

# Cherrywood SDZ: Development Sequencing and Transport Capacity

## **Background Technical Note**

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Delivering a better world

## Quality information

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## 1. Overview

Dún Laoghaire-Rathdown County Council (DLRCC) have commissioned AECOM to provide transport advice on a potential amendment to the phasing and sequencing of the Cherrywood Strategic Development Zone (SDZ) as currently set out in the Cherrywood Planning Scheme 2014 and as amended in 2017 and 2018. The purpose of this potential amendment is to introduce greater flexibility in the delivery of housing. The Scheme, which was prepared in 2012 and approved by An Bord Pleanála (ABP) in 2014, sets out a spatial requirement with regard to the phasing of development and is related to the delivery of infrastructure as set out in the sequential Development Growth Areas (Growth Areas 1-3).

Cherrywood SDZ provides a unique opportunity to develop a sustainable community with a strong balance of land use and transport planning. The success of the area, in transport terms, is heavily dependent on the achievement of a high public transport and active mode share and a proportion of internal sustainable mode trips.

The aim of this note is to ascertain the feasibility of bringing forward housing development, already approved under the Cherrywood Planning Scheme, earlier than currently allowed for. Should this be feasible, the mechanism for early delivery of housing will be set out in a planning scheme amendment. This note focuses on potential amendments to the sequencing and phasing of residential development only, other developments such as retail, high intensity employment, commercial and non-retail are assumed to remain consistent with the previously amended and approved Cherrywood SDZ Planning Scheme.



Figure 1-1: Cherrywood Strategic Development Zone

## 2. Policy Context

## 2.1 Introduction

Since the Cherrywood SDZ Planning Scheme was approved in 2014, there has been a number of changes to national, regional and local environment, transport and land use policy which set the context for an accelerated shift to more sustainable modes of transport. This change in policy focus will have an impact on future growth and development in Ireland. A summary of the key new policies and strategies since 2014 are summarised in Figure 2-1.



#### Figure 2-1: Key Policy Changes Since 2014

Through the Climate Act 2021, the Irish Government has committed to a legally binding target of net zero greenhouse gas emissions no later than 2050, and a reduction of 51% by 2030. Transport will have a significant role in delivering future carbon reductions, and it is important to understand that the decarbonisation of vehicles will not solely achieve the reductions required. The Government's Climate Action Plan 2021 Report acknowledges that change will have to occur through a combination of low carbon technologies, societal and behavioural changes.

This study has considered all the relevant policy changes on a national, regional, and local level. A summary of the policy documents assessed are as follows:

- National Policy:
  - Climate Action Plan 2024 & Climate Action and Low Carbon Development (Amendment) Act 2021
  - Project Ireland 2040 National Planning Framework.
  - Project Ireland 2040 National Sustainable Mobility Policy.
  - National Investment Framework for Transport in Ireland (NIFTI).
  - Sustainable and Compact Settlements Guidelines for Planning Authorities Consultation Paper 2023.
  - Spatial Planning and National Roads Guidelines for Planning Authorities (2012).

- Sustainable Urban Housing : Design Standards for New Apartments Guidelines for Planning Authorities, 2023.
- Urban Development and Building Height Guidelines for Planning Authorities, 2018.
- Dublin Metropolitan Area Strategic Plan (MASP).
- Regional Policy:
  - Regional Spatial and Economic Strategy (RSES) for the Eastern and Midland Region (2019-2031).
  - National Transport Authority Greater Dublin Area Transport Strategy 2022-2042.
- Local Policy:
  - DLRCC Climate Change Action Plan 2024-2029.
  - DLRCC County Development Plan 2022-2028.
- Standards and Guidance:
  - Design Manual for Urban Roads and Streets (DMURS) (2012 and 2019).
  - TII Publications (Standards and Technical) (2016 onwards).

## 2.2 Policy Review

#### 2.2.1 National Policy

#### Climate Action Plan 2024 & Climate Action and Low Carbon Development (Amendment) Act 2021

This legislation directly influences funding, policies and goals relating to improving public transport. It set guidelines, allocates resources, and ensures accountability to align local initiatives with national climate objectives.

Key transport targets include 20% reduction in total vehicle kilometres travelled relative to business-as-usual, 50% reduction in fuel usage, and significant increases to sustainable transport trips and modal share.

CAP continues to categorise all actions using the Avoid-Shift-Improve framework, prioritising firstly demand measures, followed by actions aimed at shifting mode share towards sustainable travel.

#### Project Ireland 2040 – National Planning Framework

The Climate Action Plan for transport will support and build from key national policy plans that aim to drive the necessary changes including Project Ireland 2040 – the National Planning Framework (NPF) and the Sustainable Mobility Policy.

The National Planning Framework sets out the Government's high level strategic vision for shaping future growth and development in Ireland up to 2040. This framework is now considered the over- arching policy document directly relevant to the regional and local planning authorities and it utilises a set of shared goals i.e. National Strategic Outcomes.

Sustainability is a key theme within the NPF, with three of the ten National Strategic Outcomes detailed as: enhanced regional accessibility; sustainable mobility; and transition to a low carbon and resilient society. Chapter 6 of the NPF entitled 'People, Places and Communities' acknowledges that location and place have an important influence on the quality of life that people enjoy.

The key role that land use planning plays in progressing climate change mitigation and adaptation is at the core of the NPF.

#### Project Ireland 2040 – National Sustainable Mobility Policy

The Sustainable Mobility Policy sets out a strategic framework to 2030 for active travel and public transport to support Ireland's climate commitments. The policy outlines three principles to make it easier for people to travel by more sustainable modes including: green mobility; people focused mobility; and better integrated mobility.

A summary of the transport principles and goals outlined in the plan are outlined in Figure 2-2. It is notable that many of the goals of the Sustainable Mobility Policy are already objectives of the Cherrywood SDZ. These include

expanding the availability of sustainable mobility, encouraging people to choose sustainable mobility over private car, and better integration of land use and transport planning.

PRINCIPLES	GOALS	
Safe and Green Mobility	<ol> <li>Improve mobility safety.</li> <li>Decarbonise public transport.</li> <li>Expand availability of sustainable mobility in metropolitan areas.</li> <li>Expand availability of sustainable mobility in regional and rural areas.</li> <li>Encourage people to choose sustainable mobility over the private car.</li> </ol>	
People Focused Mobility	<ol> <li>Take a whole of journey approach to mobility, promoting inclusive access for all.</li> <li>Design infrastructure according to Universal Design Principles and the Hierarchy of Road Users model.</li> <li>Promote sustainable mobility through research and citizen engagement.</li> </ol>	
Better Integrated Mobility	<ol> <li>Better integrate land use and transport planning at all levels.</li> <li>Promote smart and integrated mobility through innovative technologies and development of appropriate regulation.</li> </ol>	

#### Figure 2-2: National Sustainable Mobility Policy Principles and Goals

#### National Investment Framework for Transport in Ireland (2021)

NIFTI is a strategic framework for future investment in decision making of land transport in Ireland. The purpose of the framework is to enable the delivery of Project Ireland 2040 by guiding the appropriate investment in Ireland's roads, active travel and public transport infrastructure. NIFTI lists key investment priorities, highlighted in Figure 2-3which pertain to Ireland's transport industry including decarbonisation, the mobility of people and goods in urban areas, protection and renewal, and enhanced regional and rural connectivity.



