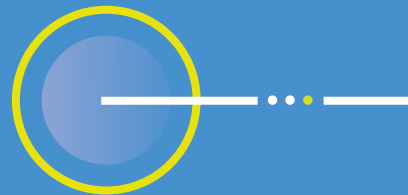


Greater Dublin Area Transport Strategy

2022



2042



Greater Dublin Area Transport Studies
Swords Development Areas

November 2021

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Executive Summary

Introduction

The National Transport Authority (NTA) commissioned Jacobs Engineering Ireland Limited (Jacobs), in collaboration with Systra, to complete a series of Area Based Studies for the Greater Dublin Area (GDA). This study will inform the NTA's review of the Transport Strategy for the Greater Dublin Area (2016-2035) which will consider the future development of the transport network in the Greater Dublin Area (GDA) for the period up to 2042.

This report details the findings for the Swords Development Area study area, which comprises largely undeveloped agricultural land immediately to the north of the town of Swords and to the west of the M1/R132 junction at Lissenhall, approximately 14km to the north of Dublin city centre.

The methodology for this study is based on the Area Based Transport Assessment (ABTA) process which has been adapted and comprises the following key steps:

- Policy Context – understand the planning and transport policy context within which this study sits;
- Baseline Assessment – provide a clear understanding of the existing spatial characteristics, land uses, transport conditions and constraints in the study area;
- Establish Context – understand the future growth proposals for the study area as well as future travel patterns which proposed transport options need to serve;
- Options Development and Assessment – identify high-level transport options to serve demand in the study area and assess them via a multi-criteria analysis against the objectives of the study; and
- Final Summary – present the options to be taken forward and investigated further as part of the detailed preparation of the Draft Transport Strategy.

Policy Context

A comprehensive review of existing national, regional and local level legislation, policy and guidance relevant to this study has been undertaken in order to provide context for the identification of interventions which align with wider policy goals. Key documents include:

- Project Ireland 2040 – National Planning Framework;
- Project Ireland 2040 – National Development Plan;
- Project Ireland 2040 – Draft National Investment Framework for Transport in Ireland (2021);
- Strategic Investment Framework for Land Transport (2014);
- Smarter Travel: A Sustainable Transport Future (2009 to 2020);
- The Climate Action Plan (2019);
- The Regional Spatial and Economic Strategy for the Eastern and Midland Region (2019 to 2031);
- Transport Strategy for the Greater Dublin Area (2016 to 2035);
- Fingal Development Plan; and
- Relevant local policies, plans and studies.

Baseline Assessment

The study area is largely undeveloped agricultural land, earmarked for mixed use residential and employment use in the Fingal Development Plan, which envisages a total of 49,541 new homes across the county as part of its core strategy by 2025 as well as significant levels of employment and economic growth.

The wider settlement of Swords is identified as a “Primary Economic Growth Town” under the Regional Planning Guidelines. This means that it has been identified as a key driver within the core of the Greater Dublin Area for sustained international and regional economic growth and development and a key location within the Dublin-Belfast Economic Corridor. The Fingal Development Plan supports a long term vision to establish Swords as a sustainable city with a commensurate level of jobs, services and infrastructure to support a potential population of 100,000.

There has been some limited development within the study area to date. There are a small number of homes and the site currently has a number of employment locations (including the Swords Business Campus and the Balheary Industrial Estate) and four schools. The study area is also close to a number of significant trip attractors, such as Dublin Airport as well as the Swords Business Park.

As the site is largely undeveloped, there is little in the way of transport infrastructure. The study area is not served by heavy or light rail, or bus services (although there are buses serving the adjoining Swords town). The study area does have some very limited cycling and walking infrastructure, and there are proposals within the Local Area Plans and Masterplans for an improved active travel network.

Car ownership in the study area (85%) is higher than the Greater Dublin Area (GDA) (79%) and there are a greater proportion of two-car households (42%) than in the GDA (31%). Partly as a result of the lack of suitable transport alternatives, car mode share for all types of trips is higher in the study area than in the rest of the GDA.

The study area has relatively flat topography and is home to a number of watercourses including the Broadmeadow River.

Context

Chapter 3 sets out the context of some of the planned transport changes in the area. The Metrolink line is proposed to run through the south eastern area of the study area, with a 3,000 space park and ride stop located at Lissenhall and named ‘Estuary’ stop in the proposed Metrolink scheme. However, as Metrolink is currently not yet proceeded through planning, it is not included in the model and therefore its impact on traffic movements and demand is not captured.

The site is not planned to benefit directly from the Bus Connects programme, although as part of the Bus Connects Network Review, a number of services will run through Swords town and the wider settlement area, to which the study area is adjacent. The proposed Core Bus Corridor (CBC) from Swords to the city centre will commence south of Swords town on the Swords Road at the Pinnock Hill junction. There are also proposals for two new road schemes, the Swords Western Relief Road and the Swords Distributor Link Road, which are both associated with the scale of development at the site proposed in the Development Plan. The planned GDA Cycling Network adjoins the study area but does not directly provide cycling infrastructure across the majority of the study lands.

Chapter 4 provides the context of the transport demand and supply in the forecast year 2042. It considers the proposed growth in the area, transport proposals, travel patterns and forecast demand if modal shift was to occur. The Planning Data used to generate this analysis is aligned with the National Planning Framework (NPF) and Regional Spatial & Economic Strategy (RSES) overall growth forecasts for the region. There is further potential for additional growth and land use changes as identified and proposed for the study area in the Fingal Development Plan. In particular, the Planning Data does not anticipate significant employment and population growth at the Lissenhall site within the study area.

The 2042 demand forecasts show that the majority of trips are short distance to the town of Swords, with fewer longer distance journeys. However, this is in large part a reflection of the lack of road and transport infrastructure in the area and the capacity constraints of the existing transport network, which means demand within the model could have been allocated locally. There are also notable orbital south west movements towards St Margaret’s, North Blanchardstown, Mulhuddart and Corduff, and also radially southwards to Dublin Airport and the city centre.

The study area has a high car mode share and comparatively low public transport mode share. Whilst a number of junctions such as the M1 / R132 junction at Lissenhall and junctions adjacent to the study area along the R132 operate near capacity, the road network in the study area itself is not overly congested with the majority of junctions demonstrating existing operational headroom.

Similarly, the proposed bus network is expected to function primarily within capacity except for a number of services along the network on the M1 and R132 adjacent to the study area that are forecast to operate at over 85% capacity, along with two sections of the R125 Rathbeale Road within the study area. This analysis indicates a requirement for additional capacity on bus services on these routes. This will support future public transport mode shift, particularly for journeys to/from the study area and the wider Swords settlement area (for example on the Bus Connects 22 route).

Low bus speeds at other points on the network near to the study area was also noted (for example at points along the R132), indicating congestion levels and the potential need for additional bus priority measures at these locations in order to provide competitive journey times with the private car.

Options Development

To identify options to serve demand in the study area in 2042, the following steps were completed:

- A review of relevant planning and transport policies and strategies has provided the overall context for options, and identified current thinking in relation to the future transport network;
- A baseline analysis of the existing transport network identified existing network issues and opportunities;
- An analysis of planning and travel data from the 2042 Planning Sheet and a DM run of the ERM for 2042 provided insights into future travel demand and network capacity constraints; and
- A review of the GDA strategy objectives against which all options should be aligned.
- The above steps resulted in the preparation of an options long list to serve demand along key movement corridors within and to/from the study area. Some of these options were developed in advance of the detailed quantification of demand being established. These are set out below.

Movement corridor	Option
Internal Study Area	Bus route from Lissenhall site to Metro Stop
	Bus route from Estuary site to Metro Stop
	Bus route from Oldtown-Mooretown site to Metro Stop
	Orbital Study Area local bus service
	Segregated cycle and walking route network
Study Area to Swords	Bus service to Swords town centre
	Segregated cycle lane via R132
Study Area to St Margaret's / north Blanchardstown	Bus service to St Margaret's / north Blanchardstown
Study Area to Airport	Bus priority off M1
	Bus service to Airport
Study Area to Airport / City Centre	M1 bus service AM frequency increase
	R132 bus service AM frequency increase
	Cycle measures to complete GDA Cycle Network gaps
	Park & Ride facility at Estuary Metro Stop
Additional 'without Metrolink' scenario	
Study Area to City Centre	High capacity PT route to City Centre
	Bus route from study area to Malahide DART station

Movement corridor	Option
	Segregated cycle facilities from study area to DART station

Options Assessment

Analysis was undertaken to estimate the level of public transport demand along the key radial movement corridor (Study area – Swords – Airport – city centre) if certain levels of mode shift from car were to occur. This analysis was intended to provide an indicative level of demand to help inform the options development and assessment process, in terms of level of provision required. However, given the assumptions of the Planning Data, and the lack of transport infrastructure in the area, demand was shown to be low.

The analysis established that even if a car mode shift of 75% were to be achieved (that is, 75% of journeys currently made by car were to shift to public transport), there would only be a total of 639 journeys per hour in the AM peak, in both directions, between the study area and Swords and a total of 107 journeys between the study area and the city centre. These figures include both modelled public transport demand and additional demand from shifted car trips.

Such levels of demand were too low to justify the development of new public transport interventions, including the majority of those initially identified on the options long list above. However, mindful of the possibility of higher levels of potential growth and therefore additional demand being realised in the area than that anticipated in the Planning Data, the study considered in more detail the value of extending current or proposed bus services.

The study identified that the extension of the Bus Connects 22 service (which will operate on a 15-minute weekday frequency), would provide connectivity from the study area into the wider Swords settlement and Swords town centre. Extension of the 22 service will also provide for connectivity from the study area to Dublin Airport and onwards to Dublin city centre.

The extension of the Bus Connects 22 service into the study area will also enable interchange at Dublin Airport with the N8, providing southwest orbital connectivity to serve demand towards Blanchardstown. Levels of modelled demand for this orbital movement were deemed too low to warrant the development of new public transport interventions.

This option was then assessed using a qualitative Multi-Criteria Analysis (MCA), providing a high-level assessment based on professional judgement. Building on the key themes of the Common Appraisal Framework, a set of criteria which sit within these overarching themes were developed to enable a more detailed qualitative assessment of this option to be undertaken. The criteria were based on the objectives for the Transport Strategy, as provided by the NTA.

The remaining options were considered to be complementary measures and have not been assessed as part of the multi-criteria analysis. These include the following:

- Appropriate bus priority on the R132 at pinch points to improve journey speeds, either as part of the proposed Bus Connects Core Bus Corridor programme or as a separate intervention;
- Additional frequency for bus routes along the R132 (including the Bus Connects 22 service and/or other Bus Connects services) to address areas on the route that are forecast to operate at over 85% capacity;
- Examine the potential for demand responsive services for future strategy / Local Link strategy development to serve movements from the study area to St Margaret's and onwards to Blanchardstown, noting that current levels of modelled demand do not warrant a bus spine to serve this movement;
- Consideration is given to the future introduction of an orbital shuttle bus service within the study area, linking the key residential, employment and education sites. Such a service would be a particular

priority if the Lissenhall employment lands and the Lissenhall Metrolink Park and Ride site proceed, in order to discourage short-distance car use by residents; and

- The development of a comprehensive walking and cycling network within the study area that also provides connectivity to key routes adjacent to the study area. This network should integrate with the existing GDA Cycle Network Plan in order to encourage modal shift away from car and encourage active travel – providing connectivity within the study area and onwards to Swords, the Airport and Dublin city centre.

Summary

This study has carried out a comprehensive examination of the baseline characteristic, socio-economic conditions and future potential transport requirements of the Swords study area.

However, the differences between the study area's population and employment growth anticipated in the Fingal Development Plan compared to the growth in the provided Planning Sheet data has impacted on the levels of anticipated transport demand. This has resulted in identified levels of demand that would not ordinarily warrant the development of wholesale new transport interventions / viable public transport services.

The recommendations proposed in this report for further consideration therefore are a pragmatic response to the low level of demand forecast. They would provide an intermediate solution to addressing high-car dependency and low public transport and active travel mode shares until the actual scale of growth at the site is determined and realised.

1. Introduction

1.1 Background to the study

The National Transport Authority (NTA) commissioned Jacobs Engineering Ireland Limited (Jacobs) in collaboration with Systra to complete an Area Based Study for the Swords Development Areas.

This study was commissioned in order to inform the NTA's review of the Transport Strategy for the Greater Dublin Area (2016 – 2035), which will consider the future development of the transport system in the Greater Dublin Area (GDA) for the period up to 2042. In this context, the purpose of this study is to:

- Provide a comprehensive assessment of future travel demand in the Swords Development area;
- Identify realistic potential options to meet future travel demand to and from this area, and in particular to cater for demand into Dublin City Centre and other key destinations;
- Focus in particular on options for public transport and active modes provision, taking account of emerging proposals;
- Assess potential options using a multi-criteria assessment framework; and
- Recommend options which can be taken forward for further assessment as part of the development of the revised Transport Strategy.

1.2 Overview of the study area

The Swords Development Areas study area is located 14 kms to the north of Dublin City Centre. It is bounded by the R132 to the east and by the town of Swords to its south. The study area is largely undeveloped and is currently comprised of agricultural land, although some small parcels are now in development.

Swords is identified as a Key Metropolitan Consolidation Town within the Regional Planning Guidelines Settlement Hierarchy which provide that these areas should be developed to a relatively large scale as part of the strategy for the consolidation of the Metropolitan area. The Guidelines define a population range of 40,000 to 100,000 for Metropolitan Consolidation Towns and identify their economic function as a main attractor for major investment. Between the censuses of 2011 and 2016, the population of Swords increased by 6,000 to 43,000, making it one of the fastest growing towns in Ireland.

Swords sits within the local authority boundary of Fingal County Council (one of the four Dublin Metropolitan local authorities). Fingal comprises 22% of the total Dublin population. It has one of the youngest populations in the country, with an average age of 34.3 in the 2016 census.

Swords is strategically located close to the M1 motorway and the DART heavy rail line. It is also on the proposed route of the MetroLink rail line, as well as being close to Dublin Airport. Therefore, Swords has the potential to continue to enhance its strategic importance as a key employment and residential location in its own right, factors which (in addition to its proximity to Dublin), are likely to attract further population growth from workers and young families.

The study area, as defined by the NTA are shown in the Figures below.



Figure 1.1: Swords study area (wider context)

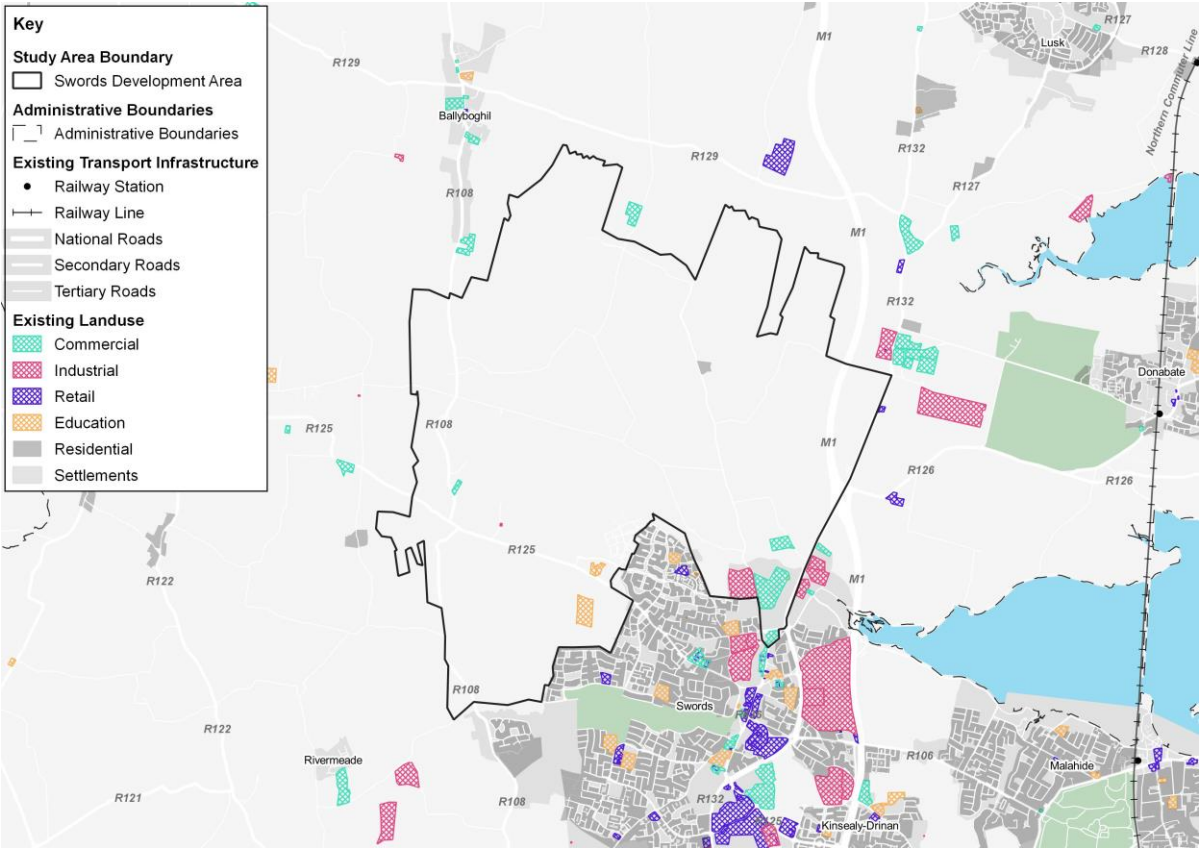


Figure 1.2: Study area overview

1.3 Study methodology

The methodology for this study is based on the Area Based Transport Assessment (ABTA) process, which has been developed by both the NTA and Transport Infrastructure Ireland (TII). This approach ensures that movement and accessibility of all forms, across all modes of travel, is considered in the development of areas at a local level. The ABTA approach has been adapted for the purposes of this study comprises the following key steps:

- Policy Context – understand the planning and transport policy context within which this study sits;
- Baseline Assessment – provide a clear understanding of the existing spatial characteristics, land uses, transport conditions and constraints in the study area;
- Establish Context – understand the future growth proposals for the study area as well as future travel patterns which proposed transport options need to serve;
- Options Development and Assessment – identify high-level transport options to serve demand in the study area and assess them via a multi-criteria analysis against the objectives of the study; and
- Final Summary – present the options to be taken forward and investigated further.

1.4 Report structure

This report is comprised of the following chapters:

- Chapter 2 – Policy context
- Chapter 3 – Baseline assessment;
- Chapter 4 – Future context;
- Chapter 5 – Options development;
- Chapter 6 – Options assessment; and
- Chapter 7 – Summary.

2. Policy Context

This section provides a comprehensive review of existing national, regional and local level legislation, policy, and guidance relevant to this study. It examines plans, policies and objectives at all levels in order to provide the broad context for this area study. It therefore frames the development of the study and provides a context for the identification of interventions which align with wider policy goals.

2.1 National policy

2.1.1 Project Ireland 2040 - National Planning Framework

Project Ireland 2040 was adopted by the Government in February 2018 and includes two elements:

- National Planning Framework (NPF) - shaping development in economic, environmental and social terms to 2040; and
- National Development Plan (NDP) - setting out the investment priorities that will underpin the NPF from 2018 to 2027.

Project Ireland 2040 provides the framework for future development and investment in Ireland and is the overall Plan from which other, more detailed plans will take their lead, including city and county development plans and regional strategies. The NPF is a tool to assist the achievement of more effective regional development.

The objectives of the NPF, in brief, are to:

- Guide the future development of Ireland, taking into account a project 1 million in population and create 660,000 additional jobs and 550,000 more homes by 2040;
- Direct 25% of this growth to Dublin, 25% across Cork, Limerick, Galway and Waterford and the remaining 50% across key regional centres, towns and villages (as set out in the Regional Spatial and Economic Strategy (RSES) – see paragraph 2.2.1 for more details);
- Co-ordinate delivery of infrastructure and services in tandem with growth, helping to tackle congestion and quality of life issues.

The NPF represents the overarching national planning policy document and is underpinned by a series of core principles named National Strategic Outcomes (NSOs) which include:

- NSO 1 Compact Growth;
- NSO 2 Enhanced Regional Accessibility;
- NSO 4 Sustainable Mobility;
- NSO 7 Enhanced Amenity and Heritage; and
- NSO 8 Transition to a Low Carbon and Climate Resilient Society.

These principles are translated by supporting policies and actions at sectoral, regional and local level.

In relation to Dublin, the NPF requires the preparation of the Dublin Metropolitan Area Strategic Plan (part of the RSES), and notes that the identification of infrastructure required to sustain growth is a key priority of this Plan.

In relation to Dublin, the NPF itself sets a clear focus on:

- Supporting future growth by better managing growth and ensuring it can be accommodated within and close to the city. This includes a focus on underutilised land within the canals and M50 ring, and a more compact urban form.
- Enabling significant population and jobs growth in the Dublin metropolitan area, together with better management of the trend towards overspill into surrounding counties.

- There will be a requirement for significant greenfield development on sites which have good integration with the city and can be served by high capacity public transport. Some existing sites have already been designated as Strategic Development Zones (SDZs).
- Addressing infrastructural bottlenecks, improving quality of life and increasing housing supply in the right locations.

Key transport-related growth enablers for Dublin include:

- Delivering key rail projects set out in the Transport Strategy for the GDA including MetroLink, DART expansion and the Luas green line link to MetroLink;
- The development of an improved bus-based system, with better orbital connectivity and integration with other transport networks;
- Delivering the metropolitan cycle network set out in the GDA Cycle Network Plan, including key commuter routes and urban greenways; and
- Improving access to Dublin Airport, including public transport.

2.1.2 Project Ireland 2040 – National Development Plan

The NDP sets out the enabling investment to implement the strategy set out in the NPF, for the period 2018 to 2027. Under the NDP, investment in public transport infrastructure will be accelerated to support the development of an integrated and sustainable national public transport system consistent with the NPFs NSOs of Sustainable Mobility and Company Growth. Projects with allocated funding within the NDP include:

- Continued investment in bus and train fleets and infrastructure;
- The delivery of the Dublin BusConnects programme;
- The complete construction of MetroLink;
- Delivery of the priority elements of the DART Expansion Programme;
- A Park & Ride programme; and
- Cycling and walking networks in key urban areas.

2.1.3 Project Ireland 2040 – Draft National Investment Framework for Transport in Ireland (NIFTI) (2021)

NIFTI is the Department of Transport's new high-level strategic framework for prioritising future investment in the land transport network. At the time of writing, the public consultation for NIFTI is currently underway and expected to conclude in May 2021. Once published, NIFTI will replace SIFLT as the framework for future land transport investment. NIFTI is intended to ensure that transport investment is aligned with and supports the NPF and its NSOs. NIFTI outlines key investment priorities that future transport projects must align with to be considered for funding.

Priorities include:

- Decarbonisation – Recognises the fact transport accounts for approximately one-fifth of Irish greenhouse gas emissions, therefore decarbonisation is an urgent priority in the context of climate change targets;
- Protection and renewal – many of the challenges faced by the network can be addressed, at least partially, through protection and renewal. Adequate maintenance is necessary to ensure safety, make sustainable modes an attractive option, deliver connectivity and accessibility and ensure the resilience of key pieces of infrastructure;
- Mobility of people and goods in urban areas – requires prioritisation in order to facilitate compact and sustainable growth in towns and cities. Support will be given to projects that reduce urban congestion, especially through the use of sustainable mobility measures; and

- Enhanced regional and rural connectivity – through addressing priority bottleneck and network constraints as well as ensuring all parts of the country are well-served with access to major ports and airports.

This framework highlights the need for this study to identify measures to address issues such as climate change and urban congestion through modal shift and improved provision for sustainable modes.

2.1.4 Investing in Our Transport Future: Strategic Investment Framework for Land Transport (2014)

The *Strategic Investment Framework for Land Transport* (SIFLT) sets out the strategic framework to consider the role of transport in the future development of the Irish economy and estimate the appropriate level of investment required in the land transport system. The framework establishes:

- High-level priorities for future investment in land transport; and
- Key principles, reflective of those priorities, to which transport investment proposals will be required to adhere.

Priorities include:

- Achieve steady state maintenance – emphasising the importance of efficient maintenance and management;
- Addressing urban congestion – recognising that improvements to the efficiency and sustainability of urban transport systems are a key priority. The document specifically notes that this “must be guided by demand/capacity assessments and recognise the role of urban centres as key drivers of economic activity, nationally and regionally.” It goes on to say that measures should include improve and expanded public transport capacity, walking and cycling infrastructure as well as Intelligent Transport Systems to improve efficiency and capacity; and
- Maximising the contribution of land transport networks to national development.

This framework highlights the need for this study to identify measures that address urban congestion and improve the provision of sustainable transport modes.

2.1.5 Smarter Travel: A Sustainable Transport Future (2009 to 2020)

Smarter Travel: A Sustainable Transport Future presents an overall policy framework for sustainable transport in Ireland. The policy sets out a vision, goals and targets to be achieved and outlines 49 actions that form the basis of achieving a more sustainable transport future.

Smarter Travel acknowledges that continued growth and dependency on the private car is not sustainable and therefore sets an objective to promote a significant mode shift in favour of public transport, walking and cycling. A key target in this regard is to reduce the proportion of travel to work trips by car from 65% to 45%.

Key goals of *Smarter Travel* include:

- Improving quality of life and accessibility to transport for all;
- Improving economic competitiveness through maximising the efficiency of the transport system and alleviating congestion and infrastructural bottlenecks;
- Minimising the negative impacts of transport on the environment through reducing air pollution;
- Reducing overall travel demand and commuting distances in the private car; and
- Reducing reliance on fossil-fuel-based transport modes.

Please note, this policy is currently under review as part of the Sustainability Mobility Policy Review. Consultation on the review closed in early 2020. The consultation documents emphasised that the purpose of the review was to put in place a new policy which supports:

- A shift away from the private car to greater use of active travel and public transport;

- Travel by cleaner and greener transport; and
- Comfortable and affordable journeys to and from work, home, school, college, shops and leisure.

The new policy will align with the NPF and will replace the Smarter Travel policy, plus the National Cycle Network Policy Framework.

This policy highlights the need for this study to place key emphasis on identifying the interventions required to support mode shift.

2.1.6 National Cycle Policy Framework (2009 to 2020)

Ireland's first *National Cycle Policy Framework* 2009-2020's vision is that all cities, towns, villages and rural areas will be bicycle friendly. The overarching mission of the Framework is to create a strong national cycling culture to align with *Smarter Travel's* objective that 10% of all trips will be by bike by 2020.

The Framework sets out a comprehensive package of interventions – both 'hard' (planning and infrastructure) and 'soft' (communication and education) – to make cycling a convenient and safe option for everyone. The approach recommended is a hierarchy of measures, including:

- Reducing volumes of through - traffic, especially HGVs, in urban centres and in the vicinity of schools and colleges;
- Calming traffic/ enforcing low traffic speeds in urban areas; and
- Making junctions safe for cyclists and removing multi - lane one - way street systems.

A number of objectives relevant to this study include:

- Support the planning and design of urban centres to support cyclists and pedestrians;
- Improve integration between cycling and public transport to enable multi-modal travel;
- Provide secure parking for bikes; and
- Evaluate and monitor the implementation of measures.

Please note, this policy is currently under review as part of the Sustainability Mobility Policy Review (as detailed above). This policy highlights the need for this study to proactively identify the cycle infrastructure required to support future growth.

2.1.7 Building on Recovery: Infrastructure and Capital Investment (2016 to 2020)

Building on Recovery: Infrastructure and Capital Investment 2016-2020, published by the Department of Public Expenditure and Reform in 2016, presents the Government's new €42 billion framework for infrastructure investment in Ireland over the period 2016 to 2021.

The Exchequer transport capital allocation is largely framed by the recommendations and priorities set out in the *Strategic Investment Framework for Land Transport* (superseded by the *Planning Land Use and Transport Outlook 2040* in 2018). These priorities are threefold:

- Maintain and renew the strategically important elements of existing land transport system;
- Address urban congestion; and
- Improve the efficiency and safety of existing transport networks.

Under the Plan, €100 million is being committed to smarter travel and carbon reduction measures, including Greenways, to ensure that the transport sector makes a major contribution to climate change mitigation targets.

This policy highlights the need for this study to identify measures that contribute to climate change mitigation targets, whilst addressing the priorities outlined above.

2.1.8 Climate Action Plan (2019)

The *Climate Action Plan: To Tackle Climate Breakdown* was published by the Government in June 2019. The Plan identifies how Ireland will achieve its 2030 targets for reduction in carbon emissions and a pathway towards achieving a net zero emissions by 2050.

A central pillar of this plan is the role that transport can play in reducing our carbon footprint and improving air quality in our towns and cities. The plan acknowledges that the delivery of improved public transport will lead to a modal shift away from unsustainable transport choices and go a large way to the decarbonization challenge that lies ahead.

The *Climate Action Plan* sets a target reduction of 45-50% in Ireland's transport emissions by 2030. The projected increase in population and economic activity and the resulting increased travel demand from the movement of people and goods will further intensify Dublin's current decarbonisation challenge. In 2017, transport accounted for a significant proportion of Ireland's greenhouse gas emissions – approximately 20%.

This plan highlights the need for this study to identify measures that contribute to reductions in transport related carbon emissions.

Other targets in relation to transport include:

- Increasing the number of electric vehicles;
- Building the electric vehicle charging network at the rate required to meet demand;
- Require at least one recharging point in new non-residential buildings with more than 10 parking spaces;
- Raise the blend proportion of biofuels in road transport.

This plan highlights the need for this study to identify measures that contribute to reductions in transport related carbon emissions.

2.1.9 Road Safety Strategy (2013 to 2020)

The *Road Safety Strategy* set out targets to be achieved in terms of road safety in Ireland, with the primary target defined as follows:

'A reduction of road collision fatalities on Irish roads to 25 per million population or less by 2020 is required to close the gap between Ireland and the safest countries. This means reducing deaths from 162 in 2012 to 124 or fewer by 2020. A provisional target for the reduction of serious injuries by 30% from 472 (2011) to 330 or fewer by 2020 or 61 per million population has also been set.'

The Strategy goes on to state that 'the attractiveness of walking depends strongly on the safety of the infrastructure provided. Collisions involving pedestrians account for 1 in 5 fatalities annually.' It also notes that 'collisions involving cyclists account for 1 in 25 road deaths annually, and many collisions involving cyclists lead to serious head injuries.'

The Road Safety Authority (RSA) undertook a consultation on their new strategy 2021-2030, which closed in November 2020. The new strategy is proposed to have an end date of 2030 to align with the EU Road Safety Policy. The review document notes that while the long-term trend shows that roads in Ireland have become safer for road users overall, this has not been the case for all road user groups. It notes that the biggest decrease in fatalities was among pedestrians and that there were 68% fewer pedestrian casualties in 2019 compared to 2000, but that pedestrians are still the second largest fatality group, behind car occupants. The new strategy will look at how to further reduce fatalities and serious injuries and how to deal with new issues in road safety.

2.1.10 UN Convention for the Rights of People with Disabilities

In March 2019, Ireland ratified the *UN Convention on the Rights of People with Disabilities*. Article 9 of the 'UNCRPD' includes the right to transport and creating an accessible end to end journey, with the user focus central to this approach. Its focus is:

"To enable persons with disabilities to live independently and participate fully in all aspects of life, States Parties shall take appropriate measures to ensure to persons with disabilities access, on an equal basis with others, to the physical environment, to transportation, to information and communications, including information and communications technologies and systems, and to other facilities and services open or provided to the public, both in urban and in rural areas. These measures, which shall include the identification and elimination of obstacles and barriers to accessibility, shall apply to, inter alia:

Buildings, roads, transportation and other indoor and outdoor facilities, including schools, housing, medical facilities and workplaces.

Information, communications and other services, including electronic services and emergency services."

Article 9 for the first time enshrines the right to transport within Irish legislation. The focus on Usability and Accessibility has implications and opportunities across transport planning and provision, including the National Planning Framework and the way that schemes are appraised to capture wider benefits associated with ensuring this Right.

2.1.11 Other national guidance

The following national guidance has also been considered:

- Area Based Transport Assessment Guidance (ABTA);
- Design Manual for Urban Roads and Streets (DMURS);
- Healthy Ireland's National Physical Activity Plan;
- National Cycle Manual;
- Permeability: A Best Practice Guide; and
- Achieving Effective Workplace Travel Plans; Guidance for Local Authorities.

2.2 Regional policy

2.2.1 Regional Spatial and Economic Strategy for the Eastern and Midland Region (2019 to 2031)

The *Regional Spatial and Economic Strategy for the Eastern and Midland Region* (RSES) translates the objectives of the NPF at a regional level and provides a link between the NPF and local plans. Overall, it provides a framework for investment to better manage spatial planning and economic development throughout the Region to 2031, and beyond to 2040.

The RSES identifies 16 regional strategic outcomes (RSOs). Integrated transport and land use is one of these, aiming to promote best use of transport infrastructure and promote sustainable and active modes of travel. The key challenge facing the region is identified as the transition to a low carbon society. The RSES therefore identified a number of primary areas of transition – with sustainable transport systems being one of these.

Chapter 3 of the RSES sets out the growth strategy for the region which aims to:

- Support the continued growth of Dublin as the national economic engine;
- Target regional growth centres of Athlone, Drogheda and Dundalk; and
- Facilitate the growth of the Dublin to Belfast economic corridor.

Swords sits within both the Dublin City Metropolitan Area and the Dublin-Belfast Economic Corridor. The Dublin City Metropolitan Area is forecast to grow by 250,000 to 1.65m by 2031 through the delivery of large-scale strategic development, including the study area. In order to deliver compact sustainable growth, development will be focused close to high quality public transport services in tandem with supporting infrastructure. Employment sites will be focused close to existing major employers, thereby strengthening local employment and commuting patterns.

The Dublin-Belfast Economic Corridor is the largest agglomeration in Ireland, linking Drogheda, Dundalk and Newry with high quality rail and road connections. The corridor also contains Dublin, Belfast City and Belfast International Airport, and the Rosslare Europort. As key national assets, the RSES will look to protect and enhance connections to Dublin Airport and Port, as well as enhancing accessibility between the cities of Dublin and Belfast by both road and rail.

Chapter 4 of the RSES sets out the settlement strategy and hierarchy for growth up to 2031 and beyond. The RSES supports continued growth in Dublin and its suburbs and recognises the opportunity to promote public transport and active travel (considered via the Dublin Metropolitan Area Strategic Plan (MASP), as outlined in the section below).

Swords is identified as a Metropolitan Key Town within the RSES, recognised as being a large economically active town and providing a key source of employment for the surrounding catchment, with high quality transport links and the capacity to act as a growth driver to complement Dublin city and the Regional Growth Centres. The RSES provides for the sustainable and compact growth of Key Towns such as Swords by focusing on the development and regeneration of identified brownfield sites to consolidate the footprint of the town, as well as the sequential development of adjoining sites.

The RSES proposes that the *Sustainable Swords Project* will consolidate and strengthen Swords historic town centre through the delivery of an enhanced public realm and healthy placemaking strategy in the town centre (including Main Street and the Swords Cultural Quarter). The residential development of Swords is mainly directed to the western and southern areas of the town, with longer term development focused on Lissenhall which is on the northern side of Swords within the study area. A smaller site, Lissenhall East, is adjacent to the main Lissenhall site, but falls immediately outside of the study area.

The RSES identifies that the strategic landbank of Lissenhall offers the opportunity for the development of a well-connected mixed-use urban district on the northern side of Swords, capitalising on the proximity to the proposed Metrolink rail line corridor. The Lissenhall site is also recognised as the location for a strategic employment node, providing high quality jobs for residents and building on Swords' proximity to the Airport and Dublin city, whilst at the same time protecting access to the Airport as the country's intercontinental gateway.

MetroLink is a proposed high-capacity, high-frequency rail line running from Swords to Charlemont, linking Dublin Airport, Irish Rail, DART, Dublin Bus and Luas light rail services, creating fully integrated public transport in the Greater Dublin Area. As well as linking major transport hubs, MetroLink will connect key destinations including Ballymun, the Mater Hospital, the Rotunda Hospital, Dublin City University and Trinity College Dublin. Much of the 19 km route will run underground and is forecast to carry up to 50 million passengers annually. It will cut journey times from Swords to the city centre to 25 minutes, which at peak times can be up to 50 minutes currently.

The new Metrolink line, in conjunction with the Bus Connects, Park and Ride programmes and delivery of electric vehicle charging points is identified in the RSES as being crucial for the future sustainable development of Swords. In addition, a programme of high-quality infrastructure improvements to support active and sustainable travel should improve the permeability and accessibility by providing direct access routes to local destinations and public transport hubs in order to support a transition to a low carbon transport system.

Dublin Metropolitan Area Strategic Plan

Chapter 5 of the RSES is the *Metropolitan Area Strategic Plan* (MASP) for Dublin. This sets out a strategic planning and investment framework for the Dublin metropolitan area covering the short term (to 2026), medium term (to 2031) and longer term (to 2040). It includes a vision for future growth to 2031 including large scale development opportunities and a sequence of infrastructure priorities. It envisages a 250,000 increase in population of the metropolitan area between 2016 and 2031.

The vision is underpinned by a spatial framework in line with the overall settlement strategy focussed on:

- Consolidation of Dublin City and suburbs;
- Key towns of Swords, Maynooth and Bray; and
- Planned development in strategic development areas in Donabate, Dunboyne, Leixlip and Greystones.

The MASP includes a number of guiding principles for development, with a key focus on integrated transport and land use, focussing growth on public transport corridors and nodes. It aims to see 50% of all new homes within or adjoining the existing built up area in Dublin and 50% in other settlements. To unlock development capacity in strategic development areas, the MASP identifies sequencing of enabling infrastructure and directs the cross sectoral investment required to deliver development.

The MASP identifies five strategic development corridors, and for each, highlights the:

- Population capacity (as opposed to targets) in the short, medium, and longer term;
- The strategic residential development opportunities;
- The strategic employment opportunities;
- The infrastructure required to enable this development in the short to medium and medium to longer term.



Swords is on the MetroLink-Luas corridor, which recognises the potential impact that both the delivery of MetroLink post-2027, and the proposed upgrade to the existing LUAS Green Line will have on unlocking long term development capacity around Swords-Lissenhall, subject to the protection of Dublin Airport capacity and accessibility.

RPO (Regional Policy Objective) 5.2 and 5.3 specifically deal with sustainable transport:

- RPO 5.2 – Support the delivery of transport projects including MetroLink, DART and LUAS expansion programmes, BusConnects and the Greater Dublin Metropolitan Cycle Network and ensure that future development maximises the efficiency and protects the strategic capacity of the metropolitan area transport network, existing and planned. The MetroLink programme in particular will be key to supporting and enabling the growth aspirations of Swords-Lissenhall, providing a high quality and

sustainable transport link to Dublin city centre as well as connections to the employment opportunities afforded at the Airport and surrounding sites.

- RPO 5.3 – Future developments in the Dublin Metropolitan Area shall be planned and designed in a manner that facilitates sustainable travel patterns, with a particular focus on increasing the share of active modes (walking and cycling) and public transport use and creating a safe attractive street environment for pedestrians and cyclists. In Swords this will focus on the development and delivery of cycling and walking infrastructure intended to improve the permeability of the town and open up travel options to and from key development areas, large trip generators and public transport nodes.

Growth on the Metrolink corridor will be brought about through the sequential development of residential sites within Swords as well as the development of the mixed-use urban district at Lissenhall to the north of Swords. This will be complemented with Airport-linked employment as well as employment sites linked to the development of Metrolink. Both residential and employment sites will be facilitated through improved public realm as well as public transport and active travel facilities, limited road improvements and an upgrade to Bus Connects services.

The MASP also recognises that “Facilitating modal shift to more sustainable transport options, including walking and cycling is a key element in promoting better traffic management and climate change strategies in the metropolitan area.” It also supports the NTA Greater Dublin Area Cycle Network Plan.

2.2.2 Transport Strategy for the Greater Dublin Area (2016-2035)

The Transport Strategy for the Greater Dublin Area (2016-2035) provides a framework for the planning and delivery of transport infrastructure and services in the Greater Dublin Area (GDA) up to 2035. It provides a transport planning policy around which other agencies involved in land use planning, environmental protection, and delivery of other infrastructure such as housing, water and power, can align their investment priorities.

The GDA’s transport infrastructure must be planned for and invested in on the basis of the following:

- Assumed sustained economic growth;
- Substantial population growth;
- Full employment;
- That no one is excluded from society, by virtue of the design and layout of transport infrastructure and services or by the cost of public transport use; and
- That the environment in the GDA is protected and enhanced.

