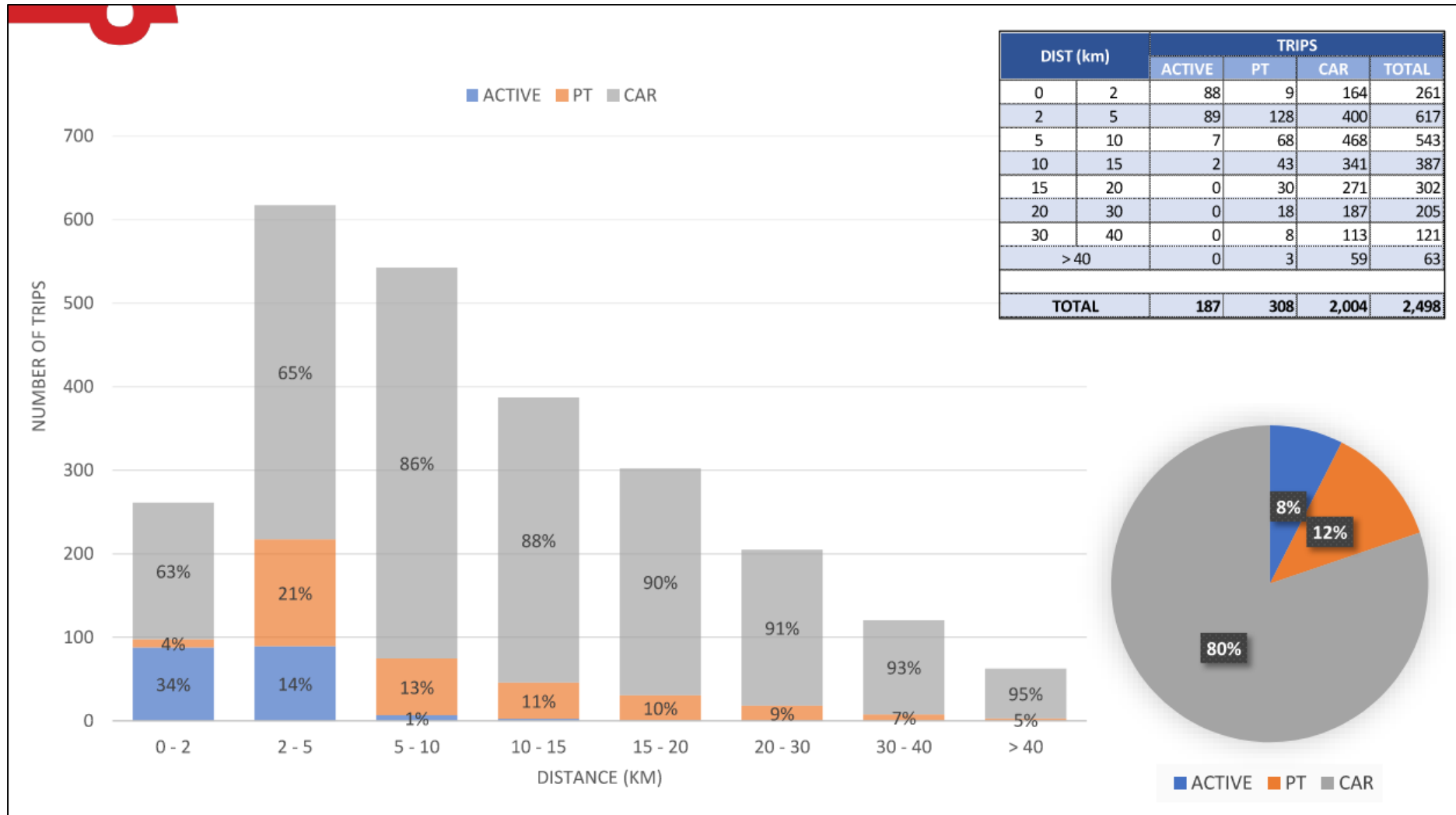


Figure 4: Trip Demand: Origin to Lissenhall (AM Peak)

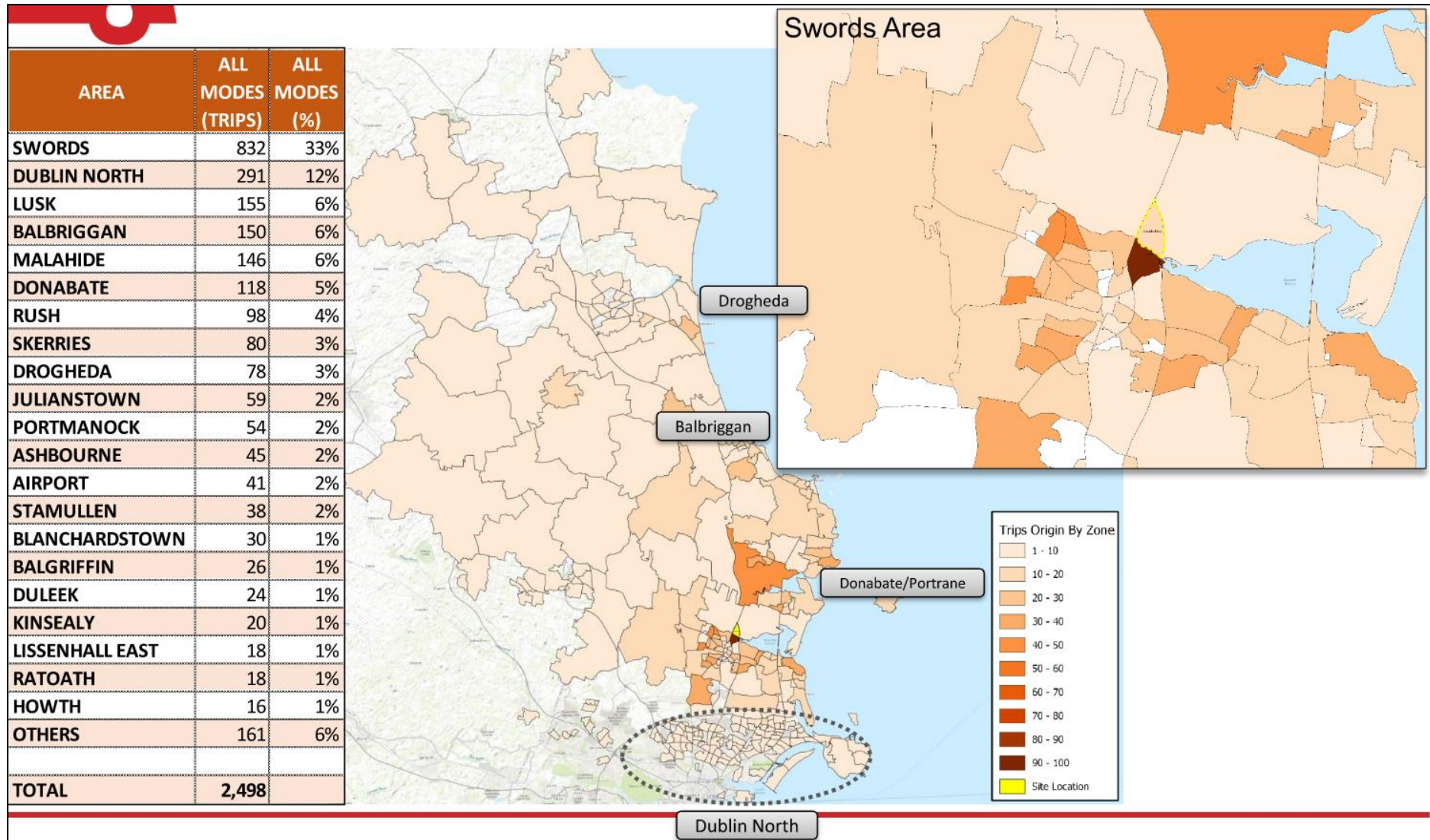
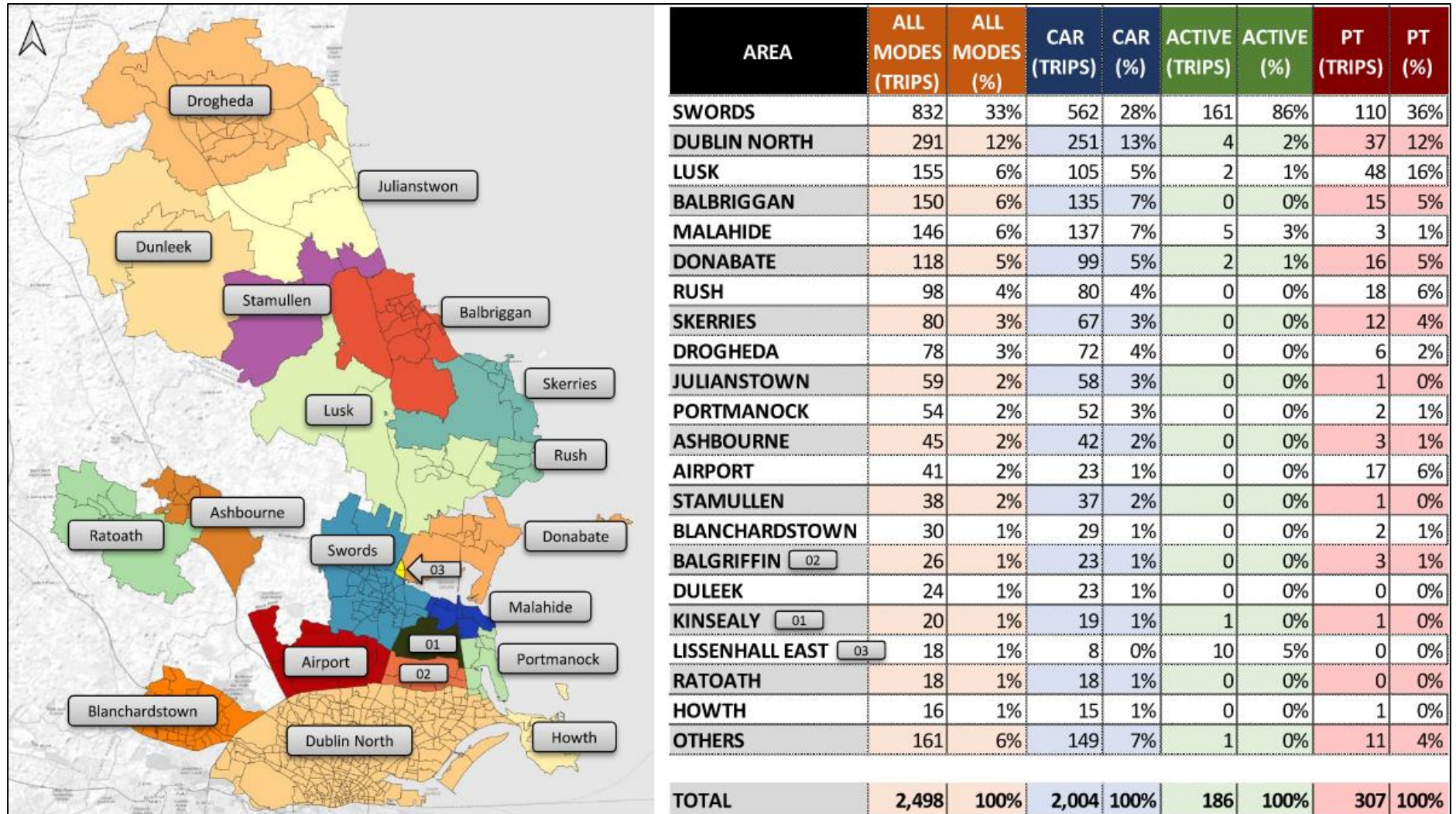


Figure 5: Trip Demand by Mode: Origin to Lissenhall (AM Peak)



Walking & Cycling

The existing pedestrian and cycle infrastructure to the LAP lands is limited, making travel by these modes to and from the area a less attractive option.