Figure 2-3: NIFTI Investment Priorities

NIFTI includes two 'hierarchies' specifying the order in which transport investment should be prioritised: an 'intervention hierarchy' and a 'modal hierarchy'; both of which are shown in the Figure 2-4.





The Intervention Hierarchy differentiates between the level of intervention proposed, and states that investment should firstly seek to 'maintain' existing infrastructure; then to 'optimise' or 'improve' existing infrastructure; and finally – if it is not possible to achieve an objective through previous steps – to invest in providing 'new' infrastructure. The aim of the Investment Hierarchy is to maximise the lifespan and value for money of past investments, and to ensure that more affordable and efficient options for achieving an objective are considered before investing in large-scale transport projects or programmes. The examination of road and public transport network undertaken as part of this study aligns with all levels on Modal Hierarchy and Level 2 ('Optimise') of the Intervention Hierarchy.

#### Sustainable and Compact Settlements Guidelines for Planning Authorities (2024)

The Department for Housing, Local Government and Heritage has developed a policy approach to Sustainable and Compact Settlements which builds on and updates previous guidance in relation to the planning and development of urban and rural settlements.

The preferred policy approach includes indicators of quality design and placemaking that should be applied in the preparation and consideration of individual planning applications. These indicators should relate to sustainable and efficient movement, and the mix and distribution of land uses. The integration and quantum of car parking will be key to ensuring the overall quality and amenity of the development.

The guidelines state that to meet the transport emission reduction targets set out in the National Sustainable Mobility Policy (2022) and in CAP23, it will be necessary to apply a graduated approach to the management of car parking i.e. parking provision in areas of high accessibility should be minimised, substantially reduced, or wholly eliminated. In areas with medium accessibility, car-parking should be substantially reduced.

#### Spatial Planning and National Roads Guidelines for Planning Authorities (2012)

These guidelines set out planning policy considerations relating to development affecting national primary and secondary roads, including motorways and associated junctions, outside the 50-60 km/h speed limit zones for cities, towns and villages.

# Sustainable Urban Housing: Design Standards for New Apartments Guidelines for Planning Authorities, (2023)

The overall purpose of these Guidelines is to strike an effective regulatory balance in setting out planning guidance to achieve both high quality apartment development and a significantly increased overall level of apartment output.

These Guidelines apply to all housing developments that include apartments that may be made available for sale, whether for owner occupation or for individual lease.

#### Urban Development and Building Height Guidelines for Planning Authorities, (2018)

These Guidelines are intended to set out national planning policy guidelines on building heights in relation to urban areas, as defined by the census, building from the strategic policy framework set out in Project Ireland 2040 and the National Planning Framework. The Guidelines applies the requirements of the NPF in setting out relevant planning criteria for considering increased building height in various locations but principally (a) urban and city-centre locations and (b) suburban and wider town locations.Regional Policy

#### Regional Spatial and Economic Strategy (RSES) for the Eastern and Midland Region (2019-2031)

The Regional Spatial and Economic Strategy for the Eastern and Midland Region (RSES – EMR) aims to support the implementation of Project Ireland 2040 by providing a long-term strategic planning and economic framework for the development of the eastern and midland region. It includes a number of regional policy objectives, including RPO5.3 which outlines that future development should be planned and designed in a manner that facilitates sustainable travel patterns, with a particular focus on increasing the share of active modes.

The RSES is underpinned by three cross-cutting principles: healthy placemaking; climate action; and economic opportunity. Sixteen Regional Strategic Outcomes (RSOs) are set out, which broadly align with the National Strategic Outcomes of the NPF, the United Nations Sustainable Development Goals, EU, and other national policies.

The RSES also identifies key 'growth enablers' to support the Region in meeting its potential. The recommended 'growth enablers', as relevant to DLR, include the following:

- Align Population, Employment and Housing Growth Promote sustainable growth in the right locations that reduces the distance between the places people live and work.
- Compact Sustainable Growth Promote compact, sequential and sustainable development of urban areas. Promote active land management and better use of underutilised, brownfield and public lands.
- Regeneration and Development Identify significant ready-to-go regeneration projects in existing built-up areas.
- Economic Growth Harness opportunities for economic growth by supporting synergies.

The RSES growth enablers are aligned with the Physical Infrastructure Review. Infrastructure interventions to be proposed through the review, aimed at delivering sustainable mobility, supporting compact growth and improving the quality and sustainability of Cherrywood infrastructure will support the achievement of RSES objectives.

#### Dublin Metropolitan Area Strategic Plan (MASP)

The Dublin MASP, which is contained within Chapter 5 of the RSES, sets out a strategic planning and investment framework for the growth of the Dublin Metropolitan area over a 12-to-20-year horizon. The MASP comprises an integrated land-use and transportation strategy. It identifies strategic residential and employment corridors based on their current and future development capacity, their ability to deliver outcomes such as compact development, placemaking, accessibility to public transport, potential for economic development, and their ability to deliver a reduced carbon footprint. Within the Metrolink / LUAS Green Line Corridor, Cherrywood is identified as new and emerging mixed-use district.

In terms of employment generation, the MASP aims to intensify strategic employment areas within the M50 ring, including activating key strategic sites such as Cherrywood.

#### National Transport Authority – Greater Dublin Area Transport Strategy 2022-2042

The National Transport Authority (NTA) Greater Dublin Area (GDA) Transport Strategy provides a framework for the planning and delivery of transport infrastructure and services within the GDA from 2022 to 2042. It also provides transport planning policy that allows other areas of land use planning to align their own investment priorities.

The strategy has been developed to be consistent with the spatial planning policies and objectives as set out in the RSES; which are also consistent with the National Planning Framework and National Development Plan as set out in Project Ireland 2040.

To support the delivery of the overall aim of the Transport Strategy, four objectives are proposed, comprising:

#### 1. An Enhanced Natural and Built Environment

To create a better environment and meet environmental obligations by transitioning to a clean, low emission transport system, increase walking, cycling and public transport use, and reducing car dependency.

#### 2. Connected Communities and Better Quality of Life

Enhance the health and quality of life for our society by improving connectivity between people and places, delivering safe and integrated transport options, and increasing opportunities for walking and cycling.

#### 3. Strong Sustainable Economy

Support sustainable 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.

#### 4. An Inclusive Transport System

Deliver a high quality, equitable and accessible transport system, which caters for the needs of all members of society.