The Strategy set out high-level proposals for the walking, cycling, public transport and road networks, as well as parking management measures and other supporting measures for the entire GDA. This study looks to update work done as part of this strategy with a new forecast year of 2042.

Key measures for the sustainable transport network of relevance to the study area are outlined briefly below.

Rail:

- Implement the DART Expansion Programme to provide high frequency electrified DART services to Drogheda (Northern Line), Hazelhatch (Kildare Line), Maynooth and M3 Parkway (Maynooth / Sligo Line). This also includes the DART Underground Project to provide an underground rail link through the city centre.
- Provision of new stations in development areas and upgrading existing stations.
- Metro North – upgrading existing light rail to metro standard to provide a high frequency, high capacity and high-speed link from south of the city centre to Swords via Dublin Airport;

Bus

- The BusConnects programme to improve bus and sustainable transport services;
- Development of some corridors as Bus Rapid Transit (BRT) routes.

Cycling and Walking

- Delivering the proposed cycle network outlined in the *GDA Cycle Network Plan*;
- Providing sufficient cycle parking at key destinations and interchange points;
- Developing strategic pedestrian network plans in liaison with Local Authorities;
- Reducing waiting times at pedestrian crossings and enhancing key strategic pedestrian routes in urban centres.

The GDA Transport Strategy breaks down the Greater Dublin Area into eight corridors, with Swords located in Corridor A (running from Drogheda – Balbriggan – Swords – Airport – North Inner City – to Dublin City Centre).

The Strategy notes that this corridor has amongst the **highest forecast increase in transport demand** out to 2025 but with limited scope for radial road capacity increases. It therefore proposes a package of sustainable transport interventions designed to meet that travel demand in the medium to long term.

BusConnects Dublin

BusConnects is the NTA's programme to improve bus and sustainable transport services. The programme has nine key elements:

- The Core Bus Corridor – 16 radial routes into the city centre;
- Dublin Area Bus Network redesign;
- A low emission bus fleet;
- State of the art ticketing;
- Cashless payment systems;
- Simplifying the fare structure;
- Park & Ride;
- Improvements to bus livery;
- New bus stops and shelters and improved information.

At the heart of this strategy is the proposed new Metrolink line which will run from the centre of Dublin out to Lissenhall, with stops at Estuary Park & Ride (which is within the study area) and Seatown (which is adjacent to the study area).

Whilst the proposed Metrolink is a long term proposal, travel demand on the Swords-Airport-City Centre in the medium term is to be addressed through the development of the BusConnects core bus network which will provide reliable high capacity, high frequency bus services on corridors with high levels of latent demand.

2.2.3 Greater Dublin Area Transport Strategy Review

The NTA is required by legislation to review the Transport Strategy for the Greater Dublin Area every six years. The ongoing review will assess the implementation of the current plan and look to produce an updated strategy which will set out the framework for investment in transport infrastructure and services, through to 2042. The NTA aims to complete the review by the end of 2021, so that the new strategy can be approved by the Minister for Transport in early 2022.

The review process recognises that the following are particular challenges and considerations for the new strategy:

- Climate change and the environment – recognising the need for transport to lead the way towards a net zero emissions future.
- Growth and change – ensuring the public transport investment aligns with changes in the location of population, jobs and schools.

- Health and quality – recognising that transport can open up opportunities and have a positive impact on health and wellbeing.
- The economy – with effective public transport being a major driver of economic activity.

This transport study will feed into the review process currently being undertaken by the NTA.

2.2.4 Greater Dublin Area Cycle Network Plan

The *Greater Dublin Area Cycle Network Plan* was adopted by the NTA in early 2014 and is identified as a key future growth enabler for Dublin in the NPF.

The plan forms the strategy for the implementation of a high quality, integrated cycle network for the GDA. This involves the expansion of the urban cycle network from 500km to 2,480km, comprising a mix of cycle tracks and lanes, cycle ways and infrastructure-free cycle routes in low traffic environments. Within the urban network this will consist of a series of routes categorised as follows:

- **Primary** – main cycle arteries that cross the urban area and carry most cycle traffic – target quality of service (QoS) of two abreast plus overtaking width = 2.5m
- **Secondary** – link between principle cycle routes and local zones – target QoS of single file plus overtaking width = 1.75m
- **Feeder** – cycle routes within local zones and/or connection from zones to the network levels above.

More information with regard to the GDA cycle network in relation to the study area can be found in Chapter 3.

2.3 Local policy

A number of local policy documents are relevant to the Swords study area. Local policy documents have been reviewed to inform growth locations and future transport developments. The following documents of relevance to the study area are summarised below, including a number of Local Area Plans and Masterplans:

- Fingal County Council Development Plan 2017-2023
- Fingal County Council Development Plan 2023 – 2039 Strategic Issues Paper
- Fingal County Council Climate Change Action Plan 2019 – 2024
- South Fingal Transport Study (2019)
- Your Swords, An Emerging City, and Strategic Vision 2035
- Oldtown-Mooretown Local Area Plan 2010 – 2015, extended to 2020 (2010)
- Estuary West Masterplan (2019)
- Lissenhall Development Area (referenced in the FCC Development Plan 2017 – 2023)
- Lissenhall East Local Area Plan (under development)

Local development areas relevant to the study area are also summarised in the figure below.

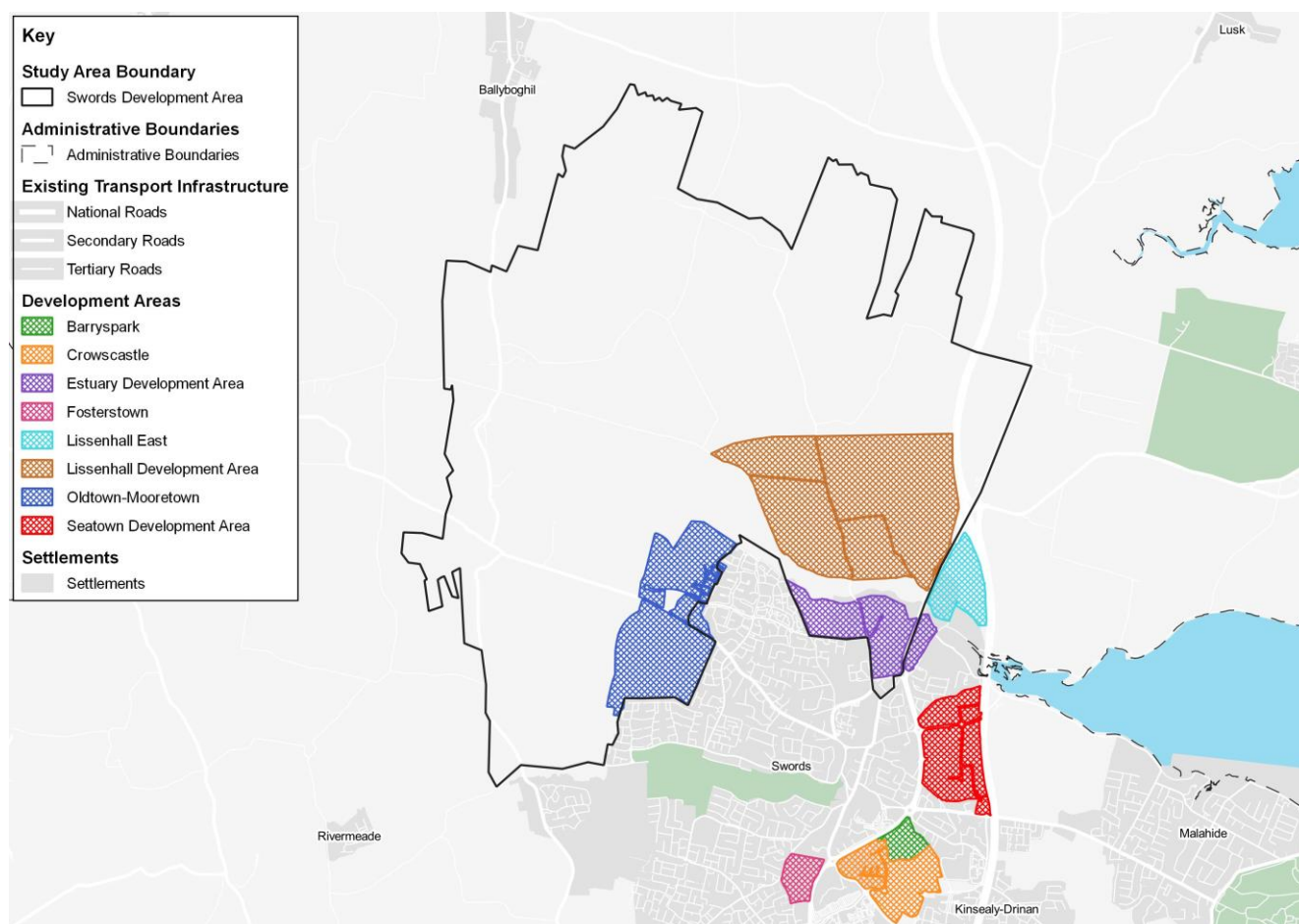


Figure 2.1: Development areas in and near to the study area

2.3.1 Fingal County Council Development Plan 2017-2023

The Fingal Development Plan 2017-2023, adopted in 2016, sets out the Council's proposed policies and objectives for the development of the County over the Plan period. The following objectives are particularly relevant to this study:

- Promote and facilitate the long-term consolidation and growth of the County town of Swords as provided for in the Swords Strategic Vision 2035.
- Safeguard the current and future operational, safety, and technical requirements of Dublin Airport and provide for its ongoing development within a sustainable development framework of a Local Area Plan.
- Promote enterprise and employment throughout the County, particularly in the growth centres of Swords, Blanchardstown and Balbriggan and work with the Dublin Local Authorities to promote the Dublin City Region as an engine for economic growth for the Region and the country.
- Seek the development of a high quality public transport system throughout the County and linking to adjoining counties, including the development of the indicative route for New Metro North and Light Rail Corridor, improvements to railway infrastructure including the DART Expansion Programme, Quality Bus Corridors (QBCs) and Bus Rapid Transit (BRT) systems, together with enhanced facilities for walking and cycling.
- Promote, improve and develop a well-connected national, regional and local road and public transport infrastructure system, geared to meet the needs of the County and the Region, and providing for all road users, prioritising walking, cycling and public transport.

Overall, the development plan aims to deliver 49,541 new homes across the county as part of its Core Strategy by 2026. The development plan identifies the arrival of MetroLink as a key driver for both economic and population growth of Swords and proposes the Lissenhall area to be developed as a sustainable, vibrant mixed-use urban district on the northern side of the current settlement. Swords, it notes will become increasingly well connected economically and culturally to Dublin and the Airport, and the economic growth that this will generate has the potential to pose a number of challenges for the area, including the provision of sustainable housing, connectivity and accessibility to key locations for both new and existing communities, and the provision of high quality open spaces and landscape.

Swords is identified as a “Primary Economic Growth Town” under the Regional Planning Guidelines. This means that it has been identified as a key driver within the core of the Greater Dublin Area for sustained international and regional economic growth and development and a key location within the Dublin-Belfast Economic Corridor. The development plan supports a long-term vision to establish Swords as a sustainable city with a commensurate level of jobs, services and infrastructure to support a potential population of 100,000.

Such a population target could not be met within the current development envelope and the Plan notes that Lissenhall, containing as it does the proposed Estuary MetroLink stop and lying close to the M1 and R132 is well placed to benefit from high levels of strategic connectivity whilst meeting the Council’s vision for a sustainable city for Swords. It is envisaged that the development area could accommodate a significant mixed used district, providing for significant levels of employment as well as approximately 6,000-7,000 residential units, subject to the development of a Local Area Plan setting out the sequential and sustainable release and development of land.

In terms of transport the following Fingal Development Plan (FDP) policies are particularly relevant to this study:

- **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 MT05** Integrate land use with transportation by allowing higher density development along higher capacity public transport corridors.
- **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 Strategic Environmental Assessment (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 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 MT33** Facilitate and promote the enhancement of bus services through bus priority measures including bus lanes and bus gates.
- **Objective MT34** Work with public transport providers and State agencies to create bus connectivity between Dublin 15 and Dublin Airport/Swords.

The FDP also identified further transport network improvements which would be required, in addition to MetroLink, to enable the sustainable growth Swords in line with the projected growth forecast; these include:

- Implementing the GDA Cycle Network Strategy

- High quality bus to connect outer areas (with specific mention of Oldtown & Mooretown) to MetroLink and to the Town Centre.
- The Swords Western Relief Road and the Western Distributor Road (incl. the Ward River Valley crossing) to enable the full development of Swords Strategic Vision.
- Improvements to the pedestrian and cycle networks such as “green-way” routes through parkland setting/corridors, and “Bike & Ride” to MetroLink, are mentioned.
- The potential for bus priority and enhancements to the pedestrian environment on Main Street is highlighted.

2.3.2 Fingal Development Plan 2023 – 2039 Strategic Issues Paper

The *Fingal Development Plan 2023 – 2039* is currently being developed, with the Council seeking the public’s view on a Strategic Issues Paper¹, which presents an overview of the main planning and development issues in Fingal and seeks to encourage public debate on what broad issues should be considered in the new Plan.

This Paper highlights Movement & Connectivity as a key theme, and states that the priority focus for the next Development Plan will be reduce the negative impacts of car use in tandem with appropriate land use policies which will promote and facilitate effective travel options. It also identifies a latent demand for more public transport and active travel infrastructure, thereby allowing people to make more sustainable transport choices in their daily travel patterns. The key issues for the next Development Plan noted are:

- Integration of land use planning and transportation.
- Addressing climate change.
- Facilitating the future growth of Fingal that is less transport intensive / more sustainable.
- Priority for active and sustainable transport and a high level of public transport connectivity
- Enhancement of the public realm through traffic management and good design
- Protection of strategic corridors
- Sustaining rural communities.

Consultation on the Strategic Issues Paper took place between 12th March 2021 and 12th May 2021. The Chief Executive’s Report on the submissions received are now being prepared for issue to the Elected Members for their consideration.

2.3.3 Fingal County Council Climate Change Action Plan 2019 – 2024

Published in 2019, the *Fingal County Council Climate Change Action Plan* sets out the Council’s approach to the challenges posed by climate change adaption and mitigation. The Plan focuses on five main areas of action and sets out proposals to reduce greenhouse gases as well as improve energy efficiency, raise public awareness and provide greater levels of resilience to climate change. The Plan covers:

- Energy and Buildings,
- Transport,
- Flood Resilience,
- Nature-Based Solutions and
- Resource Management

The Plan notes that cycling and walking accounts for 39% of all trips in Fingal, with a target to increase this to 50% through the better integration of land use and transportation. It endorses engagement with key

¹ Source: <https://www.fingal.ie/sites/default/files/2021-03/fingal-development-plan-strategic-issues-final.pdf>

stakeholders to improve transportation in Fingal (including the NTA, Dublin Bus, Irish Rail and Bus Éireann). This includes the provision of high-quality passenger facilities to accommodate increased patronage as a result of service improvements arising from enhancement of the light rail and bus network.

The Plan also reiterates the commitment set out in the FDP for the development of Swords as a sustainable town, in part through the implementation of an integrated transport strategy comprising significant public transport services (including BusConnects and Metrolink) and strategic pedestrian, cycling and road infrastructure.

2.3.4 South Fingal Transport Study (2019)

Fingal County Council commissioned SYSTRA Ltd. to undertake the *South Fingal Transport Study*. This was a study of the transport network in South Fingal recommending key transport infrastructure and outline levels of land use development that would enable its sustainable growth leading up to the delivery of Metrolink and beyond. The study looked to define the critical road, public transport and active travel schemes for implementation over the coming decade, to define the infrastructure necessary to meet travel demand in advance of Metrolink, and the most appropriate ways to ensure that South Fingal was integrated in a sustainable way to both Dublin City and Dublin Airport.

The Study highlighted the benefit the county is set to receive from the development of Metrolink and Bus Connects and their impacts in terms of improving the areas strategic accessibility. It also noted that in the period before the delivery of these schemes, the population growth in Fingal, allied by increase in passenger growth at Dublin Airport, will place continued pressure on the strategic road network.

In that context, the study concluded that the Swords Western Distributor Road would form an important link from north west Swords to the future Estuary MetroLink station. It proposed that where it joined existing roads (such as Rathbeale Road and Glen Ellan Road), traffic speed reduction measures should be employed. Forecasts of traffic flow on the road support its design as a low capacity road and its full extension to Brackenstown Road/Ward River Valley should be considered as a pedestrian and cycle only route. Its northern extension, however, should be constructed to enable access to the Estuary Park and Ride Station, particularly to serve active modes. The above-mentioned proposed road infrastructure is shown in the Figure 2.2 below.

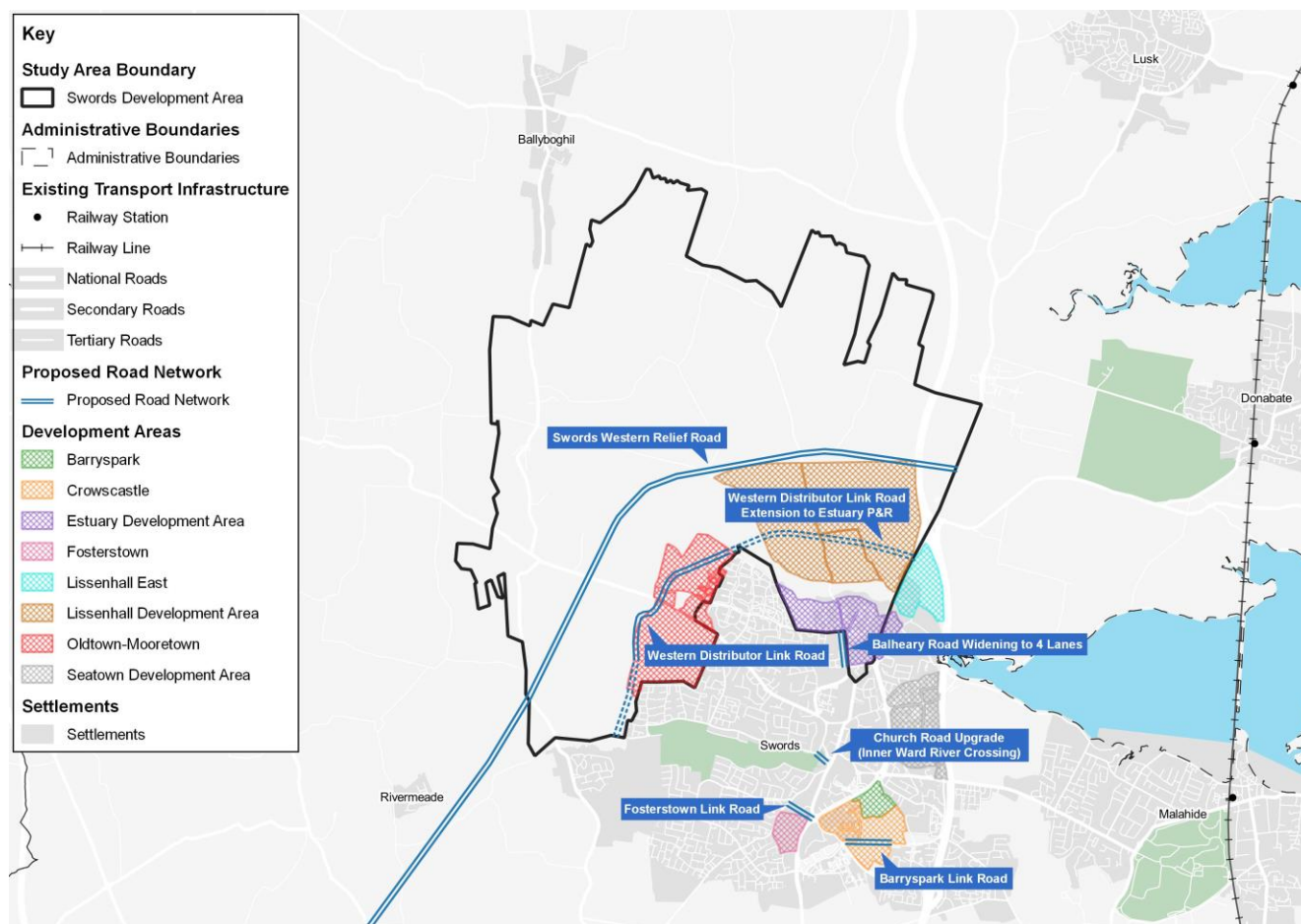


Figure 2.2: Proposed Swords Western Relief Road and other proposed link roads within the study area

In Swords, the study identified that whilst there were a relatively large number of trips that were made by cycling and walking, the current infrastructure did not cater for those that may want to use active modes rather than the private car. It concluded therefore that levels of cycling were suppressed in the town when compared to the rest of Dublin and highlighted a number of proposed routes that form part of the NTA Greater Dublin Area Cycle Network Plan that would increase the appeal and safety of cycling and walking in Swords and that would reduce traffic levels within the town centre.

The Study also noted that with the arrival of Metrolink, the town centre would become a hub for many more bus and metro services to both the Airport and City Centre, and that there will need to be a rebalancing of road space provision to enable more access by sustainable modes.

2.3.5 Your Swords, An Emerging City, and Strategic Vision 2035

The *Swords Strategic Vision 2035* sets out a blueprint for the development of the town and promotes opportunities to strengthen the structure and facilities within the town, including housing, local employment, transportation and retail and civil facilities. The Strategic Vision notes that “[t]he transportation network in Swords is under significant pressure, largely as a result of the dispersed development pattern in the area and the high dependency on employment outside of the Town, exacerbating commuting outwards”.

In addition to the delivery of Metrolink, the Vision argues for a Swords Western Ring Road to run along the western town boundary which, it says would greatly enhance traffic mobility within the town, reduce congestion and reduce traffic on the M1 and on sections of the M50 as well as improving access to the Airport. It also proposes an Inner Ward River Crossing at some point west of the River Valley residential area. This crossing was considered necessary to open up access to the Oldtown-Mooretown development, and would form part of the

proposed Western Distributor Road which would pass the development sites and link up the existing and proposed residential areas of the town

2.3.6 Oldtown-Mooretown Local Area Plan 2010 – 2015, extended to 2020 (2010)

The *Oldtown-Mooretown Local Area Plan* covers the section within the south of the study area. The site is immediately adjacent to existing housing stock and the area is identified for residential development, as illustrated on the figure below.

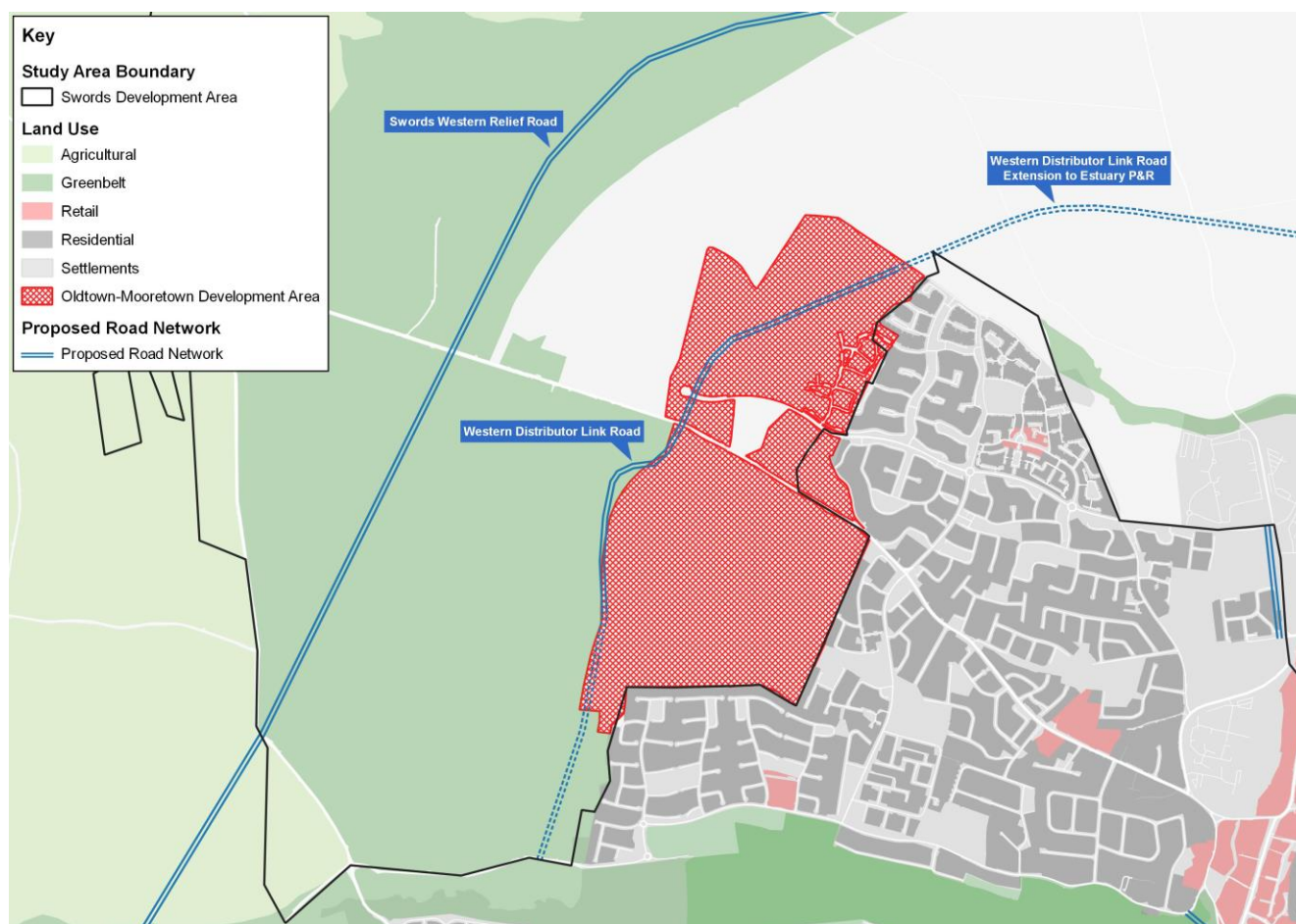


Figure 2.3: Oldtown-Mooretown Local Area Plan lands

The Local Area Plan comprises 111.5ha of undeveloped land, with a net development area of 82ha. The Plan area has the potential to accommodate 3,400 units, with a density of 35-50 dwellings per hectare and a population of around 10,000. The Plan proposes the following:

- The development of a Western Distributor Link Road running north-south and acting as the main development spine of the site, with a network of existing and new streets linking east-west from this route.
- Development of pedestrian and cycling routes with 'green corridors' to complement the vehicular network, with linkages to a number of local parks school sites and local centres, movement east towards Swords town centre/MetroLink stops.
- Enhancement of existing junctions and roads external to the lands.
- Redesign of Glen Ellan Road as a main urban street within the lands and design of a main street within the Mooretown lands.
- Provision of a quality bus route to transport those living in northwest Swords into the Town Centre.

2.3.7 Estuary West Masterplan (2019)

The *Estuary West Masterplan* incorporates approximately 19.4ha of land to the north of Swords, bound by Glen Ellan Road to the south, Jugback Lane to the west, Balheary Road to the east and the Broadmeadow River to the north and is part of the Estuary development area shown in Figure 2.2. The Masterplan looks to provide between 90-100 residential units of a varying range of typologies with some houses and a majority of apartments. Residential parking is to be provided underground (or undercroft for the houses), with visitor parking provided at ground level.

The quantum of commercial floorspace proposed within the Estuary West Masterplan area could potentially support up to 1,500 jobs. It is currently envisaged that this floorspace will take the form of high-quality office, medical or R&D space. The quantum of commercial floorspace proposed at this location should be sufficient to create a small cluster of complementary businesses, with both larger and smaller businesses co-locating.

In addition to residential and employment land, a new primary school for circa 400 pupils is proposed in the centre of the site, next to a new local centre providing retail services.

The Masterplan seeks to facilitate strong pedestrian and cyclist connections, as well as strong connections to the town centre and public transport infrastructure. Car dominance will be discouraged, and active travel promoted. Pedestrian and cyclist connections have been incorporated to facilitate access Swords Main Street.

2.3.8 Lissenhall Development Area (referenced in the FCC Development Plan 2017 – 2023)

The Fingal Development Plan states that a strategic land bank providing for the development of a sustainable, vibrant, attractive and well-connected mixed-use urban district on the northern side of Swords has been identified at Lissenhall. These lands would be the subject of an approved Local Area Plan and be developed over the period of several Development Plans i.e. over the next 20 to 25 years.

Lissenhall is an expansive, low-lying, rural landscape comprising approximately 240 hectares. The area, in broad terms, is bound by the M1 and R132 to the east, the Broadmeadow River to the south and south west, and the proposed route of the Swords Western Ring Road to the north. These lands are adjacent to the M1 and Belfast-Dublin corridor.

It is envisaged that this area could accommodate the development of a significant mixed-use urban district providing for a significant level of employment in addition to approximately 6,000 – 7,000 residential units. A Local Area Plan will be prepared for these lands to provide a framework for development.

2.3.9 Lissenhall East Local Area Plan

Lissenhall East lies just outside of the study area but is a potentially significant generator of traffic and trips. The 27.7ha site, which is located at a key intersection defining the northern gateway of the town and bound between the R132 to the east and the M1, has been zoned as 'HT' High Technology with an objective to "provide for office, research and development and high technology/high technology manufacturing type employment in a quality built and landscaped environment.

An Issues Paper² for the *Lissenhall East Local Area Plan* (LAP) was issued in November 2017. It noted that the LAP lands are considered to have the potential to attract significant, high quality employment to Swords, capitalising on the growing local and young population, proximity to Dublin Airport, the city centre and in the future being served by upgraded public transport, including MetroLink.

² Source: https://consult.fingal.ie/en/system/files/materials/8359/Issues%20Paper_Lissenhall%20East%20LAP.pdf.

The paper noted that the provision of public transport and roads, linkages to Swords and the future provision of walkways and cycle tracks to serve the area will be required. Issues posed in relation to Movement & Transportation included the following:

- How can we promote the use of public transport, cycling and walking? Are there particular locations within the LAP area that are suitable for pedestrian and cycling facilities?
- What quantum of car parking should be provided?
- What public transport provisions are required to support employment generation?
- What measures are needed to create safe, high quality route for people to move around and to do business?
- Where should access points to the LAP lands from surrounding areas be reserved and where can existing linkages be improved?
- How can we ensure development integrates with planned improvements to the surrounding road infrastructure and public transport upgrades including the Western Distributor Road, Metro North, BRT Swords to City Centre and QBC on the R132?

The Lissenhall East LAP is now currently under development and it will envisage that it will primarily accommodate employment uses.

3. Baseline Assessment

3.1 Description of the study area

3.1.1 General

The Study Area is primarily comprised of agricultural land. The topography of the site is mildly hilly, with the Lissenhall development site varying around 0-10 metres above sea level, and the study area sloping upwards in a south west direction to reach a maximum height of around 80 metres above sea level.

Two rivers run through the study area. The Broadmeadow river runs between the Lissenhall site to the north and the Oldtown-Mooretown and Estuary west, central and east sites to the south. In addition, the Ward river (the majority of which is outside of the study area), runs through the Estuary West development site before it joins the Broadmeadow and empties out into the Swords Estuary, and from there, the Irish sea.

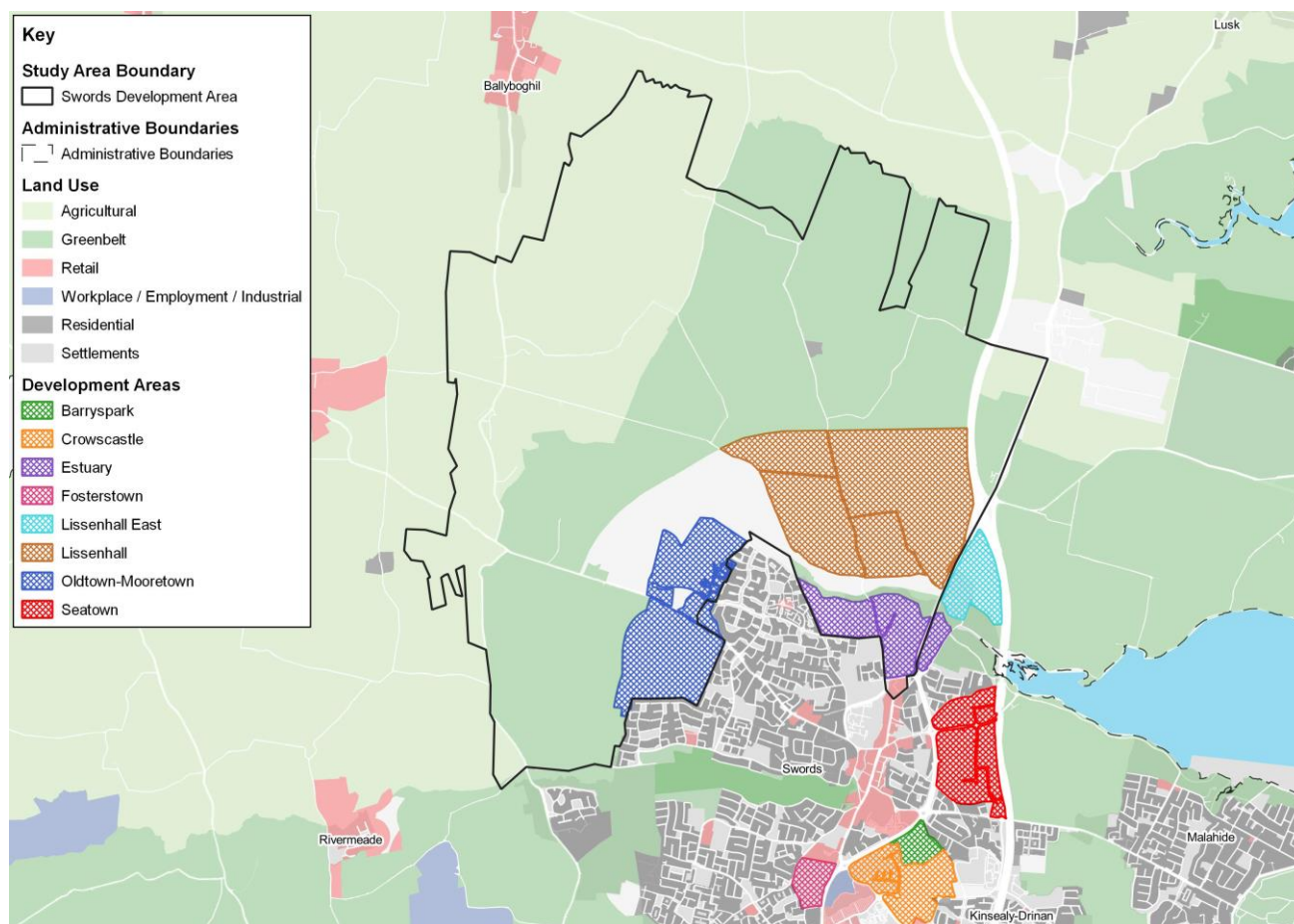


Figure 3.1: Study area - current land use and development areas

Whilst the majority of the site is open fields, there are some pockets of development and some locations immediately adjacent to the study area would act as traffic generators / trip attractors. These include the Swords Business Park which is located outside the study area to the north east, just off the M1 and next to the R132. The Business Park provides spaces for both office and light industrial use and hosts a number of major employers for the town, including an An Post sorting office and Hertz office (which is the largest employer) in Swords. The Estuary Central development site currently includes the Fingallians GAA club, the Balheary Industrial Park and the Swords Business Campus.

There are four schools currently located within the study area, which are described in more detail in section 3.2.

Development sites within and adjacent to the Study Area

As outlined in the previous Chapter, the Fingal Development Plan identifies a number of parcels of land within the study area for specific development types.

The primary site is Lissenhall in the north of the study area. Lissenhall is an expansive, low-lying, rural landscape comprising approximately 240 hectares. The area, in broad terms, is bound by the M1 and R132 to the east, the Broadmeadow River to the south and south west, and the proposed route of the Swords Western Ring Road to the north. These lands are adjacent to the M1 and Belfast-Dublin corridor. The site is earmarked for high-density mixed-use employment activity as part of the Dublin-Belfast Economic Corridor.

The site is on the route of the proposed Metrolink alignment, with the line proposed to terminate at the Estuary Park and Ride station which is within the study area. The alignment for the Western Distributor Link Road is also proposed to serve the site, connecting on to the R125 South of the Estuary Roundabout and arcing across the bottom of the site across to the Oldfield-Mooretown development area.

To the south of Lissenhall and the Broadmeadow River are the sites of Estuary West, East and Central, and Watery Lane. To date, only the Estuary West Masterplan has been completed, which anticipates a predominantly residential area with a new primary school for c400 pupils centrally located and 18,000-20,000sq.m of employment land for up to 1,500 people to the south east. The site was expected to be serviced by the Estuary MetroLink stop, but under the most recent alignment this has moved north into the Lissenhall development area. The site is expected to have good levels of access for cyclists and walkers including connections onto Glen Ellan Road and across to the R132.

Within the west of the study area is the proposed residential development site of Oldfield-Moorefield. Proposals within the current Local Area Plan show a development with the potential to accommodate 3,400 units, at a net density of 35-50 dwellings per hectare, resulting in a population of circa 10,000. This site is to the west of Swords, adjacent to the existing housing stock and is bisected by the Rathbeale Road. Traffic capacity on Rathbeale Road is limited and there are currently no bus priority facilities. The Oldfield-Moorefield Local Area Plan contains proposals for a spur to the Quality Bus Corridor which will connect west Swords to Swords Main Street and the Metro North/Swords QBC corridor.

3.1.2 Transport network and services

National road network

The national road network provides the basis for Dublin's wider national-level and inter-regional connectivity. There is one Motorway/National road in proximity to / within the study area, namely:

- The M1 Motorway, which runs to the east side of the study area, with Junction 4 abutting it next to the Lissenhall site. The M1 runs from Dublin north via Swords, Drogheda, and Dundalk towards Belfast. To the south of the study area, the M1 connects to the M50 orbital motorway, providing strategic road connections to the west and south of Dublin and also providing a key link for strategic traffic to Dublin Port via the Port Tunnel.

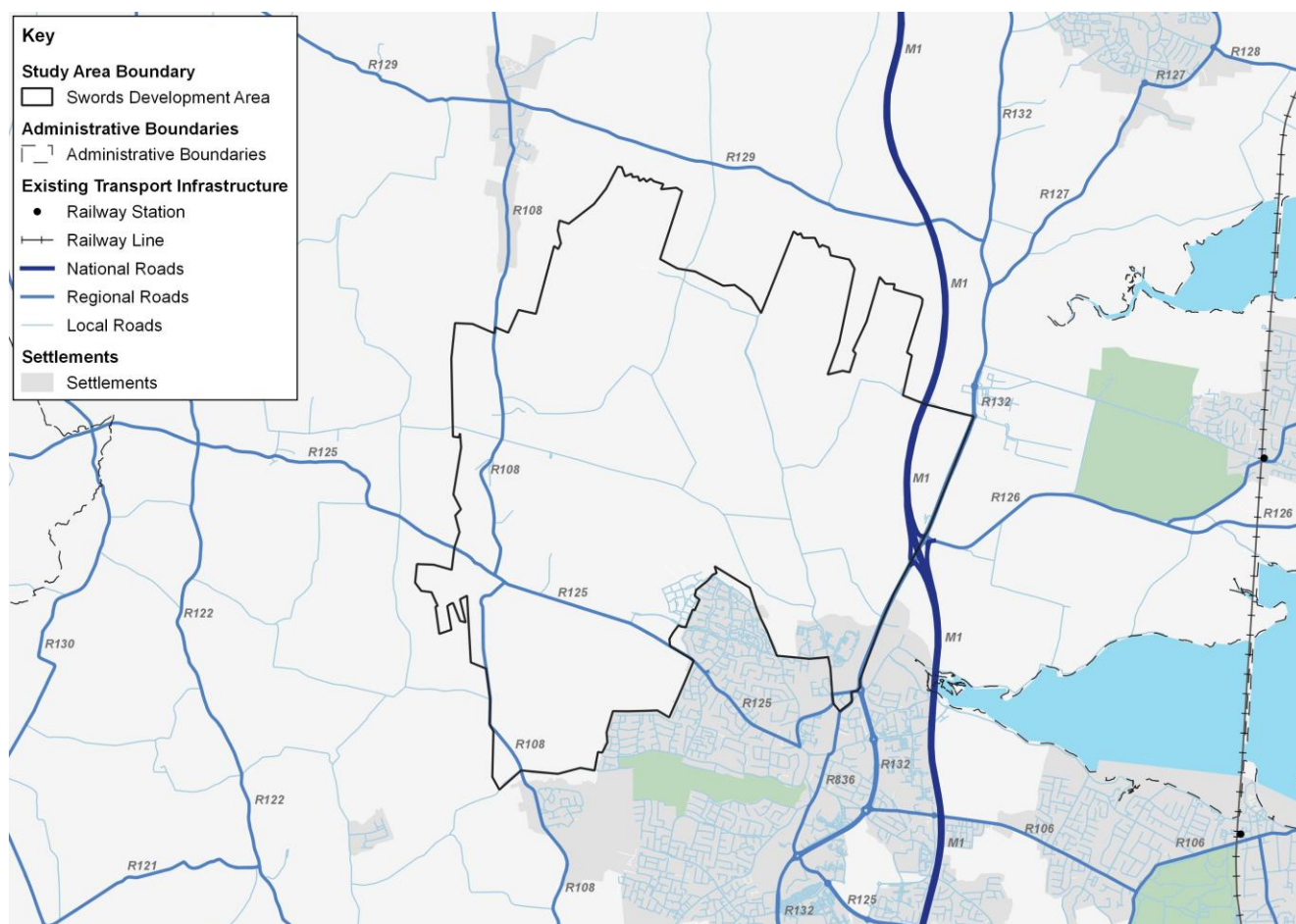


Figure 3.2: Current road network

Regional road network

The study area's regional road network comprises mainly of radial routes connecting the City Centre to the National road network and wider environs, including:

- The R132 marks the eastern limit of the study area. The R132 runs from Dublin to Dundalk in County Louth via Drumcondra, Swords, Balbriggan, Drogheda and Dunleer.
- The R125 runs east-west through the lower half of the study area. The road links Kilcock on the County Meath/County Kildare border to Swords via Dunshaughlin and Ratoath. As Rathbeale Road the R125 runs through the centre of Swords town and is the main road link through to the Oldfield-Moorefield development site.
- The R108 runs north-south just inside the western edge of the study area. It links Drogheda in County Louth to Dublin.
- The R129 also passes through the study area west to east from the crossing with the R1232 north of Oldtown, via Ballyboughal and through the future Lissenhall development and then joining the R132 at Blakes Cross Industrial Estate.