The R132 is the primary pedestrian access route to the LAP lands. At present, there is an incomplete footpath along the LAP lands road frontage. On the east side of the R132, there is a footpath at the southwest corner of the LAP lands which begins at the bus stop and continues south providing a direct link to Swords. To the north, on the east side of the R132, there is a short section of a footpath which links to the underpass beneath the M1 interchange which in turn links to extended pedestrian footpaths on the R132 north. The high speed (80kph) is also an issue.

There are limited pedestrian crossings along the R132 with the nearest located at the M1 interchange signalised crossing to the north and a pedestrian bridge at the R132/R125 roundabout to the south.

The interior of the Lissenhall East LAP lands is currently not accessible either by pedestrians or cyclists.

There are limited cycling facilities in Swords which predominantly consist of cycle tracks or lanes along new roads and the shared use of bus lanes. Most of the infrastructure is sub-standard and there is little to no continuity across existing cycle networks. Current issues along the R132 include:

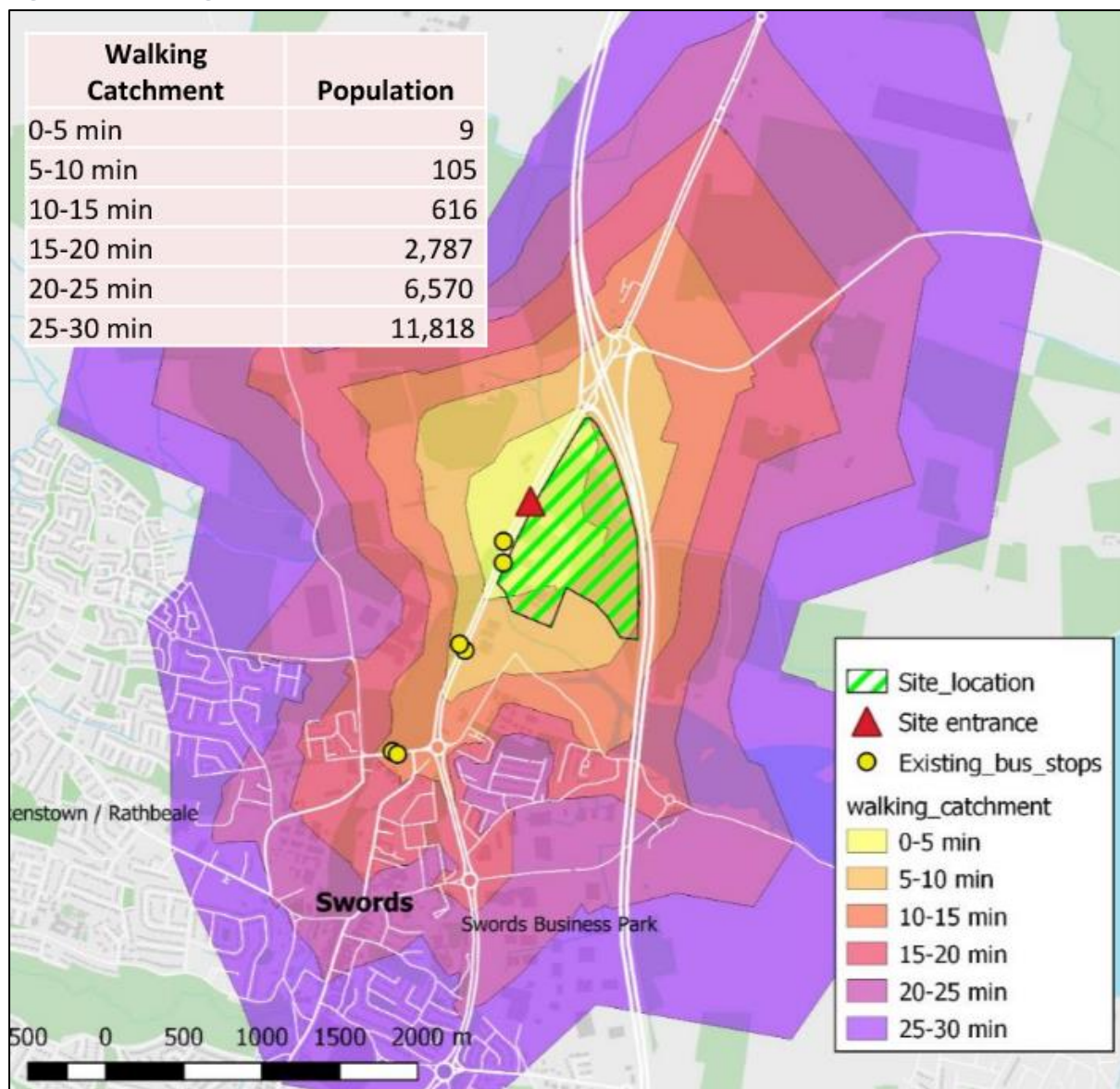
- Lack of cycle facilities
- High Speed 80kph
- Existing Roundabouts.

The Greater Dublin Area Cycle Network Plan (2013) proposes the provision of an inter-urban cycleway on the R132 directly fronting the LAP lands which will cross the M1 and continue north and connect to a network of primary and secondary routes throughout Swords to the south as well as several proposed Greenways.

It is noted that the R132 Connectivity Project has/is being completed between the north of Pinnock Hill Roundabout and north of Estuary Roundabout. The project involves the installation of a new protected cycle and pedestrian facilities, retention of one bus and one general traffic lane in each direction, removal of hard shoulders and/or general traffic lanes, and reduction in speed limit to 50km/h.

The following figure shows the walking catchment for the Lissenhall area.

Figure 6: Walking Distances for Lissenhall



The figure indicates the following:

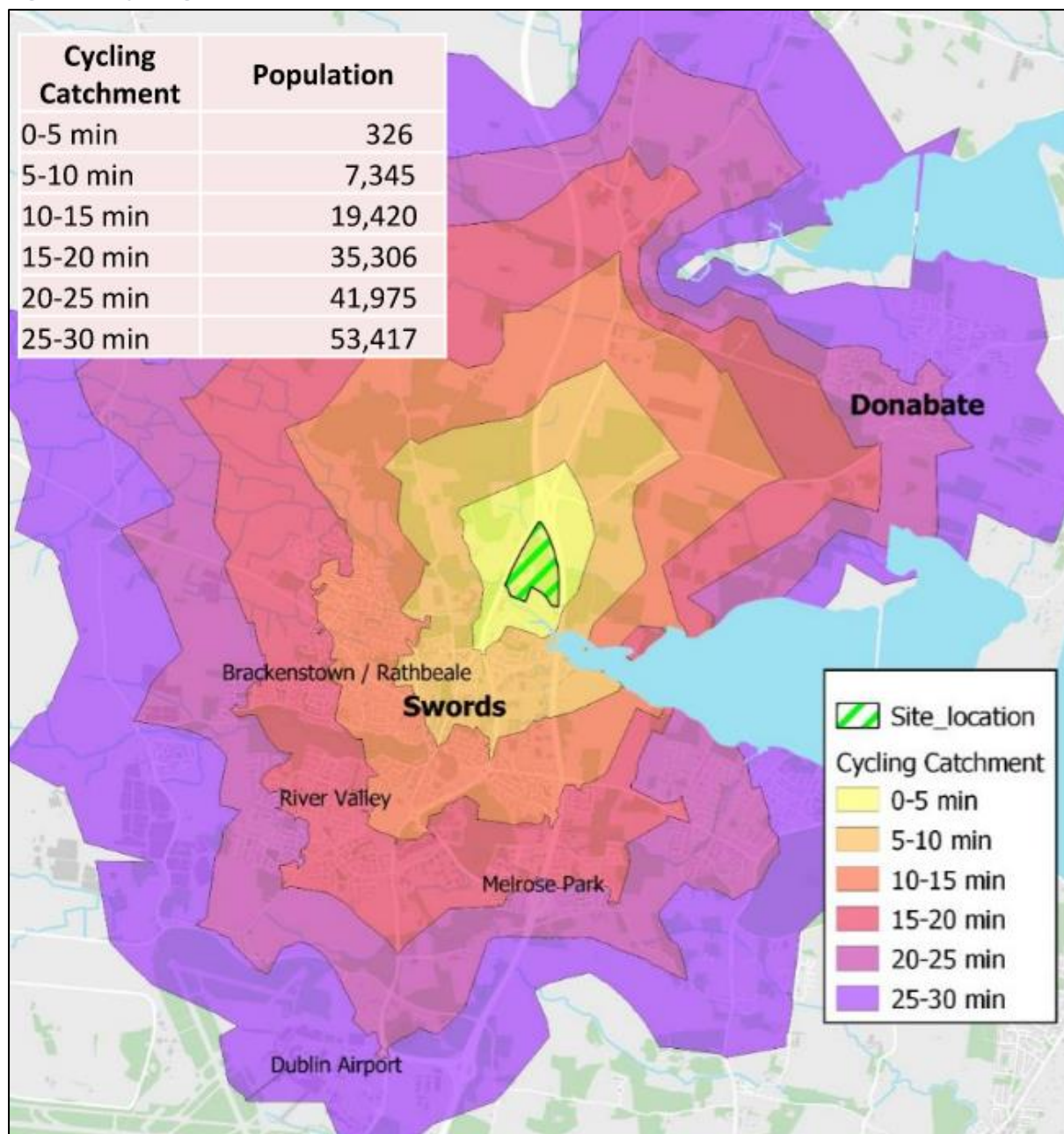
- existing bus stops within 10min walking distances
- Swords Main Street is within 30min walking distance.

Current issues that have been identified along the R132:

- there is a lack of footpaths and crossings
- the road is operating at a high speed of 80kph
- potential capacity issues on existing roundabouts.

The following figure shows the cycling catchment for the Lissenhall area.

Figure 7: Cycling Distances for Lissenhall



The figure indicates that Swords, Donabate and Malahide are within 30min cycling distance

Current issues identified along the R132:

- there is a lack of cycle facilities
- the road is operating at a high speed (80kph)
- potential capacity issues on existing roundabouts.