The NTA set out seventeen essential measures to help meet these four objectives. The measures are as follows:

- PLAN1 Policy Concepts in Transport and Land Use Planning
- PLAN2 The Road User Hierarchy
- PLAN3 Housing and Transport
- PLAN4 Consolidated Development
- PLAN5 Retail Development
- PLAN6 Office Developments
- PLAN7Transit Oriented Development
- PLAN8 Mixed Uses
- PLAN9 Filtered Permeability
- PLAN10 School Site Selection
- PLAN11 Location of Schools
- PLAN12 Design of Schools
- PLAN13 Road Network Serving Schools
- PLAN14 Urban Design in Major Infrastructure Projects
- PLAN15 Urban Design in Walking and Cycling Projects
- PLAN 16 Reallocation of Road Space
- PLAN 17 Local Transport Plans

The Cherrywood SDZ is referred to specifically in:

- **Measure PLAN5 Retail Development:** The strategy will provide support to retail developments that form a part of a major residential development.
- Measure PLAN7 Transit Oriented Development: A concept that links levels of accessibility to development density, with buses and Luas trams servicing a major part of Cherrywood's transport demands.

Furthermore, the strategy also outlines the current approach to the consideration of mixed-use development as outlined in PLAN 8, which focuses on reducing the need for longer distance travel by the 15-minute city concept.

The importance of the concept of 'Filtered Permeability' which confers an advantage on active travel modes by facilitating pedestrian and cyclist movement through areas which are not accessible to vehicles, is highlighted in PLAN 9. This outlines that Development Plans, SDZ Planning Schemes and LAP should be designed on the basis of providing Filtered Permeability.

Further measures have been detailed within the Strategy to support the objectives listed above. These are as follows:

#### Integration and Inclusion

The features of a well-integrated human-centred transport system include the physical environment of stops and stations, the length and quality of the walk between services, crossing points, travel information, fares integration, cycle parking, shelter, frequency and capacity of connecting services.

#### • Measure INT4 – Park & Ride

Within the GDA, it is the NTA's intention to develop a network of Park and Ride facilities in locations where high-capacity bus and rail services intersect with the national road network.

#### Measure INT10 – Smarter Travel Workplaces and Campuses

The NTA will continue to expand the Smarter Travel Workplaces and Campuses Programme to directly influence travel behaviour in the GDA and to maximise the use of public transport, walking and cycling infrastructure and services to be developed under the Transport Strategy.

#### • Measure INT13 – Sustainable Transport Incentives

Over the period of the transport strategy, the NTA, in conjunction with Government and other agencies, will explore incentives to encourage more people to transfer to public transport and cycling.

#### Cycling and Personal Mobility Vehicles

The steady growth of cycling mode share requires a strong policy foundation and adequate funding to support the continuation of this trend. In preparing Development Plans, the NTA will encourage local authorities to allow for at least 20% of trips to be undertaken by cycling and for cycle parking standards to be set out on this basis.

#### • Measure CYC1 – GDA Cycle Network

It is the intention of the NTA and the local authorities to deliver a safe, comprehensive, attractive and legible cycle network in accordance with the updated Greater Dublin Area Cycle Network.

#### • Measure CYC5 – Cycle Parking

Through statutory planning process and liaison with relevant stakeholders, high quality cycle parking at origins and destinations, serving the entire cycling community, should be delivered.

#### • Measure CYC6 – Cycle Parking Strategies

Public parking strategies should be prepared to ensure the provision of on- and off-street secure cycle parking is available for short stay use by all bike types, including cargo bikes and other non-standard bikes.

#### • Measure CYC7 – Bike Share Scheme Expansion

The NTA, in collaboration with the local authorities, will seek the development of a structured network of coordinated bike share schemes, appropriately serving key urban areas and operating on an integrated basis.

#### Public Transport

The key focus of the public transport strategy is the provision of a comprehansive bus network which is based on enhanced levels of service through greater on-street priority. To supplement this, there are a number of rail programmes which will be pursued such as MetroLink, extensions of the Luas network and the DART+ programme.

#### • Measure BUS1 - Core Bus Corridor Programme

Subject to receipt of statutory consents, it is the intention of the NTA to implement the 12 Core Bus Corridors as set out in the BusConnects Dublin programme.

#### • Measure BUS2 – Additional Radial Core Bus Corridors

It is the intention of the NTA to evaluate the need for, and deliver, additional priority on radial corridors.

#### • Measure BUS3 – Orbital and Local Bus Routes

It is the intention of the NTA to provide significant improvements to orbital and local bus services in the following ways:

- 1. Increased frequencies on the BusConnects orbital and local services; and
- 2. Providing bus priority measures at locations on the routes where delays to services are identified.

#### • Measure LRT1 – Metrolink

A Railway Order application for the MetroLink was made to An Bord Pleanála in 2022. Subject to receipt of approval, it is intended to proceed with the construction of the project.

#### • Measure LRT2 – Further Metro Development

In reviewing and updating the Transport Strategy, which takes place every 6 years, the NTA will assess the requirement to provide additional Metro lines in the GDA based on updated forecast demand for travel and on emerging significant changes in land use and spatial policy, including previously considered options to extend Metrolink southwards towards UCD, or along the existing Luas Green Line, or towards South West Dublin.

#### • Measure LRT3 – Luas Finglas

It is intended to extend the Luas Green Line northwards to Finglas, inclusive of a potential park and ride facility at or close to its terminal stop.

#### • Measure LRT4 – Luas Lucan

It is intended to develop a light rail line from Lucan to the City Centre, supplementing and complementing the planned bus system, to serve the overall public transport needs in this area.

#### • Measure LRT5 – Luas Bray

It is intended to extend the Luas Green Line southwards in order to serve the Bray and Environs area.

#### • Measure LRT6 – Luas Poolbeg

Subject to the assessment of forecast travel demand arising out of development patterns in the SDZ and its environs, it is intended to extend the Red line to Poolbeg.

#### • Measure RAIL1 – DART+

The DART+ Programme will be implemented, providing electrified services to Drogheda in the north and Maynooth plus Celbridge in the west, in addition to an enhanced level of service to Greystones. The programme will include additional fleet, aligned with higher passenger demand, and a higher frequency of service on all lines.

#### Measure RAIL3 – DART Extension

• The NTA and Irish Rail will, over the lifetime of the Strategy, extend the DART to deliver electrified rail services to Sallins / Naas, Kilcock, and Wicklow

#### • Measure RAIL4 – Navan Rail Line

The existing rail network in the GDA will be extended by the provision of a new rail line from the M3 Parkway terminus station (just west of Dunboyne) to Navan town, serving Dunshaughlin and Kilmessan along its route.

#### <u>Roads</u>

A key focus of the Transport Strategy is the provision of safe, resilient road transport routes and liveable streets within the context of the need to support sustainable development principles and legislative commitments to decarbonise the transport sector in Ireland.

#### • Measure ROAD13 – Road Space Reallocation.

The local authorities and the NTA will implement a programme of road space reallocation from use by general traffic or as parking to exclusive use by sustainable modes as appropriate, as a means of achieving the following:

- Providing sufficient capacity for sustainable modes.
- Improving safety for pedestrians and cyclists.
- Encouraging mode shift from the private car and reducing emissions.