Local road network

- Balheary Road/Magilstown Road provides the main connection across the Lissenhall development site. It connects to the R132/R125 at the Estuary Roundabout.
- The Glen Ellan Distributor Road provides access to the Applewood area of Swords. It starts at the Balheary Road and runs west as far as the Applewood Roundabout, then turns south to end at the

Rathbeale Road at Outlands Cross. The Rathbeale Road provides access into the centre of Swords and the Balheary Road provides access onto the R132 Dual Carriageway. An extension of the Glen Ellan Road runs west from the Applewood Roundabout into the Oldtown-Mooretown future development lands.

Bus network

As part of the BusConnects programme, a redesign of the bus network in the GDA is proposed to provide greater capacity, enhance priority and a more coherently planned network. The implementation of the New Dublin Area Bus Network will be completed in phases commencing in 2021, as such the proposed network is set out here as part of the baseline. The new network features:

- **Spines** – frequent routes made up of bus services timetabled to work together along a radial corridor (shown in the map in red). At the end of the corridor individual services branch off to serve different areas.
- **Orbitals** – providing connections between the suburbs, town centres and key transport interchanges without requiring travel into the city centre;
- **Other city-bound routes** – other routes which operate on their own timetables outside of spine routes (shown in purple);
- **Local Routes** (shown in green) providing important connections with local areas and linking to local retail and onward transport connection;
- **Peak only** – services operating during peak periods to provide additional capacity on key corridors (shown in yellow); and
- **Express services** (shown in yellow, 'X' prefix) direct services from outer suburbs to the City Centre at peak commute hours, operating a limited stop service to get passengers to their destinations faster.

The new Dublin Area Bus Network which serves the Swords study area is outlined in Figure 3.3. Table 3.1. presents the services within the New Dublin Area Bus Network that pass through the Swords study area. The table details the route, route type and weekday peak headway. Peak period times are typically between 07:00 to 09:00 for the AM period, and 16:00 and 18:00 for the PM period.

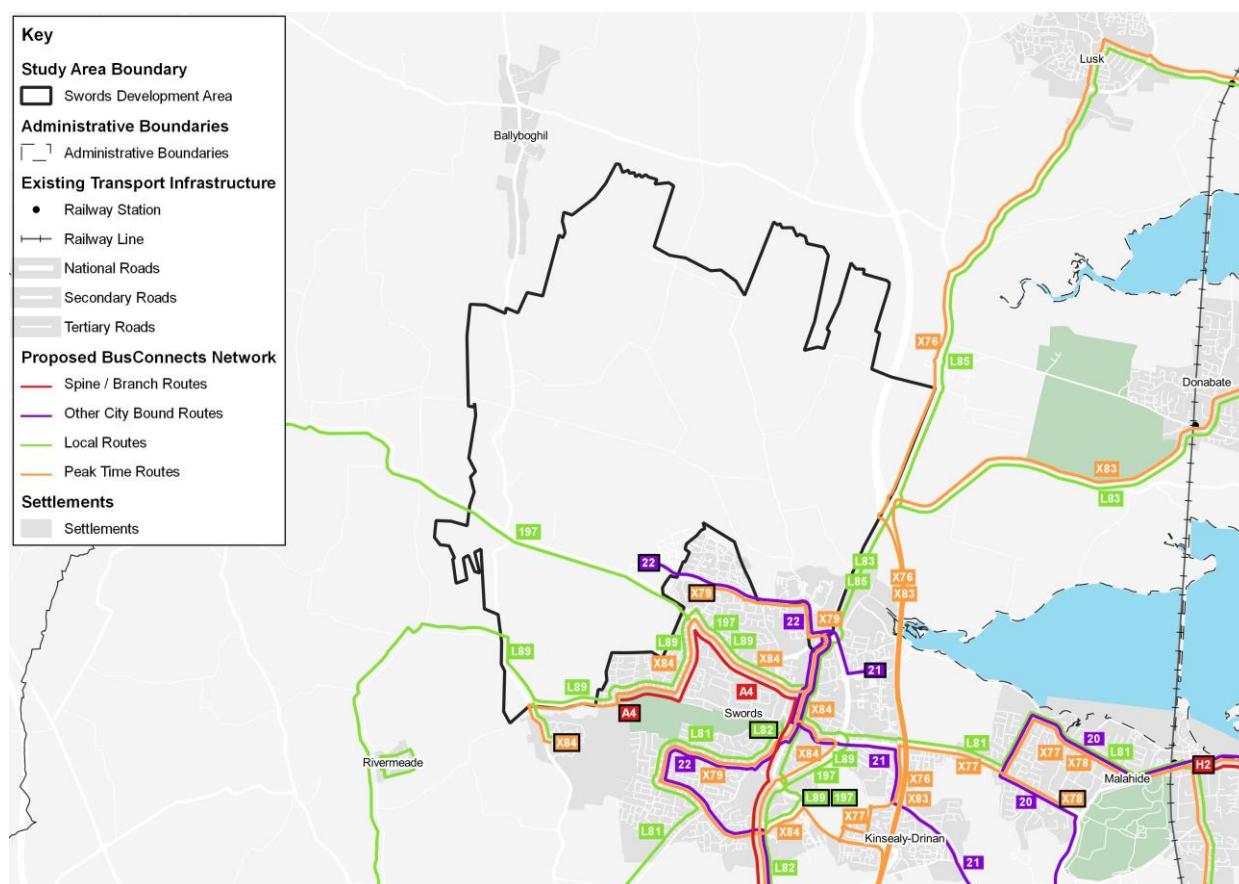


Figure 3.3: New Dublin Area Bus Network in the study area

Table 3.1: BusConnects proposed services and frequencies

Route type	Service	Route	Weekday Peak Frequency (mins)
Spine / branch routes	A2	Airport - City Centre - Ballinteer - Dundrum	12
	A4	Swords - City Centre - Dundrum	12
	H2	Portmarnock - Bayside - City Centre	30
Other city-bound routes	19	Airport - Balbutcher Lane - Wadelai (Glasnevin) - Parnell Square	60
	20	Malahide - Kinsealy - City Centre	30
	21	Swords Business Park - Kinsealy - City Centre	30
	22	Glen Ellan Rd - River Valley - City Centre	15
	24	Airport - Charlestown - Ballygall Rd - Merrion Square	20
Peak only / express Routes	X76	Skerries - Rush - Lusk - City Centre - UCD	20
	X77	Portmarnock - City Centre - UCD	10
	X78	Malahide - Portmarnock - Clontarf - City Centre - UCD	30
	X79	Glen Ellan Rd - River Valley - City Centre - UCD	20
	X83	Portrane - Donabate - City Centre - UCD	60
	X84	Knocksedan - Swords Manor - City Centre - UCD	20
	N8	Blanch SC - Dublin Airport - Clongriffin	30
Orbital routes	197	Ashbourne - Swords	60
Local routes	L81	Sutton - Portmarnock - Malahide - Swords - Airport	20

Route type	Service	Route	Weekday Peak Frequency (mins)
	L82	Swords - Clonsaugh - Beaumont Hospital	60
	L83	Portrane - Donabate - Swords - Airport	30
	L85	Balbriggan - Skerries - Rush/Lusk - Swords - Airport	30
	L89	Airside - Swords - Knocksedan - Toberburr - Finglas	60

Bus Éireann also run a number of coach services along the M1 and R132. Although these do not enter the study area, all of these routes serve the Airport. These include the:

- 32 between Letterkenny, Co. Donegal and Dublin (every 30 minutes)
- 100x between Dundalk and Dublin (hourly)
- 101x between Drogheda, Balbriggan and Dublin (every 50 minutes).

The closest stop for both the 32 and 100x is Dublin Airport, which is 4.5km from the study area. The 101x does not call near Swords.

Based on the analysis above, opportunities for further improvement to the new network have been identified. These predominantly relate to connectivity from the study area to key trip attractors such as Swords and the Airport, and also within the study area itself.

Rail network

The closest rail stations to the study area are the Donabate and Malahide stops on the DART Northern line. Donabate rail station is located to the east of the study area, approximately 6.9km from Swords town centre. Malahide rail station is located to the south east of the study area, approximately 5.5km from Swords town centre. Journey time to Dublin city centre is around 24 minutes with a frequency of between 3-4 trains per hour during the week.

There are no light rail services within or near to the study area at present.

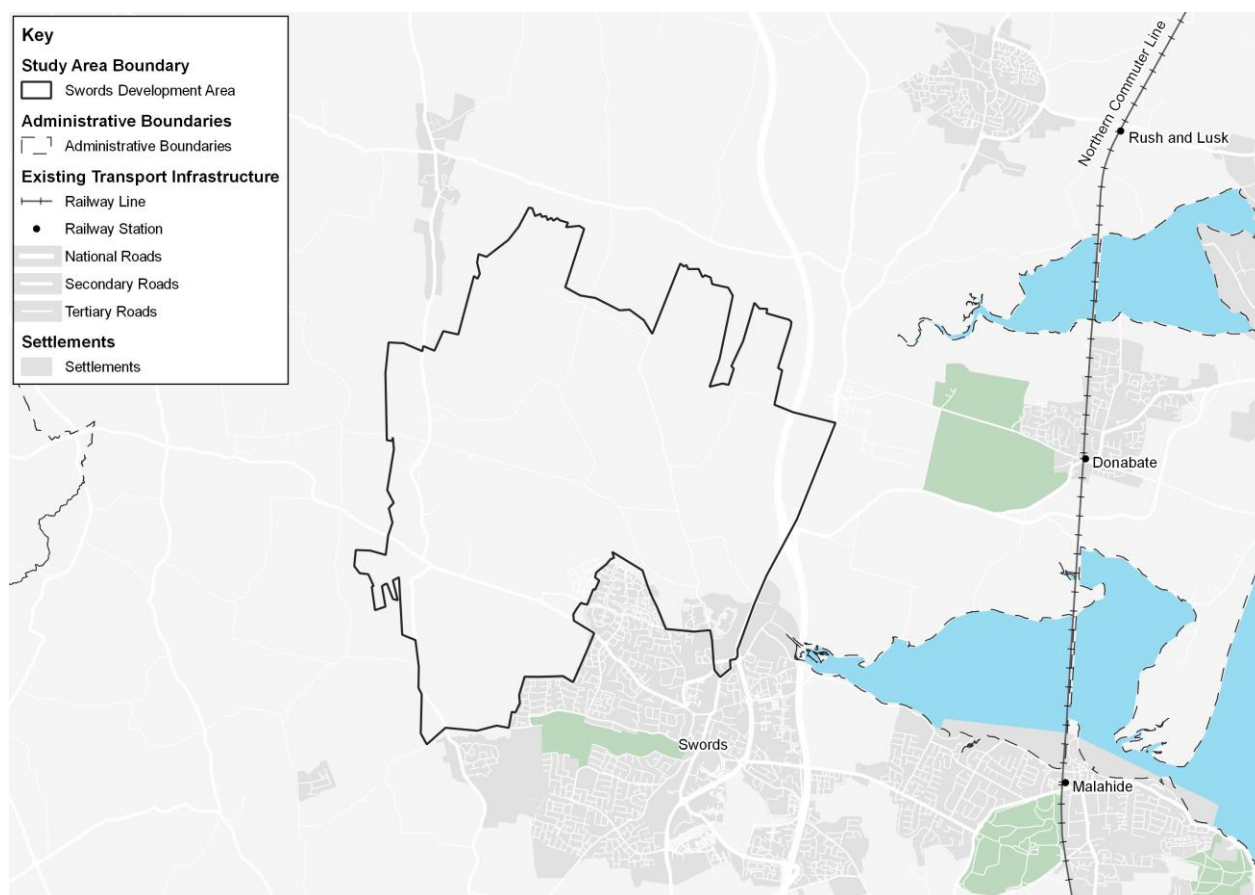


Figure 3.4: Current rail network

Walking and Cycling network

As the study area is largely rural at present, there is little in the way of existing provision for pedestrians and cyclists.

There is a segregated cycle path running along Glen Ellan Road, which is the southern boundary of the study area, and which continues on into the Applewood neighbourhood. There is also an unsegregated cycle track along Balheary Road, which provides access to the Balheary Industrial Park and the Swords Business Campus, as illustrated in the Figure below. There is also a cycle track along a bus lane along St Cronan's Avenue, although this is outside of the study area.

From the junction with the R125 going north into the study area, Balheary Road has a footpath on the southbound direction. Closer to Fingallians GAA club, a footpath also becomes available on the opposite side of the road. After the crossing with Glen Ellan Road there are segregated cycle track and pedestrian facilities on the northbound side, which end at the entrance of the Museum before crossing the Broad Meadow River.

Both Balheary Road and Balheary Avenue continue to the edges of the study area (to the north to Harlockstown Lane and to the west to meet the R108 respectively) with a rural aspect with no pavements and very narrow cross sections.

The regional road R125 only has pedestrian facilities on the eastbound side from the junction with Glen Ellan Road until the connection with Applewood Community Centre. It then continues as a rural road until joining with the R108 at the south west edge of the study area.

Castlevue Extension road provides access to the Applewood Community Centre and two of the schools inside the study area (Gaelscoil Bhrian Bóirimhe and Swords Educate Together) and it well furnished by a continuous

segregated mixed cycle and pedestrian track on both sides of the road until it meets Glen Ellan Road, which also has segregated cycle and pedestrian infrastructures on both sides.

Overall the pedestrian facilities immediately adjacent to the main Community Centre, GAA clubs, schools and existing employment sites are of good quality. However, the wider study area is lacking in walking facilities and pedestrian connectivity.

The existing cycle network described above is shown in the Figure below.

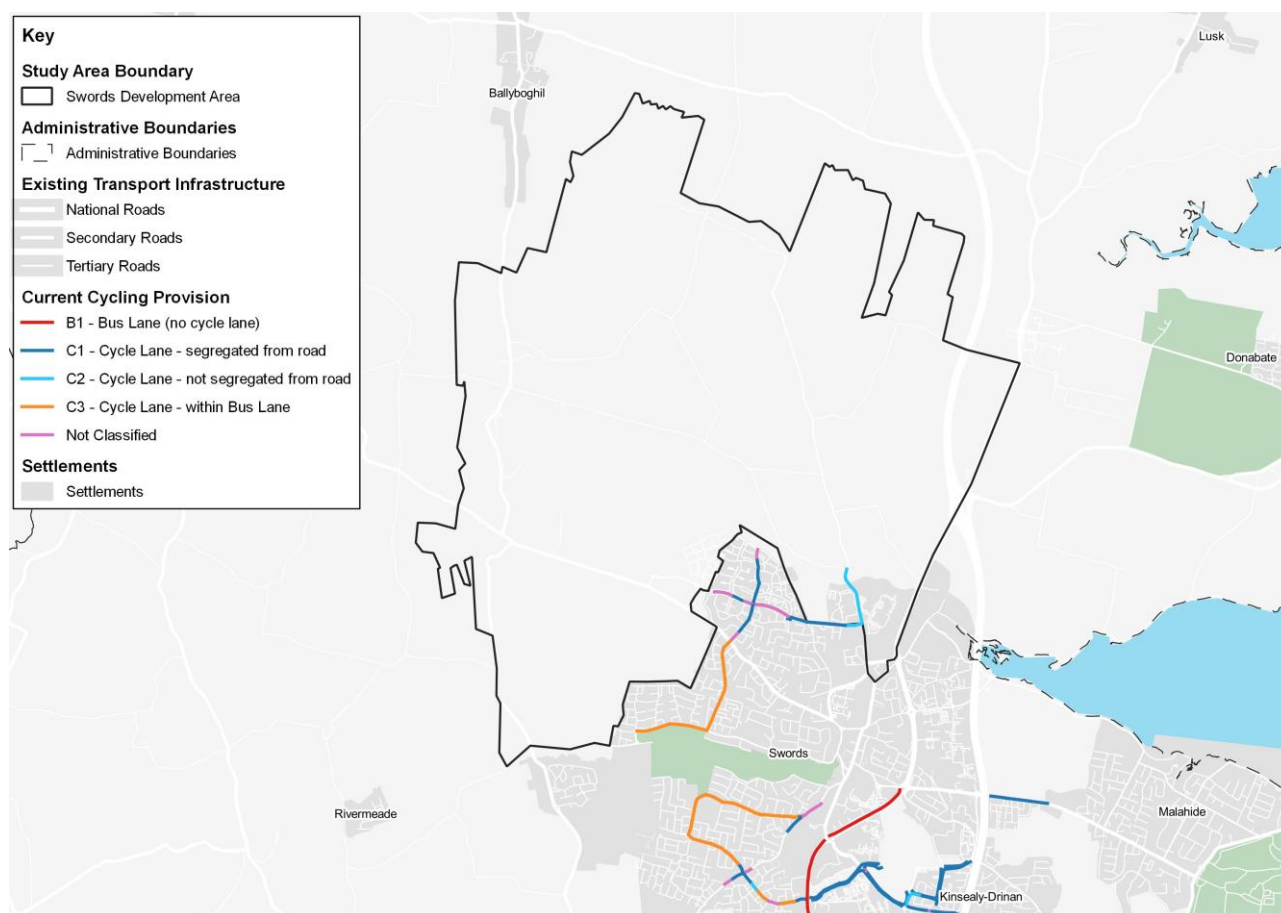


Figure 3.5: Current cycle provision

The Figure below shows the proposed GDA Cycle Network routes adjacent to the study area. The GDA Cycle Network includes a network of interurban, primary, secondary and greenway routes.

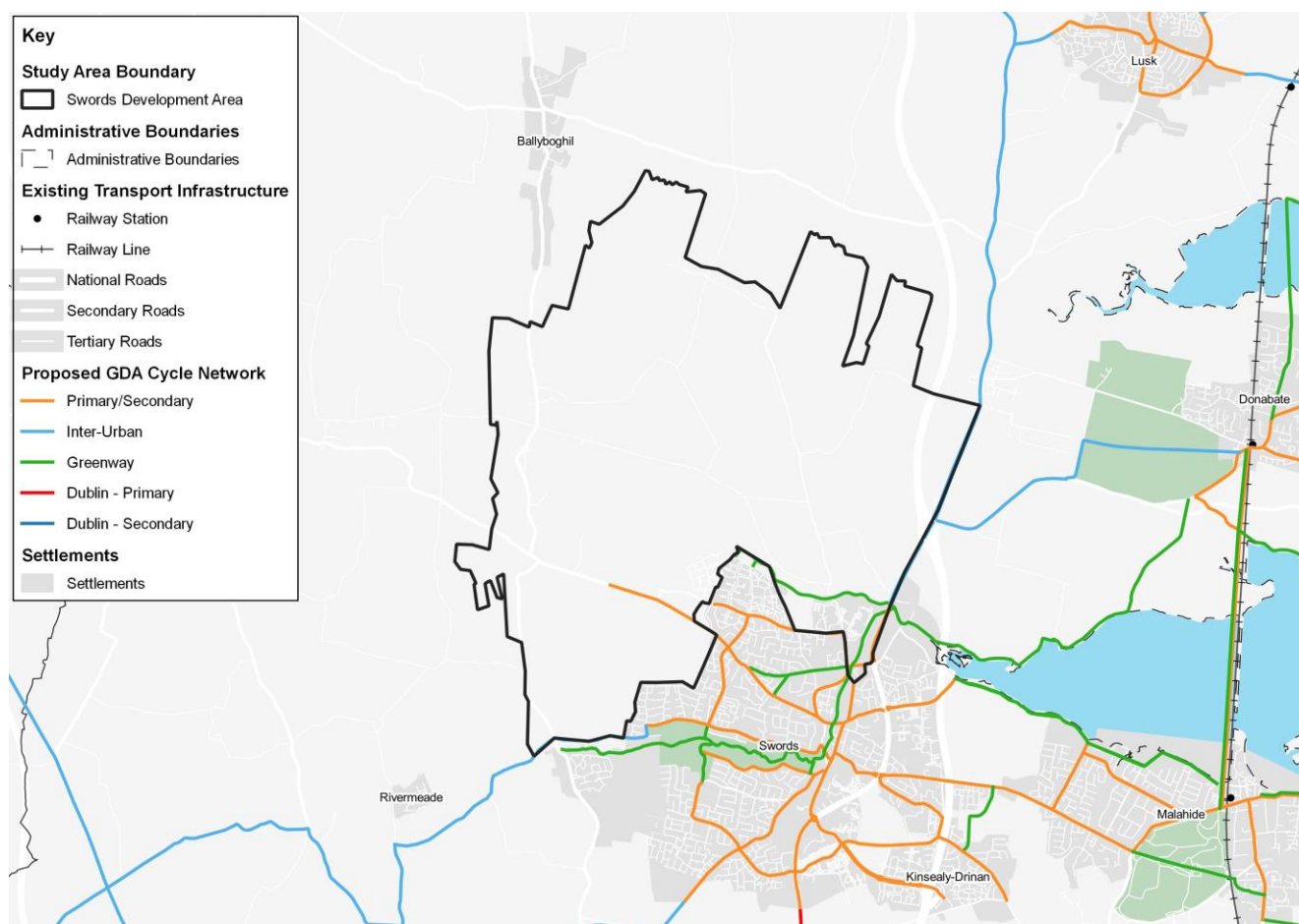


Figure 3.6: Proposed GDA cycle network provision

The Fingal Development Plan also outlines proposals for a cycle route along Glen Ellan Road, providing connectivity through the existing residential settlement and to the town centre and Swords Business Park. This routing also provides a connection across both the R132 and M1, minimising severance across these two significant roads. This strategic route is also proposed in the GDA cycle network plan (see Figure 3.6 above in orange) as a Primary/Secondary route.

Increased permeability across the R132 and the M1 will enhance the future sustainable development of these areas allowing shorter trips from/to the study area to Swords and Airside Business parks to be undertaken via active travel. The GDA cycle network proposed primary routes will also facilitate trips from Kinsealy, Malahide and Swords town, Estuary future developments and the study area.

Parking provision

There is little car parking provision in the study area given its currently undeveloped status. However, there is some off-street parking on the Balheary Industrial Park, the Swords Business Campus (circa 965 spaces in total) and the existing residential development of Oldtown.

Immediately outside of the study area there is on-street parking provision along Main Street in Swords town centre. This is charged by the hour at €1 per hour and is in operation between 8.00am and 6.00pm Monday to Saturday. Parking is free after 6pm and all day Sunday. There is also an underground park on New Street which runs parallel with Main Street, costing €1 per hour. or €4 per day.

The Pavilions Shopping Centre has over 2,000 car parking spaces (including a multi-storey car park and surface car parking). Parking is free parking for the first two hours. Charges after that are: 2-3 hours €1.00; 3-4 hours €2.50; 4-5 hours €6.00; 5-6 hours €7.50; and every hour after €7.50.

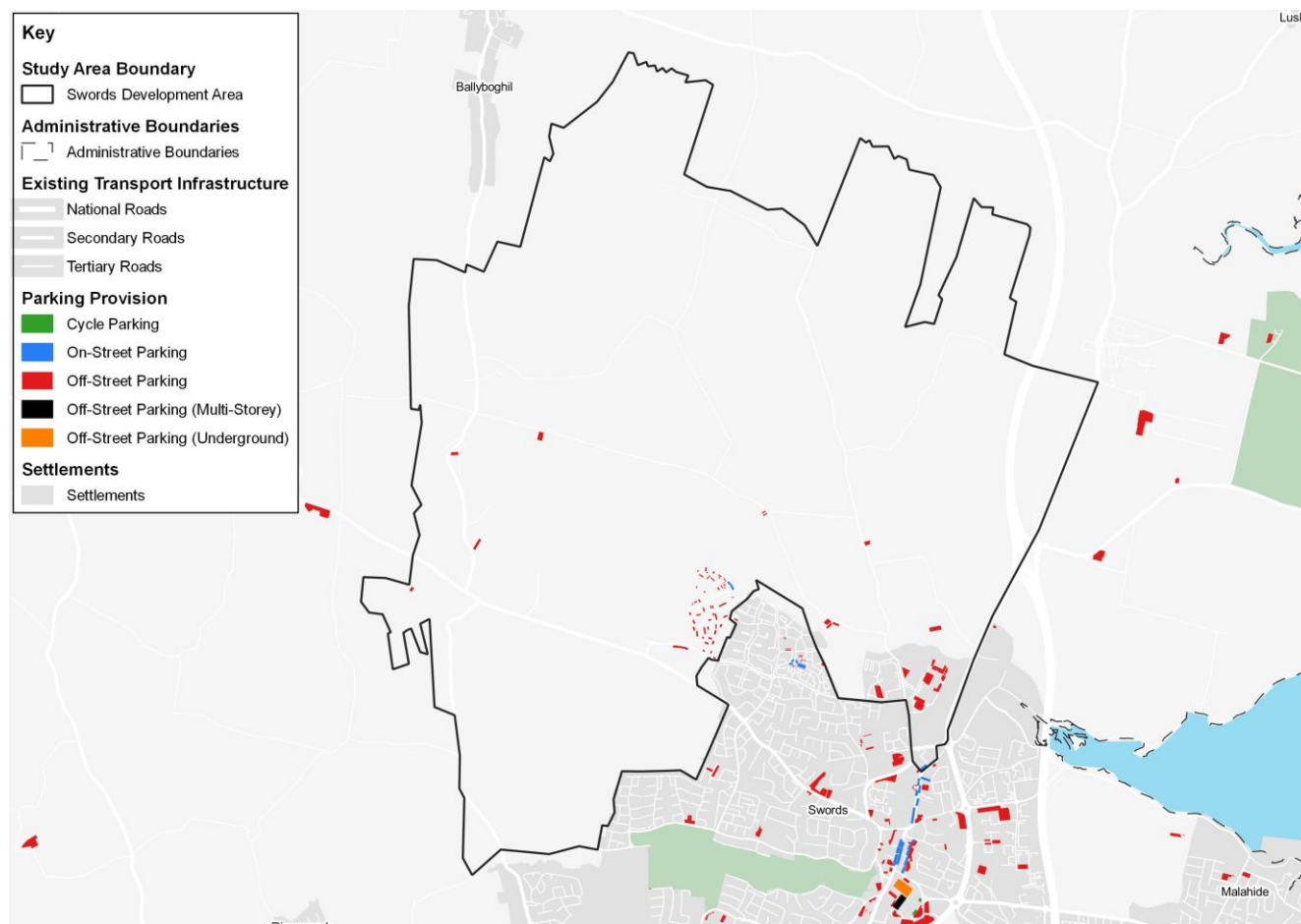


Figure 3.7: Existing parking provision

Road safety

In comparison to other areas in Ireland, levels of fatal collisions in Dublin are high. Between the 1st January and 31st December 2020, Dublin experienced 20 fatal collisions, with Cork being the only area experiencing more fatalities (24 in 2020)³. Data on road fatalities or serious injuries is not available for the study area.

³Source:

https://www.rsa.ie/Documents/Fatal%20Collision%20Stats/Provisional_Reviews_of_Fatal_Collisions/RSA%20Road%20Fatalities%201200X600px%20DECEMBER%202020%20v3.pdf

3.2 Existing travel patterns

3.2.1 Key trip attractors

Key attractors can be split into three main categories: workplace / employment locations, education locations and retail, as illustrated on the figure below. As such, key attractors within the study area include the following:

- **Workplace / employment locations:** Swords Business Campus and Balheary Industrial Park, both located within the Estuary Central development site of the study area.
- **Education locations:** A new primary school for circa 400 pupils is proposed as part of the Estuary West development site. This will be in addition to two schools currently located inside the study area on the south west end in Mooretown:
 - Broadmeadow Community National School – opened in September 2020 with a Junior Infants intake; and
 - Swords Community College – a mixed post-primary school with approximately 166 students.

And two other schools in the Applewood area:

- Swords Educate Together National School – a mixed primary school with circa 442 pupils; and
- Gaelscoil Bhrian Bóroimhe – a mixed primary school with circa 488 pupils.

Key attractors near to the study area include the following:

- **Workplace / employment locations:** Dublin Airport, Airside Business Park, Swords Business Park (including the An Post sorting office and the Hertz car rental office, which is the largest employer in Swords), Swords Laboratories, FoodCentral and Tesco Distribution Centre.
- **Education locations:** There are also two other schools just outside of the study area.
 - Thornleigh Educate Together National School – which has places for 355 primary aged pupils, and which is located between the Estuary West and Oldfield-Moorefield development sites.
 - St Finian's Community College – which is a post-primary school for 650 pupils, located to the south of the Estuary Central development site.

Other schools in the vicinity include Mary Queen of Ireland National School, Rolestown National School, Ballyboughal National School, Carduff National School, St. Cronan's National Schools, The Old Borough National School, St. Colmcille's National Schools, Loreto College and Holy Family National School.

- **Retail:** Pavilions Shopping Centre, Swords Shopping Centre and Airside Retail Park.

In addition to the above, there are a number of sport, leisure and tourist attractions within and adjacent to the study area which also attract trips such as the Fingallians GAA club (within the Estuary Central development site), Roganstown Golf and Country Club, Swords Open Golf Course and Balheary Par 3 Golf Course, Swords Castle and Swords Round Tower.

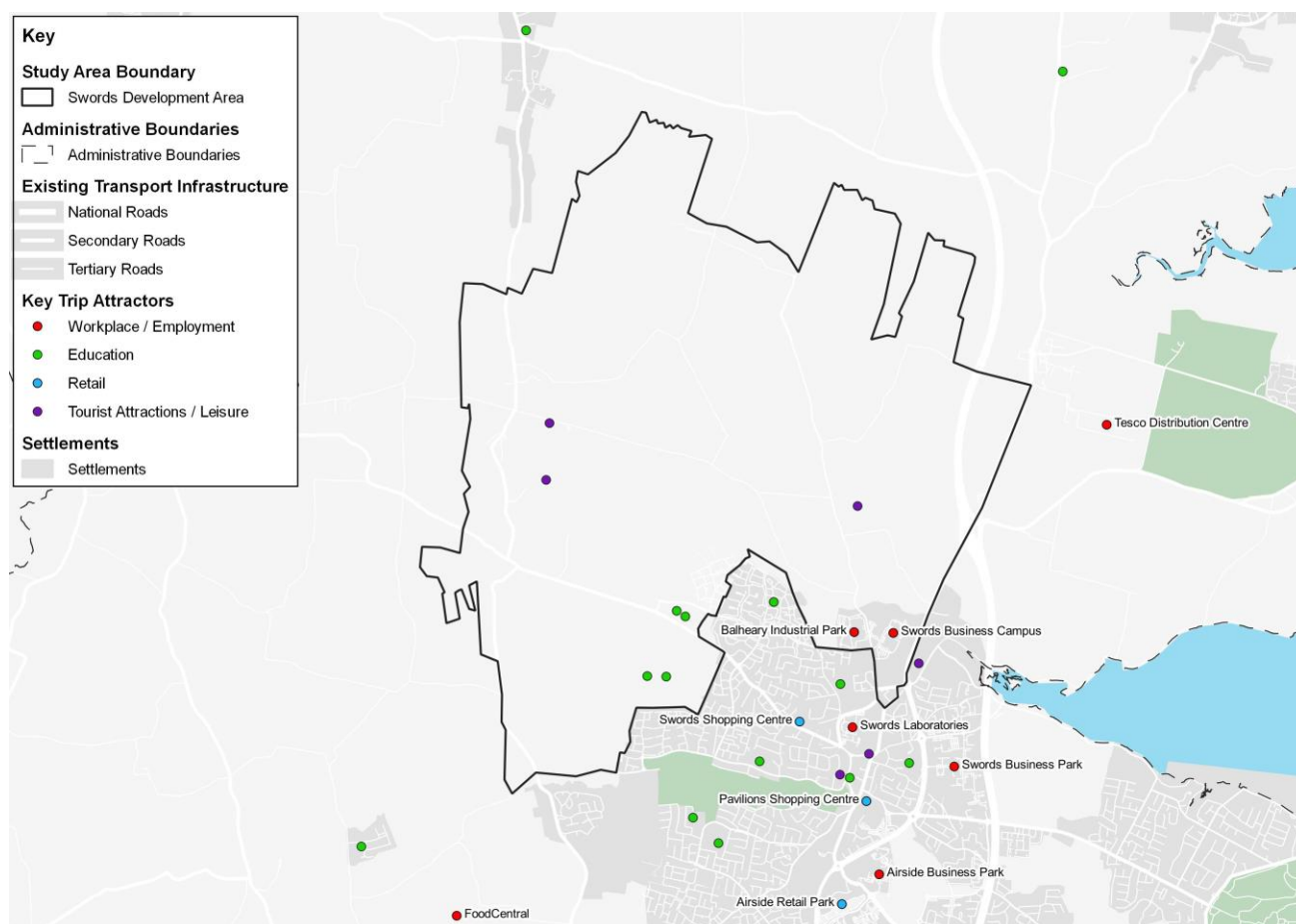


Figure 3.8: Key trip attractors

3.2.2 Car ownership

Car ownership data is reported in the table below. The study area has a higher percentage of car ownership (85%) compared to the GDA (79%), with a higher proportion of households owning 2 cars (42%), as opposed to 31% in the GDA. This could be explained by the high rural composition of the study area and the current low connectivity to good quality public transport.

Table 3.2: Study Area – Car Ownership Data (2016 Census)

Area	Total Households	Cars per household					
		0	1	2	3	4+	Not stated
Greater Dublin Area	666,724	18%	41%	31%	5%	2%	4%
Swords	12,889	11%	44%	36%	5%	1%	3%
Study Area	657	10%	34%	42%	6%	3%	4%

3.2.3 Travel data

Place of Work / School / College

Census POWSCAR data provides information on Irish residents' place of work / school / college is available at Electoral District (ED) level. The Study Area is included in two EDs: Swords-Glasmore (to the south of the regional road R125) and Swords-Lissenhall (covering all the northern part of the study area).

Both EDs include a good portion of the north west residential area of the wider Swords Settlement, namely Commons West, Glebe, Castlefarm, and Oldtown areas, which are not inside our study area. Therefore, once again the figures reported for inbound and outbound trips are not to be considered as exact absolute numbers (as they include all trips for the ED rather than just those of the study area). However, they do illustrate the relative trip distribution between key origins and destinations.

As Table 3.3 displays, across the two EDs, there are 11,109 people who live within (and nearby) the study area and travel to work / school / college. 22% remain within (and nearby) the study area for work/ school / college, whilst 78% leave the EDs/study area. The trips that leave the study area for work/ school / college predominately remain within the GDA and travel to other areas in Fingal (41%) and Dublin City (26%).

Table 3.3: Outbound trips for those travelling to work / school / college from (and nearby) the study area

Place of residence	Place of work / school / college	No. of trips	%
Study Area	Greater Dublin Area (includes study area)	10,624	96%
	Fingal	7,050	63%
	Dublin City	2,934	26%
	South Dublin	255	2%
	Dún-Laoghaire Rathdown	189	2%
	Meath	106	1%
	Kildare	73	1%
	Wicklow	17	0%
	Study Area	2,492	22%
	Swords-Lissenhall	1,519	14%
	Swords-Glasmore	973	9%
	Total Trips	11,109	-

**'No fixed place of work' and 'work/school from home' have been removed from the dataset*

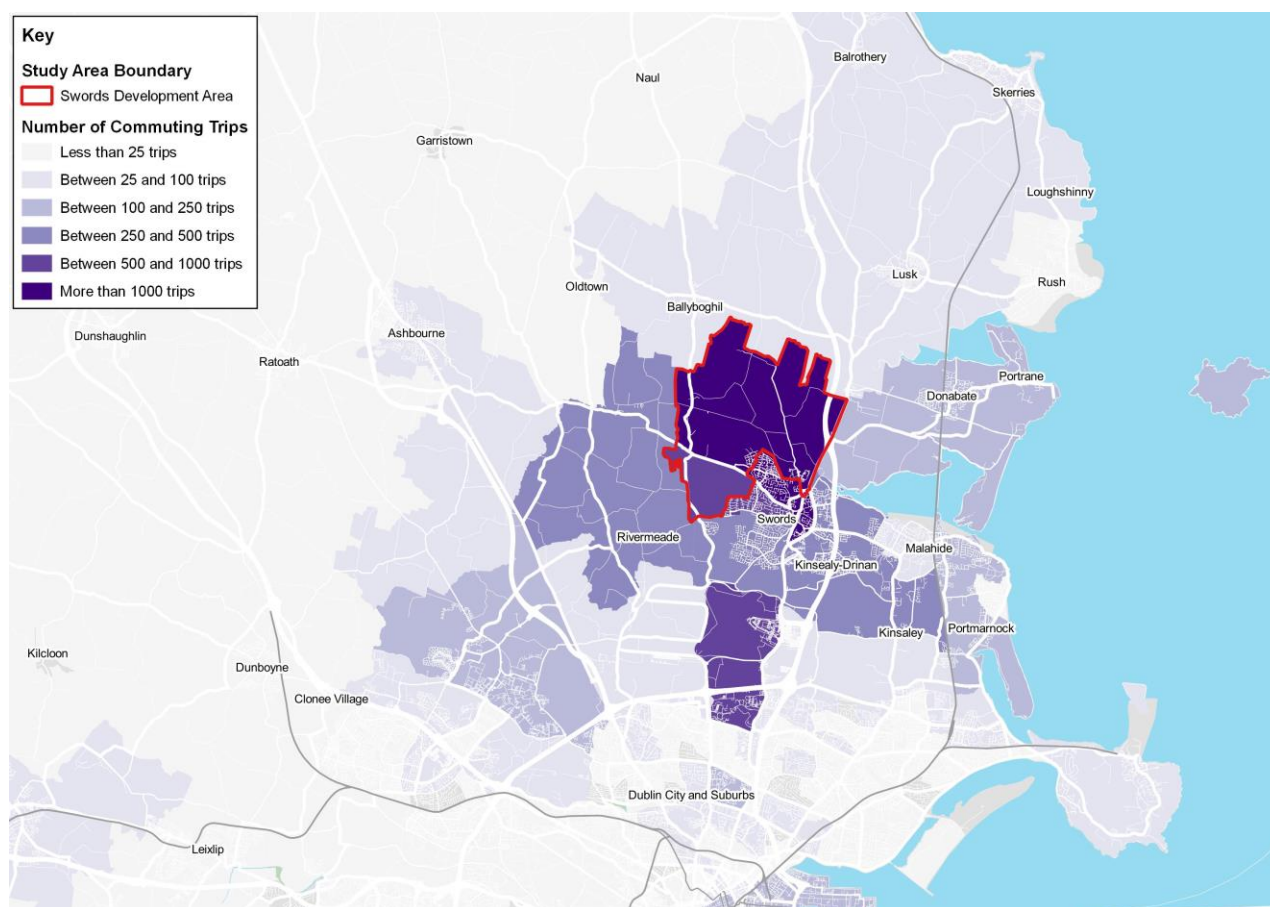


Figure 3.9: Place of work / school / college for residents in (and nearby) the study area

As Table 3.4 displays, there are 5,490 people who travel to work, school or college into the EDs/study area. Of those travelling to work / school / college to the study area, 45% live within and nearby the study area. 95% travel from the GDA (31% from elsewhere in Fingal compared to 9% from Dublin city and 5% from Meath) and 5% travel from beyond the GDA.