Current issues identified along the R126 (towards Donabate)

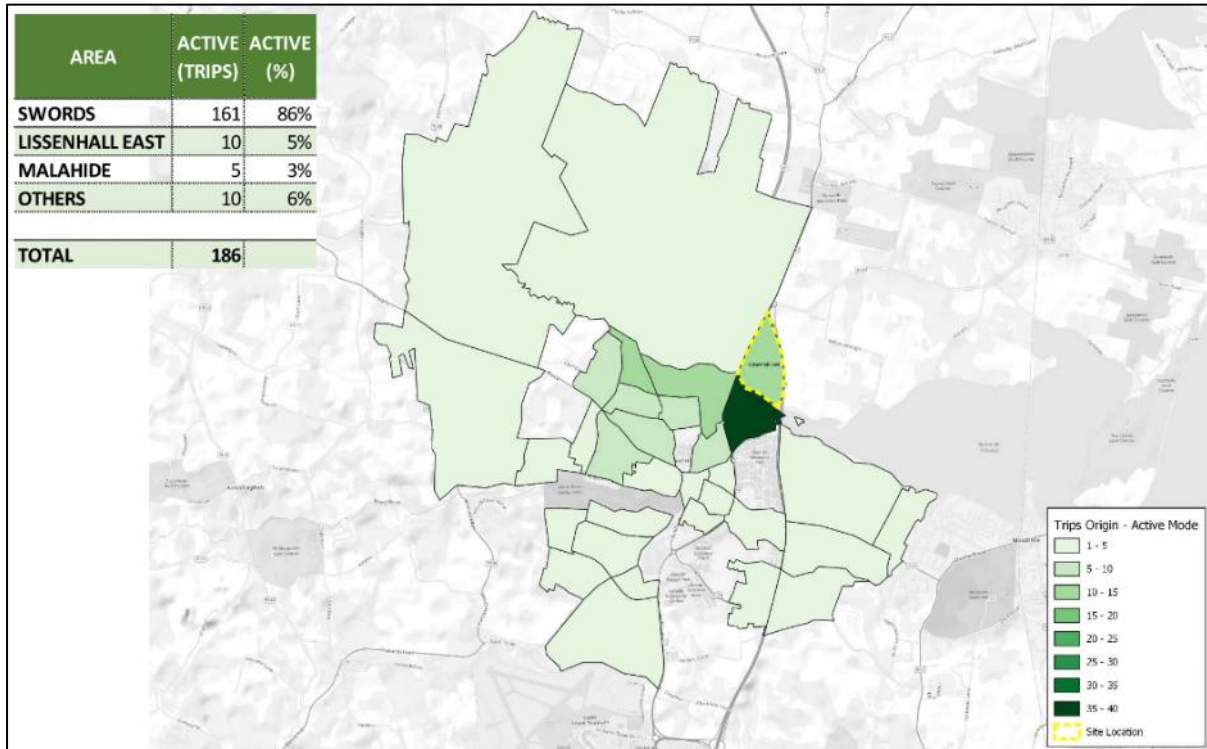
- narrow Road, no hard shoulder
- the road is operating at a high speed (80kph).

Estuary Road (towards Malahide)

- there is an off-road path along the coast.

The trip origins by zone to Lissenhall as a destination during the morning peak is shown below. This is applicable to the active mode.

Figure 8: Trip Origin - Active Mode



Public Transport

At present, there are several public and private bus services operating near the LAP Lands. Existing Dublin Bus/Go-Ahead routes operating in the area serve the R132 regional road that runs adjacent to Lissenhall East LAP lands and includes Route No's 33, 33N, 33A, 33B & 41N. The nearest bus stops (No. 3749 & 3714) are located on the R132 bordering the LAP lands. The bus stops along the R132 are acknowledged to have limited and substandard footpaths and crossings to access the stops.

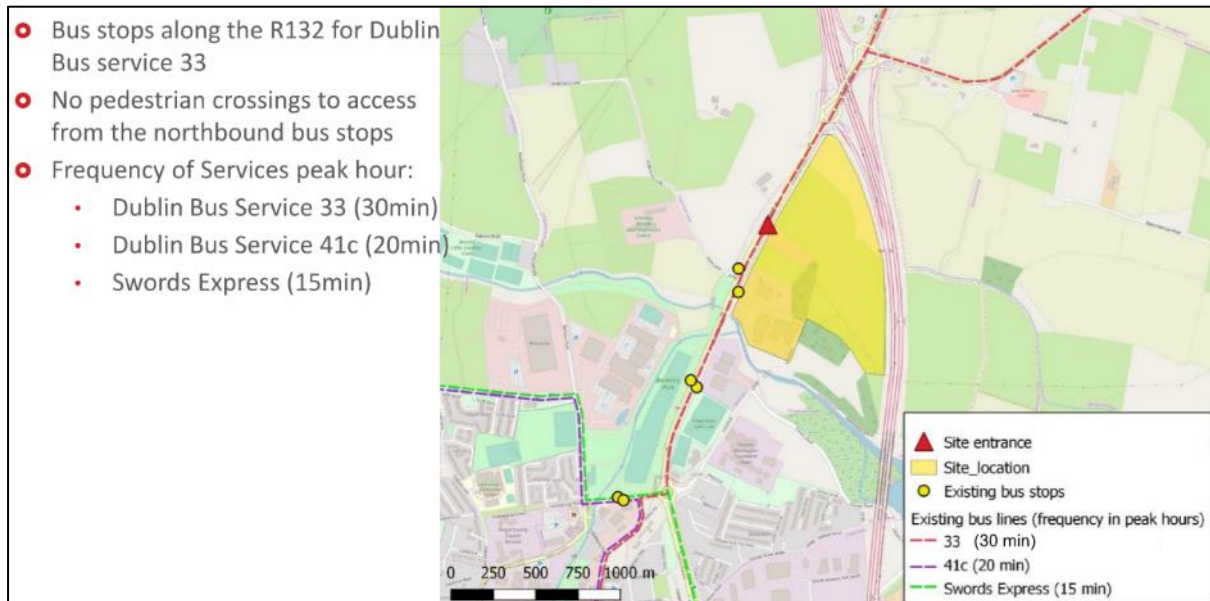
The frequency of the bus services serving the R132 is expected to be maintained until improvements are made along the R132 and further development comes on stream. Bus Éireann also provide a regional service route 101 from the city centre to Drogheda via the R132 adjacent to the LAP. The Swords Express services the roundabout on the R132 directly south of the LAP lands.

Revisions to the existing bus network are proposed under Bus Connects which will see a core bus corridor provided between Swords and the City Centre. While this does not currently extend fully along the R132 to the LAP lands directly, the improvements will nevertheless enhance bus connectivity. Other relevant Bus Connects proposals include:

- L83 – Portrane – Donabate Swords - Airport.
- L85 –Balbriggan – Skerries – Rush/Lusk – Swords - Airport.

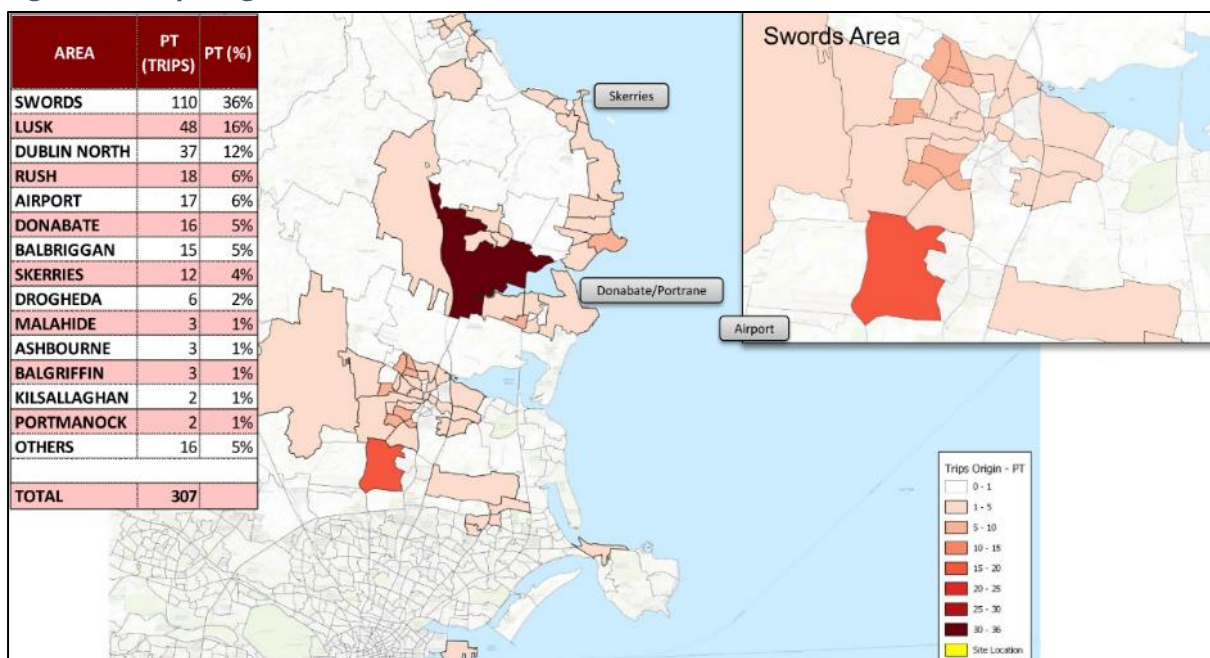
The National Transport Authority has published the Preferred Route for MetroLink which includes the Estuary station and line terminus to be located directly adjacent to the LAP Lands on the opposite side of the R132. A MetroLink Park and Ride is also proposed opposite the Lissenhall East lands and is to be bus-based. The timeline for delivery is 2035. The existing public transport network is shown in the figure below.

Figure 9: Existing Public Transport Network



The public transport trip origin by zone to Lissenhall as a destination for the morning peak is shown in the figure below.

Figure 10: Trip Origin - PT Mode



Private Vehicle Usage

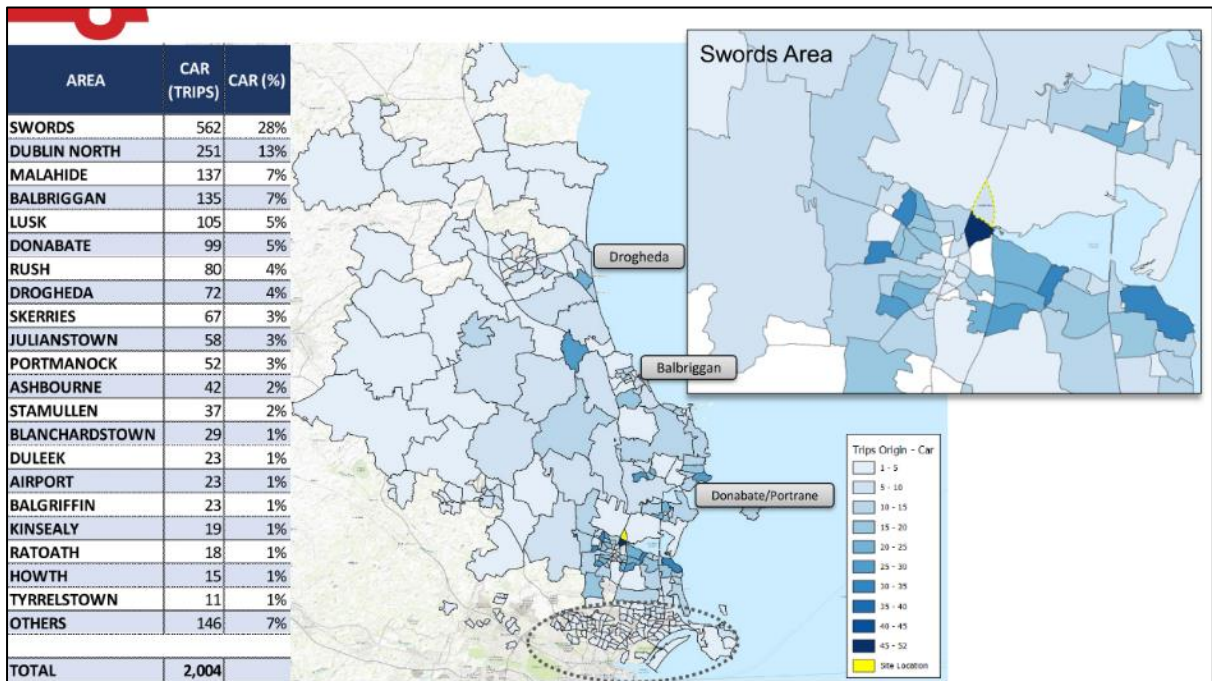
The existing road network along with identified issues is shown in the figure below.