#### Traffic Management and Travel Options

The main objective of Traffic Management is to ensure that the regional transport system continues to operate in an efficient manner. The Strategy outlines the need to consider demand management of destination parking, with local authorities able to utilise the following measures:

#### • Measure TM7 – Car Free Zones

The NTA will support local authorities seeking to provide car free zones in urban areas where there are benefits to transport, traffic and/or the local economy.

#### • Measure TM9 – Safe Routes to School

An Taisce (The National Trust for Ireland), the NTA, local authorities, and the Departments of Transport and Education will oversee the roll out of the Safe Routes to School, which is designed to encourage as many pupils and students as possible in primary and post-primary schools to walk or cycle.

#### • Measure TM14 – Destination Parking Standards

The NTA, in cooperation with local authorities, will ensure that the quantum of parking provided at destinations (non-residential commercial developments) will be significantly reduced at all locations in the GDA.

The NTA intend to develop guidance on maximum car parking standards for different land-uses and locations, in association with local authorities, with the objective of reducing the maximum parking standards.

#### • Measure TM17 – Car-Free Commercial Development at Major Interchanges

Proposals for major employment development close to major interchanges, which seek to provide car parking, should provide evidence as to why their proposed development cannot operate without car parking.

#### • Measure TM18 – Parking Management at Retail Centres

An assessment on the potential need for parking charges at retail developments, with the objective of reducing the impact of car traffic on these destinations and the local communities, will be undertaken by the NTA, in conjunction with local authorities.

#### • Measure TM20 – Electric Cars

The NTA, TII and local authorities will facilitate the conversion of the private car fleet to electric at non-residential developments in the following ways:

- Providing public charging points at key destinations such as public car parks, Park and Ride facilities, on-street in town centres, and public parks.
- Providing significantly expanded electric car charging facilities at service stations on the road network, particularly the national road network.
- Ensuring that charging infrastructure does not encroach on footpaths, impair the public realm or otherwise compromise the free movement of pedestrians, cyclists and public transport.

#### 2.2.2 Local Policy

#### DLRCC Climate Change Action Plan 2024-2029

The Council's Climate Action Plan features a range of actions across five key areas including energy and buildings, transport, flood resilience, nature-based solutions and resource management.

In relation to transport, there are three key actions including electrification of the Council fleet, supporting sustainable travel and development of cycle routes and accessible footways.

There are several transport related actions that are currently budgeted for by DLRCC including:

- T1 Deliver a safe active travel network for people of all ages and abilities by implementing the County and Greater Dublin Area Cycle Network.
- T3 Support the accessible bikes borrowing scheme.

- T7 Expand the EV / ebike / eScooter charging networks in the County, including disabled access for EV charging.
- T9 Identify opportunities to implement permeability and connectivity in the planning process.
- T12 Expand car sharing schemes in the County, with a focus on the provision of electric vehicles.
- T13 Expand the network of secure, public cycle and scooter parking to accommodate a variety of transportation modes.
- T15 Facilitate public transport development in the County.

#### DLRCC County Development Plan 2022-2028

The Dún Laoghaire-Rathdown County Development Plan was adopted in April 2022 and will guide future development and growth in the County. The Plan's approach is centred on sustainable development and the need to create vibrant, liveable and climate resilient communities. The key policy recommendations outlined within the Plan are:

- Integration of Land Use and Transport.
- **Promoting ten-minute neighbourhoods** and compact climate resilient communities where people have the options to use public transport and softer modes for everyday trips.
- Implement Travel Demand Management measures aimed at reducing the demand for travel and increasing the efficiency of the transport network including:
  - Car sharing schemes.
  - Implementation of car parking standards.

The Plan identifies four Parking Zones within the county. Cherrywood SDZ is located in Parking Zone 2 which is defined as an area well served by Public Transport and is subject to the parking standards specified within the Plan. However, deviation from these standards may be permissible having regard to the following criteria:

- Proximity to public transport services and level of service and interchange available.
- The need to safeguard investment in sustainable transport and encourage a modal shift.
- Availability of car sharing and bike / e-bike sharing facilities.
- Capacity of the surrounding road network.
- Robustness of Mobility Management Plan to support the development.

#### 2.2.3 Standards and Guidance

#### Design Manual for Urban Roads and Streets (DMURS) (2012 and 2019)

DMURS provides guidance relating to the design of urban roads and streets. It presents a series of principles, approaches and standards that are necessary to achieve balanced, best practice design outcomes with regard to street networks and individual streets. A further aim of the Manual is to put well designed streets at the heart of sustainable communities. Well-designed streets can create connected physical, social and transport networks that promote real alternatives to car journeys, namely walking, cycling or public transport.

#### TII Publications (Standards and Technical) (2016 onward)

TII Publications provides requirements, advice, and guidance in relation to managing and improving Ireland's national road and light rail networks. Section 1.3 of DMURS and Government's NGS Circular No. 2 of 2022 re. Application of Guidelines and Standards in relation to works on Public Roads in Ireland" prescribe the utilisation of TII Publications for roads where speed limits of greater than 60km/h apply. TII Publications compliance is also required where development may impact the national road network which includes structures and associated ancillary infrastructure. In addition, TII Publications includes Light Rail Environment - Technical Guidelines for Development, TII Publication no. PE-PDV-00001 available at https://www.tiipublications.ie/

#### Reducing the Need to Travel through Remote Working

One of the most significant impacts of the Covid 19 pandemic was the widespread adoption of remote working. The need to comply with social distancing measures meant that organisations had to transition to remote working arrangements. The extended duration of this arrangement has meant that the traditional office-centric work model, for many organisations, has been superseded by hybrid or fully remote approaches to working.

Increased remote working has resulted in many benefits for individuals, communities and our transport networks. At an individual level, greater flexibility, better work-life balance and cost savings from reduced commuting are reported as some of the key benefits. Within communities, remote working is supporting local economies and community engagement with increased benefits in rural areas. Of most relevance to this study, are the potential benefits of remote working for the transport network. With fewer people commuting to workplaces, remote working has resulted in a reduction in congestion on road and public transport networks during peak hours with a corresponding reduction in emissions from transport. Some remote workers may also choose active modes of transport for shorter, local trips during non-working hours, promoting healthier and more sustainable transportation habits, leading to further reductions in congestion and emissions.

In response to the changes in working patterns, the Government published the National Remote Work Strategy: Making Remote Work, in 2021. The Strategy aims "to ensure remote working is a permanent feature in the Irish workplace in a way that maximises economic, social and environmental benefits". One key pillar of the strategy is to "develop and leverage remote working infrastructure" through significant investment in remote working hubs and required supporting infrastructure. Since the Strategy was published, the Right to Request Remote Work Bill of 2021 has been passed. This legislation provides a legal framework around which requesting, approving or refusing a request for remote work is based. It provides legal clarity to employers on their obligations for dealing with such requests and ensures that remote working will continue to be an important feature of the working environment in Ireland.