Table 3.4: Inbound trips for those travelling to work / school / college into (and nearby) the study area

Place of residence	Place of work / school / college	No. of trips	%
Study Area	Greater Dublin Area (includes study area)	5,189	95%
	<i>Fingal</i>	4,162	76%
	<i>Dublin City</i>	483	9%
	<i>Meath</i>	282	5%
	<i>South Dublin</i>	103	2%
	<i>Kildare</i>	79	1%
	<i>Dún-Laoghaire Rathdown</i>	52	1%
	<i>Wicklow</i>	28	1%
	Study Area	2,492	45%
	<i>Swords-Lissenhall</i>	1,420	26%
	<i>Swords-Glasmore</i>	1,072	20%
	Total Trips	5,490	-

**No fixed place of work' and 'work/school from home' have been removed from the dataset*

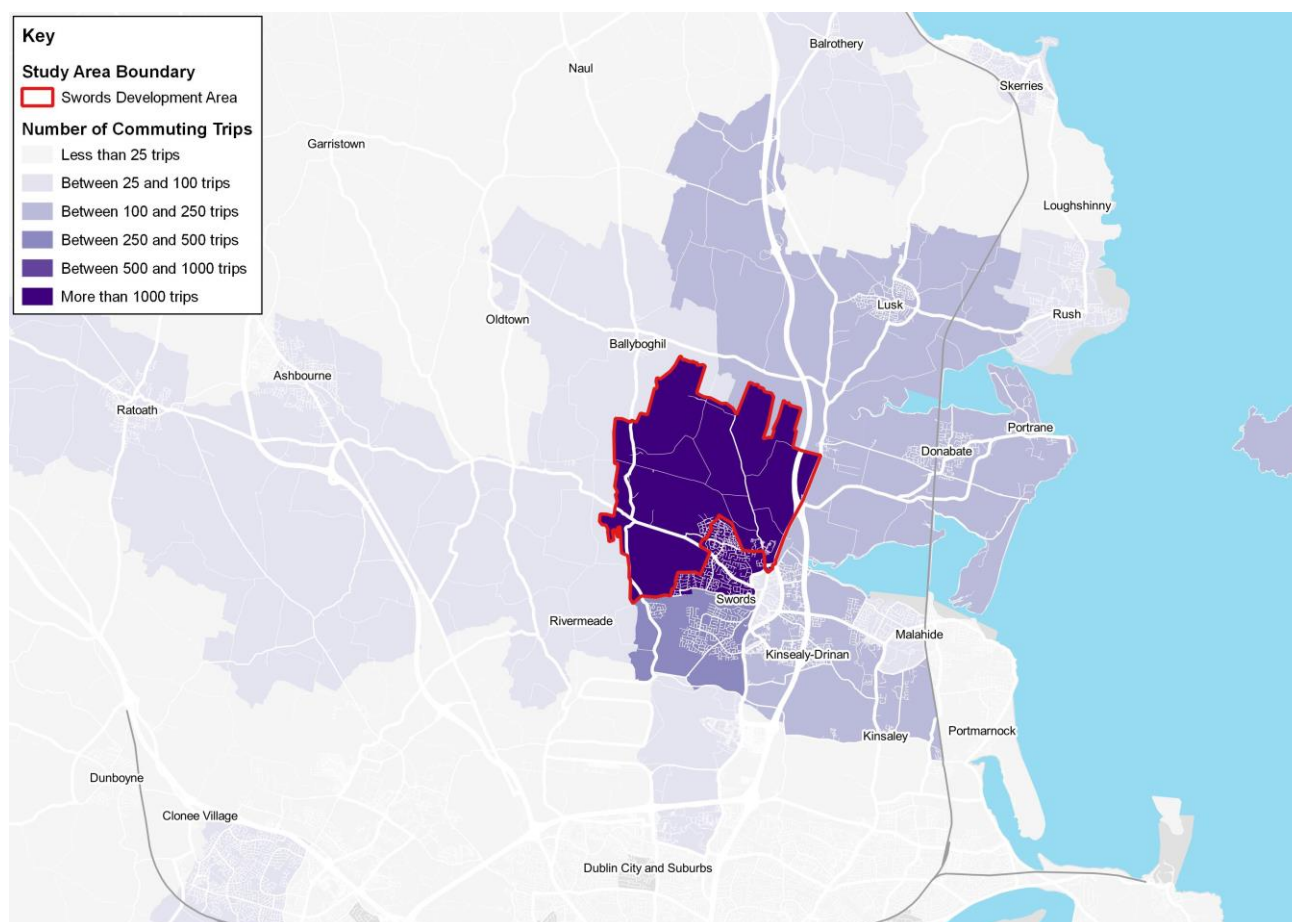


Figure 3.10: Place of residence for those travelling to work / school / college into (and nearby) the study area

Travel to Work / School / College by Mode

As shown in Table 3.5, the proportion of people who travel to work by active modes (on foot or by bicycle) within the study area (8%) is lower than the average for the GDA (15%) but comparable (if slightly lower) than the wider Swords area (10%).

Overall, the proportion of people who travel to work by bus, minibus or coach within the study area (17%) is higher than the average for the GDA (10%) and comparable to the wider Swords area (18%). As would be expected given the distance from the area to the heavy rail network, those using the train is significantly lower in the both the study area and the overall Swords area (1%) compared to the wider GDA area (7%). Driving within the study area (60%) is greater than the GDA (55%), whereas the percentage of those travelling as a car passenger to work is broadly similar at 3% in the GDA and 4% in both the wider Swords and study area.

Table 3.5: Study Area Travel to Work Data (2016 Census)

Settlement	Total Work	On foot	Bicycle	Bus, minibus or coach	Train, DART or LUAS	Motorcycle or scooter	Car / van driver	Car passenger	Other / Not Stated
Greater Dublin Area	835,694	10%	5%	10%	7%	1%	55%	3%	9%
Swords	19,473	8%	2%	18%	1%	1%	60%	4%	6%
Study area	1,029	7%	1%	17%	1%	1%	60%	4%	9%

Table 3.6 displays travel to school / college data by mode. The proportion of people who travel to school / college on foot within the study area (23%) is considerably lower than the proportion for both the GDA (31%) and for the wider Swords area (33%), likely reflecting the more rural nature of the study area. The proportion of people who travel to school / college by bicycle within the study area (2%) is lower than the proportion for the GDA (4%) but follows the same trend for the wider Swords area (2%).

Bus, minibus or coach travel to school or college accounts for 21% in both the study area and the wider Swords area – 3% higher than the GDA average of 18%. Car passengers within the study area (46%) is notably higher than both the GDA (35%) and the wider Swords area (36%) – again likely reflecting the more rural nature of the study area and lack of pedestrian provision.

Table 3.6: Study Area Travel to School / College Data (2016 Census)

Settlement	Total School / College	On foot	Bicycle	Bus, minibus or coach	Train, DART or LUAS	Motorcycle or scooter	Car / van driver	Car passenger	Other / Not Stated
Greater Dublin Area	427,946	31%	4%	18%	4%	0%	4%	35%	5%
Swords	8,665	33%	2%	21%	1%	0%	3%	36%	5%
Study area	505	23%	2%	21%	0%	0%	5%	46%	3%

Journey Time to Work / School / College

Table 3.7 displays travel times to work, school and college. In line with the pattern for the GDA and the wider Swords area, the majority of trips to work, school or college in the study area have a journey time of under 30 minutes (53%, 57% and 59% respectively), with 3% more trips under 30 minutes in the wider Swords area and 6% more for our study area and surroundings in comparison to the GDA as a whole. Commuting journeys of over an hour are slightly higher in the study area (10%) and the wider Swords area (9%) in comparison to the wider GDA figure (8%).

Table 3.7: Study Area Journey Time to Work / School / College Data (2016 Census)

Settlement	Travel to Work / School / College	Under 15 minutes	15 minutes to under 30 minutes	30 minutes to under 45 minutes	45 minutes to under one hour	1 hour to under 1.5 hours	1.5 hours and over	Not stated
Greater Dublin Area	1,237,858	24%	29%	21%	8%	8%	2%	8%
Swords	27,791	27%	30%	17%	8%	9%	2%	7%
Study Area	1,494	30%	29%	17%	6%	10%	2%	6%

Table 3.8 displays data of the time people leave their home to travel to work, school or college. In line with the figures for the GDA, the majority of commuting trips in the study area commence between 08:00 and 09:00 hours with a slightly higher percentage of trips departing at earlier hours compared to GDA in its entirety (2% more at 6:30 and 7:00 am and 1% more at 7:30). This is probably due to the fact that some longer distance trips to Dublin City originate from the study area and surrounding Swords settlement area.

Table 3.8: Study Area Time Leaving Home to Travel to Work / School / College (2016 Census)

Settlement	Travel to Work / School / College	Before 06:30	06:30 - 07:00	07:01 - 07:30	07:31 - 08:00	08:01 - 08:30	08:31 - 09:00	09:01 - 09:30	After 09:30	Not stated
Greater Dublin Area	1,237,858	6%	8%	11%	16%	22%	19%	5%	8%	6%
Swords	27,791	10%	9%	10%	15%	21%	17%	3%	8%	5%
Study Area	1,494	9%	10%	13%	17%	20%	18%	2%	7%	5%

3.3 Environmental conditions

The following environmental conditions are of note for the Swords Development Areas study area:

- The land contained within the Study area is classified as either 'Low Lying Agricultural' or 'Rolling Hills with Tree Belts', the former designation covers the part of the study area earmarked for residential development. This latter topography may impact on the ability to support high levels of cycling in the wider area (however, the increased popularity of electric bikes may help to mitigate this issue).
- The Ward River runs west across the centre of the town and turns north before running into the Broadmeadow River which borders the north of the town. The Broadmeadow runs into an estuary before flowing into the Irish Sea past Malahide. The water quality in these rivers around Swords is classed variously as poor or moderate.
- Sections of the rivers close to the Estuary West development and immediately adjacent to the north of the Oldfield-Moorefield site are classified as having a 1% risk of flooding in any given year. There are no Flood Management Measures which apply to the study area, or to the majority of the town to Swords. There is one scheme, the Aspen Road Flood Relief Scheme which was constructed in 2011-12 which protects nine properties in the south of Swords against fluvial flooding.
- Several parcels of land in the Estuary West Masterplan are designated as subject to further site-specific Flood Risk Assessments. The Oldfield-Moorefield Local Area Plan notes that land which is close to the river may be prone to flooding and should be utilised as open space.
- A review of the Archaeological Survey of Ireland shows that there are a number of archaeological records for the area, however, none of the sites or monuments are considered significant.

3.4 Summary of baseline assessment

From a review of existing strategies and policy proposals, it is clear that Swords is in a strong position to contribute to, and benefit from, the continued economic strengthening of the Dublin Metropolitan area. The town's strong strategic connectivity by both road and rail, its placement within the Dublin-Belfast Economic Corridor and its proximity to Dublin Airport mean that the town has the potential to grow both its resident population and its employment base.

The Fingal Development Plan sets out a clear vision to promote and facilitate the sustainable development of Swords as a vibrant consolidated major town with a thriving economy; an integrated public transport network and an attractive and highly accessible built environment.

The current transport environment and proposed future transport infrastructure and service improvements are summarised below:

- **Walking** – pedestrian facilities are provided alongside some roads within the study area, although the standard of provision can often be inadequate. Walking trips within the study area are higher than the GDA for travelling to school or college, accounting for 34% of trips, but are lower for trips to work within the study area than the GDA, accounting for 8% of trips.

- **Cycling** – infrastructure for cycling is notably absent from the study area, with the standard of provision varying. A number of gaps have been identified on some of the regional and local roads to enhance connectivity both within and outside the study area. The proportion of trips cycling is higher within the study area than the GDA, at 9% and 7% for commute and school or college trips respectively.
- **Bus** – the proposed BusConnects revised network will provide the study area with a good level of service by operating a number of radial services at variety of frequencies. There is no orbital route serving the study area and the implications of this compared to the demand will be further discussed in chapter 4 and 5. Bus use in the study area and Swords settlement is higher than the GDA as a whole for commute trips, at 17-18% compared to 10% (Census 2016 SAPS).
- **Rail** – the closest rail stations to the study area are Malahide and Donabate Reflecting this lack of provision, rail use is much lower in the study area than the for the GDA, with 2% of commute trips and 1% of trips to school or college using rail (Census 2016 SAPS). The proposed Metrolink rail service will provide key rail connectivity from the study area to the Airport, the city centre and the wider Dublin area.
- **Roads** – both the study area and the surrounding Swords settlement have a higher percentage of car ownership (85%) compared to the GDA (79%), with a higher proportion of households owning 2 cars (42%), as opposed to 31% in the GDA. While this can be partly explained by the current rural setting for the study area, it is known that car traffic and high reliance on car for short trips is currently an issue for the wider Swords settlement area. Previous studies (for example the South Fingal Transport Study) suggest that the Swords Western Distributor Road (SWDR) could bring some benefit in releasing pressure in Swords town centre and improve connectivity and access to new development lands and the future MetroLink Park & Ride in the study area.

Swords and the study area would greatly benefit from the delivery of a number of proposed high-priority transport schemes. This future transport investment will significantly further increase the connectivity of the study area and the wider Swords settlement to the wider Dublin Metropolitan region and provide sustainable transport capacity improvements which will serve its growing population. The arrival of Metrolink in particular has the potential to significantly improve sustainable transport access to Dublin city centre. Within the local area, improvements to the provision of cycling and walking infrastructure to facilitate active travel integration with the MetroLink and encourage modal shift away from the private motor vehicle will also be of importance, particularly for first and last-kilometre journeys.

Congestion within Swords town centre has been identified in previous studies as an issue. Changes to the road network are likely to be required, including the provision of bus priority to enable high frequency bus services to access the town centre, Dublin city centre, key local employment sites such as the Airport and future MetroLink stations (to facilitate multi-modal integration) in order to provide attractive alternatives to private car journeys.

The absence of a developed Local Area Plan for the majority of the study area and defined proposals for its future land uses (including Lissenhall, which is the single largest development site in the study area) poses a challenge to identify the type of transport infrastructure necessary to ensure the area can function in a sustainable manner and is planned so that it is well integrated and connected into the surrounding environment. The study area's location as the site of the proposed Estuary Metrolink Station, which will contain 3,000 Park and Ride spaces, means that proposed planning of this site will be all the more crucial to the sustainable operation of the immediate study area itself and the wider Swords hinterland.

A summary of the Baseline conditions is provided in the Table 3.9 below in the form of a SWOT (Strengths, Weaknesses, Opportunities and Threats) analysis.

Table 3.9: Study Area SWOT Analysis

Strengths	Weaknesses
<ul style="list-style-type: none"> ▪ Development Plan sets clear vision for growth and development ▪ Ambitious NPF 2040 growth forecasts ▪ Strong connectivity to strategic road and rail network ▪ Younger population profile who may be more open to reduced car dependency and using sustainable modes ▪ Proximity to economic opportunities in Dublin city, Dublin airport and other employment locations ▪ Location is close to a number of proposed strategic transport improvements – Metrolink, Bus Connects, DART+ ▪ Well located as part of Dublin-Belfast Economic Corridor ▪ Limited severance from R132 and M1 	<ul style="list-style-type: none"> ▪ Limited existing public transport connectivity ▪ While the Airport and the town of Swords itself is well served by bus and coach services, the study area itself lack bus service provision with a Monday-Friday frequency of just five services a day. ▪ Lack of dedicated cycle routes and footpaths ▪ Distance from heavy rail network (c 5.5km) ▪ Congestion within Swords town centre ▪ Low town centre parking charges may serve to encourage private car use
Opportunities	Threats
<ul style="list-style-type: none"> ▪ Delivery of Metrolink ▪ Delivery of Bus Connects ▪ Delivery of DART+ ▪ Delivery of GDA Cycle Network ▪ Expansion of Swords town onto previously undeveloped land provides opportunity to embed sustainable and active modes into design ▪ Opportunities to consolidate residential growth adjacent to existing urban footprint. 	<ul style="list-style-type: none"> ▪ Impact of population growth on highway capacity ▪ High car ownership levels; higher than GDA average ▪ Delay to the delivery of Metrolink, Bus Connect and/or DART+ ▪ Economic uncertainty and any impact this may have on growth targets and future capital investment ▪ Failure to reallocate space within the study area lands for active travel & public transport priority, including building upon opportunities arising from Metrolink and Bus Connects delivery

4. Context

This section sets out the context of the transport demand and transport supply in the forecast year of 2040. It builds on the baseline (2016) assessment to consider proposed growth and predicted future travel patterns and anticipated travel demand across the study area. This data forms the basis of the assessment of the future year issues and opportunities, and the basis for identifying potential options for intervention.

4.1 Future Land Use

4.1.1 Overview

The future land use scenario presented here is based on a Planning Sheet for 2040 provided by the NTA in discussion with relevant local authorities. It reflects the 2016 and 2040 population, employment, and education places across the study area in line with regional and local planning aspirations. It is aligned with the overall objectives of the NPF and the RSES.

Table 4.1 presents the population, employment and education growth statistics for the study area and the entire GDA. This demonstrates that there is significant level of growth across the study area when compared to the overall GDA forecasts – albeit this reflects the current undeveloped nature of much of the study lands.

Table 4.1: Population, Employment and Education Statistics

Area	2016	2040	Growth	
			Absolute	Percentage
Population				
Study area	1,269	7,837	6,568	518%
GDA	4,761,865	5,790,237	1,028,372	22%
Employment				
Study area	1,432	2,191	759	+53%
GDA	1,468,093	1,996,002	527,909	36%
Education				
Study area	880	917	37	4%
GDA	982,185	1,186,472	204,287	21%

The Swords development study area is forecast to undergo a significant change by 2040 and to contribute to the significant growth of the town of Swords. This is illustrated most clearly by the anticipated growth in population from 1,269 to 7,837. Due to the scale of change expected within the study area, work is being undertaken on the quantum and location of development and is constantly evolving.

4.1.2 Population

Figure 4.2 and Figure 4.3 show respectively the population in 2016 and the forecast population levels in 2040, while Figure 4.1 shows the population change between the two time periods.

As detailed in Section 3, the study area currently has few residential areas, but as can be seen in Figure 4.3 the greatest rate of population growth is expected in the south west of the study area, followed by the western/north western extents. This is in line with the Oldtown-Mooretown development area identified in the Fingal Development Plan. It should also be noted that population growth is also expected just outside the study area in the town of Swords, to the south close to the Airport and Kinsale and to the south west around Piperstown.

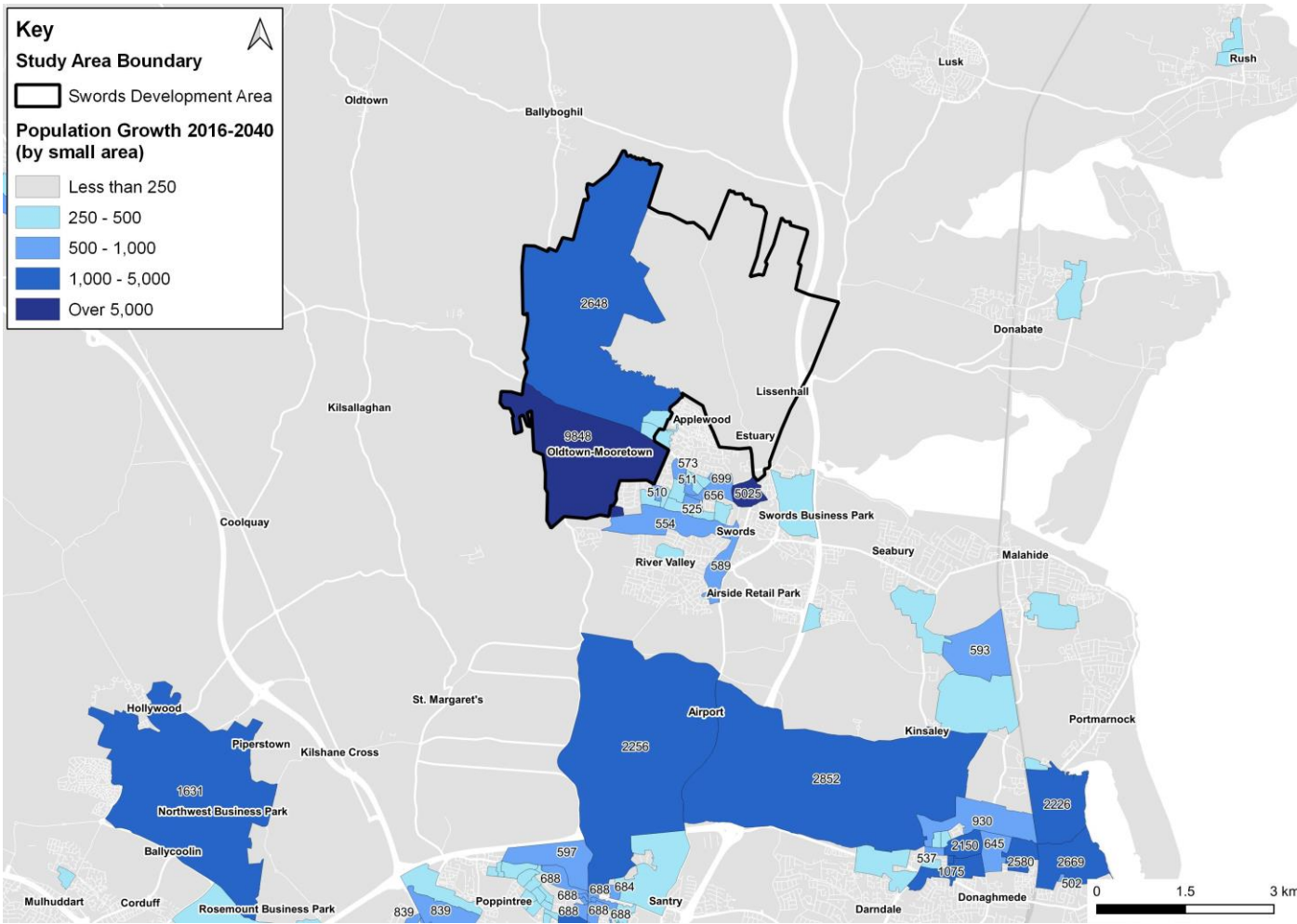


Figure 4.1: Study area population growth

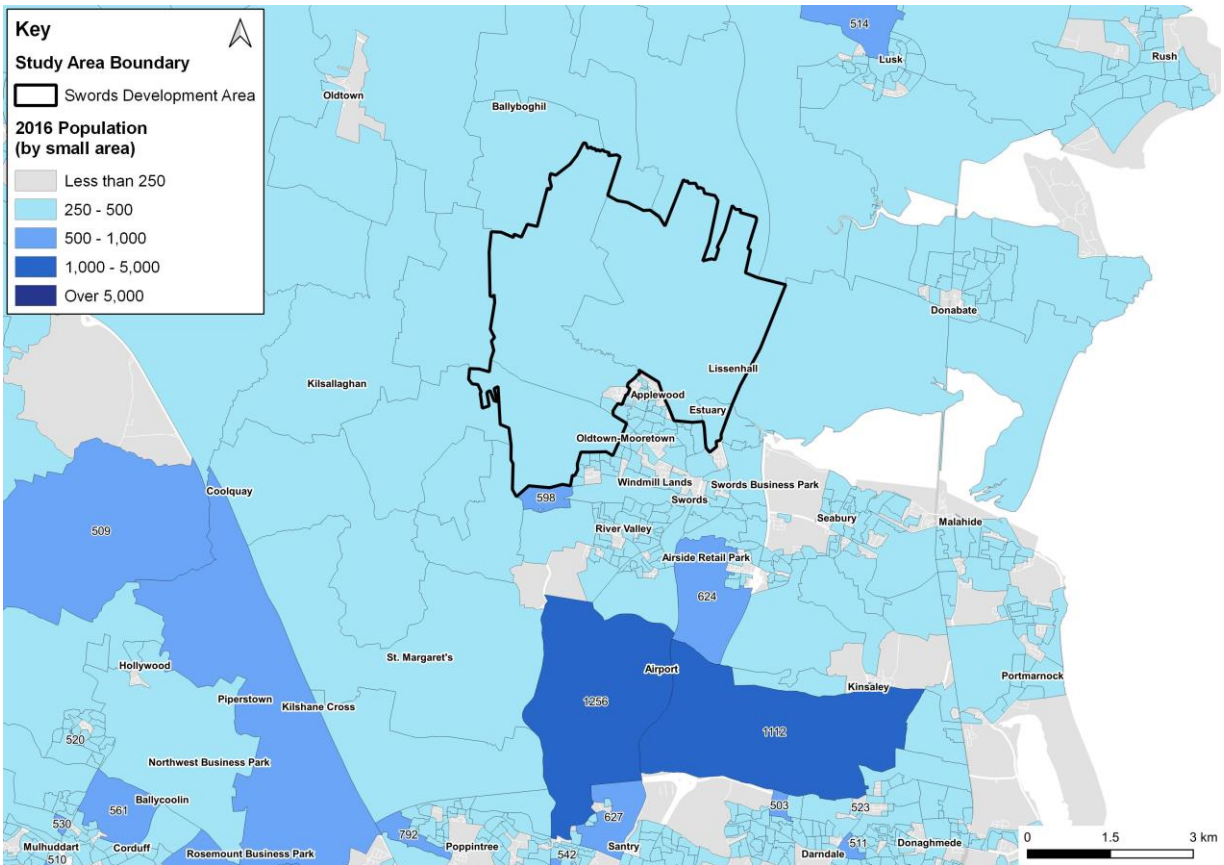


Figure 4.2: Population in Swords Development Area in 2016

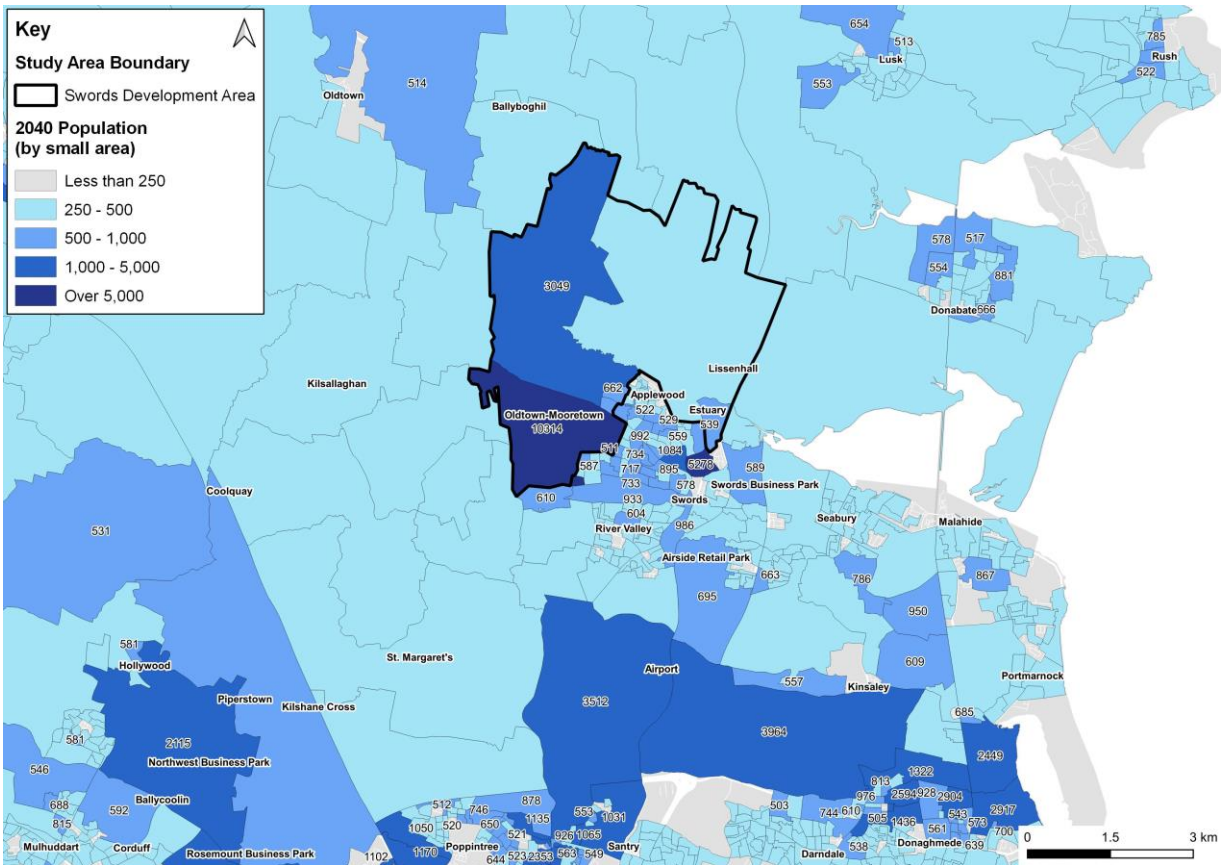


Figure 4.3: Population in Swords Development Area in 2040

4.1.3 Employment

Figure 4.5 shows the level of employment in the study area in 2016. The industrial estates detailed in section 3.1 are located in the south east corner of the study area in the Estuary East development site.

Figure 4.6 shows the projected employment levels of the study area in 2040 with the projected employment growth between 2016 and 2040 is shown in Figure 4.4.

The largest employment growth is projected to be in the south east corner of the study area, in the Estuary East site. The Planning Sheet states that 759 additional jobs will be created within the study area, taking the numbers from 1,432 to 2,191: a 53% increase.

In addition to this, the Fingal Development Plan assumes that the Lissenhall site will provide an additional 2.2m sqm of mixed use development land, and the Estuary West Masterplan allocates 20,000 sqm of commercial floorspace, providing for up to 1,500 jobs in the area (these are not accounted for in the Planning Data Sheet).

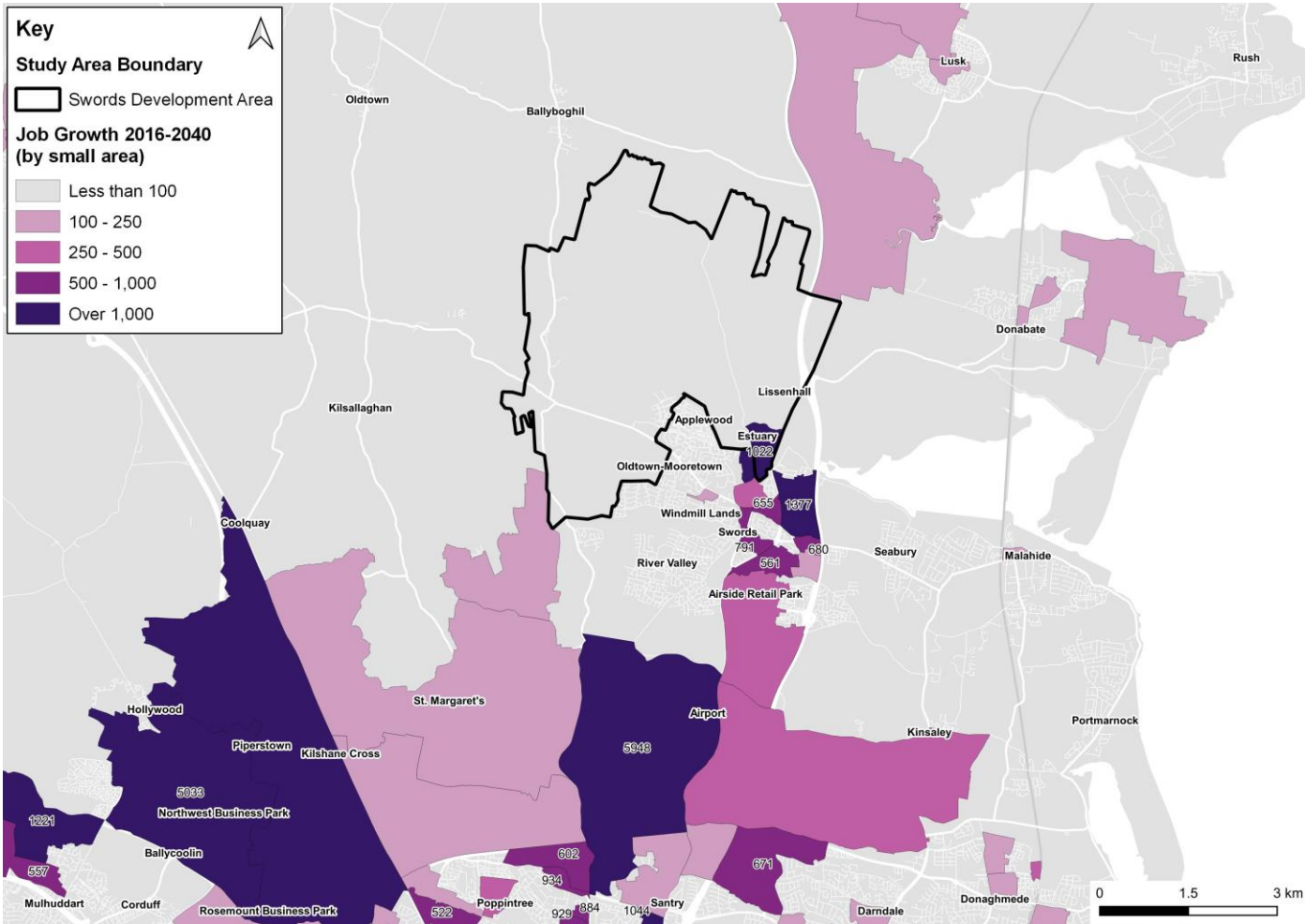


Figure 4.4: Study area employment growth

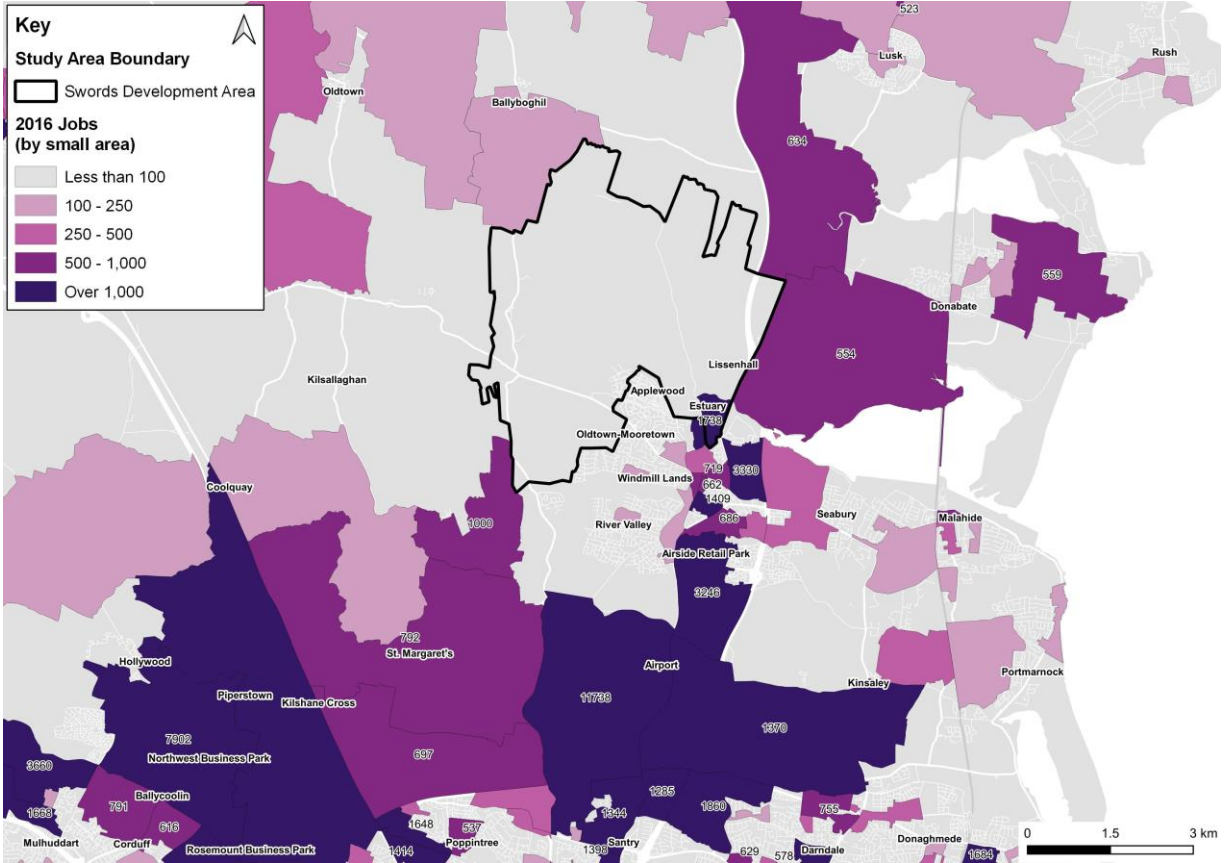


Figure 4.5: Employment in Swords Development Area in 2016

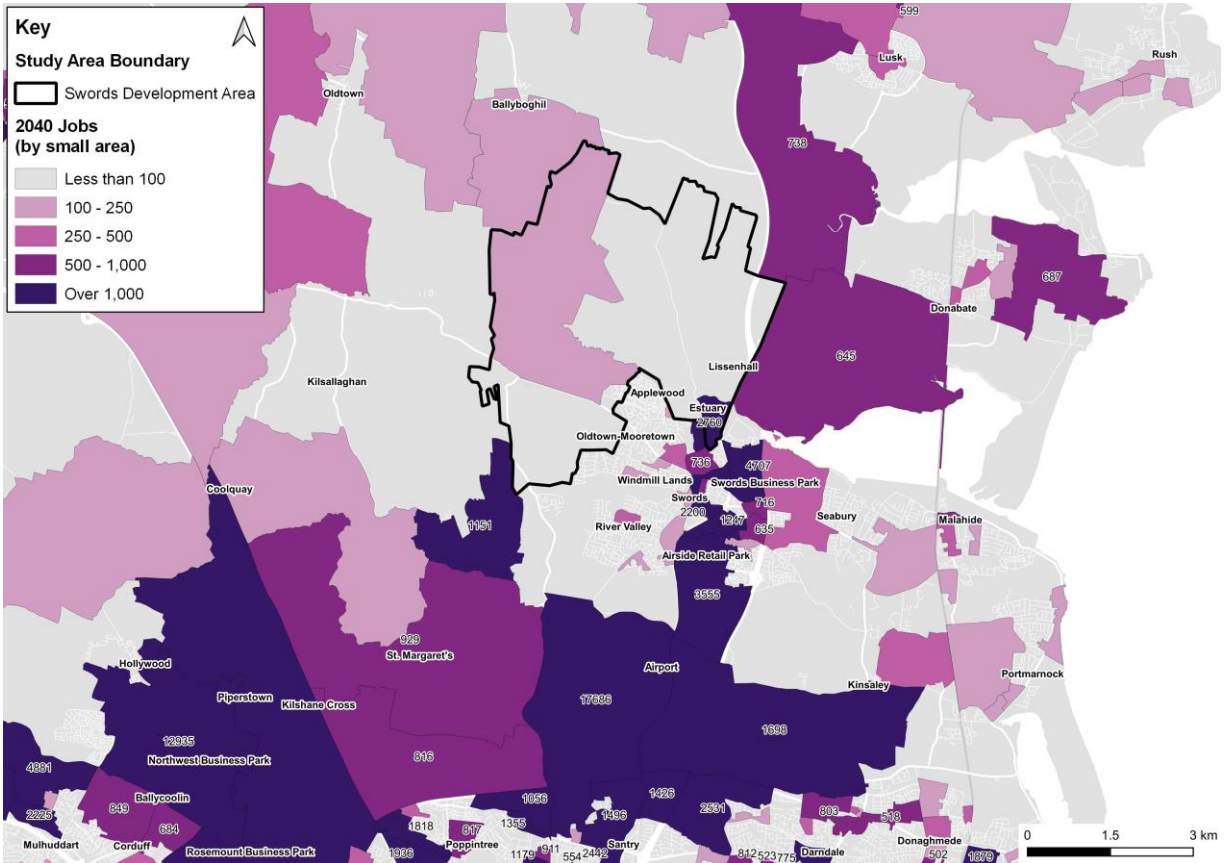


Figure 4.6: Employment in Swords Development Area in 2040

4.1.4 Education

There are four schools currently located within the study area. The existing number of pupils is shown in Figure 4.8. The projected number of pupils in 2040 is shown in Figure 4.9 and the education growth between 2016 and 2040 is shown in Figure 4.7. Overall, the number of educational places is expected to grow from 880 to 917, a 4% increase.