Figure 11: Existing Road Network



The car trip origin by zone to Lissenhall as a destination for the morning peak is shown in the figure below.

Figure 12: Trip Origin - Car



Context of the Transport Assessment

Objectives

The Transport Planning Principles and Objectives are detailed below.

Transport Objectives	Design Principles	Key Performance Indicators
<p>Maximise opportunities for walking and cycling trips</p>	<ul style="list-style-type: none"> • Support the implementation of the walking and cycling measures contained in the Greater Dublin Area Cycle network and Fingal South Transport Study • Provide for a high level of permeability through the development lands and connectivity to the surrounding communities • Ensure junction designs provide high levels of service for pedestrian and cycle modes • Provide high-quality onsite cycle facilities including secure parking, showers, lockers etc. 	<ul style="list-style-type: none"> • Active Mode Share • Reduction in Trip lengths • Length of pedestrian/cycle facilities • Permeability (Reduce trip length)
<p>Maximise travel by Public Transport, both pre-and post-delivery of the Metro</p>	<ul style="list-style-type: none"> • Improve connectivity to the existing and proposed public transport network • Identify opportunities for feeder services to high-capacity public transport corridors/nodes 	<ul style="list-style-type: none"> • Public transport mode share • Metro line flows
<p>Manage demand for car travel to the development to minimise the impact on the safety and operation of the local and National Road Network</p>	<ul style="list-style-type: none"> • Provide a progressive parking strategy which encourages travel by sustainable modes • Implementation of an area-wide MMP supported by sustainable travel targets 	<ul style="list-style-type: none"> • Car mode share • Journey times • Capacity ratios • Network Contribution levels
<p>Maximise opportunities for sustainable travel through the integration of land use and transport</p>	<ul style="list-style-type: none"> • Minimise trip lengths or demand for travel entirely through the delivery of mixed-use development • Provide appropriate density levels and parking control adjacent to future Metro Station (Transit Orientated Development) 	<ul style="list-style-type: none"> • Trip lengths • Mode share

Travel Demand and Travel Patterns

The following figures show the travel demand (in terms of volume to capacity) for 2028 for the road network, without and with the development.

The results from this analysis can be summarized as follows:

- 12% of trips (304) to Lissenhall in AM period are less than 2km in distance but only 35% (106) of these would be by walking
- 34% of trips (863) to Lissenhall in AM period are less than 5km in distance but only 19% (161) of these are by walking or cycling
- Limited walking and cycling facilities to Lissenhall
- Only 8% of trips to the site by walking or cycling- the majority of which from the Swords area
- Limited direct Bus Service under Bus Connects
- Only 12% (307) of trips to Lissenhall in AM period are by public transport
- The majority of Public Transport trips are from Dublin North, Swords or the Lusk area
- 80% (2,004) of trips to Lissenhall in AM period are by private car
- AM peak hour traffic flows on R132 increase by up to 32% in the vicinity of the site and up to 7% south of M1
- Reduction in capacity and deterioration in the performance of the M1 / R132 interchange (junction 4).

Figure 13: Morning Peak VoC without Development – 2028

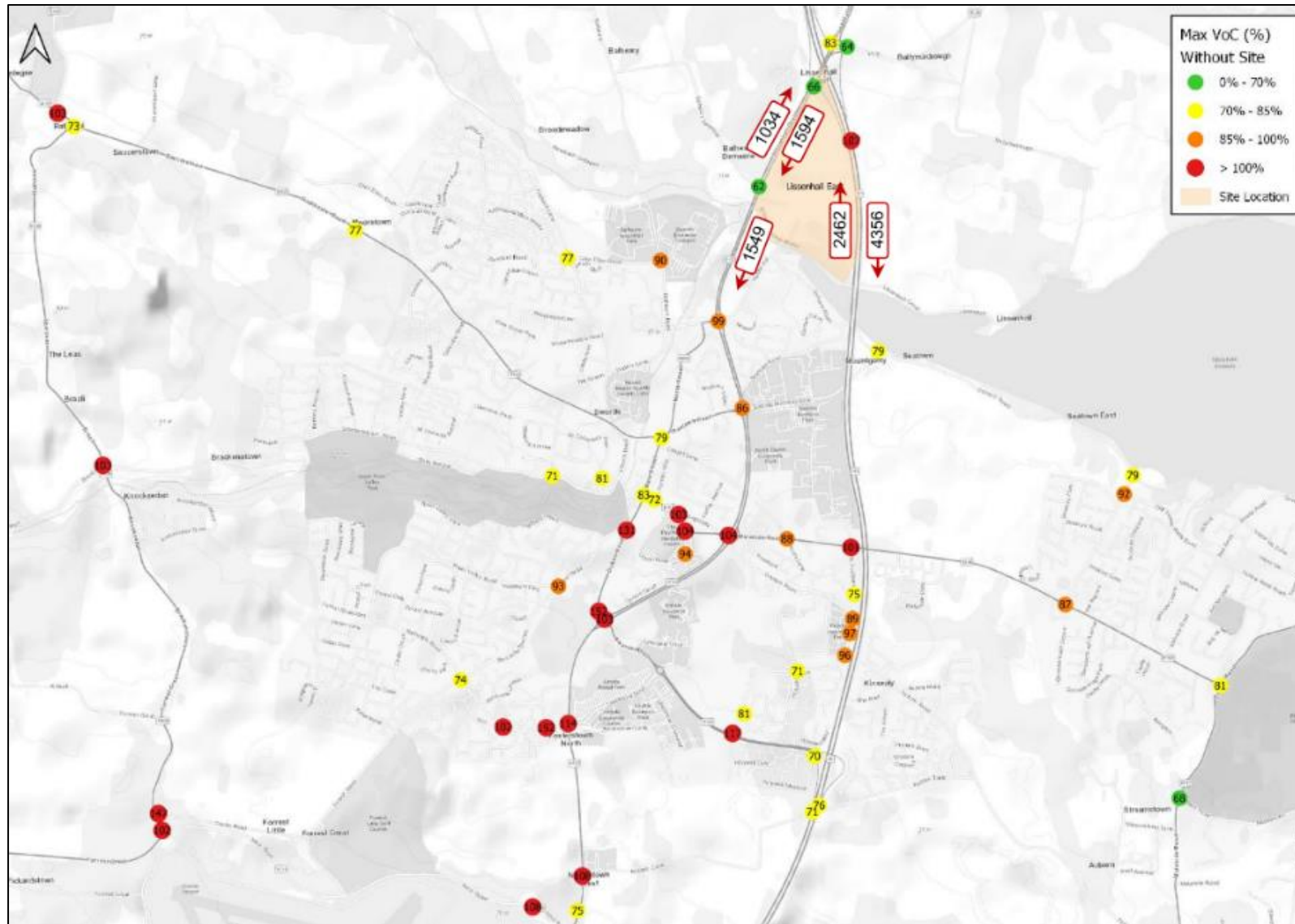


Figure 14: Morning Peak VoC with Development – 2028

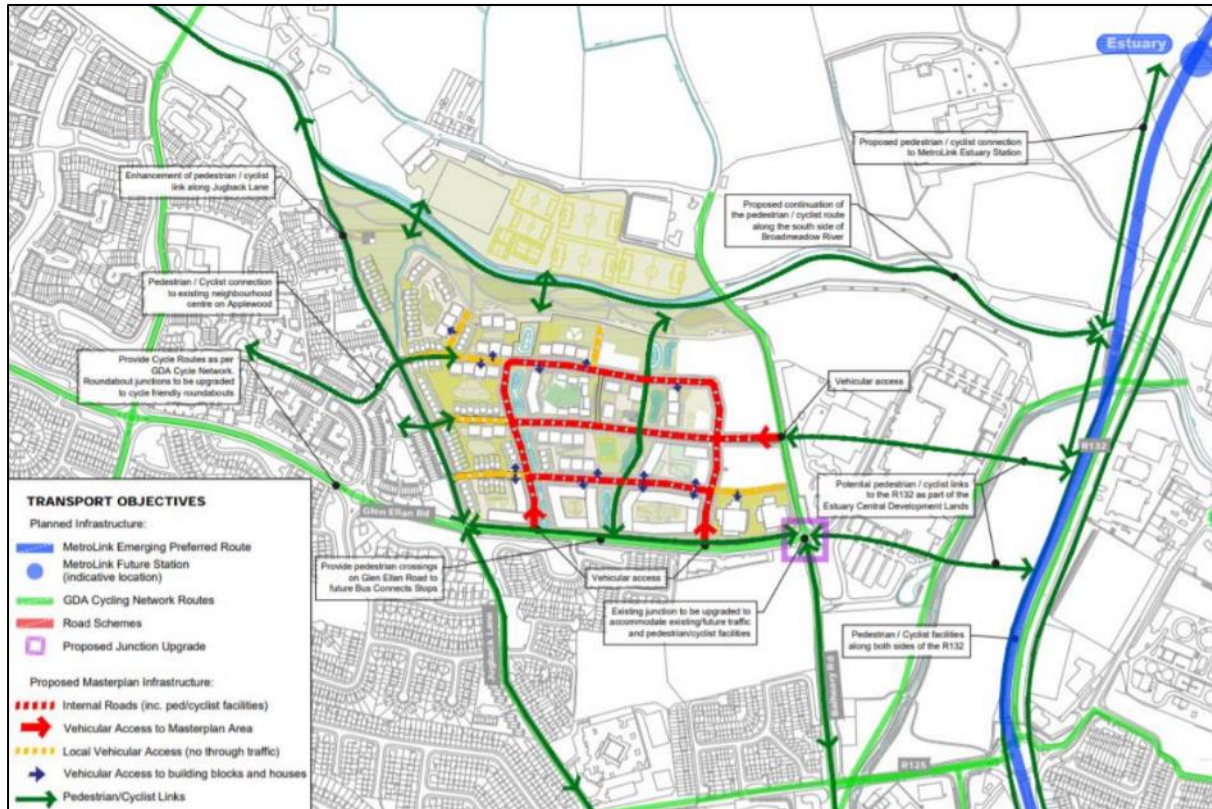


Planned Infrastructural Upgrades

A number of infrastructure upgrades are planned for the LAP lands.