Uptake of remote working post pandemic in Ireland has been strong with Ireland having the highest proportion of remote workers in the EU (Eurostat). In 2022, three quarters of a million people in Ireland were working from home for at least one day a week, representing 32% of workers (Census 2022). In the same year, Dún Laoghaire-Rathdown had the highest proportion of people working from home for at least one day a week at 57%.

Remote working in Cherrywood presents significant potential to reduce the need to travel for commuting with positive impacts on both road and public transport network capacity, the local economy and the community. To support remote working in high density residential environments, like Cherrywood, the provision of remote working hubs will be essential. It is recommended that indicative locations for hubs within the SDZ, which are easily accessible, are identified and an approach to delivery of them agreed.

#### Shift from 'Predict and Provide' to 'Decide and Provide'

In the UK, Oxfordshire County Council is leading a change in approach to development planning in response to the challenges faced by climate change and transport emissions. Their guidelines **"Implementing 'Decide & Provide': Requirements for Transport Assessments" (2022)** has been approved by the Department for Transport and could result in significant changes to how transport planning for large new developments is managed.

At the core of the Decide and Provide concept is the following: "transport planning practice has typically followed the 'predict and provide' approach, which can be broadly described as an approach to transport planning that uses current or historical traffic patterns to determine the future need for infrastructure. However, this approach tends to simply maintain the status quo by perpetuating dependence on the private car through provision of additional highway capacity."

The 'decide and provide' approach prioritises the central vision of an authority and then provides the means to achieve this. It is proposed that this will enable more positive transport planning and will help them achieve their goal of a reduction in reliance on the private car and an increase in uptake of the active (walking and cycling) and public transport modes.

AECOM is currently working on a number of large developments in the UK and implementing the proposed approach to transport planning which could also be of benefit to DLRCC in the management of Cherrywood SDZ transport networks.

## 2.3 Conclusion

Since the Cherrywood SDZ Planning Scheme was approved in 2014, there has been a number of national, regional and local environment, transport and land use policy changes which set the context for an accelerated shift to more sustainable modes of transport.

These policies recognise that the success of transport planning in meeting society's needs requires close integration of transport investment and land use planning, to guide the direction of future development within the Region. Whilst it is acknowledged that the Cherrywood SDZ Planning Scheme already prioritises sustainable travel modes, the new policy context places a greater emphasis on this. This means that new developments such as Cherrywood SDZ need to place an even greater focus on sustainable travel and where possible reduce the need for travel through the provision of local services and amenities, including remote working hubs, in an environment where it is attractive to walk and cycle.

The policies also acknowledge that a range of measures to discourage private car use, such as reduced availability of car parking, and to encourage sustainable travel options such as car sharing schemes and improved active travel infrastructure, are required to achieve a shift to more sustainable modes of transport.

## 3. Cherrywood SDZ Characteristics

Cherrywood was designated as a Strategic Development Zone (SDZ) in May 2010 by Government Order on behalf of DLRCC. The SDZ includes around 360ha of development lands located 16km south-east from Dublin City Centre. The lands are bound to the south by the M50, to the east by the M11/N11 and to the north by the Brennanstown Road.

## 3.1 Existing Mode Share

DLRCC commissioned Interactions Research Ltd to undertake modal split surveys of residents of units in the Cherrywood Strategic Development Zone (SDZ), specifically Town Centre Apartments, Castle, Cherry Lane, Mercer Lodge, Tullyvale and Domville. Responses were collected through a mix of online self-completion and door to door Computer Aided Personal Interviewing (CAPI). Door-to-door surveying took between 19th and 28th November 2024.

The transport choices to and from work/education for 533 respondents in the Cherrywood SDZ are illustrated in Figure 3-1.



Transport Choices to and from Work/Education (N=533)

■ How do you normally travel home from your own work/education?

#### Figure 3-1: Cherrywood Mode Share, Modal Survey 2024

It was found that the majority of respondents take the Luas for commuting trips, (49% to work/education and 45% from work/education). The next most popular form of transport is driving alone. The usage of the Luas alone is significantly higher for workers in this area than the combined Public Transport (comprising Dublin bus, DART and Luas) usage (39%) across Dublin. This is mainly due to its reliability and close proximity of the Cherrywood Luas stop to local residents.

The 2022 travel mode shares in the Cherrywood SDZ based on the latest Census are illustrated in Figure 3-2. Travel by car and van accounts for 51% of trips, active travel accounts for 16% and public transport accounts for 25%.



#### Cherrywood Residents by Means of Travel to Work, School, College or Childcare

#### Figure 3-2: Cherrywood Mode Share, Census 2022

Some discrepancies exist between the mode split surveys and the census results. In the mode split surveys, active modes, comprising walking and cycling, account for 4%, whilst active modes account for 7% in the Census 2022 data. There are a number of factors contributing to these variations in mode share data from different sources. The 2022 Census data is based on Small Area Population (SAP) data. The boundaries of the SAPs comprising the Cherrywood SDZ do not fully align with the boundary of the SDZ. There are a number of existing, residential areas, located adjacent to the SDZ which are included within the SAPs that contain the SDZ. Additionally, the modal split surveys are based on responses from a sample of residents within the SDZ. Whilst all residents had the opportunity to participate only some completed the survey and so the results do not represent the full population within the SDZ. However, both sources of modal share data compare favourably with the national modal shares recorded in the latest Census. Nationally, the car accounts for 63%, active travel accounts for 12%, and public transport accounts for 9%.

## 3.2 Cherrywood SDZ Sustainable Travel Targets

An objective of the Cherrywood SDZ Planning Scheme is to develop and support a culture of sustainable travel to and within the SDZ. Challenging yet achievable targets for sustainable travel modes were developed, as shown in Figure 3-3. It is noted that travel targets were developed for both external and internal trips, however the figure shows the overall modal share proportion for each mode. The targets aim to:

- Reduce car dependency.
- Reduce long distance commuting.
- Increase public transport modal share.
- Encourage walking, cycling and wheeling.



#### Cherrywood SDZ Approved Planning Scheme Sustainable Travel Targets

#### Figure 3-3: Cherrywood SDZ Sustainable Travel Targets

#### 3.2.1 Cherrywood TCE Review

A number of amendments to development types are being proposed within Cherrywood Town Centre in light of the Building Height and Density Review. DLRCC has commissioned AECOM to undertake a peer review of applications received for change of use to determine the impacts that the change may have on infrastructure capacity. This change of use may comprise change from retail to residential usage, potentially of up to 800 units. However, it is noted that this figure may increase to +1000 units depending on the outcome of a number of review studies.

A number of changes to the target modal share for the Cherrywood SDZ are proposed to continue to develop and support a culture of sustainable travel to and within the SDZ. The proposed target modal share are illustrated in Figure 3-4.