However, this growth does not take into account the proposed new school for circa 400 pupils proposed as part of the Estuary West site.

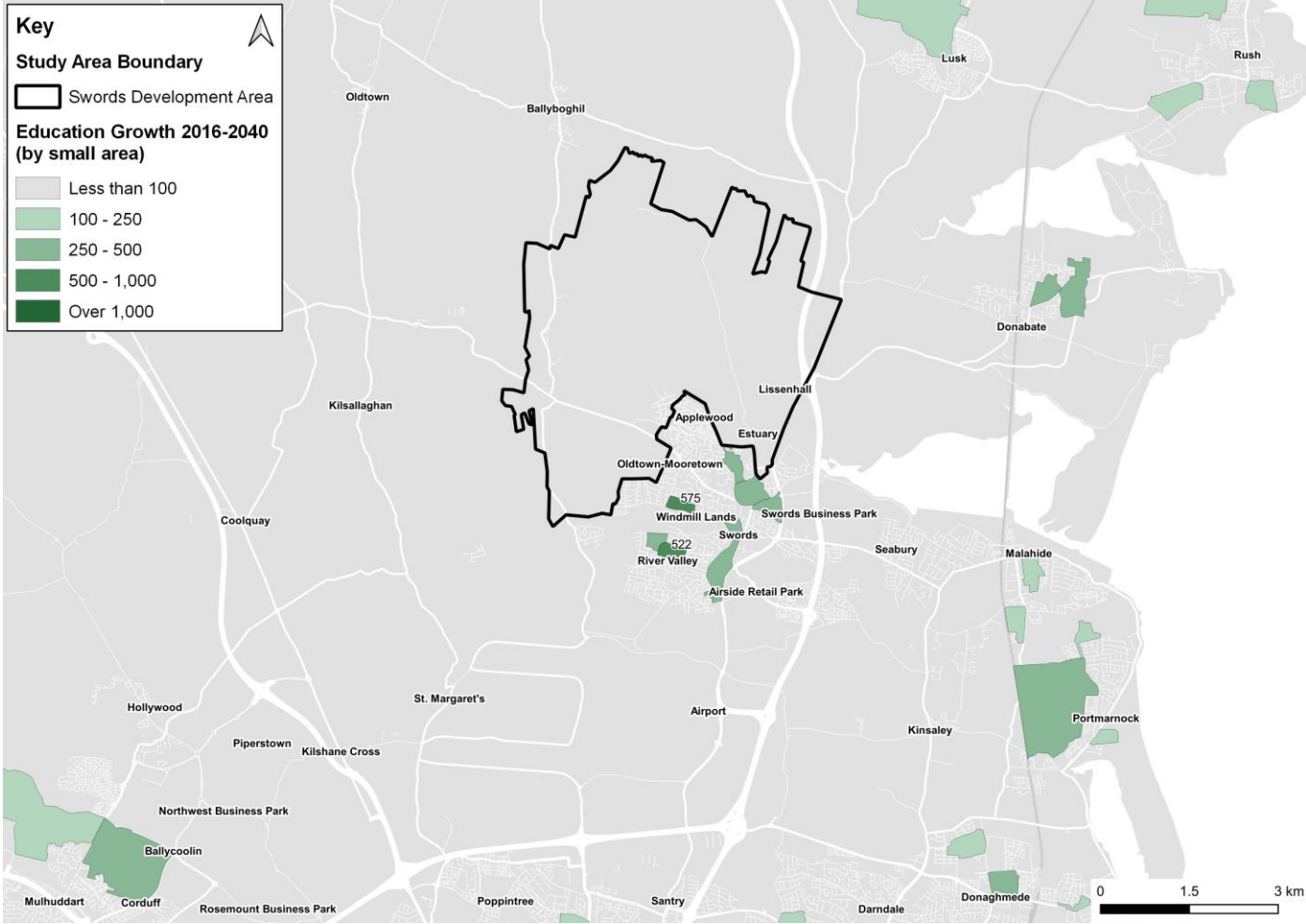


Figure 4.7: Study area education growth

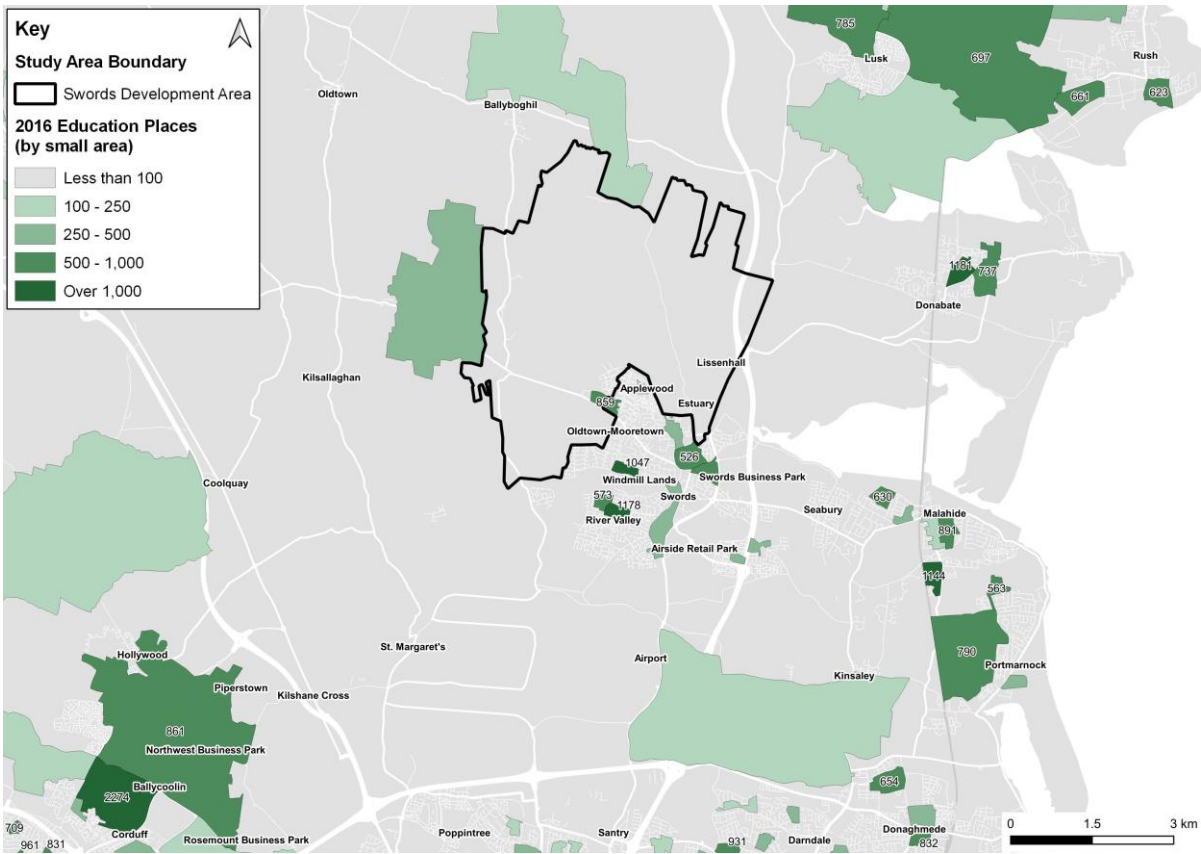


Figure 4.8: Education in Swords Development Area in 2016

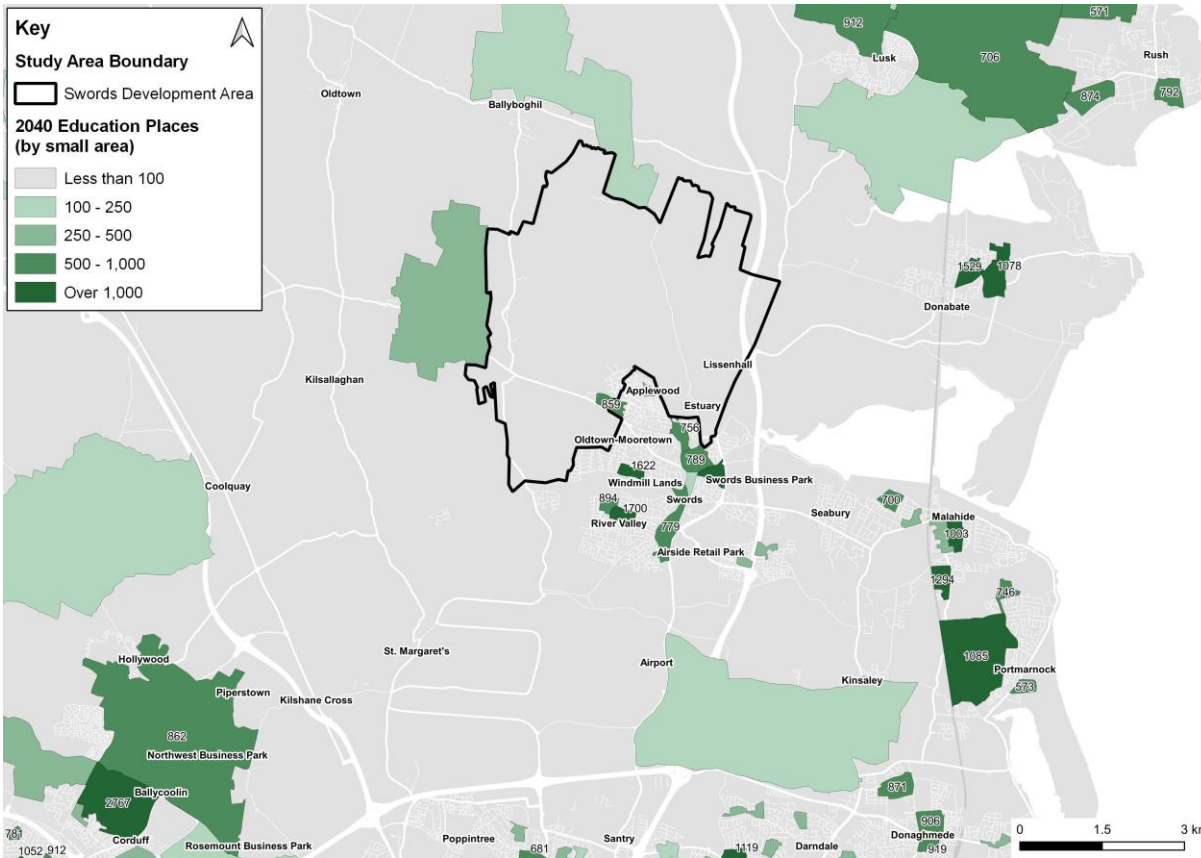


Figure 4.9: Education in Swords Development Area in 2040

4.2 Future proposals for transport interventions

4.2.1 Overview

This section outlines the main proposed future transport network changes for the study area and the wider Swords settlement area (namely Metrolink, Bus Connects Core Bus Corridors and the Dart+ programme) – three major schemes, all of which will have a significant impact on travel provision, travel behaviour and trip distribution in and around the study area.

In addition, potential future road schemes that will have an impact on connectivity within the study area are also summarised. These are outlined in Figure 4.10.

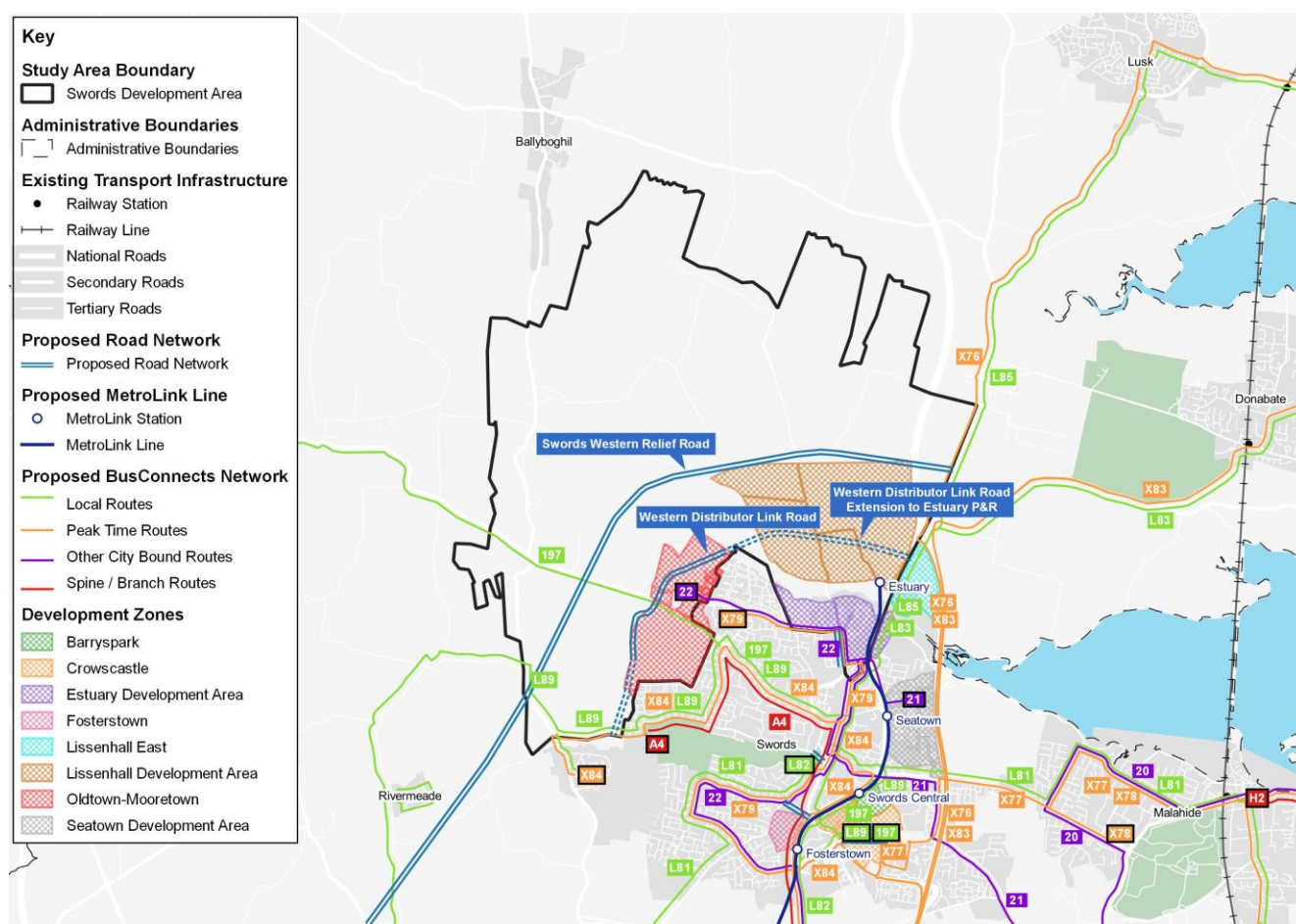


Figure 4.10: Transport proposals near to and within the study area

4.2.2 MetroLink

MetroLink is Dublin's proposed high frequency, high capacity metro rail line serving Swords, Dublin Airport and the city centre, as outlined in the Greater Dublin Area Transport Strategy 2016-2035 (where it was referred to as Metro North). The long term MetroLink proposal is for a single line route comprising 25 station (including 15 new stations) running from north of Swords and connecting to the Luas Green Line through to Sandyford (south of the city centre). Between Charlemont and Sandyford, the existing Luas Green Line would be upgraded to Metro standard and the Metro service would replace the existing Luas trams along this section. Given concerns which arose during public consultation, the MetroLink is proceeding on the basis of its termination at Charlemont, with passive provision of the bore tunnel extended to Ranelagh in order to facilitate a future tie-in to the Green Line. The longer term – potentially twenty years from now – would see the MetroLink extended to Sandyford.

MetroLink is forecast to cater for 20,000 passenger per direction per hours, and to carry up to 50 million passengers p.a. The line will establish a 25-minute journey time between Swords and Dublin city centre. The line will run adjacent to the R132 as it passes south from Swords, deviating to provide a connection at the Airport. A number of proposed MetroLink stations run close to or within the study area; these include Dublin Airport, Swords Central, and Estuary Park and Ride which is within the Lissenhall development site and which is planned to have spaces for 3,000 vehicles.

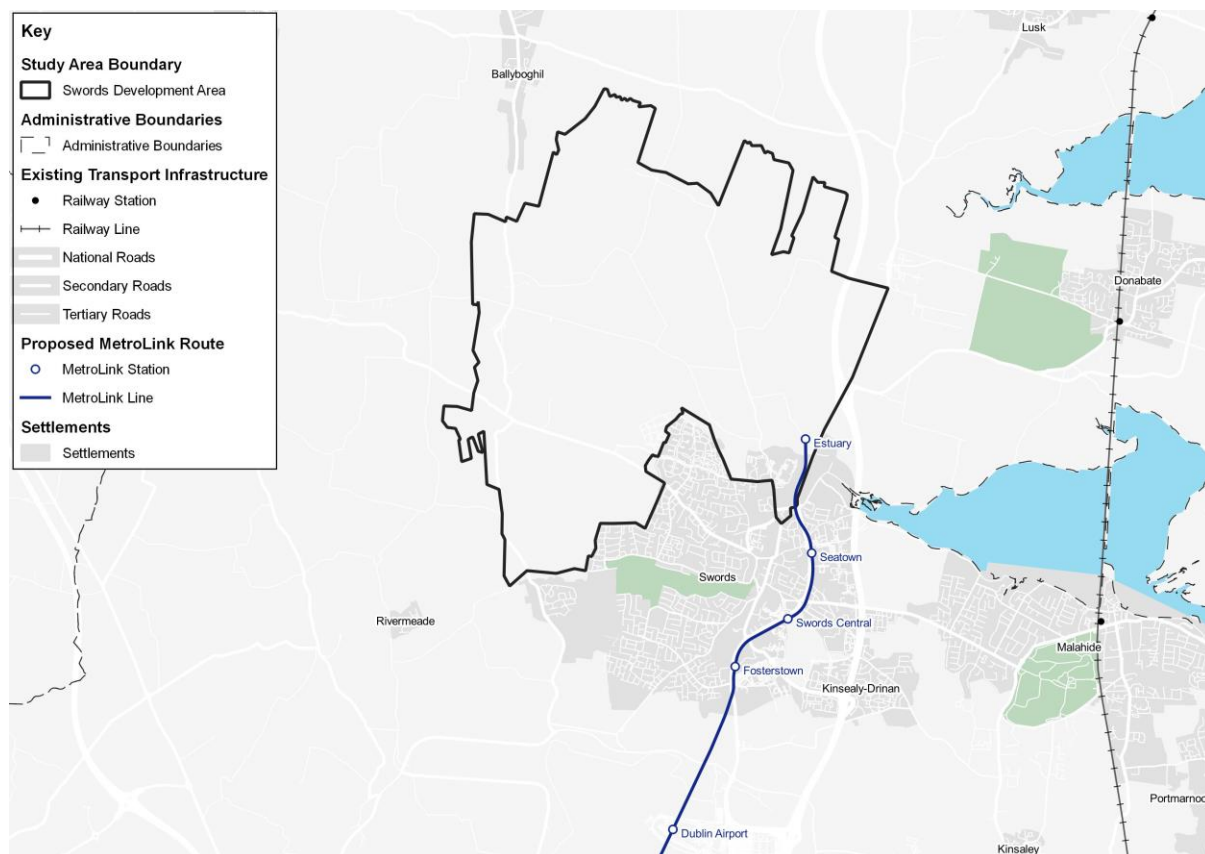


Figure 4.11: MetroLink alignment and stations close to the study area

4.2.3 BusConnects

BusConnects is the NTA's programme to greatly improve bus and sustainable transport services. It is a key part of the Government's policies to improve public transport and address climate change in Dublin and other cities. The BusConnects programme comprises nine elements:

- Core Bus Corridors
- Dublin Area Bus Network Redesign
- Transitioning to a new low emissions bus fleet
- State of the art ticketing system
- Cashless payment system
- Simpler fare structure
- New Park and Ride sites in key locations
- New bus livery providing a common style across all operators
- New bus stops and shelters with better signage and information.

The Bus Connects Core Bus Corridor (CBC) network is made up of 16 radial corridors, with Corridor 2 linking Swords to the city centre. This is a 12.5km route which runs along the R132 and (with bus priority), has an

estimated journey time of 40 minutes (down from a current journey time of 71 minutes, and a forecast 80+ minutes if the Bus Connects programme is not introduced).

Bus Connects is also allowing for the creation of the **next generation of cycle network infrastructure** along what are the main cycle corridors for the city. Each of the Core Bus Corridors will provide high quality cycle facilities, segregated from the bus lanes and general traffic as far as possible. This will avoid interaction with bus traffic and therefore provide a safer environment for both new and experienced cyclists alike, whilst removing potential conflicts with bus drivers which can slow down the speed of services.

Subject to planning, construction of the Bus Connects CBC network is expected to begin in 2022 and be complete in 2027. Each corridor is expected to take approximately two years to build. The proposed CBC from Swords to the city centre is CBC 2, as illustrated in Figure 4.12, will commence south of Swords town on the Swords Road at the Pinnock Hill junction.

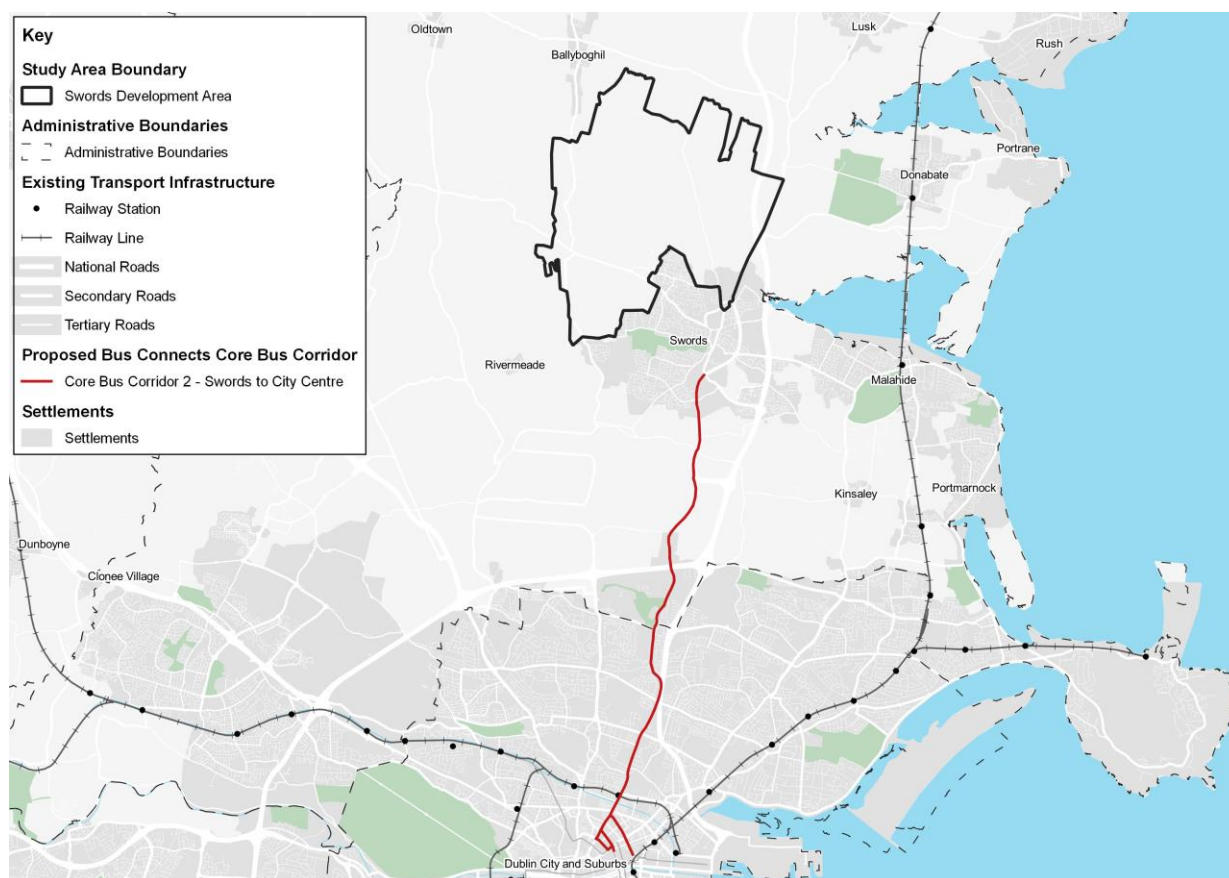


Figure 4.12: Core Bus Corridor 2 - Swords to City Centre

4.2.4 DART+

DART (Dublin Area Rapid Transit) is the electrified commuter rail network serving the coastline and city centre of Dublin. The closest station to Swords on the DART network is Malahide Station (on the Dublin to Drogheda Northern line), which is approximately 4.5km from the centre of the town and within cycling distance of the study area.

The DART+ Expansion Programme is a series of projects that will create a linked and interconnected metropolitan area DART network for Dublin. Initial investment will deliver the non-underground tunnel elements of the programme using the recently opened rail link and existing connector tunnel under the Phoenix Park. This includes buying additional fleet for the DART network and measures such as re-signalling, junction and station changes to provide expanded services. The next stage will be to provide fast, high frequency electrified services to Drogheda on the Northern Line, Celbridge/Hazelhatch on the Kildare Line, Maynooth and the M3 Parkway on

the Maynooth/ Sligo Line. New stations will also be provided in the city centre to provide interchange with bus, Luas and Metro networks.

This integrated rail network will provide a core, high capacity transit system for the region and will deliver a very substantial increase in peak-hour capacity on all lines from Drogheda, Maynooth, Celbridge/Hazelhatch and Greystones. Patronage on the network is forecast to increase from 26,000 per hour per direction in 2019 to 52,000 per hour per direction by 2027/28.

The programme on the Northern Line will include upgrades to the signalling and telecommunication infrastructure, and electrification between Malahide to Drogheda to support the projected capacity increases, all of which will support growth in the study area.

4.2.5 Swords Western Distributor Road (SWDR)

The proposed SWDR is within the Oldtown and Mooretown development site within the study area, providing access to the Rathbeale Road from the lands to its north and south respectively. In Oldtown the proposals include active frontage on to the SWDR, which serves as the main street for the development, and provides access to the Glenn Ellan Road. In Mooretown the SWDR alignment is a tree lined two lane local access road with a 2-way cycle track and forms the western edge of the new area. The SWDR Extension is a continuation of this alignment to the south, with a connection to the Brackenstown Road.

The Oldtown Mooretown LAP notes the following about the SWDR:

- The Swords Western Distributor Road will form a spine for access to both Oldtown and Mooretown.
- Existing routes which will interface with the SWDR are Rathbeale Road and Glen Ellan Road Extension, both of which will be redesigned to slow movement of traffic to protect the amenity and safety of pedestrians and cyclists in the new urban areas.
- The Swords Western Distributor Road will form the western boundary of development at Mooretown and will be internal to Oldtown.
- The road shall also comprise a safe and attractive pedestrian/cyclist green corridor to facilitate access to the Ward River Valley Park, thereby ensuring connectivity to the wider green network of open spaces.
- The Swords Western Distributor Road could also act as a relief road to improve the local road network for Swords and as a distributor road for the Oldtown-Mooretown lands.
- The SWDR may facilitate north-south connectivity to the west of the town, thereby removing traffic from Main Street, R132 and M1.

The South Fingal Transport Study considered this last point and concluded that the SWDR would provide additional resilience to the local road network in the context of diverting traffic from Main Street, in addition to providing direct access to the MetroLink Park and Ride at Estuary.

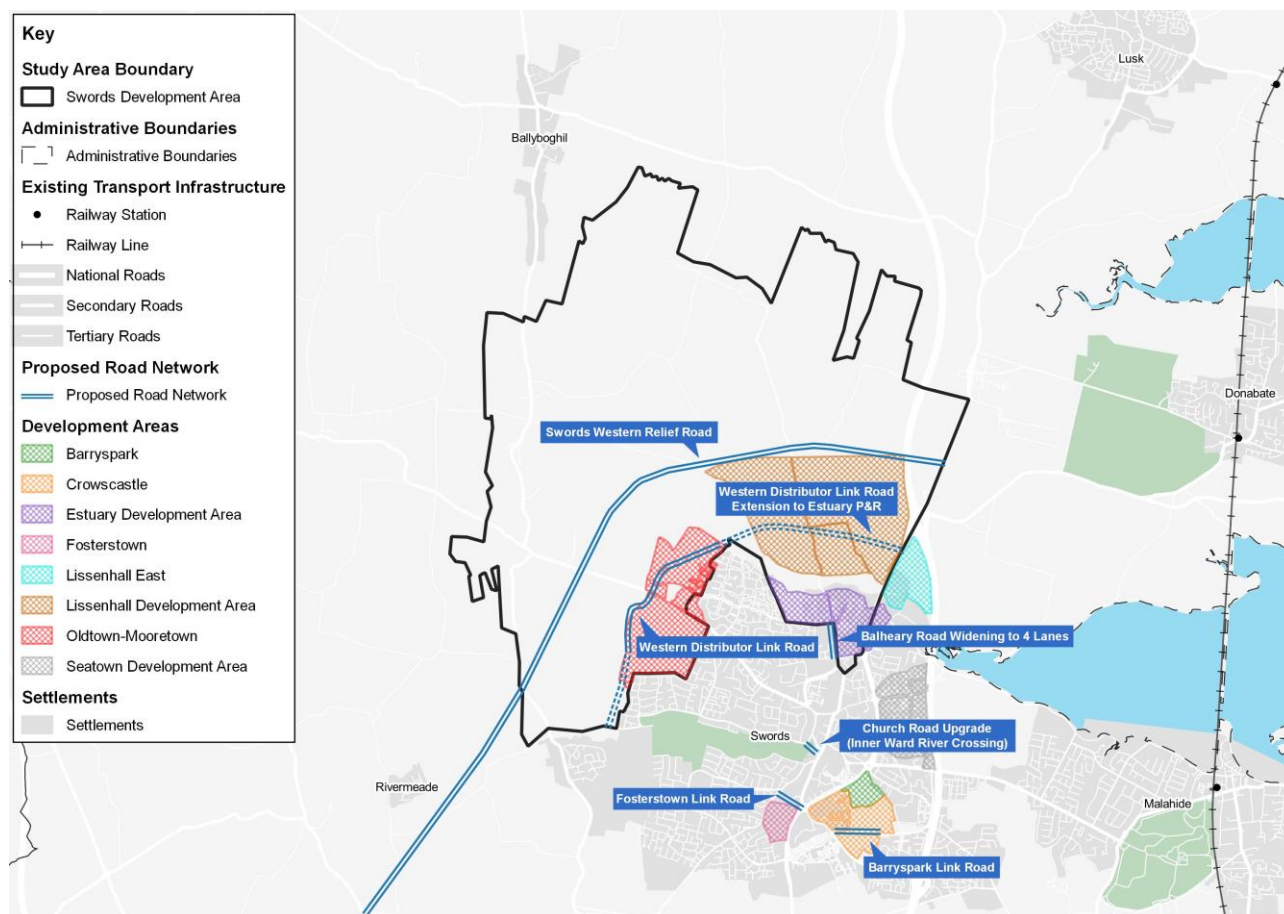


Figure 4.13: Proposed road network in and around the study area

4.2.6 The Swords Western Relief Road (SWRR)

As illustrated in the Figure above, the SWRR is an objective of the current Fingal Development Plan and of the 'Your Swords, An Emerging City, and Strategic Vision 2035'. The SWRR is proposed to connect the R132 north of the M1 Lissenhall junction and proceeds for circa 9km through rural Fingal to the N2 north of the M50 (via the Airport Box). An outline design incorporated seven interchanges along its length connecting to the R132, M1, Newtown, Rathbeale, Naul Road, the R122 and the N2. The scheme was proposed to improve north-south movement to the west of Swords, and provide a bypass of the town to the N2, M50 and other national primary roads.

The *Swords Strategic Vision 2035* City document states the new road could:

- Remove significant volumes of traffic from the Swords Town Centre area, as well as serving strategic traffic between the M1 and M2/M50 corridors.
- Act as a bypass of Swords at a strategic level.
- Provide a more direct and efficient route from the M1 to the proposed Dublin Airport Box (new road network).
- Serve the proposed strategic Park and Ride, minimizing the amount of traffic utilising limited carrying capacity on the existing and proposed local road network in Swords.
- Greatly enhance traffic mobility within Swords town.
- Reduce congestion on existing roads in Swords town centre.
- Reduce traffic on the M1 (south of the Lissenhall interchange) and on sections of the M50
- Improve access to Dublin Airport.

The South Fingal Transport Study modelled the impact of this scheme and concluded that it did not lead to an improvement in local traffic movement, although there were some benefits on the M1 (although it noted that these were not likely to outweigh the costs).

4.3 Future Travel Patterns

4.3.1 Model definitions

The assessment of future travel demand is based on the outputs from the NTA Eastern Regional Model (ERM).

The ERM represents a 2042 scenario including:

Five time periods:

- AM 07:00 to 10:00
- Lunch time 10:00 to 13:00
- School run 13:00 to 16:00
- PM 16:00 to 19:00
- Off peak 19:00 to 07:00

Three mode classes;

- Public transport (bus, Luas, rail and light rail)
- Road (cars, LGV, HGV and taxi)
- Active modes (walk and cycle)

Five trip purposes:

- Employers Business
- Education
- Commute
- Other
- Retired

Do Minimum

The model run represents a 'Do Minimum' scenario which includes all existing transport provision as well as committed development, plus a number of changes to the transport network. The Bus Connects programme. The bus network within the model reflects the new Dublin Bus Connects timetable, but it does not include any infrastructure proposals associated with Bus Connects (for example, Core Bus Corridors). No other, currently uncommitted, transport proposals are included in the model.

The trips are assigned to a constrained network, meaning that the model will make decisions on route choice, mode and timing of trip in response to the capacities of the network and journey times. This means where there is an excess of trips when compared to network capacity, the model may reassign some trip to other routes, including local roads, instead of using the key strategic transport provision which is the focus of this study.

The ERM has been used to understand some of the key transport patterns in 2042 such as mode share, trip lengths, origins and destinations, route capacity and volume to capacity. These are described in the subsequent paragraphs in this section, and this information has been used to support the option development process.

Study sector definition

In order to inform the options identification and development process, spatial analysis using GIS has been undertaken on trips that have an origin and/or destination (or both) within the study area, using the demand outputs from the model.

The model zonal system has been aggregated into sectors (groups of zones) which allow patterns from the model data to be analysed more easily. Within the study area, zones form their own sectors at the most detailed level. The sector system is shown in the following demand maps.

The sector system was defined by aggregating settlements surrounding the study area, in order to (as much as possible within the sector boundaries) disaggregate specific zones that were identified as key trip attractors or high growth areas (i.e. Lissenhall East), especially those close to Swords town centre.

Some potential trip origins have been identified to the north of the study area in the towns of Rush, Lusk, Skerries and Balbriggan and to the west of the study area in Ashbourne, Ratoath, and Dunshaughlin. The Airport area is also sectorised on its own, while an orbital belt to the west of the study area was also identified. See below Figure 4.14 showing the sector system.

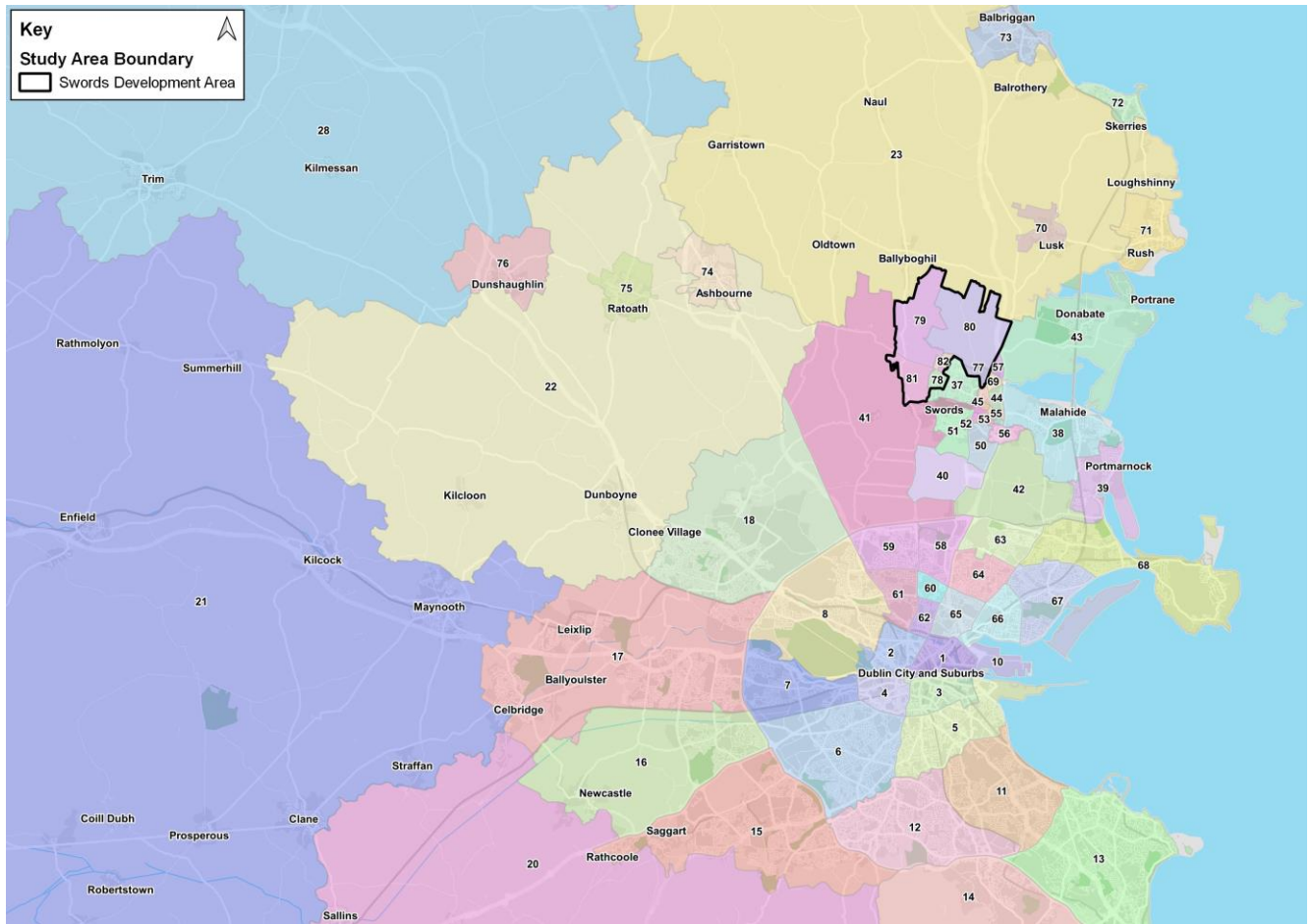


Figure 4.14: Sector system for demand analysis of Swords Development Area

4.3.2 Origins and destinations

Trips from the Study Area

Figure 4.15 shows the trips from the study area (internal to external) for all modes in the AM peak (0700 to 1000hrs).