The Estuary West MP (to the west of the Lissenhall East LAP lands) will introduce several external infrastructure upgrades, as shown in the figure below.

Figure 15: Estuary West MP - Planned External Infrastructure



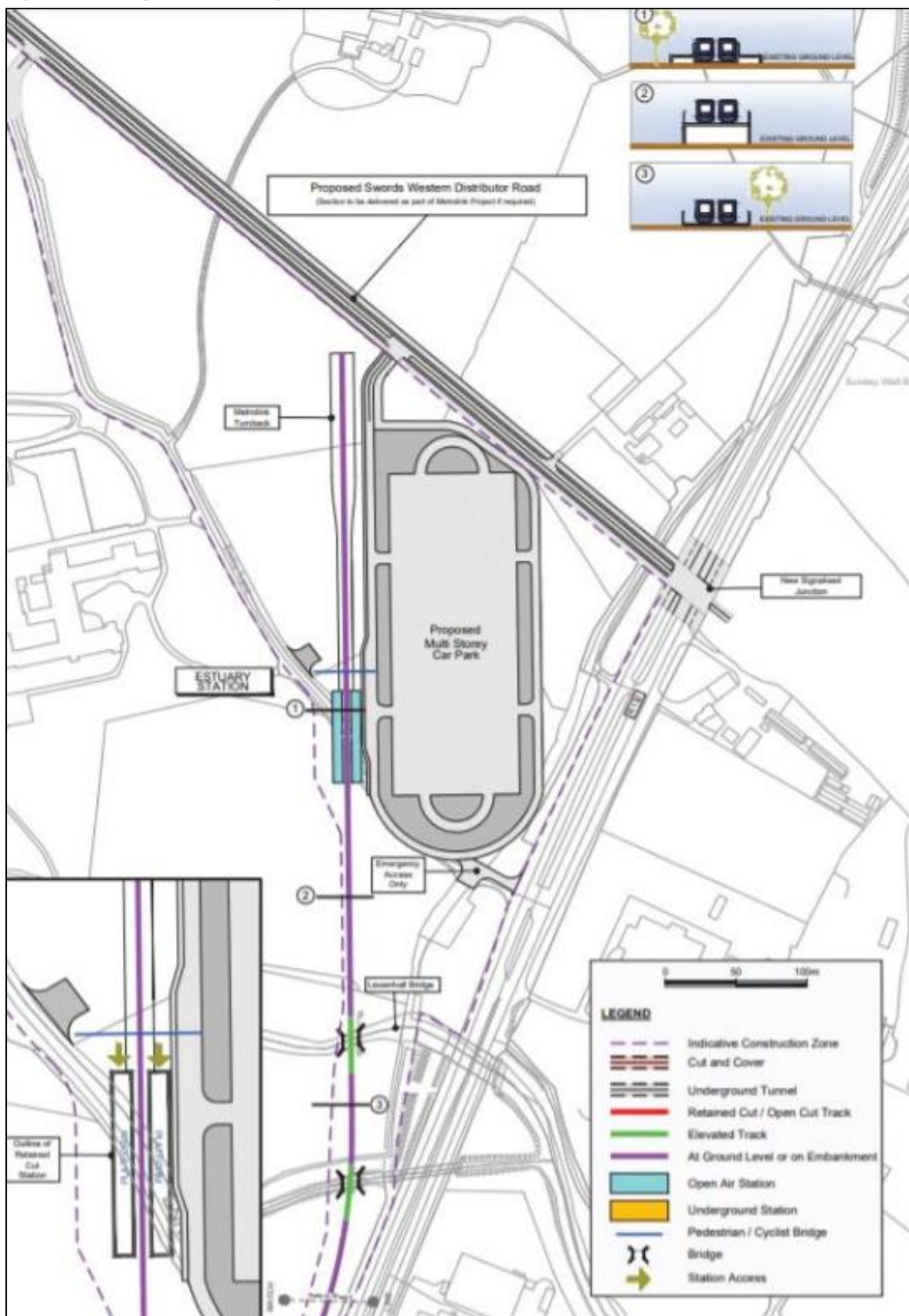
The planned Metrolink will provide full pedestrian/cyclist and vehicular access to Estuary Station along the proposed new signaled junction and the proposed Swords Western Distributor Road. There is also potential to link the bus service between Estuary Station and Swords Main Street as well as Dublin Airport which could serve Lissenhall East lands.

Figure 16 and Figure 17 provide details on the planned Metrolink infrastructure.

Figure 16: Metrolink - Swords to Charlemont

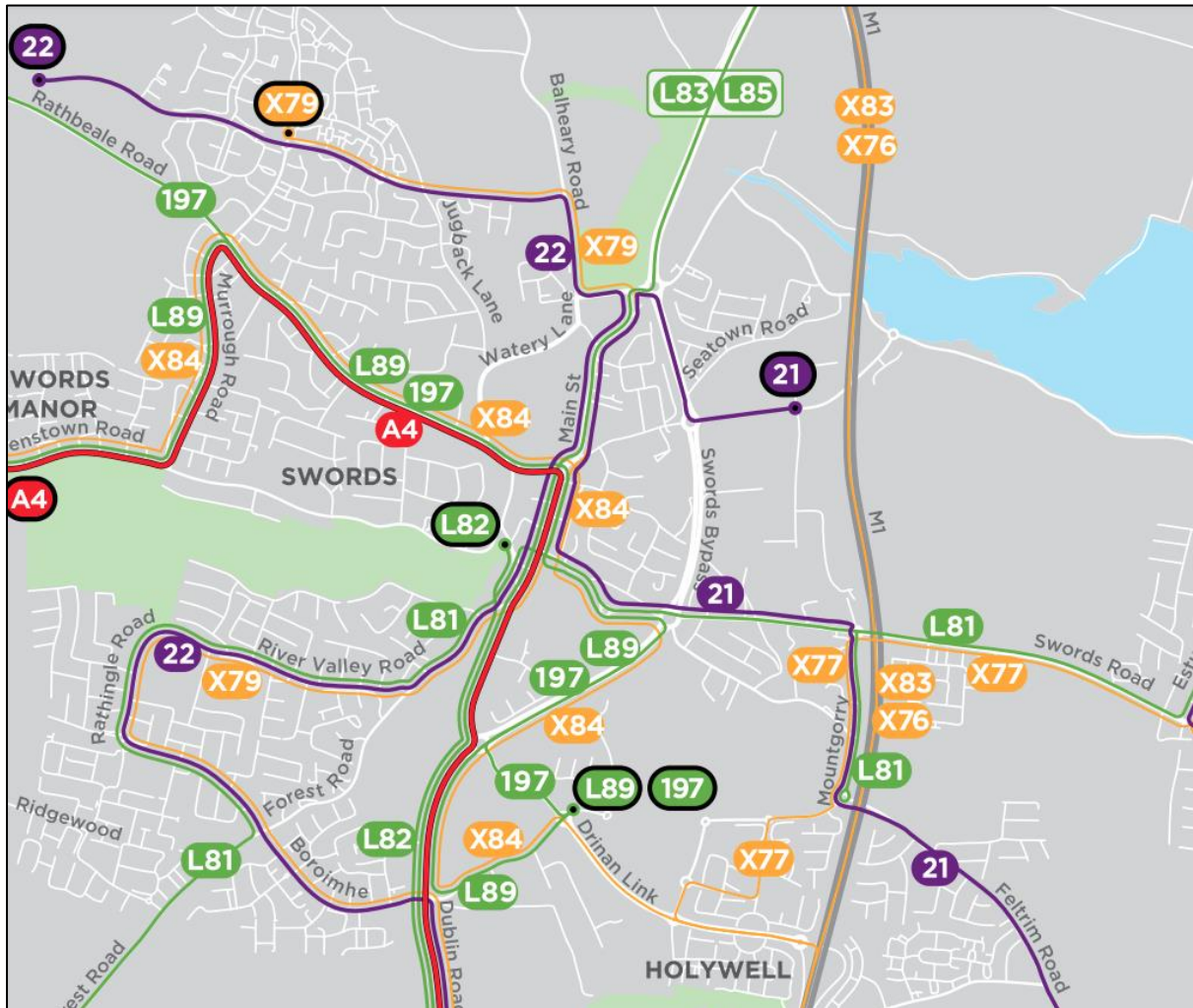


Figure 17: Proposed Estuary Station



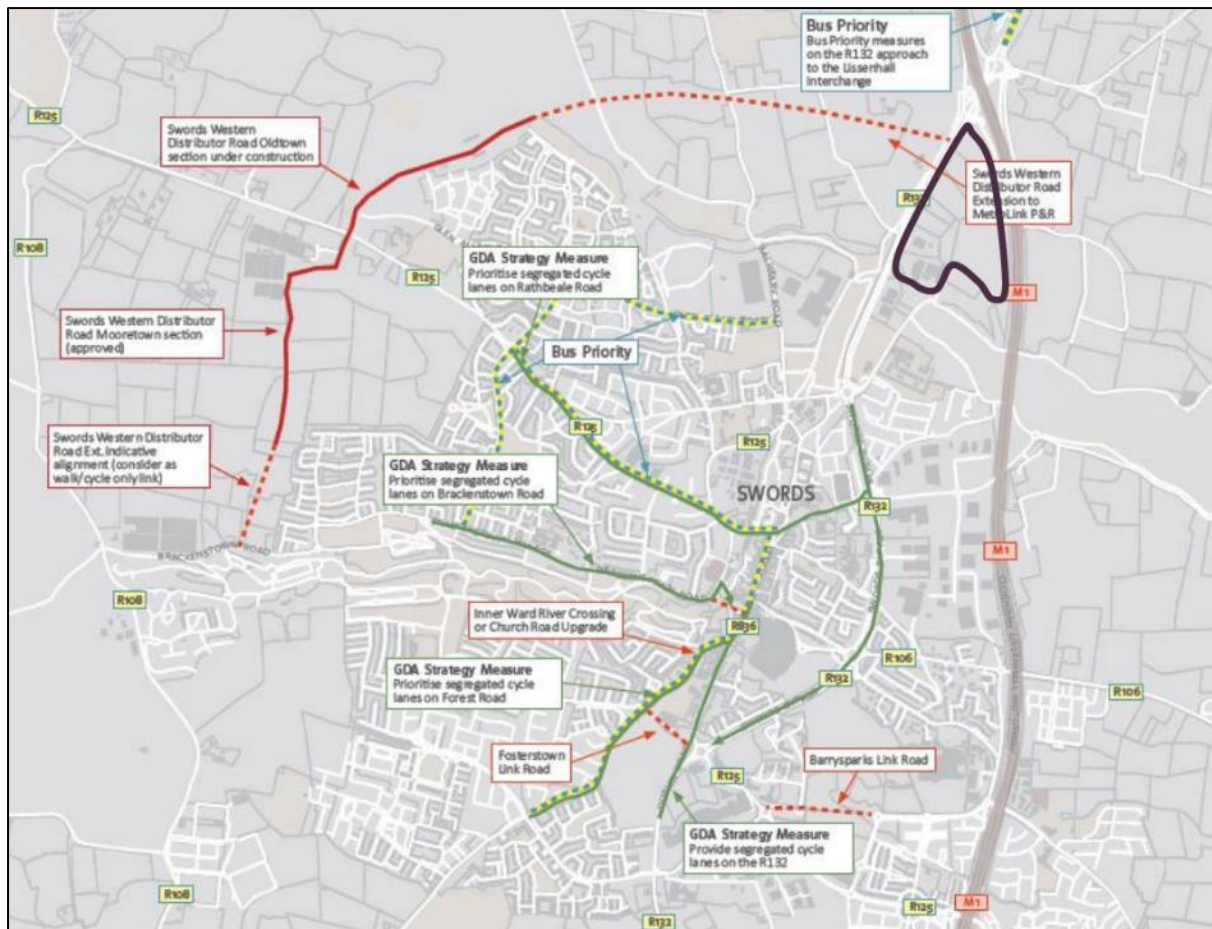
The planned BusConnects infrastructure for this area is shown in the figure below.