#### Cherrywood SDZ Proposed Sustainable Travel Targets

Figure 3-4: Proposed Cherrywood SDZ Sustainable Travel Targets

#### 3.2.2 Target Mode Share vs Actual Mode Share

The comparison of the travel survey modes to the Cherrywood SDZ Approved Planning Scheme Sustainable Travel Targets and the Cherrywood TCE Amendment Proposed Sustainable Travel Targets is presented in Figure 3-5.

It was found that the current Luas modal split of 47% is higher than both the current approved modal split (21%) and the proposed amendment modal split (30%). The current bus modal split of 14% is higher than the current approved modal split (11%) but is lower than the proposed amendment modal split (15%). This results in an overall modal split for Luas and bus of 62%.

Driving is currently lower (33%) than the current approved modal split (39%) it is higher than the proposed amendment modal split (28%). Similarly, walking (3%) and cycling (1%) are lower than the proposed amendment modal split which is to be unchanged from the current approved modal split. However, walking and cycling are anticipated to increase as more employment and retail opportunities are provided within Cherrywood Town Centre.



#### Transport Choices to and from Work/Education (N=533)

Travel Survey Commuting Modal Split

Cherrywood SDZ Approved Planning Scheme Sustainable Travel Targets

Cherrywood TCE Amendment Proposed Sustainable Travel Targets

#### Figure 3-5 Commuting Transport Choices Versus Travel Targets

### **3.3** Origins and Destinations

The POWSCAR<sup>1</sup> database was interrogated to determine origins and destinations associated with the Cherrywood SDZ. Table 3-1and Table 3-2 shows the origins and destinations of daily trips to and from the Cherrywood SDZ study area made by residents travelling for work purposes. These tables demonstrate that Dublin City is both the largest origin (19.6%) and destination (24.1%) for work trips associated with the Cherrywood SDZ. Dún Laoghaire-Rathdown is the second largest origin (15.2%) and destination (23.8%) for trips. Other counties which all account for less than 10% of origins and destinations each are South Dublin, Fingal and Wicklow.

Resident Destination (Work)	Number of Trips (Daily)	Percentage of Trips
Dublin City	169	24.1%
Dún Laoghaire-Rathdown	167	23.8%
South Dublin	56	8.0%
Fingal	27	3.8%
Wicklow	26	3.7%

#### Table 3-1: 2022 POWSCAR trips by residents of the study area for work purposes, using all transport modes

#### Table 3-2: 2022 POWSCAR trips by origins to the study area for work purposes, using all transport modes

Origin (Work)	Number of Trips (Daily)	Percentage of Trips
Dublin City	527	19.6%
Dún-Laoghaire Rathdown	410	15.2%

<sup>&</sup>lt;sup>1</sup> Results are based on analysis of strictly controlled Research Microdata Files provided by the Central Statistics Office (CSO). The CSO does not take any responsibility for the views expressed or the outputs generated from this research.

Origin (Work)	Number of Trips (Daily)	Percentage of Trips
South Dublin	233	8.7%
Fingal	169	6.3%
Wicklow	146	5.4%

Table 3-3 and Table 3-4 shows the origins and destinations of daily trips to and from the Cherrywood SDZ study area made by residents travelling for education purposes. These tables demonstrate that Dún Laoghaire-Rathdown is both the largest origin (20.9%) and destination (44.8%) for education trips associated with the Cherrywood SDZ. Dublin City is the second largest destination (10.3%) for trips, with Wicklow being the second largest origin (9.6%) for education trips to the Cherrywood SDZ.

# Table 3-3: 2022 POWSCAR trips by residents of the study area for education purposes, using all transport modes

Resident Destination (Education)	Number of Trips (Daily)	Percentage of Trips
Dún-Laoghaire Rathdown	235	44.8%
Dublin City	54	10.3%

# Table 3-4: 2022 POWSCAR trips by origins to the study area for education purposes, using all transport modes

Origin (Education)	Number of Trips (Daily)	Percentage of Trips	
Dún-Laoghaire Rathdown	48	20.9%	
Wicklow	22	9.6%	

## 3.4 Public Transport Connectivity

The Cherrywood SDZ is located on the Luas Green Line, immediately south of the N11. There are five Luas stops located within the Cherrywood SDZ. These stops are Brides Glen, Cherrywood, Laughanstown, an unnamed stop which is currently not in service, and Carrickmines, and provide a connection from the Cherrywood SDZ to Broombridge via Dublin City Centre.

The Luas Green Line operates at an average nine-minute frequency in the AM peak period (07:00 to 10:00) within the Cherrywood SDZ, catering for around 4,200 passengers. The closest connection of Cherrywood with the DART network is at Killiney and Shankill Stations that are approximately 2.5km away and provide a high frequency rail service towards Howth/Malahide to the north and Bray/Greystones to the south via Dublin City Centre.

The Cherrywood SDZ is served both directly along the Wyattville Link Road and Cherrywood Avenue and indirectly along the N11 Core Bus Corridor by regular bus services.

The Cherrywood SDZ is currently served by five different bus routes including No. 7, 45, 84, 145 and 155. The No. 45, 145 and 155 operate on the N11 Core Bus Corridor (CBC) in the AM peak hour, with frequencies between 10 to 20 minutes per service. The No. 84 operates three services in the AM peak and No.7 six services between Cherrywood and the Loughlinstown area as well as Dublin City Centre via Dún Laoghaire.

### 3.4.1 Public Transport Future Demand

Bus services are expected to play an important role in providing public transport to the Cherrywood SDZ. Based on the Cherrywood SDZ Planning Scheme, by 2030 (National Transport Authority (NTA) 2030 Transport Strategy Model), 49% of Cherrywood residents will travel to work in external centres not served by Luas and 64% of trips to employment in Cherrywood will come from external centres not served by Luas.

The Cherrywood SDZ Planning Scheme projects that by 2030 (NTA 2030 Transport Strategy Model), 41% of Cherrywood SDZ residents will travel to work to centres to the north served by Luas. Additionally, only 14% of trips to employment in the Cherrywood SDZ will come from centres to the north served by Luas and a further 13% will come from centres to the south assuming Luas / BRT is extended to Bray.

Specifically, according to the Cherrywood SDZ Planning Scheme, by 2030 approximately eight additional buses would be needed during the morning peak to meet the target of 12% of external trips by bus. Likewise, an estimated 13 extra buses would be required for inward demand.

For 2030 Luas ridership, the Planning Scheme projects that there will be enough demand to achieve the target of 25% of external trips to work by Luas, which could be accommodated by running longer trams at more frequent intervals. However, with a projected resident population of 20,000 by 2030, extending the catchment served by Luas will be necessary to achieve the target mode share of 25% for work trips to the Cherrywood SDZ.

### 3.4.2 Public Transport Walking Accessibility

In 2018, AECOM assessed walking accessibility to public transport stops within the Cherrywood SDZ. Figure 3-6 shows the extent of the 1km walking catchment from the existing Luas stops (all existing stops assumed to be operational). As shown, the Luas serves the majority of the Cherrywood SDZ and provides a reliable, high frequency service to key destinations along the Luas system such as the city centre and Sandyford and also provide interchange to other transport systems.