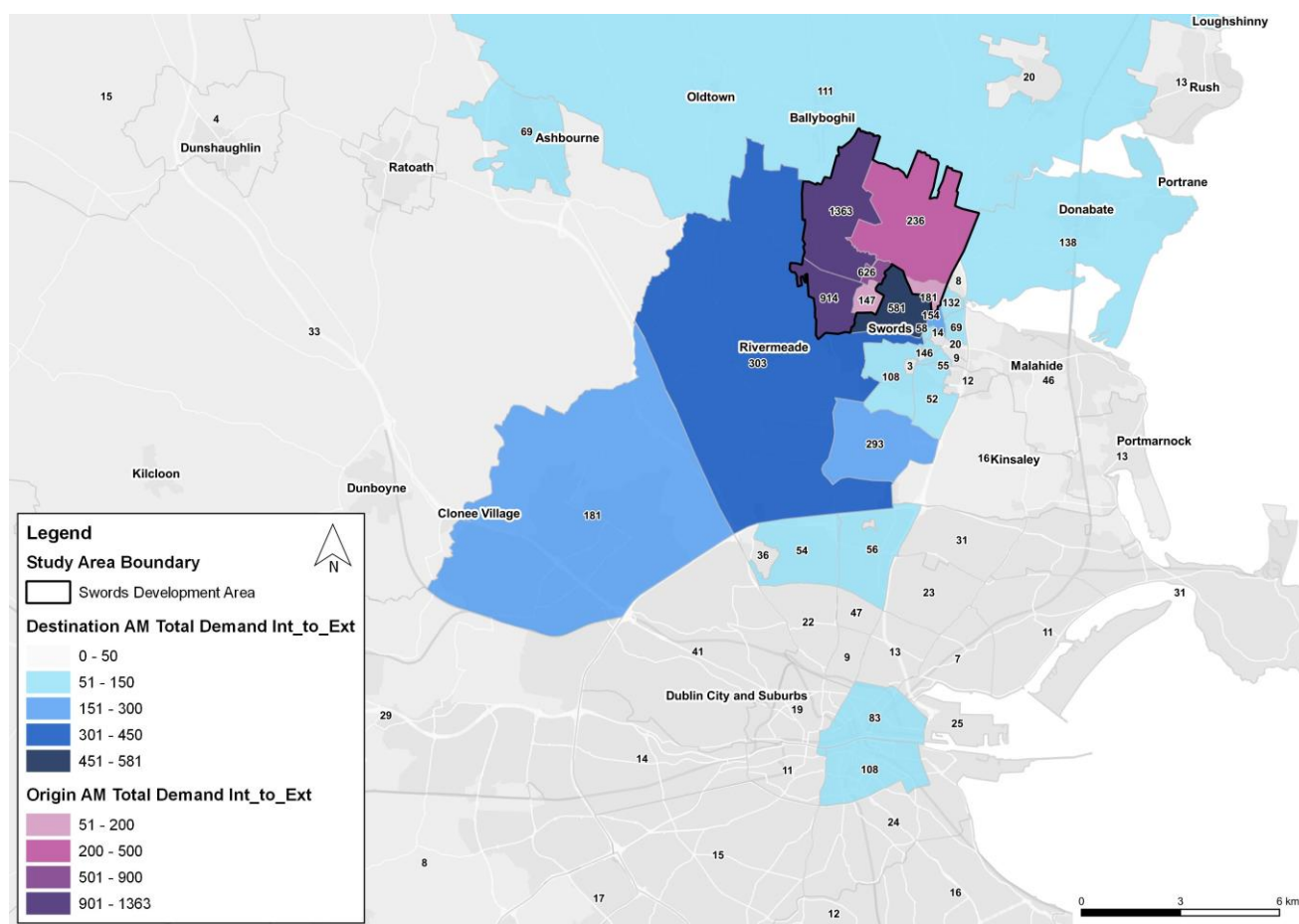


Figure 4.15: Trips from the study area

AM Peak

The vast majority of trips in the AM peak originate at the Oldtown-Mooretown development site within the study area. This is to be expected as it is the primary residential development within the study area.

For trips which originate in the study area in the AM peak, the main destinations are:

- The existing Swords settlement area (42%), of which 26% go to the town centre.
- Southwest to St Margaret's, and onwards to north Blanchardstown, Mulhuddart and Corduff with 484 trips in the AM peak (of which about a 100 go to Blanchardstown).
- Dublin Airport and the north fringe of Dublin (Santry, Coolock and Beaumont) also attract circa 300 trips in the 3 hours morning peak .
- Dublin city centre is the next key movement with 220 trips in the AM of which 82% are done by public transport.

It is noted that almost all of the daily trips to the city centre are made in the morning (97%), while for other destinations the AM peak is less marked (31% of daily trips to Swords settlement are made in the morning – 60% of which are to the town centre).

Car is the dominant mode choice (ranging from 72% for Ashbourne to 96% west of the study area and 97% north of the study area) with the exception of movements to Dublin city centre (where car mode is 17%) and to the south of Dublin (car mode is 40%) – where public transport is utilised. Car mode share to the Swords settlement is 76% and 80% to Swords town centre. Local movements to Lissenhall have a 58% car mode share, with a walking mode share of 29%. Please see Appendix C for additional detail of mode split and trip distribution of each key movement from the study area in the morning peak.

PM Peak

The trip movements in PM have also been analysed. Overall, the outbound trips are lower than in the morning and the main destinations for trips from the study area in the PM peak are to:

- Swords settlement (860 trips –40% of total analysed demand);
- West Orbital belt: St. Margaret's, Corduff, Blanchardstown (190 trips);
- North of the Study area (165 trips);
- Dublin North fringe: Santry, Beaumont, Artane (145 trips).

The trip demand analysis shows that there is a key radial corridor from the study area to the wider Swords settlement area and southwards towards Dublin Airport and the Dublin north fringe (and to a lesser extent into Dublin city centre). There is also noted demand in a south west orbital direction towards St. Margaret's, Corduff, Blanchardstown.

Trips to the Study Area

Figure 4.16 shows the external to internal trips for all modes in the AM peak, i.e. the origins and destination of trips which have destinations within the study area.

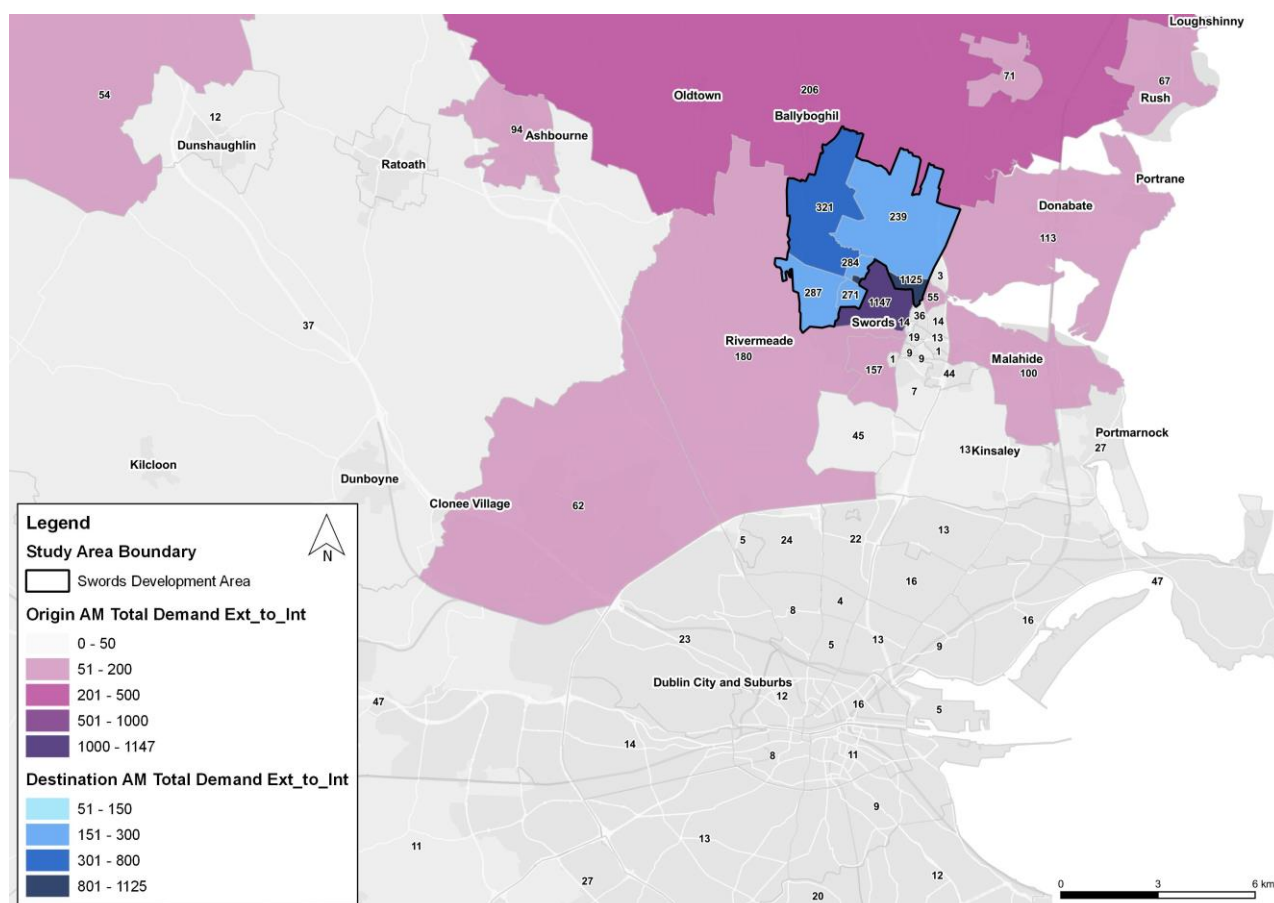


Figure 4.16: Trips to the study area

AM Peak

Figure 4.16 shows that the main movements into the study area in the AM peak originate from:

- The existing Swords town settlement – half of the inbound trips (50%) originate from the existing Swords town settlement, and travel to the Estuary West, Central and East development sites, where a

number of employment locations and schools are located. Most of these local trips are still made by car (72%), while only 7% are by public transport, with a much higher proportion of people walking (19%) rather than cycling (1%).

- The west – similarly to the outbound trips, the second busiest movement is the orbital one coming from St. Margaret's and Corduff, Blanchardstown with 242 trips during the 3 hour AM peak period.
- North County Dublin – another 200 trips originate from north county Dublin, with Balbriggan, Skerries, Lusk and Rush generating less than 70 trips each.
- Circa 110 trips come from the north Fringe of Dublin and also from Donabate and Portrane and another 100 from Malahide. This is to be expected as the main direction of movements in the morning in these areas is towards Dublin city centre.
- There are very few trips (less than 50) coming from Dublin city centre and the Airport area in the AM

Car is again the dominant mode, ranging from 68% for trips from Swords town centre, to 98% for trips from west of the study area. Please see Appendix C for additional detail of mode split and trip distribution of each key movement into the study area in the morning peak.

PM Peak

The trip origins in the PM peak have also been analysed. Overall, the key movements to the study area in the PM peak originate from:

- Swords settlement (1212 trips –42% of total analysed demand)
- Dublin North fringe: Santry, Beaumont, Artane (287 trips)
- West Orbital belt: St. Margaret's, Corduff, Blanchardstown (255 trips)
- Dublin Airport (215 trips)
- Dublin city centre (164 trips)
- North of the Study area (118 trips).

The trip demand analysis also illustrates the radial corridor movements from the study area to the wider Swords settlement area and southwards towards Dublin Airport and the Dublin north fringe (and to a lesser extent into Dublin city centre. There is also noted demand in a south west orbital direction towards St. Margaret's, Corduff, Blanchardstown.

Trips within the Study Area

AM Peak

The total internal demand within the study area in the AM peak is 755 trips between 0700 and 1000 hrs , distributed as shown in Figure 4.17 below.

- Most trips originate from the two larger zones in the west of the study area, where most of the future population growth is planned.
- The main destinations of trips are Oldtown Mooretown (445 trips) and Estuary (82), where most of the key trip attractors are located (schools and employment respectively).
- Many trips remain inside the western part of the study area.

As outlined previously, the future residential and employment growth of Lissenhall and Estuary areas is not fully taken into account by the Planning Data sheet. Therefore, the internal demand towards the east of study area may be significantly underestimated.

The mode split of internal trips is 58% car and 39% walking.

Public transport only accounts for 1.5% as the western part of the study area is not connected to the future Bus Connects network routes which stop at the end of Glen Ellan Road.

Cycling only caters for 1.3% of trips in the morning peak within the study area. Improved cycle routes within the study area will benefit the mode shift towards active travel choices, in particular considering that most of the car trips inside the study area are shorter than 3km (from north western zones into south western zones and into Oldtown Mooretown).

Car, cycle, public transport and walking trip maps can be found in Appendix B.

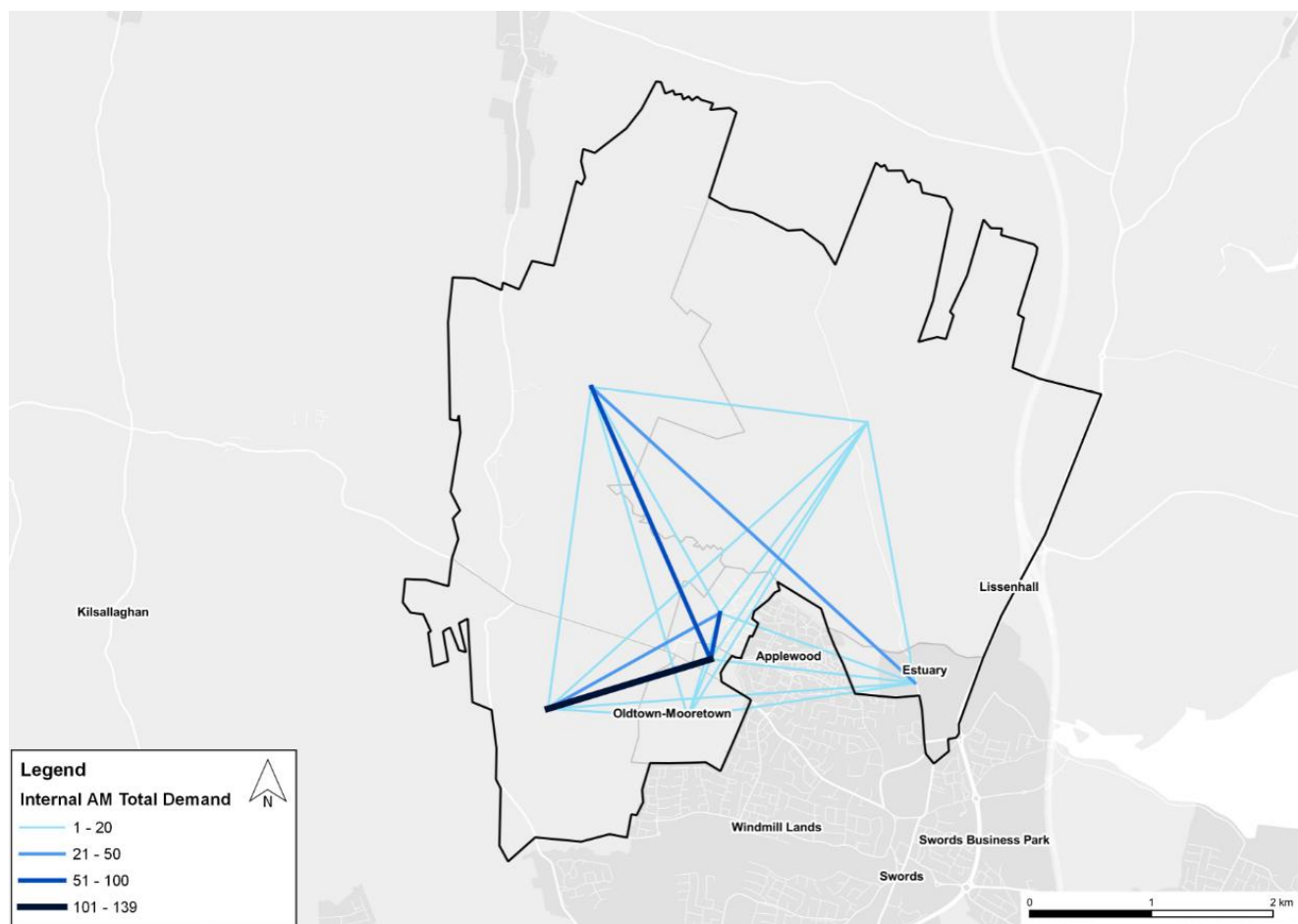


Figure 4.17: Trips within the study area (AM peak)

PM Peak

The PM trips are lower than AM (370 in total) and the patterns are exactly reversed, with trips originating in Estuary and Applewood (part of the Oldtown Mooretown development) and travelling back to the residential areas to the south and north west of the study area.

Origins and destinations by mode

Trip patterns have been disaggregated by mode where either the origin or destination is within the Swords development study area and the other origin or destination is outside the study area. Trips have been categorised as car, public transport and active mode trips. Maps are provided in Appendix B for the AM peak.

Active mode trips are mostly between zones within, adjacent, or in close proximity to the study area such as the wider Swords settlement or Lissenhall East. A high proportion of internal to external public transport trips occur

between the study area and Swords town centre, Dublin Airport and the Dublin North Fringe. The same areas originate public transport trips in the opposite direction, particularly in the PM peak.

4.3.3 Mode Share

Mode share data has been extracted from the model for trips originating in the Swords development study area for car, public transport, cycling and walking trips. This has been spatially analysed for the AM peak period and is shown in Figure 4.18.

Overall, the AM Peak Data shows that:

- Car is by far the most dominant mode, largely reflecting the lack of an established public or active transport network.
- Low mode share for cycling, between 0% and 4% across the study area.
- There is considerable variance in walking mode share from between 0% to 30%.

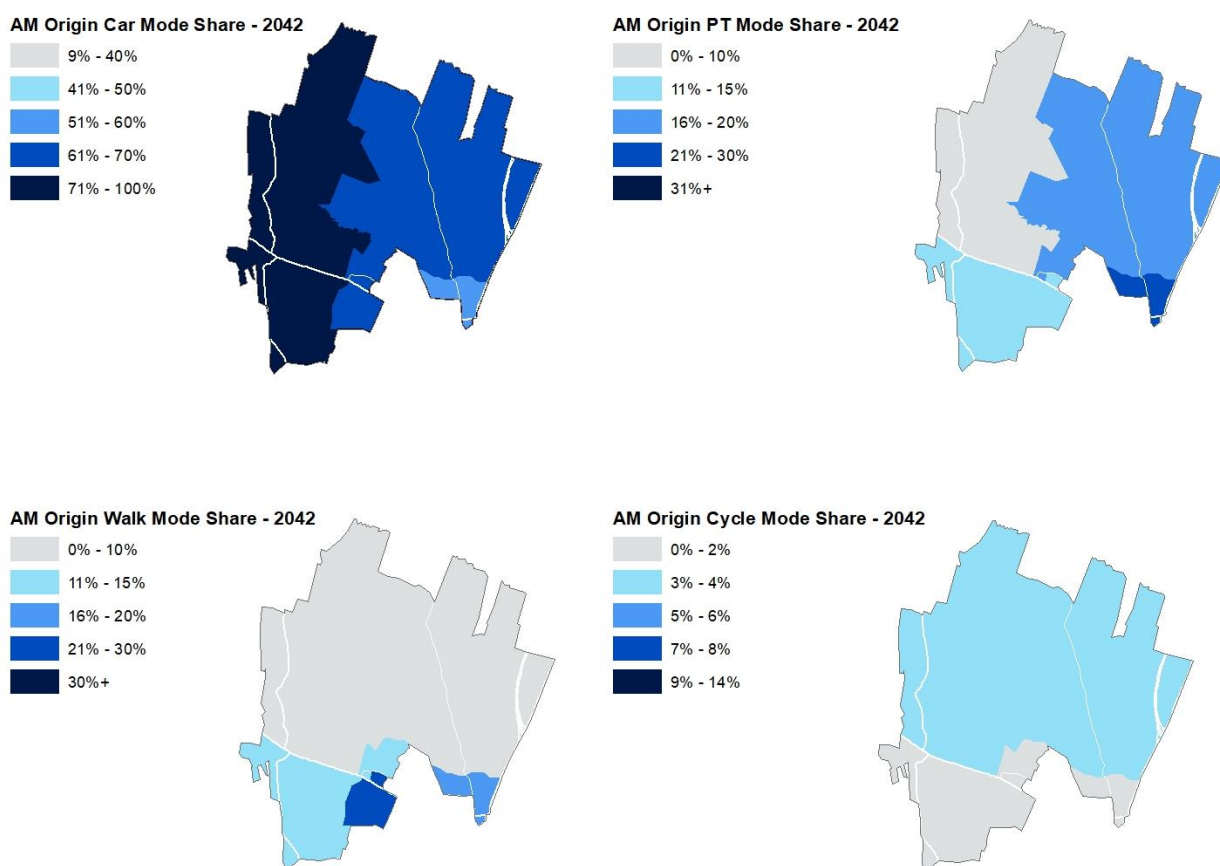


Figure 4.18: AM peak mode share

Car Mode Share

Car Mode share is particularly high in those parts of the study area that cover the Oldtown-Mooretown development areas. This is unsurprising given that the area is earmarked for residential development. However, car mode share in all parts of the study area is quite high, highlighting the importance of new sustainable transport interventions to provide connectivity to and within the study area, particularly for short distance trips (within 7.5km).

Public Transport Mode Share

The highest proportion of public transport use can be found in the parts of the study area covered by the Estuary development sites. This reflects the location of key bus routes which run along the M1 and R132. There are few other existing public transport routes close to the study area, which is reflected in the otherwise low levels of public transport use.

Cycle Mode Share

The cycle mode share for the study area is low, at no more than 4%. This reflects the lack of cycle network provision in the study area.

Walking Mode Share

Mode share for walking varies across the study area, but peaks at 30%. This is located in a small sector which is intended to capture trips to and from a school, highlighting the importance of walking as a mode for serving education trips.

However, a word of caution must be provided alongside these outputs. Given the largely undeveloped nature of the study area, there is very little transport infrastructure assumed within the model, which is likely affecting the mode share outputs.

4.3.4 Capacity by mode

Roads

Figure 4.19 identifies junctions within and close to the study area which experience a volume over capacity (V/C) ratio higher than 60% in the 2042 forecast model run for the AM peak.

Junctions with a V/C ratio higher than 85% are defined as operating close to capacity.

- A number of junctions with such ratios can be seen along the M1, close to the Lissenhall junction, where connecting to the R132 and to the south, the slip lane connecting to Dublin Airport via the R125.
- Junctions are also consistently at high volume to capacity ratios along the R132.
- A number of other critical spots are the junction close to the M1 on the R106 connecting Malahide into Swords town centre and the roundabout on the R125 providing access to the Airside Business Park from the south of Swords town.

Overall, within the study area itself, the road network is not overly congested, with a large number of junctions demonstrating existing operational headroom and spare capacity. This allows for growth and a degree of flexibility to introduce meaningful measures to build greater resilience into the network through enhanced public transport and cycling infrastructure.

However, access into the study area from the surrounding area do experience high levels of congestion at the points noted above, notably along the R132 and the M1.

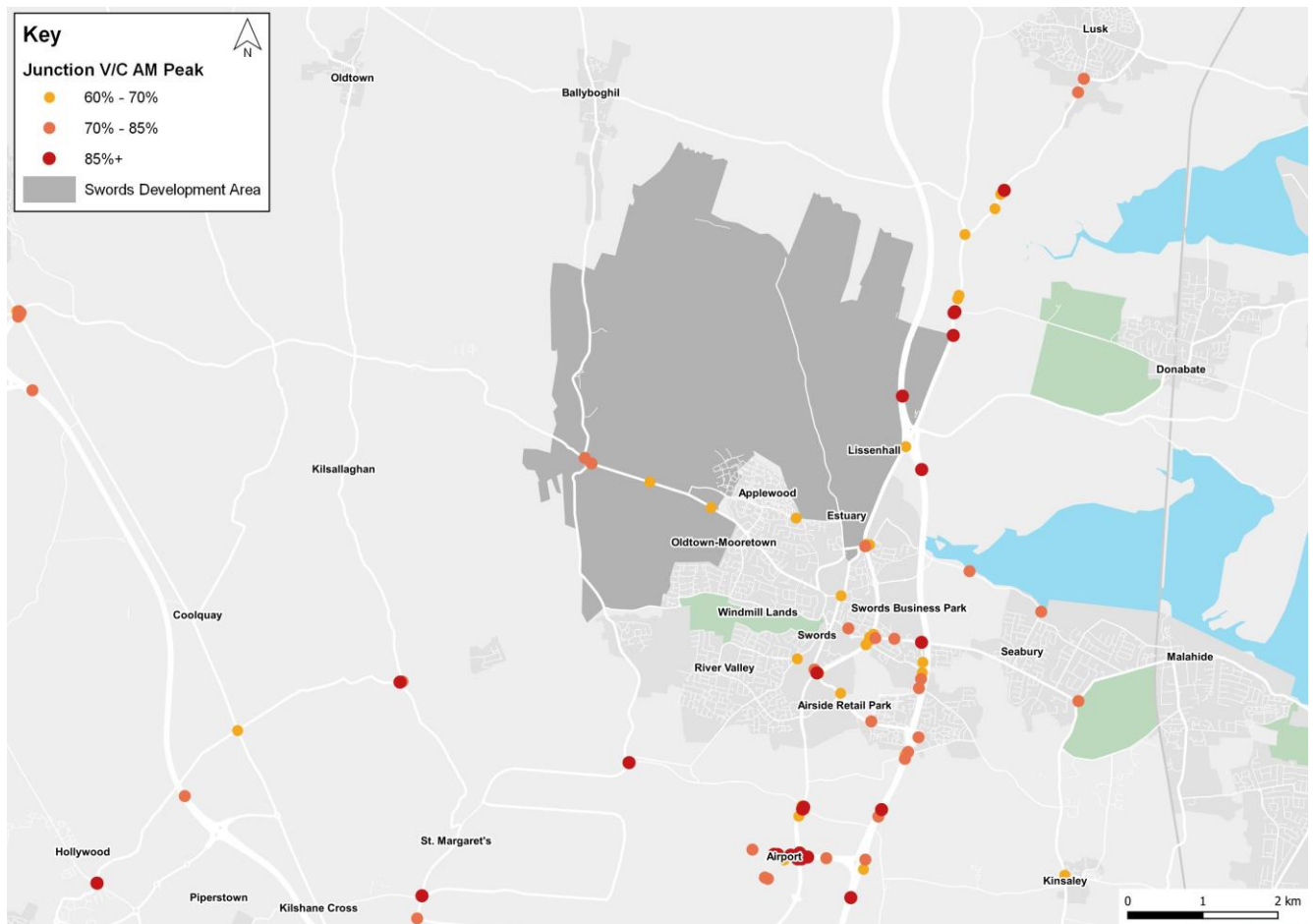


Figure 4.19: Volume to capacity ratio of junctions in the Swords development study area for the AM peak

Public Transport – Bus

Public transport demand outputs from the model have been analysed to determine which routes are forecast to operate over capacity in the forecast year. There are two definitions of capacity – crush capacity and design capacity.

- **Crush capacity** is the technical term for when a vehicle is full, including passengers who are standing. Transport services are planned for on the basis that such a level of capacity is not reached and instead the design capacity is used.
- **Design capacity** equates to 85% of the crush capacity and therefore systems are designed with an element of headroom to allow for fluctuations in demand.

Figure 4.20 shows the hourly volume/design capacity ratio on the routes through and close to the study area. These show that bus capacity is generally below 85% with a limited number of exceptions:

- The X76 Xpresso route and the local L85 route along the M1 southwards to J4 at the intersection with the R132 and on the northbound stretch towards Lusk and Rush;
- Route 197 to Ashbourne on two sections of the R125 Rathbeale Road;
- On the M1 from J3 to J2 all Xpresso routes (X76, X77, X79) are at capacity in the AM;
- Routes 22 and X79 on the R132 between the Estuary Roundabout and Pinnockhill (R132/R125/R836 roundabout), between the Airside Retail Park and the Airport ; and
- The N8 route, along the M1 and R139.

This analysis indicates a requirement for additional capacity on bus services on these routes. This will support future public transport mode shift, particularly for journeys to/from the study area and the wider Swords settlement area (for example on the Bus Connects 22 route).

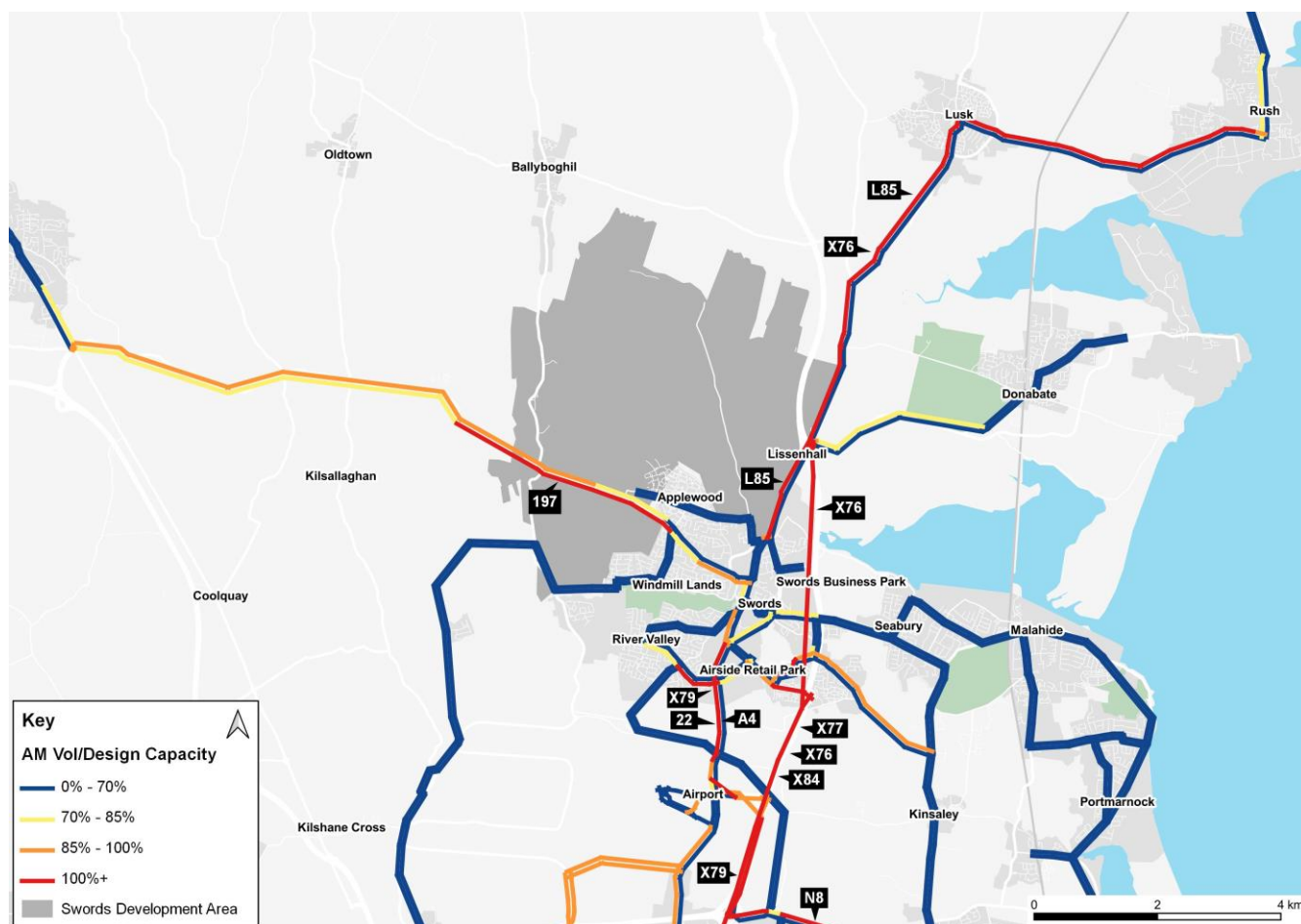


Figure 4.20: Capacity utilisation of bus routes (AM peak)

4.3.5 Trip lengths

Data on the distribution of trip lengths for the Swords development study area was extracted from the model. The data covers the years 2016 and 2040, and is split into car, PT, cycling and walking trip modes. Figure 4.21 presents the trip length distribution for all mode trips in the Swords development study area.

Overall, the data shows:

- Walking – most walking trips are short, with over 80% under 3km. Journeys under 1km are forecast to increase, with trips between 2km and 4km forecast to decrease, most notably trips between 1 and 2km.
- Cycling – cycling is forecast to decrease across most trip lengths under 4km, with significant mode gains for trips between 4km and 6km.
- Public transport – public transport trips are forecast to reduce across the shortest (trips <4km and to increase for trips over 4km to 16km. There is a variance in reduction and increases for trips over 18km.
- Car – a small reduction in the very shortest trips (<2km) between 2016 and 2043 is noted. However, there is an increase in car trips between 2 and 6km. There is very little change in car journeys between 10-18km.

A large proportion of car trips from the study area are under eight kilometres in length. This provides opportunity for a large shift to public transport or active modes if improved facilities are made available.

If all car trips under 6km shifted to walking and cycling, this would give an active travel mode share of 48.7%. More realistically, if half of those car trips shifted to walking and cycling and half to public transport, this would give an active travel mode share of 32.3% and a public transport share of 27.1%.

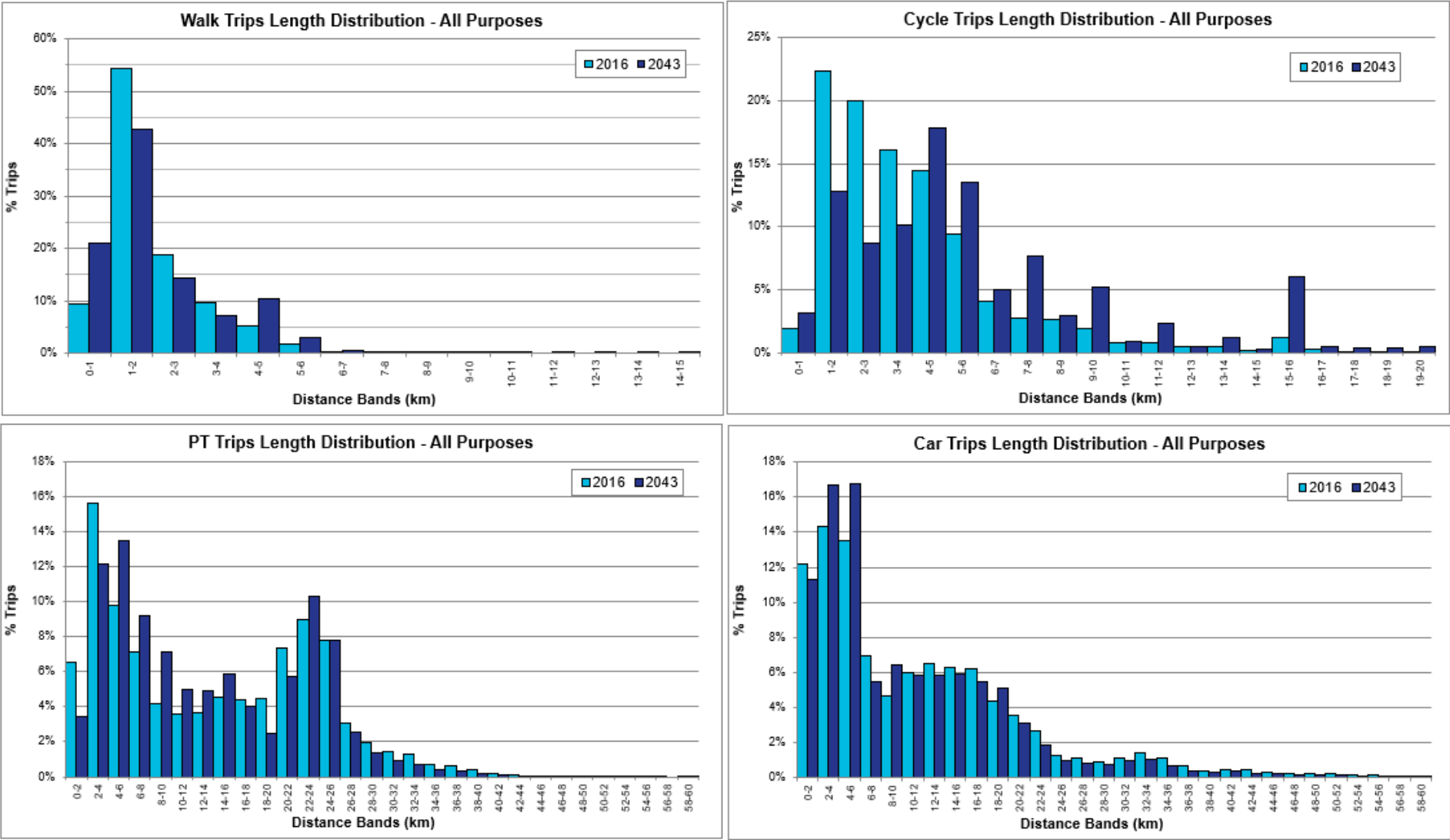


Figure 4.21: Trip length distribution for all modes (AM peak)

4.3.6 Journey time by mode

Journey time data, disaggregated by zones, has also been extracted from the model for car, public transport, cycling and walking. For the Swords development study area, the data indicates that public transport trips experience relatively quick journey speeds, with speeds in excess of 20kmph on the majority of the network.

However, there are some pinch points close to the study area where speeds fall significantly. This presents an opportunity to decrease public transport journey times by providing for bus priority.

4.3.7 Bus speeds

Figure 4.22 shows the model output 2042 bus speeds for the AM peak through and close to the study area.

Bus speeds are generally acceptable with some limited exceptions where speeds fall to below 10kmph noted below. The areas in the network that experience low speeds increases bus journey times and inhibits modal shift to bus from car. These are as follows:

- The intersection of the R132 Rathbeale Road (Bridge St)/R836
- The roundabout linking the R132 and R106
- The R132/R125/R836 roundabout at Pinnockhill and onwards along the R836.
- Speeds also drop to below 15kmph along portions of River Valley Road/Rathingle Road, and along a section of Brackenstown Road.

This indicates the potential need for bus priority measures at the above points in the network, in order to provide competitive journey times with the private car.

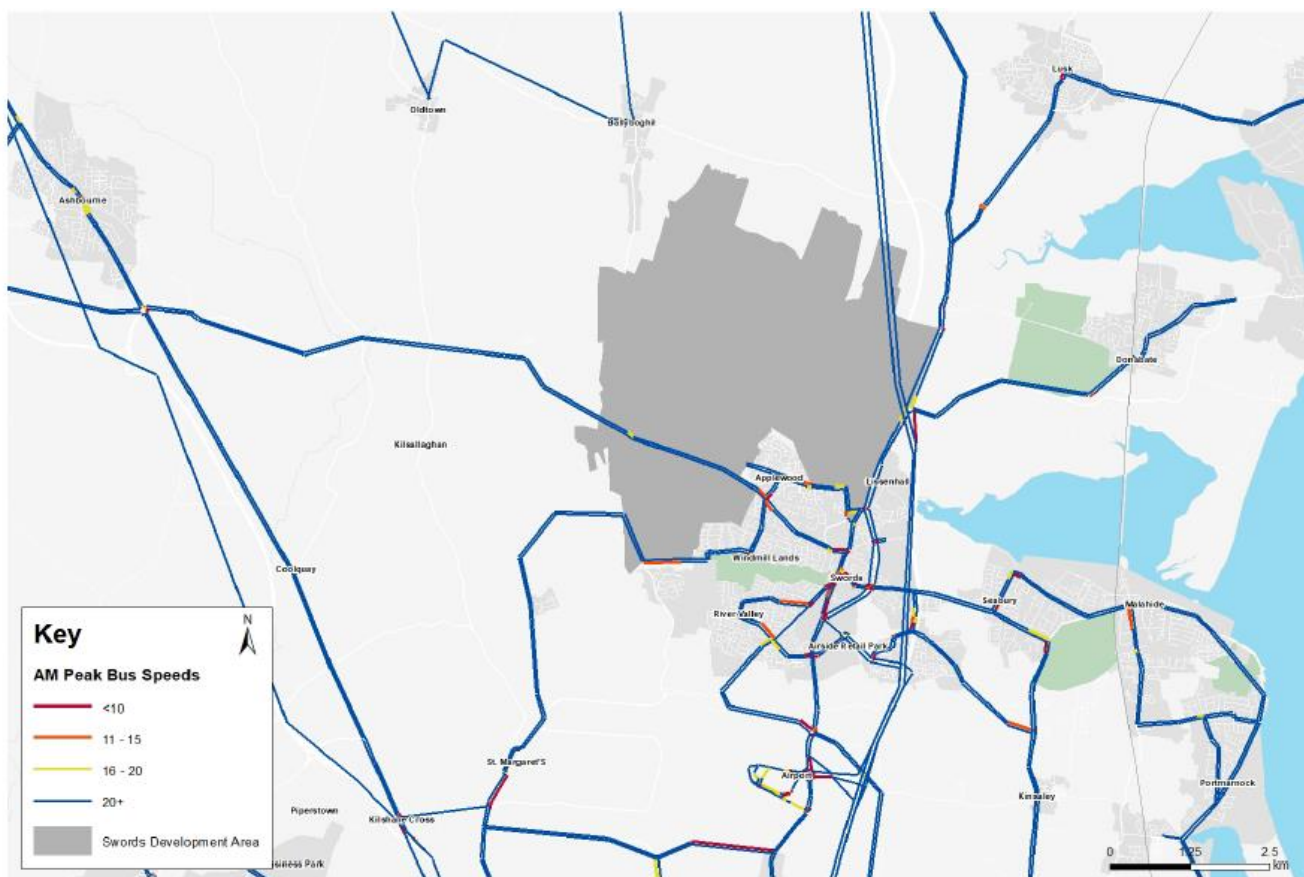


Figure 4.22: Swords study area bus speeds (AM peak)

4.4 Mode shift analysis

The previous section has considered the estimated travel demand and pressures on transport provision in 2042. As well as the public transport network needing to accommodate the public transport travel demand in 2042, there is also a need to cater for a mode shift from private car to sustainable modes such as walking, cycling and public transport. This mode shift is needed in order to meet the GDA Transport Strategy goal of less than 45% of all trips to be made by car by 2040. This section considers different levels of mode shift for key movements to, from and through the study area.