Figure 18: Planned BusConnects Infrastructure in Lissenhall Area



The planned road network within this area, as detailed in the South Fingal Transport Study, is shown in the figure overleaf. This includes the Swords Western Distributor Road and the Estuary Roundabout to be upgraded to a traffic signalled junction.

Figure 19: Planned Road Network (South Fingal Transport Study)



Transport Development Options

Two transport development options have been identified which could increase capacity in order to accommodate the future demand. These are:

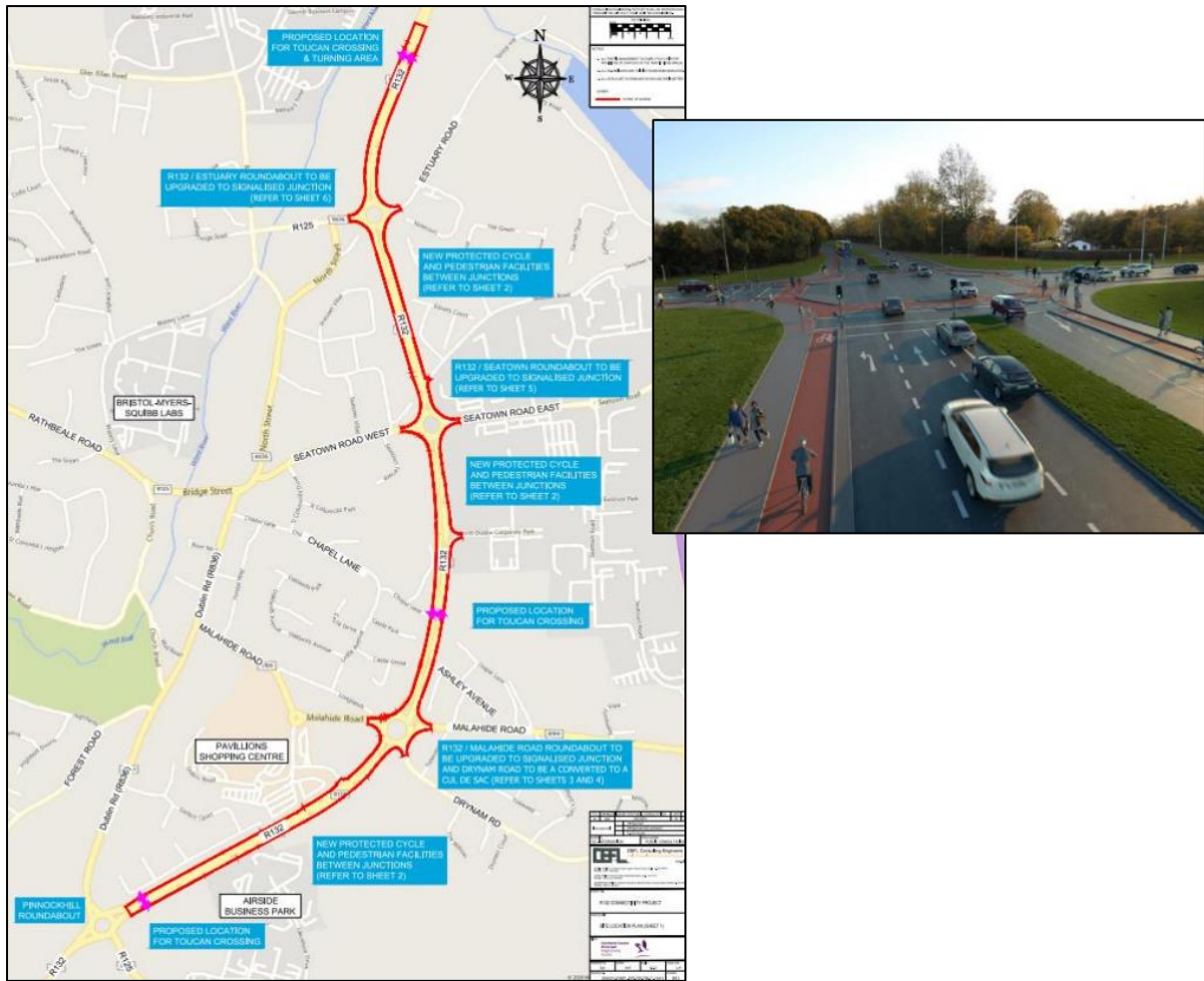
- R132 Connectivity Project
- GDA Cycling Strategy
- Swords Main Street
- Broadmeadow Way Greenway Connectivity.

R132 Connectivity Project

This project entails the upgrading of works between the north of Pinnock Hill Roundabout and north of Estuary Roundabout, to facilitate the installation of a new protected cycle and pedestrian facilities, retention of one bus and one general traffic lane in each direction, removal of hard shoulders and/or general traffic lanes, and reduction in speed limit to 50km/h

The potential exists for these upgrades to be continued northwards towards the Lissenhall East LAP Lands and the future Metrolink Station.

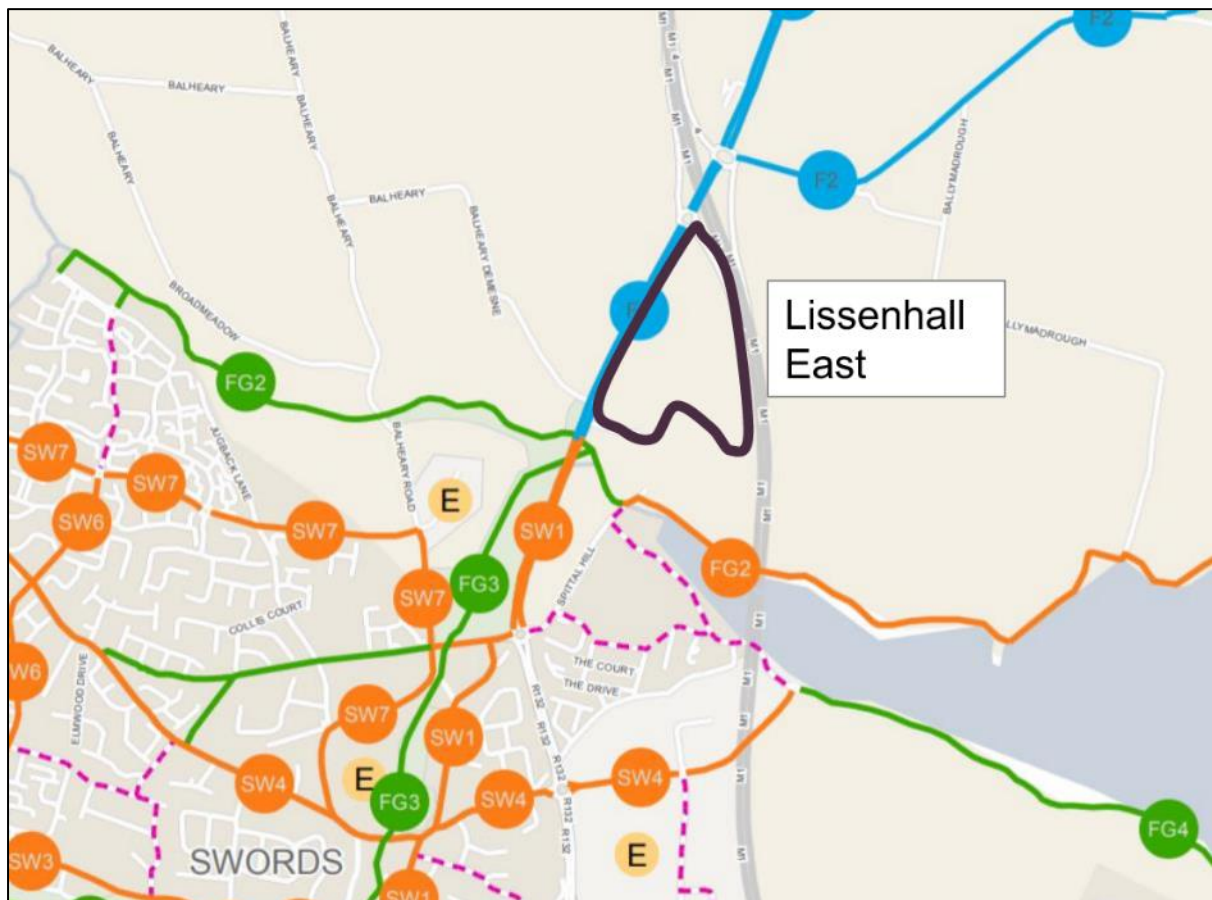
Figure 20: R132 Connectivity Project



GDA Cycling Strategy

The cycling strategy is shown in the figure below:

Figure 21: GDA Cycling Strategy



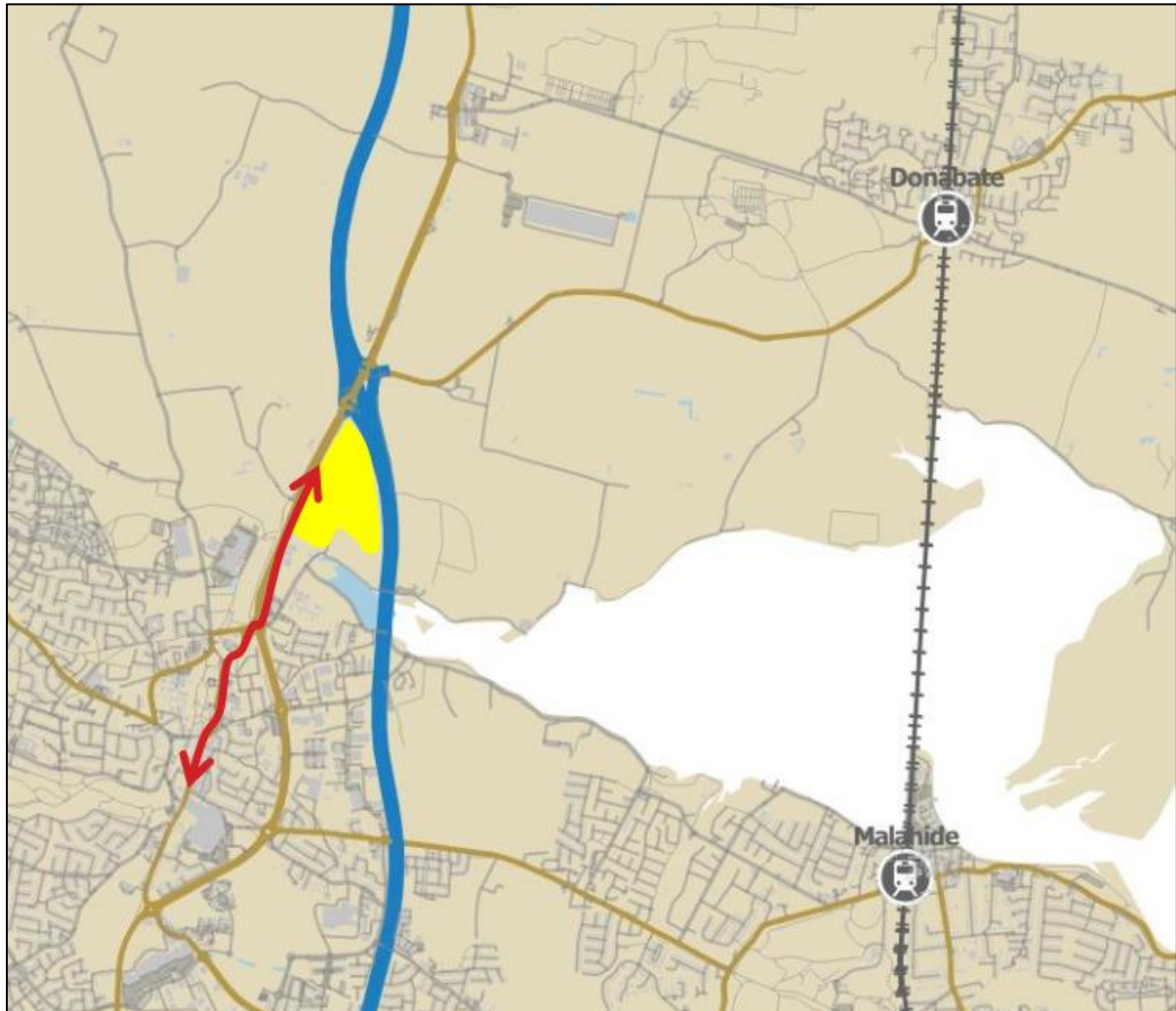
The following forms part of this strategy:

- Swords Routes
 - o SW1
- Rural Cycle Routes
 - o F1: East Fingal Towns, Swords – Balbriggan
 - o F2: to Donabate and Portrane
- Greenways
 - o FG2: Broadmeadow River Greenway
 - o FG3: Ward River Valley Greenway.

Swords Main Street

The upgrading of Swords Main Street will improve pedestrian and cyclist facilities from Main Street to LAP (approximately 2km distance) specifically along the R132, as shown in the figure below.

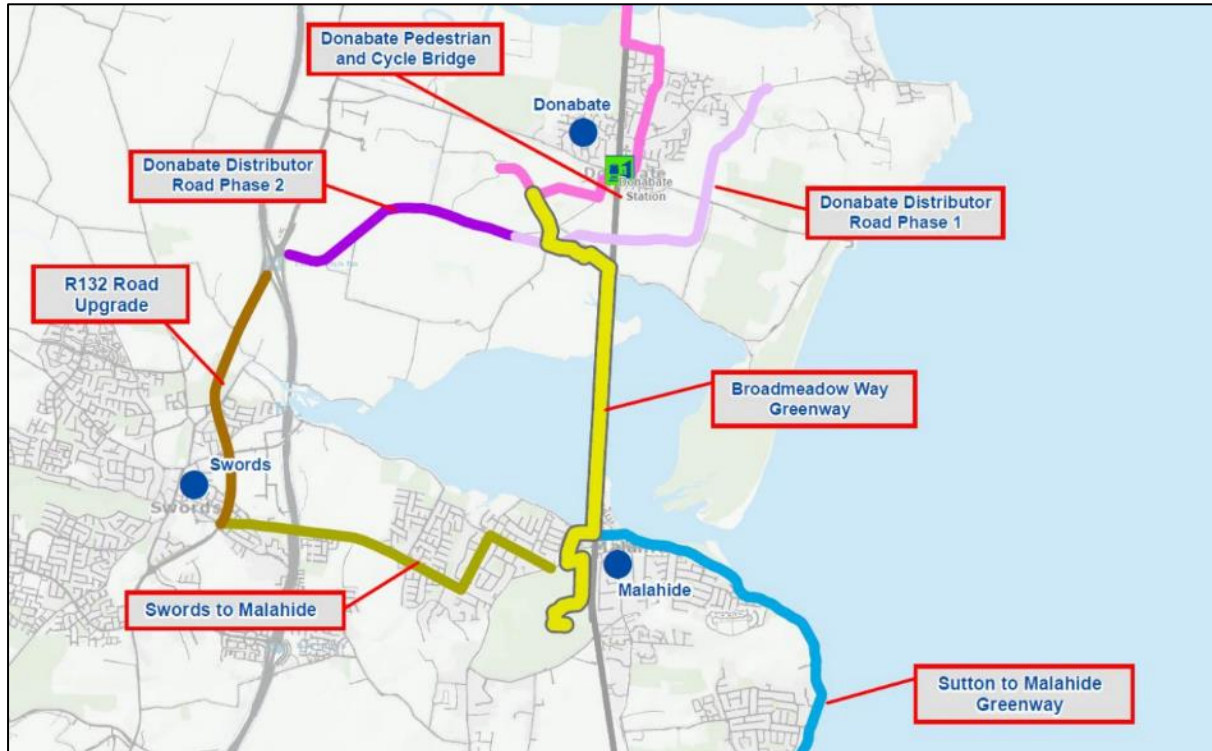
Figure 22: Swords Main Street



Broadmeadow Way Greenway Connectivity

One long-term potential transport development option is the Broadmeadow Way Greenway Connectivity shown in the figure overleaf.

Figure 23: Broadmeadow Way Greenway Connectivity



Options Assessment

An options assessment was conducted to test a total of three incremental highway assignments in the Local Area Model (LAM). These are:

- Lissenhall East: 3,000 jobs
- Lissenhall East: 2,000 jobs
- Lissenhall East: 1,000 jobs.

As part of these scenarios, the following schemes were included in the LAM:

- R132 Connectivity Project: Upgrade roundabouts to Traffic Signalised junctions and cycle and pedestrian facilities
- Traffic signalised junction access to Lissenhall East
- BusConnects scheme
- Completion of Airside to Feltrim Road Link (Barrysparks Link); Fostertown Link and Inner Ward River Crossing.

Population and Employment Growth in Swords, as shown in the table below, were assumed to be as per the NTA base planning data, with the addition of the committed developments at Fostertown, Barrysparks/Crowcastle and Estuary West.

Table 2: Predicted 2028 Population and Jobs

AREA	FCC MPs	
	POP 2028	JOB 2028
Airside 1	659	3,400
Airside 2	0	1,830
Barrysparks	1,248	2,708
East Swords	15,650	2,542
Estuary West/central	1,056	1,312
Fosterstown	777	652
Lissenhall East	17	3,074
Lissenhall West	372	73
NorthWest Swords	21,502	1,355
Pavilions	538	3,327
SouthWest Swords	16,664	574
Swords Business Park	11	4,708
Swords Centre	3,109	3,435
Grand Total	61,603	28,990

Using the above, the network was modelled initially without the development. The resultant output from this analysis is shown in the figure overleaf.

Figure 24: Swords Area: AM VoC without Development - 2028



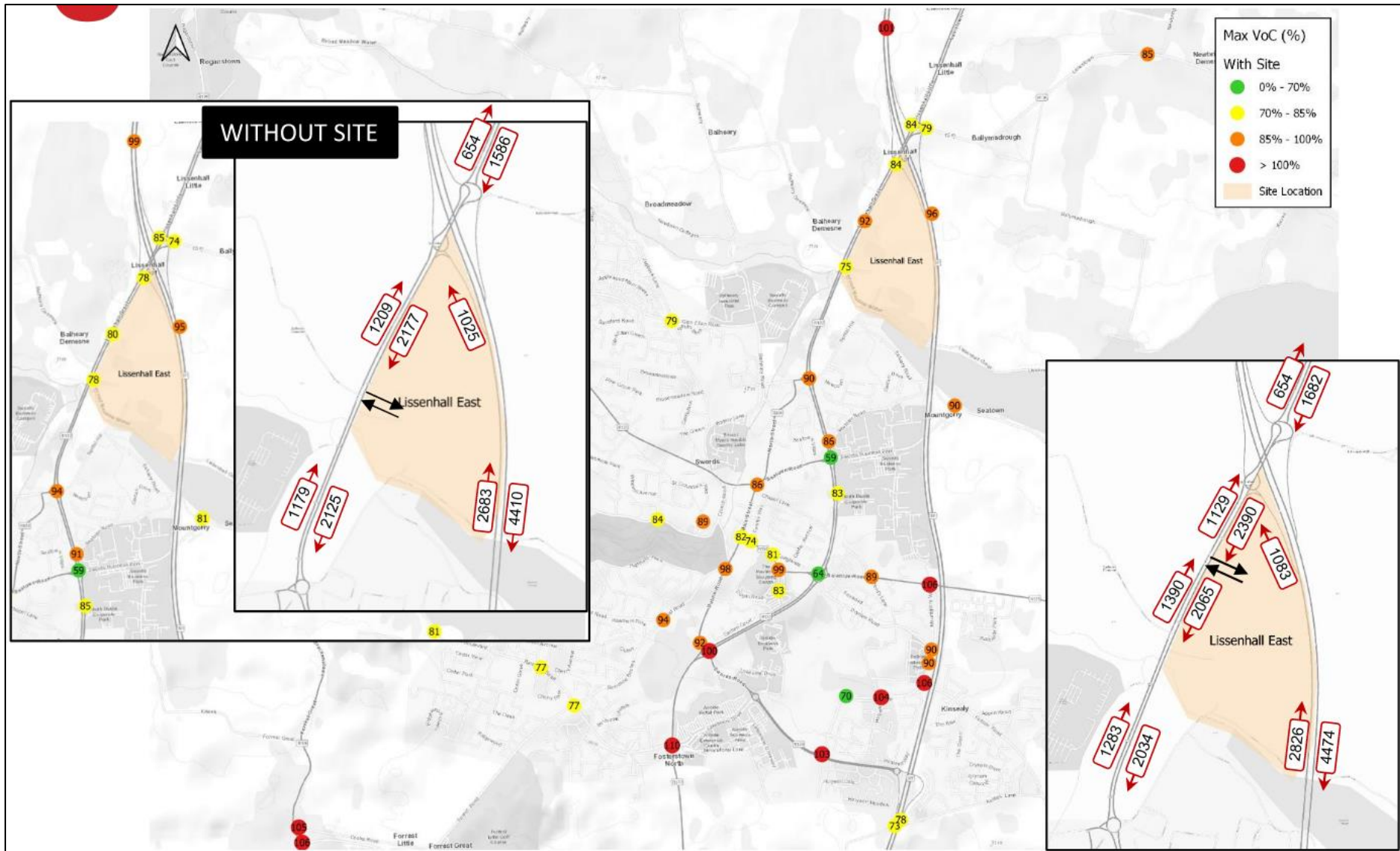
3,000 Jobs Scenario

The analysis of the 3,000 jobs scenario produced the following results:

- Circa 700 – 800 car trips in the morning peak hour
- Circa 300 trips approach from R132 south and remaining trips from M1 North and South and local network
- Development increases trips by 10 – 15% on R132 south of the development
- Increase trips on M1 by circa 5-6%
- Development junction operates at capacity – over 90%. Results in the level of trip distribution on local roads and M1
- M1 interchange junctions approach capacity – circa 85%

The VoC output of this scenario is shown on the figure overleaf.