Whilst the Luas will respond to the majority of public transport demand to the north (41%) for Cherrywood, the bus network will be required to provide access to areas outside the Luas corridor. Figure 3-7 shows the extent of the 1km walking catchment from the existing N11 bus stops (all combined with the 500m walking catchment from the proposed bus stops within Cherrywood). As shown, the combined buses serve the vast majority of the Cherrywood SDZ and will complement the Luas system to open up the areas in Dublin served by public transport from Cherrywood.



Figure 3-6: Luas Stops – 1km Catchment



Figure 3-7: Bus Stop Walking Catchment

### 3.4.3 Proposed Public Transport Infrastructure

The DLRCC Development Plan 2022-2028 has a policy objective to facilitate the implementation of the Dublin BusConnects programme, including the redesign of the bus network and network of core bus corridors on the busiest routes as outlined in the GDA Transport Strategy and shown in Figure 3-8.

The E-Spine along the N11 is the most accessible corridor from the Cherrywood SDZ (see Figure 3-7 bus stop walking accessibility) and is within walking distance to many of the developments in the area, providing access to the Dublin City Centre, the corridor route is to Bray from the City Centre running through Shankill and along the N11.



Source: GDA Transport Strategy

#### Figure 3-8:Core Bus Corridors

The Bus Services Network Redesign also includes a bus priority route from Dún Laoghaire to Cherrywood through Mounttown, Upper Glenageary Road, Sallyglen Road, Church Road, and Wyattville dual carriageway, with a connection to the Rock Road CBC via Rochestown Avenue, Abbey Road, Stradbrook Road, and Frascati Road (the L22 service).

The Cherrywood SDZ Planning Scheme outlines that the following infrastructure will be necessary to achieve bus priority along the proposed L22 route:

- Dedicated bus lanes on Bishop Street and on Tullyvale Road linking to the N11 and the proposed Wyattville Road CBCs.
- Bus gate along Castle Street to restrict through car traffic.
- Bus infrastructure along the route e.g., bus stops, shelters, RTPI information signs etc.
- Bus priority measures at junctions.
- Turn back bus facility.
- A signalling strategy.

The N11 CBC is crucial to meeting current and future passenger demands to and from Bray/North Wicklow and areas between the Cherrywood SDZ and the Dublin City Centre, which are not served by the Luas Green Line,

such as Ballsbridge. The GDA strategy proposes infrastructure measures that will reduce journey delays and enhance service reliability on the N11 CBC.

It is unlikely that strategic bus services between Bray and the City Centre will divert from the N11 CBC into the Cherrywood SDZ, because of impacts to journey times for passengers on this corridor. During the early development phases, most employment and residential areas will be within walking distance of the N11. Thus, early improvements to pedestrian routes between the N11 bus stops and the Cherrywood SDZ are essential. Eventually, the extension of the Luas Green Line from Bride's Glen to the Bray region will serve public transport demands from the south between Bray/North Wicklow and the Cherrywood SDZ.

The GDA strategy also proposes a South Orbital CBC (Figure 3-9) connecting the Dún Laoghaire/Blackrock area to Sandyford/Dundrum and the Tallaght area. To reach the Cherrywood SDZ from orbital route areas such as Tallaght, public transport trips are expected to run via orbital bus/Luas interchange at Sandyford/Dundrum.



Source: GDA Transport Strategy

#### Figure 3-9: Orbital Core Bus Corridors

There is a need for new services or route variations between the Cherrywood SDZ area and areas outside of the Luas Green Line's reach. The plan sets out a goal of supporting the delivery of a bus service from Sandyford via Rathmichael and Old Connaught to Bray Dart Station until the Luas Green Line extension to Bray is suitably advanced, to facilitate the demand in this area.

Providing services between Kilternan/Glenamuck and the Cherrywood SDZ will depend on demand from the Kilternan/Glenamuck region. Therefore, the provision of a dedicated bus lane on the Kilternan Link Road will be subject to future review based on the progress of development in the Kilternan/Glenamuck area.

Finally, the E1 bus route service serving Ballywaltrim, Bray, Shankill, N11, City Centre and Northwood, will be in operation in late 2023. This route will provide an improved service between Bray and the city centre, passing by the Cherrywood SDZ at the N11, which is within walking distance to most of the developments in the Cherrywood SDZ area. This route is part of the CBC system proposed by the GDA strategy.

The GDA Transport Strategy and the NDP 2018-2027 outline the importance of the Green Line Capacity Project for promoting sustainable transport modes and facilitating the current and future demand along the Luas network. As presented on the DLRC CDP, the first phase of the project will include the following actions:

• 40% overall increase in service capacity.

- Increase of 3,000 passengers per direction per hour.
- Future proof line capacity into 2030's.
- Purchase of 8 new trams.
- Increase length of the existing fleet (26 trams) to 55m long.
- Increased tram capacity.
- Increased service frequency.

The proposed extension of the Luas Green Line on its southern end, from Brides Glen to Bray will enhance connectivity to the south (Figure 3-10). The relevant infrastructure related to Luas stops, park and ride and cycle parking facilities will also be considered throughout the process of the development of the Luas extension.



Source: GDA Transport Strategy

#### Figure 3-10: Proposed Luas Network

### 3.5 Active Mode Infrastructure

Based on the Cherrywood SDZ Planning Scheme, the existing cycle facilities adjacent to Cherrywood include:

- Segregated one-way cycle lanes and footways on Wyattville Road, crossing the N11 to Wyattville Link Road as far as Cherrywood roundabout.
- Pedestrian phases in the various sets of traffic signals at the Wyattville interchange.
- Segregated one-way cycle lanes and footways along the majority of the N11.

- Pedestrian footbridges over the N11 at Johnstown Road and Loughlinstown roundabout.
- Two signalised pedestrian crossings of the N11 between the Wyattville interchange and the Johnstown Road junction (Kilbogget and Shanganagh Vale).

Some of the existing travel infrastructure is illustrated in Figure 3-11 and Figure 3-12.



Figure 3-11: Tully Vale Road Cycle Facilities



Figure 3-12: Wyattville Link Road Cycle Facilities

### 3.5.1 Active Modes Future Demand

The Cherrywood SDZ Planning Scheme 2030 model data indicates that 23% of future trips to work originating in the Cherrywood SDZ will be less than 5km and a further 27% will be less than 10km.

The Cherrywood SDZ Planning Scheme 2030 model also indicates that less than 28% of future trips to work with a destination in the Cherrywood Town Centre will be less than 5km and a further 22% less than 10km. This shows a significant potential for cycling and walking to and from locations such as Bray, Sandyford and Dún Laoghaire, therefore, it is crucial to provide a high-quality cycle and pedestrian network.

### 3.5.2 Proposed Active Mode Infrastructure

The proposed network of walking and cycling facilities in Cherrywood SDZ is shown in Figure 3-13 (Map 2.5 of the Cherrywood SDZ Planning Scheme). The Cherrywood SDZ has been designed with a hierarchy of streets where the main vehicular traffic will be directed onto the major routes. The plan is based on 5- and 10-minute walking distances (400 - 800m) from public transport / district and neighbourhood centres, so it should be safe to walk and cycle between all principal nodes within the SDZ lands.