4.4.1 Methodology

A process has been developed to simulate how a change in mode shift could increase the demand for sustainable travel trips. The potential number of public transport trips from the shift can then be used to indicate the level of public transport improvements and future active travel network improvements, which would be needed to accommodate a mode shift. A summary of the methodology is included in Appendix D.

This process has been undertaken for the key movement corridors which begin and end at the Swords development study area. The corridors were identified by identifying key origins and destinations presented earlier in this chapter, alongside analysis of the network capacity utilisation. The key movement corridors are shown in Figure 4.23 and listed below:

- Internal corridor(s) within the study area;
- Orbital corridor from the study area to St Margaret's and onwards to Blanchardstown;
- Radial corridor between the study area and the existing Swords settlement; and
- Radial corridor from the study area to the Airport, and an extension onwards to Dublin city centre.

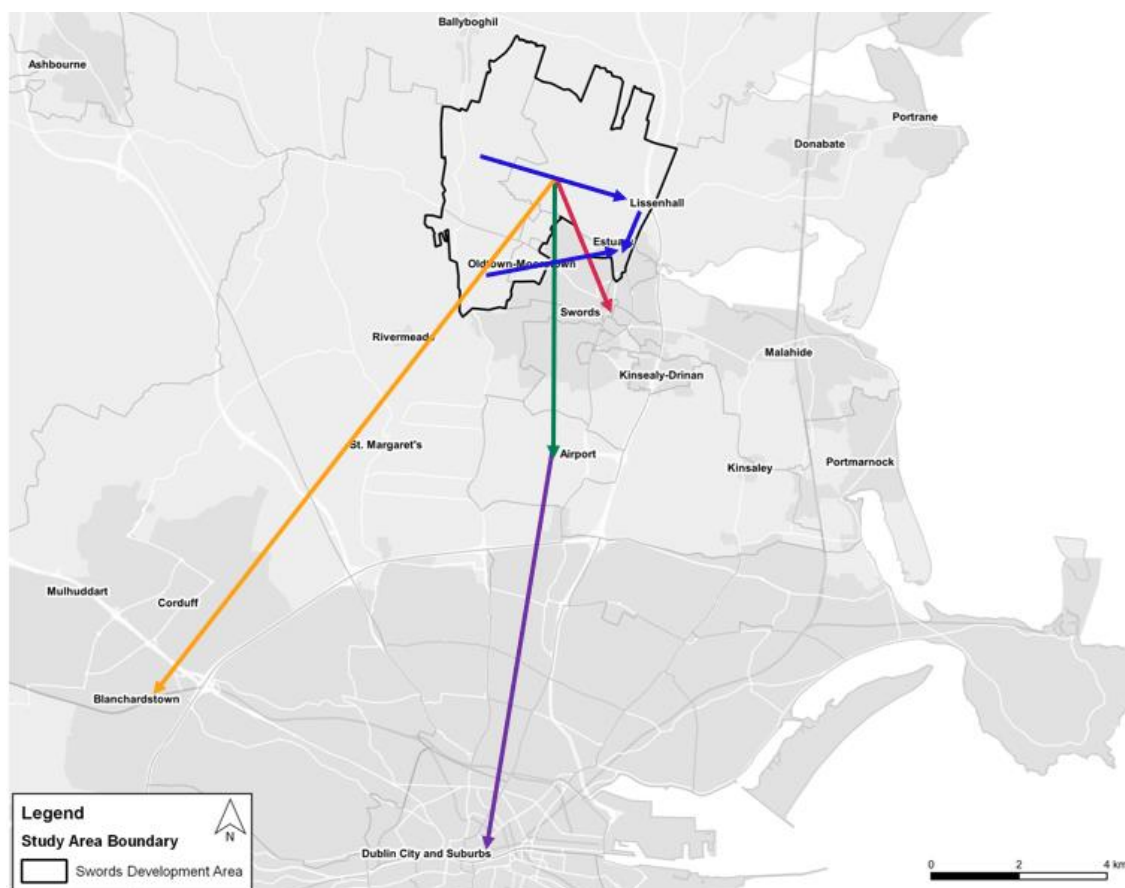


Figure 4.23: Key movement corridors

For the radial corridor from the study area to the city centre via the Airport, model zones were grouped into sectors (see Figure 4.14) and then grouped into districts where required. The district boundaries then form the screenlines for the analysis. The main districts identified for this radial corridor were those going southbound to Swords, then onwards to the Airport and then travelling through the northern suburbs into Dublin city centre (see Figure 4.24).

The mode share from the 2042 model provide a baseline number of trips between each pair of sectors for car, public transport, cycle and walk. For a specified percentage car mode shift, the process estimates how many of the car trips become walk, cycle or public transport trips.

The distance between each pair of sectors has been calculated by calculating the crow fly distance between the centroids of each sector. This allows the mode shift to be based on distance, as shorter trips are more likely to become walking trips and longer trips are more likely to become public transport trips. The distances have been divided into three bands based on the trip length distribution information in section 4.3.5. Each sector to sector movement is then allocated one distance band.

For each band, the shifted car trips have been calculated by converting them to another mode, using the proportions in Table 4.5.

For the western orbital movement, the analysis was kept at sector level, to distinguish different mode splits between trips going to St. Margaret's and trips going further to Blanchardstown and Corduff.

4.4.2 Results

The information in this section outlines high-level, indicative results to inform option development, by providing order of magnitude changes in demand resulting from an assumed mode shift. Further analysis of mode shift and associated changes in demand for public transport has been undertaken in the strategic analysis for the GDA as a whole as part of the wider strategy development process

Radial movement Study Area to Swords Settlement, Dublin Airport, north Fringe and Dublin City Centre

From the table below, we can see that most of the trips from the study area are short distance trips as already highlighted in the analysis above. The car is the most dominant mode choice for those trips – 90% of the total car trips along this corridor fall within a 0 to 7.5km distance from the study area, with only 54 trips going further than that.

The fact that most longer distance trips (for example to the Airport, the Dublin north fringe and into the city centre) choose to use public transport (66%) is encouraging in terms of sustainable travel mode share. Nonetheless the model figures show that significant mode shift is needed to address these short car trips in and around the study area.

The mode shift analysis was focused on public transport mode for consistency with the other GDA study areas. However, the local nature of the majority of demand for trips to and from the study area suggests that mode shift could be achieved by focusing on creating a strongly connected active travel network supported by feeder services into the Bus Connects network or the extension of BusConnects routes into the study area.

Table 4.2: Mode splits by distance band for the radial corridor from study area to city centre (with car)

Distance band (km)	Walk	Cycle	Public transport	Car	Total all modes
	%	%	%	%	%
0-2.8	21%	2%	8%	68%	100.0%
2.8-7.5	4%	4%	17%	75%	100.0%
7.5+	1%	1%	66%	33%	100.0%

The number of inbound and outbound public transport trips to and from the study area, along the main radial corridor (Swords settlement, Dublin Airport, Dublin north fringe and Dublin city centre) have been calculated for different levels of mode shift and are summarised in Table 4.3.

Table 4.3: - Car Mode Shift – Study area to/from all other districts, (AM peak)

Car Mode Shift	Car demand	Existing PT demand	Shifted PT demand	Total PT demand after the mode shift
0%	1,114	276	0	276
25%	1,114	276	136	412
50%	1,114	276	271	547
75%	1,114	276	407	683

According to the outputs from the model run, the car mode share in 2042 for this corridor is 26% on average if we consider the whole corridor and all the trips (i.e. those that also originate/destined to other districts along the corridor itself). However, if we look instead at the trips that only have an origin in the study area (Table 4.2) we see that the car mode share in total is 64%.

To consider public transport demand on existing services, movements across screenlines have been analysed in more detail. A screenline is an imaginary line which enables movements which cross the line to be captured. The four screenlines shown in Figure 4.24 below, have been chosen to capture key movements along the corridor.

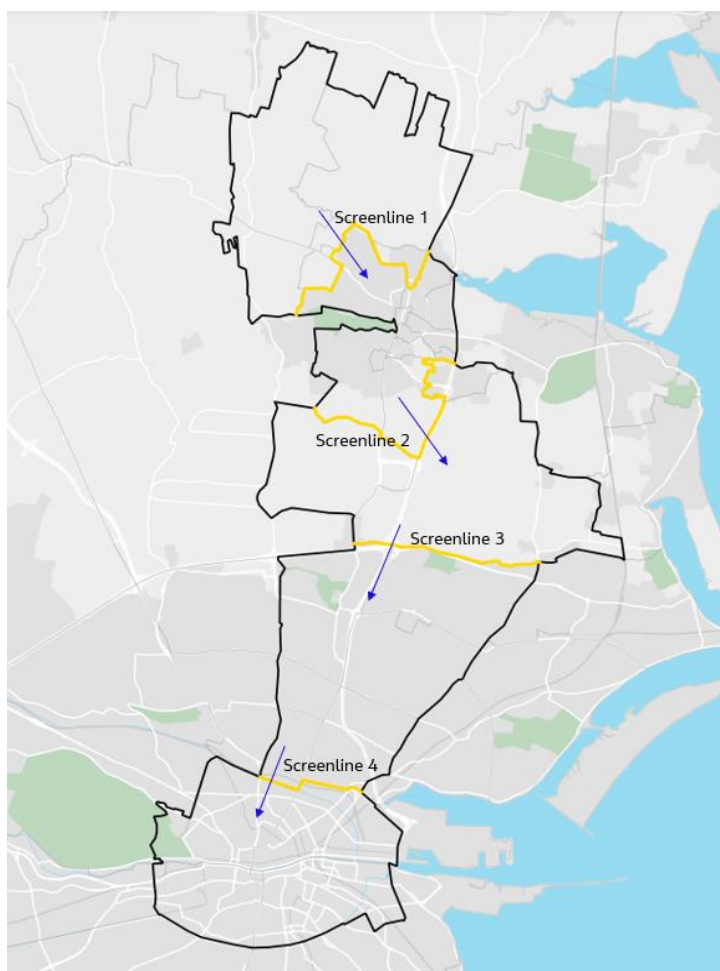


Figure 4.24: Screenlines on key corridor: Study Area to Swords Settlement, Dublin Airport, north Fringe and Dublin City Centre

Movements from/to the study area and all the other districts that cross each of the screenlines have been extracted for the analysis for the whole area, with the results provided in Table 4.4.

A car mode shift of 50% would result in a car mode share of 45% for the outbound movements going south along this corridor, while a 75% car mode shift would result in a car mode share of 36%.

Table 4.4: Screenline analysis with demand from (SB) / to (NB) study area only

Screenline	Car demand		Car mode shift	Existing public transport demand		Shifted public transport demand		Total public transport demand after mode shift	
	NB	SB		NB	SB	NB	SB	NB	SB
Screenline 1	444	515	0%	73	198	-	-	73	198
	444	515	25%	73	198	47	76	120	274
	444	515	50%	73	198	93	152	166	350
	444	515	75%	73	198	140	228	213	426
Screenline 2	61	137	0%	22	136	-	-	22	136
	61	137	25%	22	136	13	27	35	163
	61	137	50%	22	136	25	54	47	190
	61	137	75%	22	136	38	81	60	217
Screenline 3	32	52	0%	14	107	-	-	14	107
	32	52	25%	14	107	8	13	22	120
	32	52	50%	14	107	16	25	30	132
	32	52	75%	14	107	23	38	37	145
Screenline 4	13	13	0%	5	83	-	-	5	83
	13	13	25%	5	83	3	3	8	86
	13	13	50%	5	83	6	6	11	89
	13	13	75%	5	83	9	10	14	93

To achieve a car mode shift of 75%, provision for a total of approximately 426 trips would be required to cater for the demand across the highest screenline movement (southbound from the study area into the wider Swords settlement area). The implications of this for option development are discussed further in Section 5.

Orbital movement

The orbital corridor going west to St. Margaret's and towards Blanchardstown was also analysed in more detail to understand the mode split based on distance of the trips and the AM demand.

Table 4.5: Mode splits by distance band for the orbital corridor from study area to St. Margaret's and Blanchardstown

Distance band (km)	Walk	Cycle	Public transport	Car	Total all modes
	%	%	%	%	%
0-2.8	0%	0%	0%	0%	0%
2.8-7.5	4%	1%	1%	79%	85%
7.5+	0%	0%	0%	99%	99%

As can be seen from the table above, the majority of trips are made by car, with the overall sustainable transport mode share very low (less than 6% for journeys under 7.5km). There are 110 trips going to St. Margaret's in the AM peak hour (85% by car) and 64 trips going to Blanchardstown (99% made by car).

This is to be expected as there is no direct orbital public transport route serving Blanchardstown from the north west of Swords. Neither is Swords town centre directly connected by bus to Blanchardstown – as the only available Bus Connects route is the N8 from Dublin Airport. As this requires interchange from the Bus Connects 22 service / other services from Swords, including a walk from the R132 into the Airport, it is not likely to be an attractive option in comparison to the private car in terms of journey times.

Despite the high car mode share, the low quantum of demand identified above is of a level that would not justify a public transport intervention (as per the public transport capacities presented in Section 5). Therefore, screenline analysis was not undertaken for this movement as this would only reduce the demand further. However, the option to explore the potential for demand responsive services could be further examined as part of future strategy / Local Link development.

As per the southbound radial corridor, cycle mode is low. As identified in Section 5, there are opportunities to shift short trips from car to cycling if a well-integrated and connected cycle network is provided in and around the study area.

4.5 Summary

4.5.1 Issues

Some growth is expected in the study area, including significant growth in population, and moderate growth in employment. However, both of these figures are significantly below that anticipated in the Development Plan. This in large part has influenced the demand estimation exercise and has led to the conclusion that there are very limited levels of demand for public transport, even if a significant level of modal shift is achieved.

Currently there is a high mode share for car journeys. This is in large part due to a lack of public transport provision. There is also little in the way of high-quality cycling and walking infrastructure, though some is planned in the Estuary West Masterplan. Most walking trips are short, and whilst very short walking trips (less than 1km) will increase, other walking trips are forecast to decrease.

Whilst there is no bus route through the study area itself, there are a number which serve the M1 and R132. Bus speeds are generally good, with some noted pinch points. There are some issues in terms of bus capacity constraints on services on the R132, N1 and R125. Additional capacity and focused bus priority interventions will support people to be encouraged to travel by bus, with those journeys likely to offer journey times comparable to the car.

4.5.2 Constraints

The road network within the study area does not suffer from high levels of congestion, although a number of junctions close to the site do have v/c ratios in excess of 85%; these can be found along the M1, close to the Lissenhall junction, where connecting to the R132 and to the south, the slip lane connecting to Dublin Airport via the R125. Junctions are also consistently at high volume to capacity ratios along the R132.

A number of other critical spots are the junction close to the M1 on the R106 connecting Malahide into Swords town centre and the roundabout on the R125 providing access to the Airside Business Park from the south of Swords town.

The lack of any high-quality cycling infrastructure limits the attractiveness of the mode. This is a missed opportunity given the short length of most car trips which are largely to the town of Swords.

4.5.3 Opportunities

A large proportion of car trips from the study area are under 8km in length. This provides an opportunity for a large shift to public transport or active modes if improved facilities are made available, particularly for these shorter trips. The future growing demand from the study area into nearby locations can be targeted by increasing

connectivity to Bus Connects proposed routes, possibly by extending services (such as nos. 22, X79 and A4) into the study area.

A large number of these journeys are to the town of Swords and therefore, the introduction of a local bus service would provide opportunities to interchange to access a wider range of services. Bus services do run through the town of Swords, and these include several proposals from Bus Connects, meaning that there are opportunities to provide integration with a range of services if a suitable service from the study area into Swords can be established.

Additional frequency for bus routes along the R132 (including the Bus Connects 22 service and/or other Bus Connects services), the N1 and the R125 can address areas on the route that are forecast to operate at over 85% capacity. Potential bus priority measures at key junctions along the R132 (outside the study area) will also support the provision of competitive journey times with the private car.

Improving cycle infrastructure and facilities will help to increase cycle mode share and therefore support a decrease in the number of short trips made via car. Providing interchange facilities at key transport hubs will facilitate modal shift away from car to active modes and public transport for longer length trips. Focus should be placed in expanding the active travel network and support the implementation of the GDA Cycle Network Plan routes, which will help further achieve mode shift towards sustainable modes from the residential zones of the study area to the main surrounding employment and commercial sites (both existing and developing).

5. Options Development

5.1 Strategy objectives

To guide the identification of options for the Swords study area, the NTA have outlined a set of overarching themes, outcomes and objectives for the GDA Transport Strategy; these are outlined in Table 5.1: GDA Transport Strategy theme, outcomes and objectives

Table 5.1: GDA Transport Strategy theme, outcomes and objectives

Strategy theme	Strategy outcome	Strategy objective
Environment	An enhanced natural and built environment	To meet our environmental obligations by transitioning to a clean, low emission transport system through reducing car dependency and increasing walking, cycling and public transport use.
Community	Connected communities and better quality of life	To improve health and quality of life of our society by improving connectivity between people and places, delivering safe and integrated transport options, and increasing opportunities for walking and cycling.
Economy	A strong sustainable economy	Supporting economic activity and growth by improving the opportunity for people to travel for work or business where and when they need to and facilitating the efficient movement of goods.
Accessibility	An inclusive transport system	To deliver a high quality, equitable and accessible transport system, which caters for the needs of all members of society.

5.2 Options development

To identify options to serve travel demand in the study area in 2042, the following steps have been completed:

- A review of relevant planning and transport policies and strategies has provided the overall context for options, and identified current thinking in relation to the future transport network;
- A baseline analysis of the existing transport network identified existing network issues and opportunities;
- An analysis of planning and travel data from the 2040 Planning Sheet and a DM run of the ERM for 2042 provided insights into future travel demand and network capacity constraints; and
- A review of the GDA strategy objectives against which all options should be aligned.

The above steps resulted in the development of an initial long list of potential options, serving different movement types. These options are set out in Table 5.2.

Table 5.2: Options long list

Movement corridor	Option
Internal Study Area	Bus route from Lissenhall site to Metro Stop
	Bus route from Estuary site to Metro Stop
	Bus route from Oldtown-Mooretown site to Metro Stop
	Orbital Study Area local bus service
	Segregated cycle and walking route network
Study Area to Swords	Bus service to Swords town centre
	Segregated cycle lane via R132
Study Area to St Margaret's / north Blanchardstown	Bus service to St Margaret's / north Blanchardstown

Movement corridor	Option
Study Area to Airport	Bus priority off M1
	Bus service to Airport
Study Area to Airport / City Centre	M1 bus service AM frequency increase
	R132 bus service AM frequency increase
	Cycle measures to complete GDA Cycle Network gaps
	Park & Ride facility at Estuary Metro Stop
Additional 'without Metrolink' scenario	
Study Area to City Centre	High capacity PT route to City Centre
	Bus route from study area to Malahide DART station
	Segregated cycle facilities from study area to DART station

The demand estimation exercise carried out in Section 4.4 was used to refine these options to a shorter set which better reflected forecast demand and capacity. The output of that exercise is set out below.

5.2.1 Radial passenger transport corridor

The radial corridor demand calculated in Section 4.4 is used to inform the identification of appropriate options to serve demand. Five principal public transport options are available as part of this study to meet anticipated demand to / from the study area. These five options each have a theoretical capacity which is used as the basis by which to short-list options to progress through to the assessment stage. The capacity range for each mode is presented in Table 5.3 and based on UITP's 'Making the right mobility choices.'

Table 5.3: Public transport mode capacity range

Mode		Min	Max
1	Bus Spine	0	2,400
2	Bus with priority infrastructure	2,400	4,000
3	Light Rail	3,600	7,000
4	Heavy Rail	5,000	50,000
5	Metro	7,500	25,000

In order to undertake the initial sift of options to progress through to the assessment, the radial corridor demand from the study area into the city centre has been compared against the mode capacity range outlined in Table 5.3. The corridor demand figure used has been obtained from Table 4.4.

For each direction, the demand has been obtained from screenline 1, which is the screenline which directly abuts the study area, when a 75% car mode shift has been applied. For northbound movements this was 213 trips and for southbound movement this was 426. It should be noted here that the screenline exercise considered only the demand for traffic which begins or ends in the study area, it does not capture any other demand from outside the study area which crosses the screenline.

Looking at the public transport mode capacity ranges contained in Table 5.3 it is clear that this demand is at the lower end of the range for a standard bus service. However, the results of the modelling exercise must be caveated by the fact that the Planning Data does not fully capture the population or employment levels identified and proposed in the Fingal Development Plan, which means that the model is likely to significantly underplay the likely demand in this movement corridor in relation to the proposed scale of development outlined in the County Development Plan. In recognition of this, the study proposes that some form of bus service is developed between the study area and Swords town centre to provide an interchange with longer

distance radial bus services. This service could be in the form of a limited capacity shuttle service from the study area connecting to longer distance services, or the re-routing/extension of existing or planned bus services to cater for future demand.

The demand estimation exercise also captured demand for longer distance trips southwards to the Airport and onwards to Dublin city centre. As the radial screenline exercise only captured demand that began or ended in the study area, and excluded demand drawn in to the screenline corridor, the figures reported are very low. As such, the demand flows from the model outputs do not warrant the development of new bus services. However, this demand should be caveated by noting the differences between the Planning Data and the Fingal Development Plan aspirations.

Therefore, the study proposes that potential demand in and to Swords town centre and the wider Swords settlement area (as well as longer distance demand) is catered for through the extension of existing bus services into the study area. This is recommended over a bespoke shuttle feeder service from the study area, for reasons of bus operational efficiency. For that purpose, the study has identified the Bus Connects service 22 (Swords to city centre) as suitable for extension into the study area.

This extension of the Bus Connects 22 service, which will operate on a 15-minute weekday frequency, would provide connectivity from the study area into the wider Swords settlement and Swords town centre. Extension of the 22 service will also provide for connectivity from the study area to Dublin Airport (from the R132) and onwards to Dublin city centre.

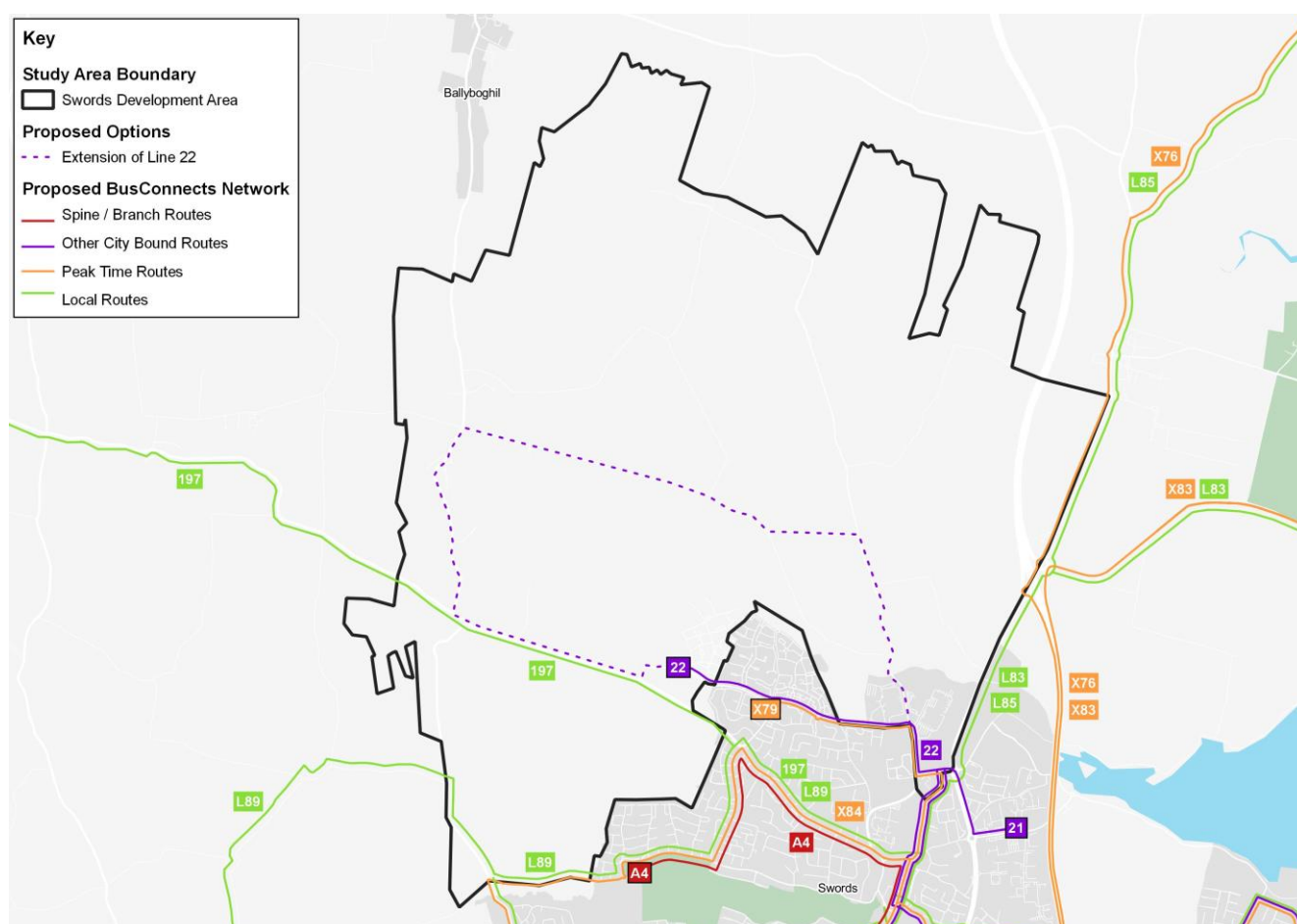


Figure 5.1: Proposed Bus Connects Service 22 extension (indicative route)

This service extension will also enable people to interchange in Swords onto other services, for example:

- A4 spine route from Swords via the city centre and southwards to Dundrum;

- L89 towards Finglas;
- 197 to Ashbourne westwards;
- X84 to Knocksedan; and
- 21 eastwards to Feltrim and Kinsealy.

This extension of the 22 service will also provide an option to provide for orbital movements from the study area south westwards, demand for which was noted in Chapter 4 (with 14% of all AM outbound trips from the study area being towards Blanchardstown). Providing connectivity from the study area to Blanchardstown via interchange from the 22 at the R132/Dublin Airport on to the N8 orbital service could also help to support a switch from car to bus.

As the study lands are developed, it is recommended that bus priority is provided for the 22-extension routing within the study area, in order to provide for competitive journey times compared to car journeys and also cater for future transport network resilience.

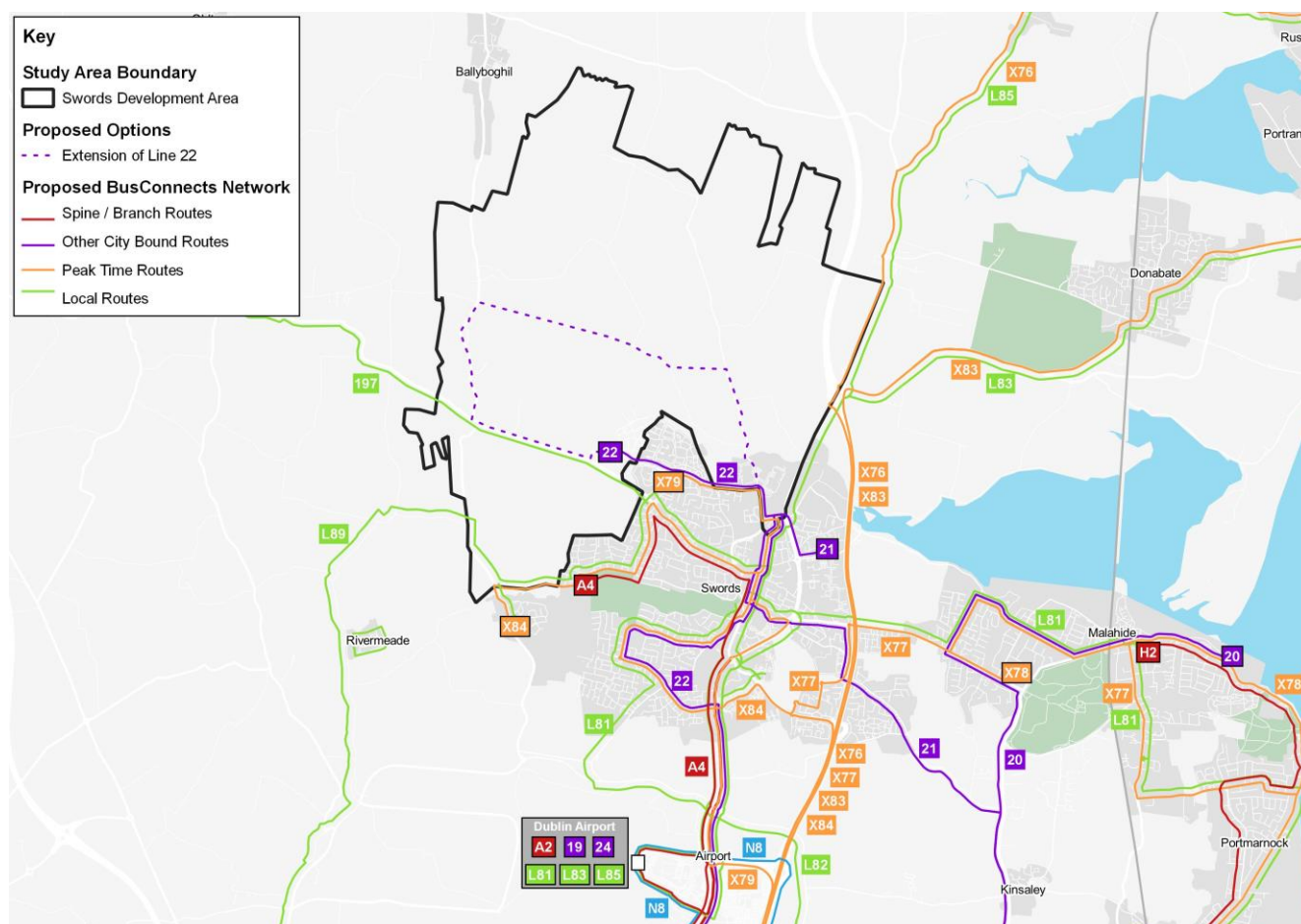


Figure 5.2: Service 22 extension - opportunities for interchange

5.2.2 Orbital movements within the study area

When undertaking the initial assessment of the study area's trip distribution and capacity utilisation, the need to cater for orbital connectivity within and around the study area was identified as potentially requiring an intervention.

The initial option development work considered the establishment of bus services between each of the main development sites in the study area (Lissenhall, Estuary, and Oldtown-Mooretown) and Lissenhall, as the

location of the proposed Metrolink Park and Ride station. However, following the initial analysis noted in Section 4, demand for public transport trips between each of the pair of points within the study area was found to be low. This is likely due to the Planning Data not fully capturing the employment levels anticipated within the Fingal Development Plan at Lissenhall, and the lack of established public transport infrastructure in the study area.

Considering the demand is considerably below the maximum capacity for a bus spine, as presented in Table 5.3, it was deemed not appropriate to develop and progress this option to the MCA at this present time, and these options were eliminated on the basis that the extension of the Bus Connects 22 service would pick up a proportion of the initial demand until it increased to such an extent to warrant consideration of a stand-alone service that serves points within the study area and also provides connectivity to the wider Swords settlement and town centre, and from there interchange to the wider Greater Dublin Area.

It should also be noted that the model run used in this study was a Do Minimum scenario and did not include the proposed Metrolink line or the Park and Ride stop at Lissenhall. Were this proposal to gain approval, we would recommend that the development of an orbital bus service within the study area linked to the Metrolink stop be reconsidered, in order to encourage sustainable travel to the Metro / Lissenhall lands from across the study area.

Given the available information does suggest that some limited demand for orbital movements does exist within the study area, public transport options are retained and suggested to be taken forward for further consideration at a future point in time should forecast demand levels change.

5.2.3 Supplementary options

Alongside the public transport corridor options, a number of other supplementary options have been identified. These consist of smaller scale bus frequency and bus priority interventions adjacent to the study area, along with the development of an active travel network within the study area connecting to the wider network.

Bus frequency

Additional frequency for bus routes along the M1 and R132 (including the Bus Connects 22 service and/or other Bus Connects services) to address areas on the route outside the study area that are forecast to operate at over 85% capacity. This will support future public transport mode shift, particularly for journeys to/from the study area and the wider Swords settlement area (for example on the Bus Connects 22 route).

In addition, the option to explore the potential for **demand responsive services** could be further examined as part of Local Link strategy development to serve movements from the study area to St Margaret's and onwards to Blanchardstown. Current levels of demand do not warrant a bus spine to serve this movement.

Bus priority measures

A number of bus infrastructure options have been developed by firstly using the bus speeds presented in Section 4 to identify areas in the network where speeds are particularly low. Then a desk-based assessment of the road network in these areas was undertaken to identify potential options.

Following the analysis of forecast bus speeds presented in section 4, a number of bus priority infrastructure measures have been identified in order to increase the speeds in certain areas of the network where the speeds are particularly low. These are illustrated in section 4.2.7 and are summarised as follows:

- The intersection of the R132 Rathbeale Road (Bridge St)/R836;
- The roundabout linking the R132 and R106; and
- The R132/R125/R836 roundabout at Pinnockhill and onwards along the R836. It is noted that signalisation as well as cycling and walking improvements are already planned here as part of the Core Bus Corridor proposals.

Active travel interventions

In addition to the development of a bus service between the study area and Swords, this study is proposing the development of a comprehensive walking and cycling network within the study area that also provides connectivity to key routes adjacent to the study area. This network should integrate with the existing GDA Cycle Network Plan in order to encourage modal shift away from car and encourage active travel – providing connectivity within the study area and onwards to Swords, the Airport and Dublin city centre.

In the event of changes to the Metrolink proposals, cycling infrastructure between the study area and Malahide DART station should also be considered, to support access to the heavy rail network.

Until such time as the study area lands are developed further, a comprehensive pedestrian and cycling network cannot be developed at this time, but the development of such a network is a key recommendation of this study.

6. Options Assessment

6.1 Methodology

The approach to the assessment of options is guided by the 'Guidelines on a Common Appraisal Framework (CAF) for Transport Project and Programmes' (Department for Transport, Tourism and Sport). This requires all schemes to be appraised under the general themes of:

- Economy;
- Environment;
- Safety;
- Integration; and
- Accessibility / Social Inclusion.

An additional theme relating to physical activity has also been included, in line with the objectives for the GDA Transport Strategy.

Given the limited number of viable proposals following the sifting of the long list of options against the travel demand, a comparative MCA was not undertaken. Instead, an assessment of the only identified feasible option (to extend the Bus Connects service 22) against the objectives was undertaken utilising the MCA criteria as set out below.

The assessment criteria are outlined in Table 6.1 below.

Table 6.1: Assessment criteria

Theme	Criteria
Economy	Represents good value for money
	Provides competitive journey times
	Provides capacity aligned with demand
	Provides resilience for the future (beyond 2040)
Environment	Provide integration of transport with the local built and natural environment
	Supports decarbonisation of transport by encouraging mode shift away from the private car
Safety	Improves road safety
Integration	Provides integration with the existing and future proposed transport network
Accessibility and Inclusion	Enhances accessibility and inclusion
Physical activity	Support integration between transport and national health policies (e.g. via measures to increase physical activity)

6.2 Results

6.2.1 Economy

Theme	Criteria
Economy	Represents good value for money
	Provides competitive journey times
	Provides capacity aligned with demand
	Provides resilience for the future (beyond 2040)

Conventional bus services or extensions thereof are a low-cost public transport option and can be easily integrated into the existing transport network. A limited extension of the 22 service to serve the study area could likely be accommodated without an increase in the number of vehicles, meaning that the only capital cost associated with the option would be from the installation of suitable shelters and appropriate bus priority as the study lands and road network are developed.

Demand from the study area is low and is unlikely to exceed the capacity threshold in the medium term even if the Development Plan population estimates are achieved, providing a high degree of resilience into the long term. However, the 22 service, as part of the BusConnects programme, includes bus priority on the wider highway network, providing further resilience and means that the service is likely to provide competitive journey times when compared to car trips.

6.2.2 Environment

Theme	Criteria
Environment	Provide integration of transport with the local built and natural environment
	Supports decarbonisation of transport by encouraging mode shift away from the private car

The service extension would operate on existing highway infrastructure or that built as part of the study area's development plans, thus integrating efficiently with the local built and natural environment. The service would therefore provide minimal environmental disruption whilst at the same time supporting decarbonisation by encouraging modal shift away from the private car.

6.2.3 Safety

Theme	Criteria
Safety	Improves road safety

The extension of the 22 service could operate on dedicated bus priority infrastructure as part of the development of the study lands. In itself, this is unlikely to materially impact on road safety within the study area. However, the segregation of vulnerable road users such as cyclists (and potentially also eScooters in the future) from bus priority measures would be beneficial for road safety. At the current time, there are no reported safety hotspots in the area.

6.2.4 Integration

Theme	Criteria
Integration	Provides integration with the existing and future proposed transport network

The service would provide integration to the transport network in Swords, allowing interchange to a number of other bus services including orbital and radial routes. This connectivity would also provide interchange with other transport services including the Luas line and heavy rail network in Dublin city centre.

The option would utilise existing and future walking and cycle links to enable people to access the service. Additional measures could easily be introduced, such as cycle parking to allow enhanced accessibility and integration between modes. Frequency and location of bus stops could be designed with a degree of flexibility to accommodate pedestrian desire lines and key trip attractors within the study lands.

6.2.5 Accessibility and Inclusion

Theme	Criteria
Accessibility and Inclusion	Enhances accessibility and inclusion

In addition to supporting mode shift away from the private car, provision of the 22 bus service extension will provide for those travelling to and from the study area without access to a car – including supporting access to key employment and education opportunities proposed as part of the development of the study area.

Vehicle design, bus waiting environments, pedestrian infrastructure and the provision of real time bus route information following the principles of Universal Design will support access and inclusion for all (including those with diverse abilities) to the bus service.

6.2.6 Physical Activity

Theme	Criteria
Physical activity	Support integration between transport and national health policies (e.g. via measures to increase physical activity)

The physical activity criteria align to a high degree with the integration criteria, in that it encourages travellers to access the first and last steps of their journey by cycling and walking.

6.2.7 Summary

In summary the proposal performs well against the assessment criteria established by the NTA. An extension of the 22 service would provide a low cost, low impact means to connect the study area into the wider transport network, and provide sufficient scope to meet future demand increases.

The service would integrate well into the wider transport network, opening up options to increase physical activity by linking to walking and cycling networks and reducing reliance on the private car while also supporting social inclusion and accessibility.

7. Summary

This report has outlined the approach and results from the area-based Swords Development Area study. As a largely undeveloped site with no current public transport provision, the site is largely reliant on the existing road network and the private car. As a result of the difference between the NTA's Planning Data and the proposed additional growth and land use changes as identified and proposed in the local authority's Development Plan, there is insufficient forecast demand with which to develop a comprehensive transport network to meet potential growth.

The study has therefore proposed an incremental approach to serving demand as it emerges, linking the study area into the existing settlement and recommending a modest diversion/extension of a proposed BusConnects service to meet demand in the short to medium term, as well as the provision of infrastructure to support active modes so that car dependence is designed out of the site from the outset.

It will be necessary to revisit this study area in the future and repeat the demand estimation exercise described in Section 4 if the level of development at the site (and particularly the Lissenhall site) exceeds that described in the planning sheet.