Figure 25: Swords Area - AM VoC with Development (3000 jobs) – 2028



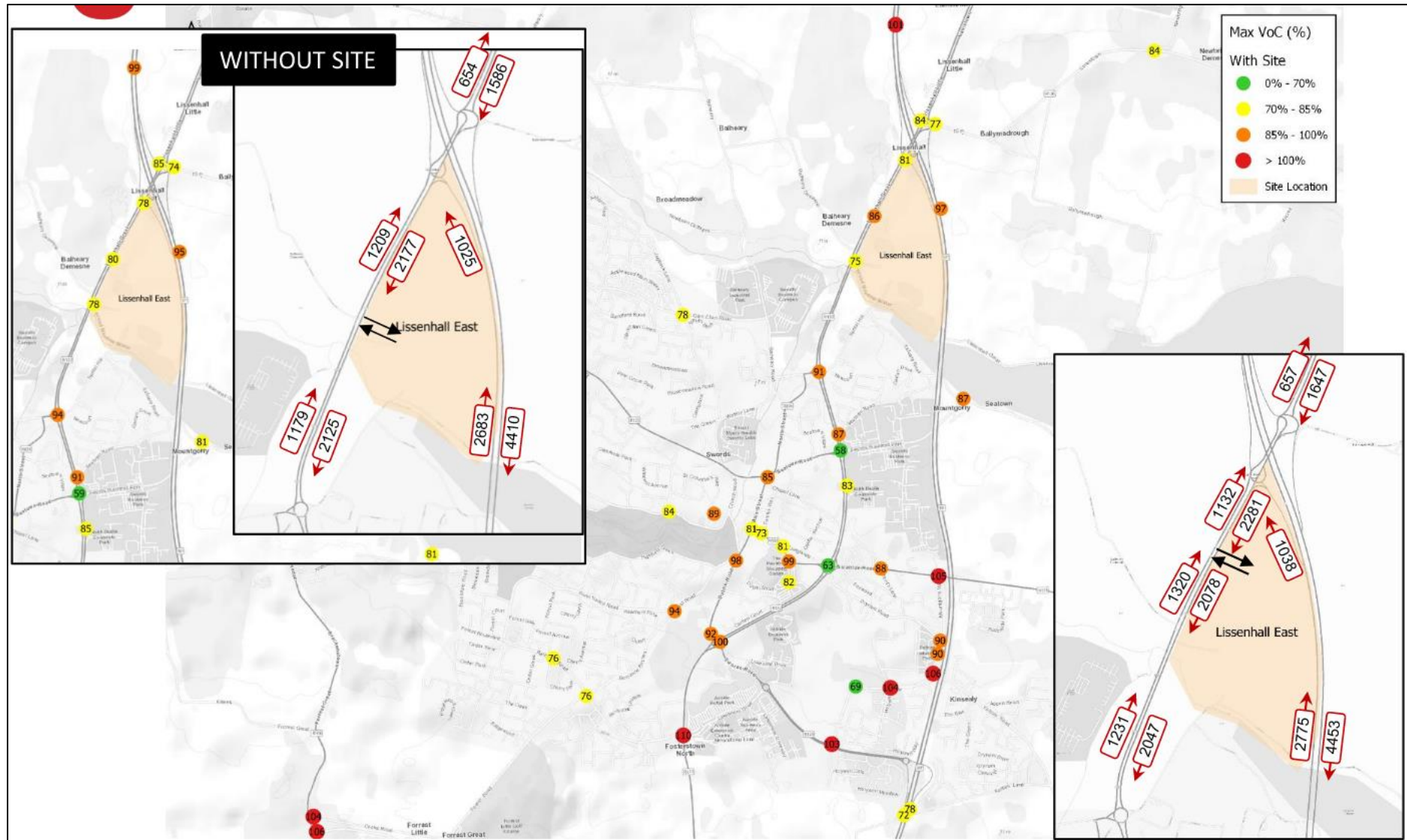
2,000 Jobs Scenario

The analysis of the 2,000 jobs scenario produced the following results:

- Circa 400 – 500 car trips in the morning peak hour
- Circa 200 trips approach from R132 south and remaining trips from M1 North and South and local network
- Development increases trips by 6% on R132 south of Development
- Increase trips on M1 by circa 3%
- Development junction operates near capacity – 85%, lower levels of trip redistribution compared to 3,000 jobs scenario
- M1 interchange junctions nearing capacity – 77 – 84%

The VoC output of this scenario is shown on the figure overleaf.

Figure 26: Swords Area - AM VoC with Development (2000 jobs) - 2028



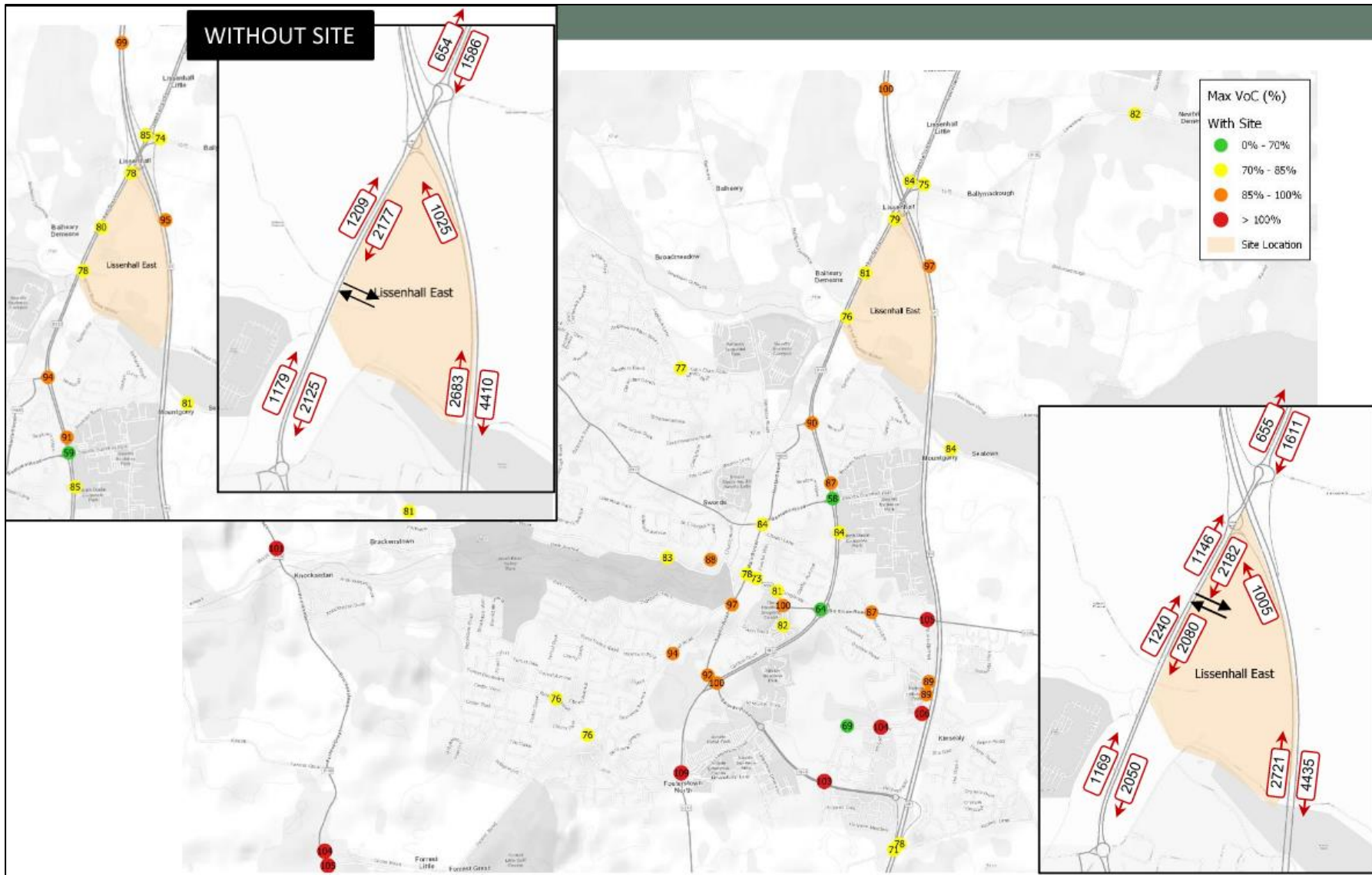
1,000 Jobs Scenario

The analysis of the 1,000 jobs scenario produced the following results:

- Circa 200 – 300 car trips in the morning peak hour
- Circa 150 trips approach from R132 south and remaining trips from M1 North and South and local network
- Development increases trips by 3-4% on R132 south of Development
- Increase trips on M1 by circa 1%
- Development junction operates with reserve capacity
- M1 interchange junctions operate comparably to present day

The VoC output of this scenario is shown on the figure overleaf.

Figure 27: Swords Area - AM VoC with Development (1000 jobs) - 2028



Recommended Strategy

The recommended strategy is the scenario based on 1000 jobs, as it would not have an undue negative impact on the local road network or the motorway junction. Based on this options assessment, the recommended pre-metro strategy for each of the identified transport objectives is shown in the table below. This assessment feeds into the wider LAP.

Table 3: Recommended Strategy per Transport Objective

	Transport Objectives	Recommended Pre-metro Strategy	Reason
	1. Maximise Opportunities for walking and Cycling trips to the Development	<ul style="list-style-type: none"> Continue R132 Connectivity Project northwards from Estuary Roundabout Provide High quality walking and cycle routes within the development with secure cycle parking and changing facilities for employees 	<ul style="list-style-type: none"> To enable future employees living in Swords to travel to the site by a safe and efficient walking and cycling route
	2. Maximise travel by Public Transport, both pre and post delivery of the Metro	<ul style="list-style-type: none"> Improve Bus waiting facilities at Lissenhall and linkages from the development Implement Mobility Management Framework Plan for development with measures to encourage sustainable travel 	<ul style="list-style-type: none"> To improve the arrival experience for future employees arriving by bus
	3. Manage demand for car travel to the development in order to minimise impact on the safety and operational of the local and National Road Network	<ul style="list-style-type: none"> Limit level of permissible development to between 1000-2000 employees in pre-metro scenario Provide progressive parking strategy which substantially reduces parking provision for built and proposed development in the post-metro scenario 	<ul style="list-style-type: none"> To protect the capacity of the local and national road network To progressively reduce demand for car travel as public transport and active travel opportunities arise