A Vision and Validate approach is recommended, establishing a clear picture of the type of travel behaviour to be encouraged, and putting in place the infrastructure, services, and policies necessary to bring that vision about as part of the study area's planned land use and transport integration strategy.

7.1 Public transport options

Given the early nature of this study, the low level of trips from the study area, and the lack of comparable options to meet demand, a Multi Criteria Analysis (MCA) was not appropriate to guide the assessment of comparative public transport options. Instead, a narrative evaluation of the single public transport option (radial corridor bus extension) was carried out utilising the MCA in order to assess its effectiveness.

7.1.1 Radial corridor

Following the development of a long list of public transport options for the radial corridor which extends from the study area to Swords and onwards to the Airport and city centre, a high level sift was carried out using forecast demand from the ERM based on target levels of modal shift and within the context of operational capacity limits.

Demand was found to be very low and insufficient to warrant the introduction of a new bus spine. However, given the potential for actual demand to be in excess of forecast levels due to different growth aspirations set out in the Fingal Development Plan, an option to extend the Bus Connects service 22 to serve the study area and provide integration with a wider range of public transport services in Swords and the city centre was identified.

7.1.2 Orbital movements within the study area

Public transport demand in the study area is limited given the limited population or employment growth identified in the Planning Data. However, given the levels of both residential and jobs growth assumed in the Development Plan, consideration should be given to an orbital shuttle bus service linking the main development sites within the study area. Such a service would be particularly justified should the proposed Metrolink line be given business case approval and the anticipated park and ride site at Lissenhall implemented.

7.2 Supplementary options

Alongside the public transport provision outlined above, it is recommended that consideration be given to further supplementary options – particularly if the levels of modelled demand change in the future.

These options should complement existing and proposed public transport services as well as improve accessibility and interchange for active travel users.

7.2.1 Bus capacity increases

Bus capacity through and close to the study area is generally below 85% with a limited number of exceptions:

- The X76 Xpresso route and the local L85 route along the M1 southwards to J4 at the intersection with the R132 and on the northbound stretch towards Lusk and Rush;
- Route 197 to Ashbourne on two sections of the R125 Rathbeale Road;
- On the M1 from J3 to J2 all Xpresso routes (X76, X77, X79) are at capacity in the AM;
- Routes 22 and X79 on the R132 between the Estuary Roundabout and Pinnockhill (R132/R125/R836 roundabout), between the Airside Retail Park and the Airport ; and
- The N8 route, along the M1 and R139.

This analysis indicates a requirement for additional capacity on bus services on these routes. This will support future public transport mode shift, particularly for journeys to/from the study area and the wider Swords settlement area (for example on the Bus Connects 22 route).

In addition, the option to explore the potential for **demand responsive services** could be further examined as part of future strategy / Local Link development to serve movements from the study area to St Margaret's and onwards to Blanchardstown. Current modelled demand does not warrant a bus spine to serve this orbital movement.

7.2.2 Bus priority measures

The study has identified a number of locations where infrastructure constraints limit the speed of existing bus services . These are as follows:

- The intersection of the R132 Rathbeale Road (Bridge St)/R836
- The roundabout linking the R132 and R106
- The R132/R125/R836 roundabout at Pinnockhill and onwards along the R836. Signalisation as well as cycling and walking improvements are already planned here as part of the Bus Connects Core Bus Corridor programme.

7.2.3 Active travel interventions

In addition to the development of a bus service extension between the study area and Swords, this study is proposing the development of a comprehensive walking and cycling network within the study area that also provides connectivity to key routes adjacent to the study area. This network should integrate with the existing GDA Cycle Network Plan in order to encourage modal shift away from car and encourage active travel – providing connectivity within the study area and onwards to Swords, the Airport and Dublin city centre.

Until such time as the study area lands are developed further, a comprehensive pedestrian and cycling network cannot be developed in detail at this time, but the development of such a network is a key recommendation of this study.

Appendix A. Do Minimum Model Run Transport Scheme

A.1 Road Schemes

The Do Minimum model run contains the following road schemes:

- N3 Castaheany Interchange Upgrade;
- N3-N4 Barnhill to Leixlip Interchange;
- North-South Road – west of Adamstown SDZ linking the N7 to N4 and on to Fingal;
- Glenamuck District Distributor Road;
- Leopardstown Link Road Phase 2;
- Porterstown Distributor Link Road;
- R126 Donabate Relief Road: R132 to Portrane Demesne;
- Oldtown-Mooretown Western Distributor Link Road;
- Swords relief Road at Lord Mayors;
- Poolbeg development roads;
- Cherrywood development roads;
- Widening of the M7 between Junction 9 (Naas Northern) and Junction 11 (M7/M9) to provide an additional lane in each direction; and
- Capacity enhancement and reconfiguration of the M11/N11 from Junction 4 (M50) to Junction 14 (Ashford) inclusive of ancillary and associated road schemes, to provide additional lanes and upgraded junctions, plus service roads and linkages to cater for local traffic movements.

A.2 Bus schemes

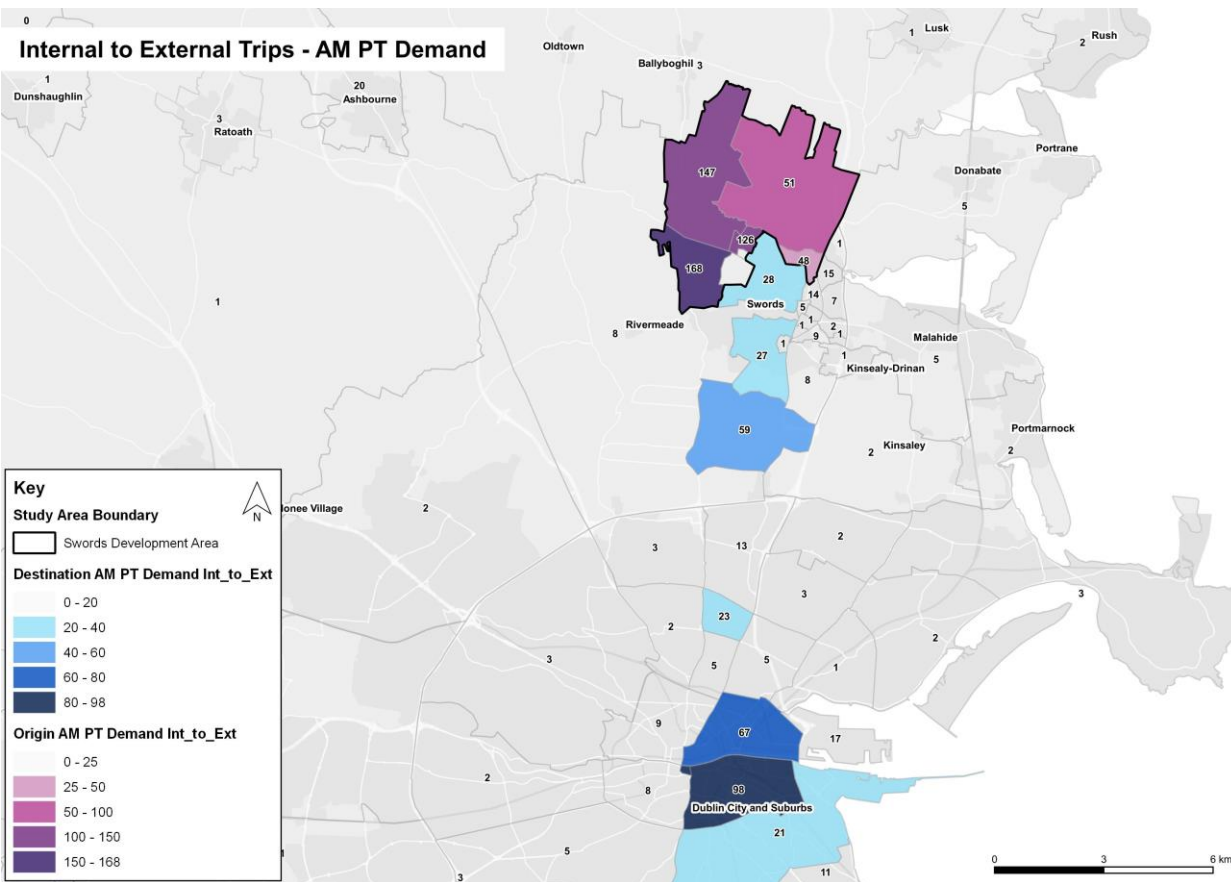
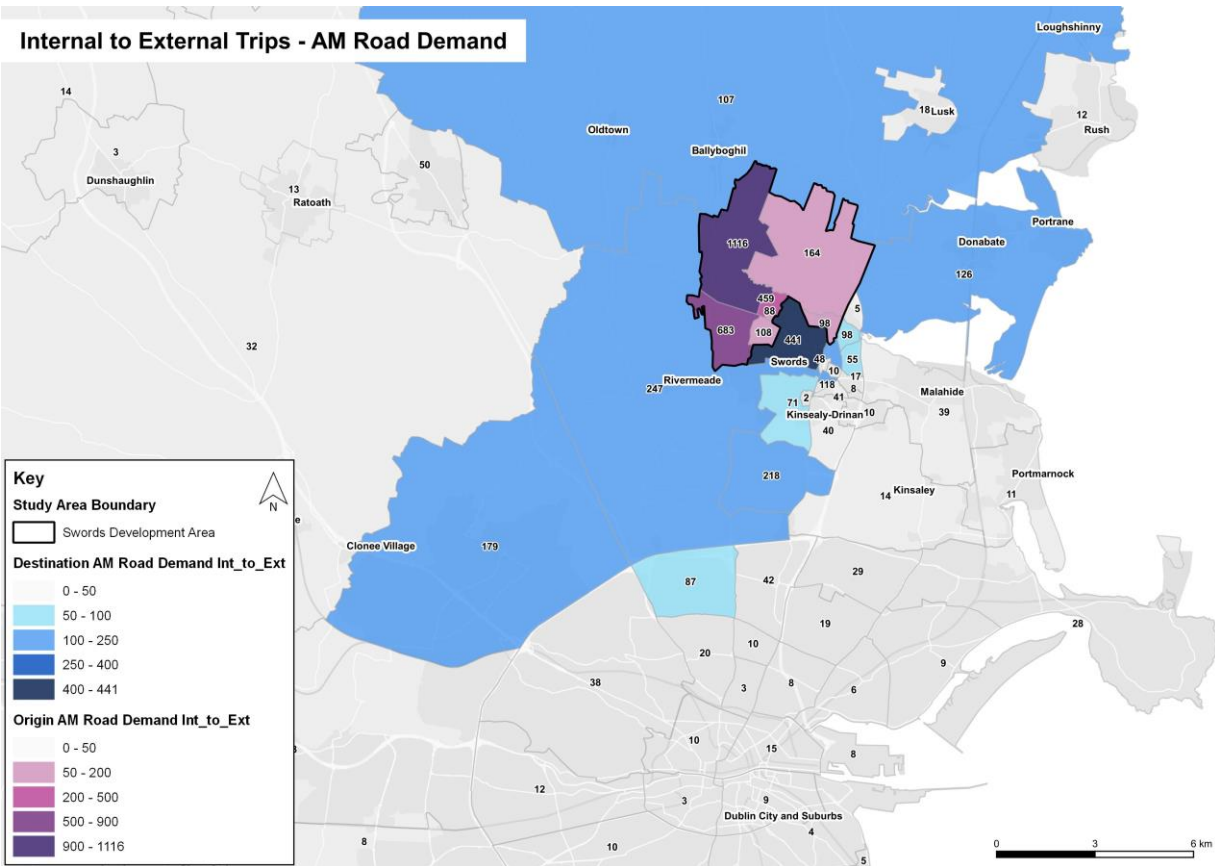
The Do Minimum model runs contains the bus services and frequencies related to the New Dublin Area Bus Network. The model does not include any of the of the associated Bus Connects bus priority infrastructure proposals which would improve journey times.

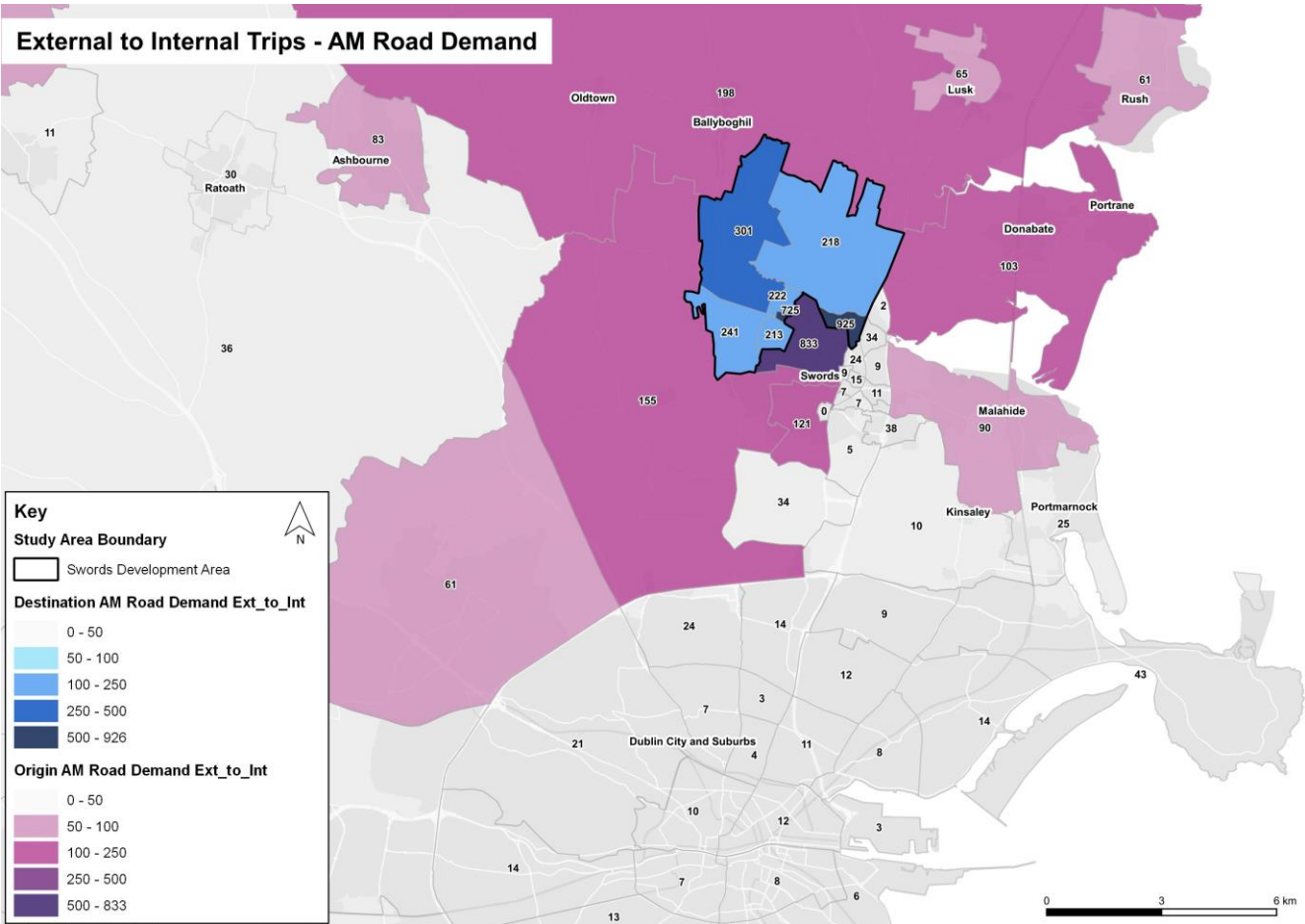
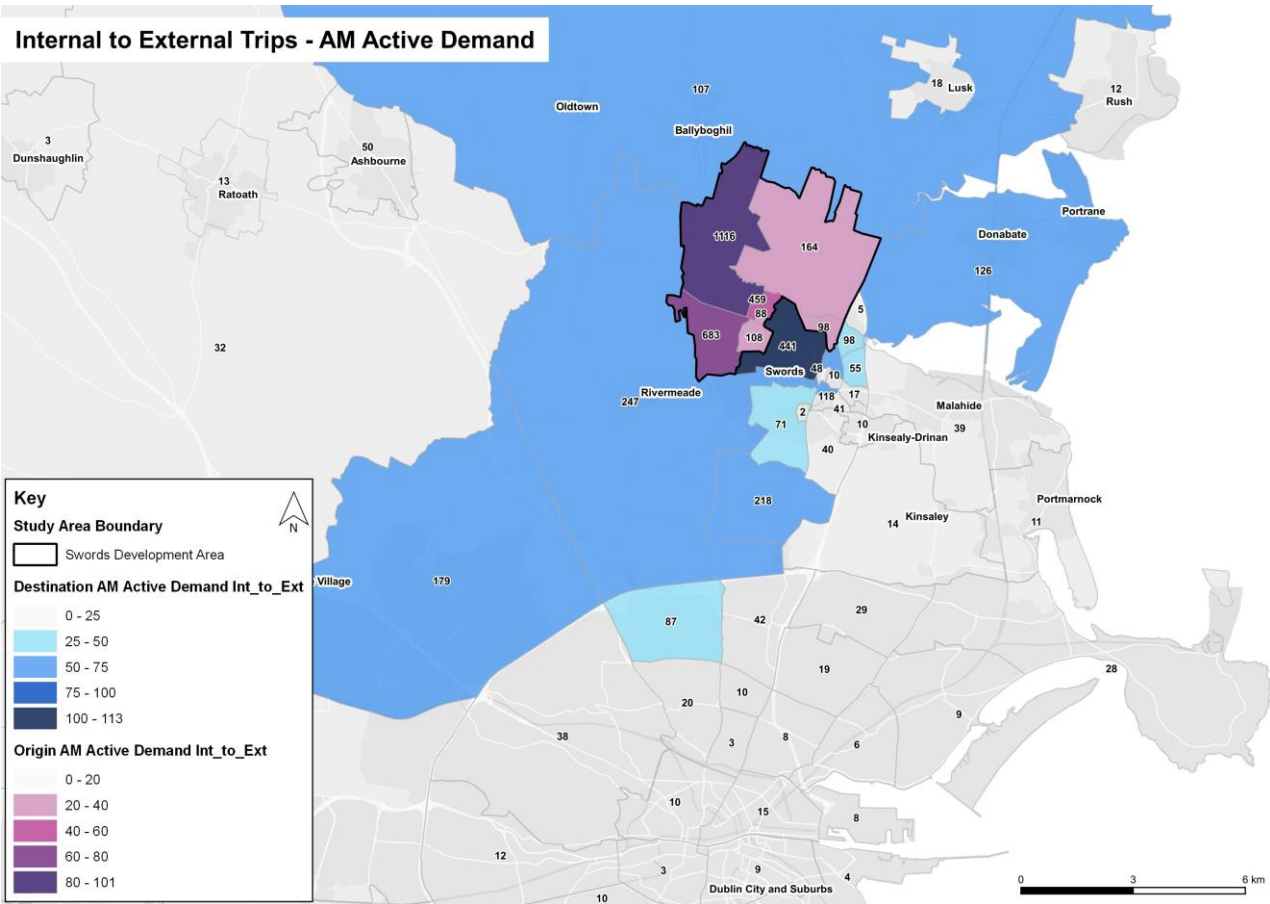
A.3 Rail schemes

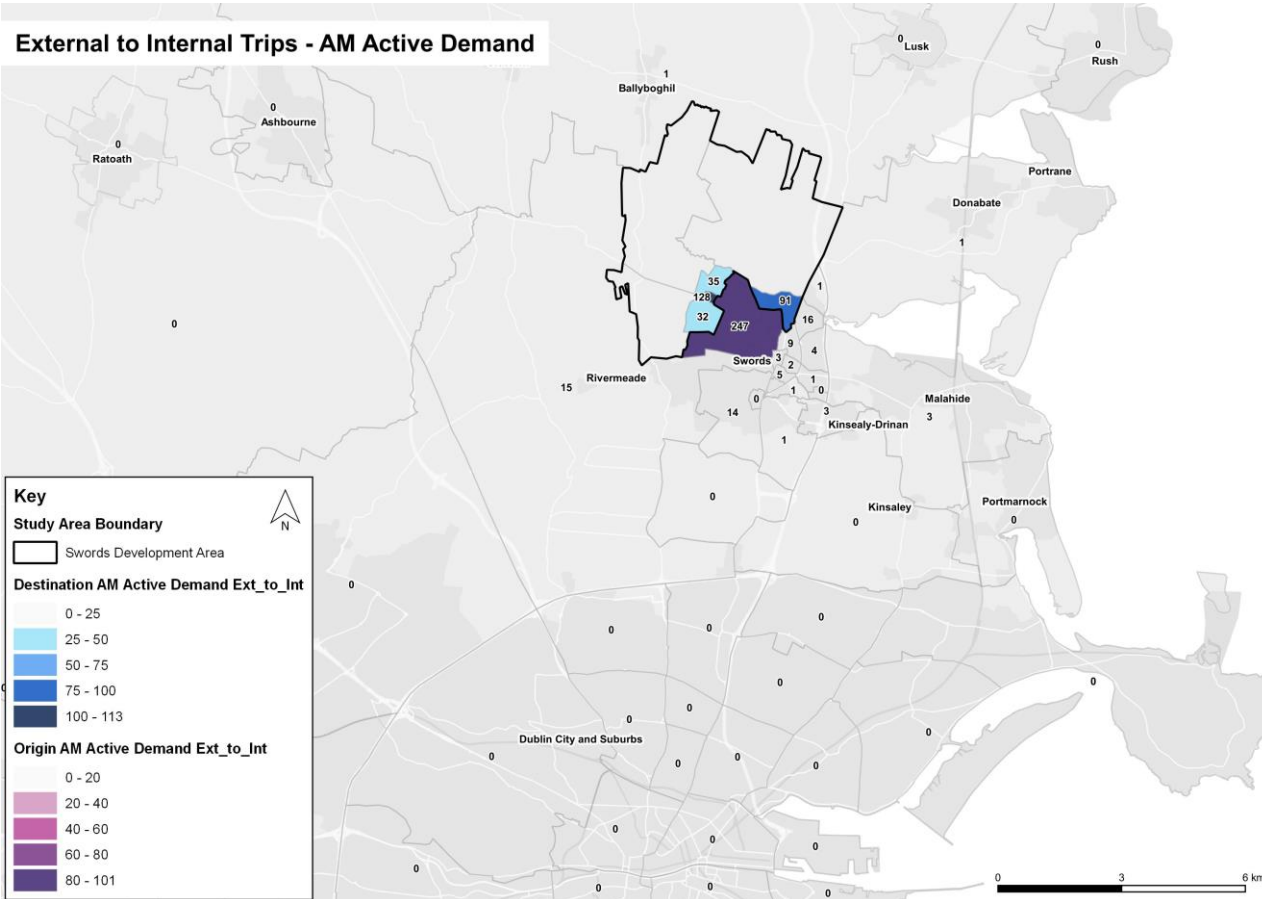
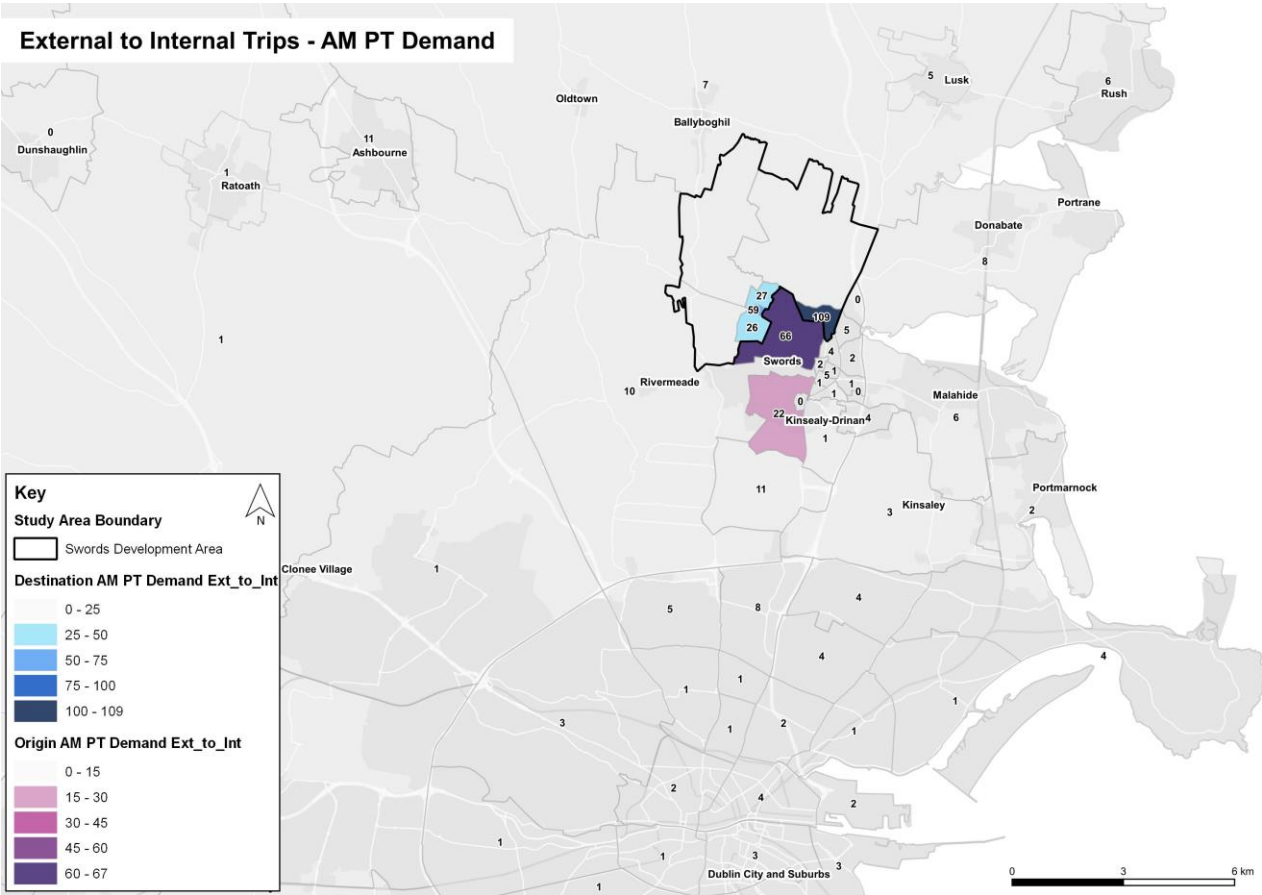
The Do Minimum model runs contains the following rail schemes:

- Revised Irish Rail timetable;
- Interim DART Expansion Programme (non-tunnel elements) including additional stations at Kishogue and Pelletstown; and
- Luas Cross City incorporating LUAS Green Line Capacity Enhancement - Phase 1.

Appendix B. Demand maps split by mode







Appendix C. Demand by origin

Internal to External demand 2040 – AM

Internal to External Demand - 2040 - AM (7-10)										Mode Split by movement			
	To:	Car	PT	Cycle	Walk	TOTAL_AM	TOTAL_DAY	% of total Trips	% of total TP	Car	PT	Cycle	Walk
FROM Swords development Area	Swords Settlement	1074.61	135.33	40.5	158	1,408	4,536	42%	31%	76%	10%	3%	11%
	Orbital movement to Blanchardstown	425.96	9.92	5.77	42.38	484	1,369	14%	35%	88%	2%	1%	9%
	Swords town centre	302.88	38.66	11.9	26.88	380	641	11%	59%	80%	10%	3%	7%
	Airport	218.39	59.19	14	1.14	293	580	9%	50%	75%	20%	5%	0%
	Dublin North Fringe	216.67	56.52	12.9	3.49	290	900	9%	32%	75%	20%	4%	1%
	Dublin City Centre	37.52	181.5	1.91	0.05	221	228	7%	97%	17%	82%	1%	0%
	Donabate & Portrane	125.75	5.08	6.78	0.81	138	374	4%	37%	91%	4%	5%	1%
	Malahide	39.18	4.82	0.72	1.2	46	279	1%	16%	85%	10%	2%	3%
	Portmarnock	10.73	2.07	0.03	0.01	13	98	0%	13%	84%	16%	0%	0%
	Kinsealy	9.75	1.25	0.24	0.71	12	108	0%	11%	82%	10%	2%	6%
	Lissenhal	4.72	0.89	0.22	2.36	8	29	0%	28%	58%	11%	3%	29%
	South of Dublin	26.6	40.2	0.13	0.01	67	188	2%	36%	40%	60%	0%	0%
	West of Dublin	85.58	7.3	0.11	0.02	93	403	3%	23%	92%	8%	0%	0%
	West of Study Area	31.91	1.14	0.03	0.05	33	142	1%	23%	96%	3%	0%	0%
	Ashbourne	49.78	19.58	0.03	0.01	69	290	2%	24%	72%	28%	0%	0%
	Ratoath	13.13	3.24	0	0	16	92	0%	18%	80%	20%	0%	0%
	Dunshaughlin	3.01	0.74	0	0	4	24	0%	16%	80%	20%	0%	0%
	North of Study Area	106.91	2.73	0.4	0.48	111	545	3%	20%	97%	2%	0%	0%
	Lusk	18.31	1.18	0.04	0.04	20	158	1%	12%	94%	6%	0%	0%
	Rush	11.56	1.71	0.01	0	13	140	0%	10%	87%	13%	0%	0%
	Skerries	7.41	1.21	0	0	9	82	0%	11%	86%	14%	0%	0%
	Balbriggan	17.85	2.97	0	0	21	162	1%	13%	86%	14%	0%	0%
	Total					3,369	11,369	100%					

External to Internal demand 2040 – AM

External to Internal Demands - 2040 - AM (7-10)											Mode Split by movement			
From:	AM		Car	PT	Cycle	Walk	TOTAL_AM	TOTAL_DAY	% of total Trips	% of total TP	Car	PT	Cycle	Walk
Swords Settlement	TO Swords Development Area		1090.05	111.07	18.4	285.71	1505.24	4665	50%	32%	72%	7%	1%	19%
Orbital movement to Blanchardstown			215.39	11.09	1.69	13.68	241.85	1067.86	8%	23%	89%	5%	1%	6%
Swords town centre			69.31	12.32	2.31	18.2	102.14	763.34	3%	13%	68%	12%	2%	18%
Airport			34.21	10.87	0.13	0.15	45.36	518.43	2%	9%	75%	24%	0%	0%
Dublin North Fringe			84.76	25.02	0.43	0.18	110.39	883.25	4%	12%	77%	23%	0%	0%
Dublin City Centre			36.6	10.59	0	0.03	47.22	390.6	2%	12%	78%	22%	0%	0%
Donabate & Portrane			103.46	8.14	0.41	0.69	112.7	414.31	4%	27%	92%	7%	0%	1%
Malahide			89.94	6.44	1	2.31	99.69	346.86	3%	29%	90%	6%	1%	2%
Portmarnock			25.21	1.51	0.06	0.02	26.8	98.71	1%	27%	94%	6%	0%	0%
Kinsealy			37.72	4.13	0.62	1.94	44.41	123.61	1%	36%	85%	9%	1%	4%
Lissenhal			1.8	0.08	0.04	1.08	3	22.89	0%	13%	60%	3%	1%	36%
South of Dublin			47.46	6.64	0	0	54.1	219.7	2%	25%	88%	12%	0%	0%
West of Dublin			91.7	3.79	0.01	0.02	95.52	486.4	3%	20%	96%	4%	0%	0%
West of Study Area			35.92	0.61	0	0.04	36.57	160.26	1%	23%	98%	2%	0%	0%
Ashbourne			83.19	10.88	0.01	0.01	94.09	361.06	3%	26%	88%	12%	0%	0%
Ratoath			29.75	0.95	0	0	30.7	116.11	1%	26%	97%	3%	0%	0%
Dunshaughlin			11.29	0.21	0	0	11.5	41.35	0%	28%	98%	2%	0%	0%
North of Study Area			197.71	7.41	0.49	0.47	206.08	622.29	7%	33%	96%	4%	0%	0%
Lusk			65.49	5.18	0.18	0.08	70.93	178.48	2%	40%	92%	7%	0%	0%
Rush			60.53	6.24	0.04	0	66.81	172	2%	39%	91%	9%	0%	0%
Skerries			38.36	3.2	0	0	41.56	109.63	1%	38%	92%	8%	0%	0%
Balbriggan			64.16	4.67	0	0	68.83	220	2%	31%	93%	7%	0%	0%
Total								3013.35	11218.8	100%				

External to Internal demand 2040 – AM

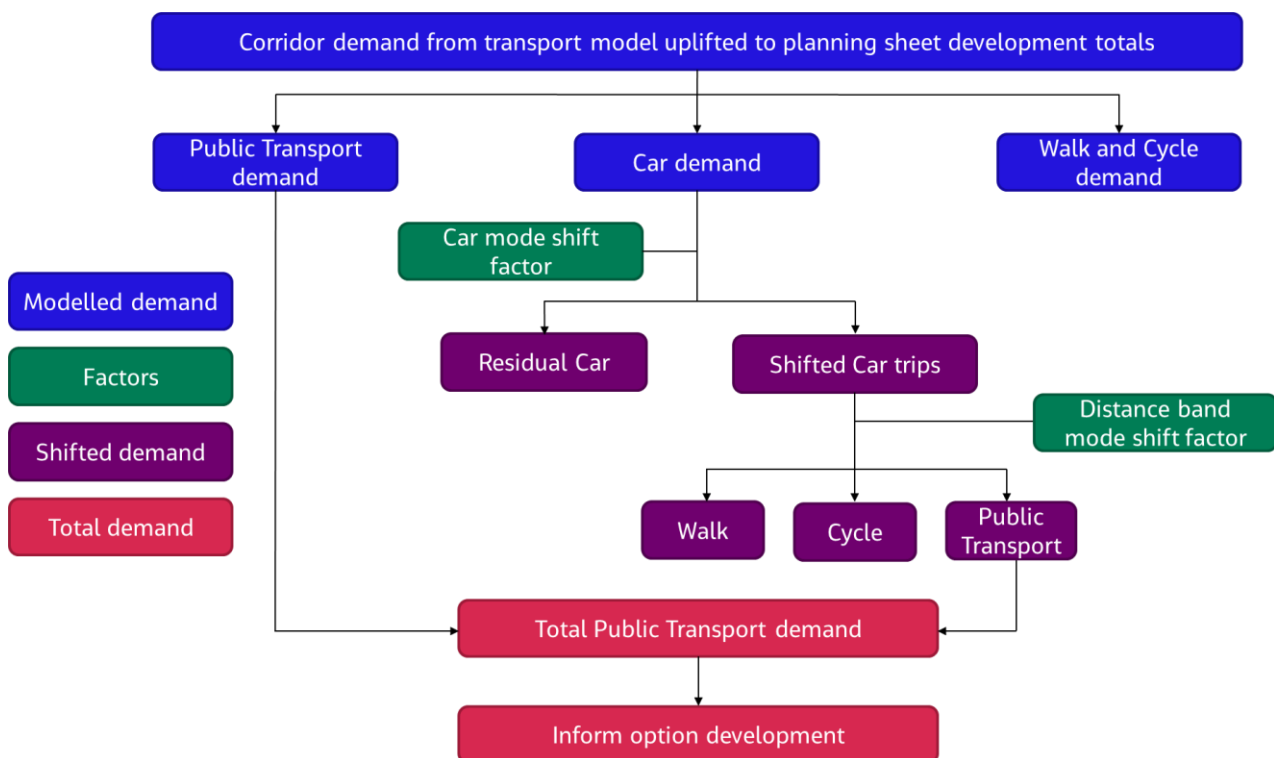
External to Internal Demands - 2040 - AM (7-10)											Mode Split by movement			
From:	AM		Car	PT	Cycle	Walk	TOTAL_AM	TOTAL_DAY	% of total Trips	% of total TP	Car	PT	Cycle	Walk
Swords Settlement	TO Swords Development Area		1090.05	111.07	18.4	285.71	1505.24	4665	50%	32%	72%	7%	1%	19%
Orbital movement to Blanchardstown			215.39	11.09	1.69	13.68	241.85	1067.86	8%	23%	89%	5%	1%	6%
Swords town centre			69.31	12.32	2.31	18.2	102.14	763.34	3%	13%	68%	12%	2%	18%
Airport			34.21	10.87	0.13	0.15	45.36	518.43	2%	9%	75%	24%	0%	0%
Dublin North Fringe			84.76	25.02	0.43	0.18	110.39	883.25	4%	12%	77%	23%	0%	0%
Dublin City Centre			36.6	10.59	0	0.03	47.22	390.6	2%	12%	78%	22%	0%	0%
Donabate & Portrane			103.46	8.14	0.41	0.69	112.7	414.31	4%	27%	92%	7%	0%	1%
Malahide			89.94	6.44	1	2.31	99.69	346.86	3%	29%	90%	6%	1%	2%
Portmarnock			25.21	1.51	0.06	0.02	26.8	98.71	1%	27%	94%	6%	0%	0%
Kinsealy			37.72	4.13	0.62	1.94	44.41	123.61	1%	36%	85%	9%	1%	4%
Lissenhal			1.8	0.08	0.04	1.08	3	22.89	0%	13%	60%	3%	1%	36%
South of Dublin			47.46	6.64	0	0	54.1	219.7	2%	25%	88%	12%	0%	0%
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West of Study Area			35.92	0.61	0	0.04	36.57	160.26	1%	23%	98%	2%	0%	0%
Ashbourne			83.19	10.88	0.01	0.01	94.09	361.06	3%	26%	88%	12%	0%	0%
Ratoath			29.75	0.95	0	0	30.7	116.11	1%	26%	97%	3%	0%	0%
Dunshaughlin			11.29	0.21	0	0	11.5	41.35	0%	28%	98%	2%	0%	0%
North of Study Area			197.71	7.41	0.49	0.47	206.08	622.29	7%	33%	96%	4%	0%	0%
Lusk			65.49	5.18	0.18	0.08	70.93	178.48	2%	40%	92%	7%	0%	0%
Rush			60.53	6.24	0.04	0	66.81	172	2%	39%	91%	9%	0%	0%
Skerries			38.36	3.2	0	0	41.56	109.63	1%	38%	92%	8%	0%	0%
Balbriggan			64.16	4.67	0	0	68.83	220	2%	31%	93%	7%	0%	0%
Total								3013.35	11218.8	100%				

Appendix D. Mode shift analysis methodology

This technical note explains the mode shift calculation used to inform the option development process for each area being considered as part of the Greater Dublin Area Transport Studies. The mode shift calculation is based on the Eastern Regional Model (ERM) and the planning sheets provided by the NTA with the results providing an indicative number of additional public transport trips which need to be catered for if a mode shift away from car is achieved.

This method produces an indicative set of results which provides the order of magnitude of changes in demand which is considered sufficient to inform option development at this early stage. It is noted that the results are affected by the underlying assumptions of the planning sheet and ERM i.e. demand is assigned to a constrained network and that no model run has been undertaken to identify mode shift.

This exercise has been undertaken for the AM period only when there is the largest car demand in the ERM. The flow chart below shows the overall process underpinning the mode shift calculation.



First a corridor is identified (e.g. from the study area into the city centre) and the transport demand using the corridor is obtained from the ERM, disaggregated by mode – public transport, car and walk and cycle.

A factor is then applied to the car demand to create the mode shift away from car to one of the other modes. Two factors for mode shift have been applied in this study: 25% of car trips shift and 50% of car trips shift. This aims to provide a broad order of magnitude of demand to inform option development and assessment.

The shifted car trips are then allocated to become either a new walking, cycling or public transport trip. This decision is based on the trip lengths of the shifted car trips as it is assumed that shorter trips are more likely to become walking trips and longer trips are more likely to become public transport trips. The trip length distributions for each mode are obtained from the ERM.

Three bands were defined:

- A lower band bounded a distance which 75% of walking trips in the ERM are shorter than or equal to,
- A middle band bounded by a distance which 75% of cycling trips in the ERM are shorter than or equal to and;
- An upper band for any trips with a longer distance.

For the Swords study area, the following bands and mode shares by distance are obtained from the ERM:

Distance band (km)	Walk	Cycle	Public transport
0-2.8	21%	2%	8%
2.8-7.5	4%	4%	17%
7.5+	1%	1%	66%

In the lower band of trips less than 2.8km, 21% of the trips in the ERM are walking trips, but there are still 2% of trips which are cycle trips and 8% of trips which are public transport trips.

The proportion of trips in each band made by walk, cycle and public transport were derived from the ERM, and applied to the shifted car trips. This gives a number for the shifted public transport trips which can be added to the public transport trips from the ERM to provide a total public transport demand for the corridor. This number can then be used to inform the development of options to support the estimated demand along the corridor.