Pedestrians/cyclist movement is supported by:

- Segregated routes will give safe and direct access to principal nodes.
- Links will pass through parks and along green routes.
- Signalised toucan crossings at main roads.
- Grade separated links across the Wyattville Link Road.
- High standard of surfacing and continuity of routes.
- 30km/h speed limit for internal routes to slow traffic to the benefit of pedestrians/cyclists.

Links to the wider pedestrian/cyclist network will include:

- A greenway along the linear park from Cabinteely to Cherrywood and continuing towards Shankill.
- Proposed greenway along Carrickmines river and Ballyogan stream to Stepaside area.
- Proposed greenway along Carrickmines river and through Leopardstown Racecourse to Sandyford Business Estates.

- Pedestrian / cyclist links to Cherrywood Road and Brides Glen Road.
- Pedestrian / cyclist link from the Bride's Glen Luas stop along the old viaduct to Shankill via Loughlinstown hospital.
- A proposed walking route through the Carrickmines Valley from Carrickmines through to the linear park. This new wooded route will be developed in conjunction with park and open space development.



#### Figure 3-13: Access and Movement Strategy

AECOM completed a Green Routes Network Study in May 2022, which identified greenway, cycle and pedestrian routes and connecting links within Cherrywood SDZ. To achieve the modal share targets of walking (7.3 overall, 30% internal) and cycling (12.6% overall, 45% internal), specific infrastructure networks for these modes will need to be prioritised and implemented. Internal and external walking and cycling trips need to be direct and convenient, possibly at the expense of direct routes for local car trips.

Greenways and motorised traffic-free pedestrian and cycle links are the major element of the walking and cycling network in the Cherrywood SDZ. These will be supplemented by high quality cycle and pedestrian facilities as part of the road network. Greenways are green infrastructure and have an important transport role in addition to their ecological role.

The Cherrywood Green Routes Network proposes the development of a cycle and pedestrian greenway network for the area within the Cherrywood SDZ, as shown in Figure 3-14.

The proposed Network is based on the preliminary routing indicated in the Cherrywood SDZ, extending for approximately 6.0km. The Network proposes links to improve the pedestrian and cycle connections to key external desire lines, including links to the N11, Wyattville Link Road, and Brides Glen / Cherrywood Road in the south.

In the Druids Glen Woodland, an 800m long pedestrian walking route is proposed, which will comprise resurfacing of existing pathways through the woodland. This scheme will include attractive and quality outdoor spaces which will enhance the experience for local people and visitors.



#### Figure 3-14: Proposed Green Routes Network

The proposed scheme will link into various existing and future pedestrian and cycle facilities, as illustrated in Figure 3-15. These linkages include:

- Priorsland to Glenamuck Road.
- Lehaunstown Lane.
- Druid's Glen Road to the N11.
- Proposed Cabinteely to Cherrywood Greenway.
- N11 Dual Carriageway.
- Wyattville Link Road.
- Proposed Carrickmines River Greenway.
- Cherrywood Road.
- Brides Glen Road.
- Druid's Glen Viaduct.



Figure 3-15: Proposed Green Routes Network – Linkages to Wider Active Mode Infrastructure

As identified in Section 3.1, the current modal share for walking is 5% and cycling is 11%. These are lower than the targets set within the Cherrywood SDZ Planning Scheme of 7.3% for walking and 12.6% for cycling. A range of active travel facilities have been identified within the Cherrywood SDZ and are at various stages of implementation. Key to the successful promotion of active travel modes within the Cherrywood SDZ is a prioritised plan for the delivery of active travel infrastructure. This will ensure that safe and attractive infrastructure is in place to encourage modal shift. Additionally, other behavioural change measures might also be required at a local level.

#### **Grand Parade Crossing**

The delivery of Grand Parade A2-A3 will help improve connections between various development types. Chapter 7 of the CPS states the need to commence the delivery of a 'Wide pedestrian crossing and Street from A2- A3 Grand Parade prior to the occupation of 40% of the retail or 45% of the employment' and it must be 'completed to a standard to be taken in charge prior to the occupation of 65% of the retail or 65% of the employment'.

The Cherrywood TCE review found that Grand Parade A2-A3 needs to be completed between 2028 and 2043 and recommended that Grand Parade is completed in accordance with the phasing of development under the existing grant of permission DZ17A/0862, as amended, or prior to the occupation of any additional development within TCC1, TCC2 or TCC4 (this would then accord with the proposed amendment.

Additionally, it is worth noting that Wyattville Link Road is a hostile environment for vulnerable road users and causes severance issues within the existing Cherrywood Town Centre. Therefore, it is recommended that Grand Parade Bridge be completed as soon as possible to address severance issues.

## 3.6 Car Parking

### **3.6.1** Residential Parking Standards

Updates to the Cherrywood SDZ Planning Scheme's car parking standards were adopted in January 2020 as per Amendment No.6. The Cherrywood development was designed so that residents could avail of sustainable transport modes to commute to their place of work rather than use private car. Amendment No. 6 was proposed to encourage further use of sustainable transport modes within Cherrywood SDZ.

AECOM were commissioned by DLRCC to undertake a review relating to the level of parking provision provided within the Cherrywood Strategic Development Zone (SDZ). Following this review, it was recommended that a reasonable rationale exists for a reduction in parking standards across all housing typologies. The Cherrywood Residential Car Parking Amendment was submitted to An Bord Pleanála (Amendment No 9) and was approved on 22nd November 2024.

The revised standards are considered as maximum standards, with no further reduction permitted to appropriately monitor and manage impacts of the revised parking standards in tandem with delivery of sustainable infrastructure and public transport services. The following maximum standards across all housing typologies apply:

- 1-bed units 0.5 spaces per unit.
- 2-bed units 0.75 spaces per unit.
- 2-bed houses 1.0 space per unit.
- 3-bed units 1.25 spaces per unit.
- 3/+ bed houses 1.5 spaces per unit.

#### 3.6.2 Non-Residential Parking Standards

#### **Current Parking Standards**

The Planning Scheme currently outlines bespoke non-residential parking standards in relation to three land use types including:

- High Intensity Employment.
- Education.
- Retail.

Currently, parking standards relating to the non-residential land use types not listed above are deferred to the standards as outlined in the DLRC County Development Plan (CDP).

#### Proposed Parking Standards

Development is ongoing at Cherrywood and the level of required parking provision is a key consideration as development continues, particularly to align to the shift in national and local policy, climate targets as well as the DLRCC County Development Plan, 2022 - 2028.

The revised standards are considered as maximum standards, with no further reduction permitted. This will ensure that appropriate monitoring is undertaken to manage the impacts of the revised standards, in tandem with the delivery of sustainable infrastructure and public transport services. The proposed revised standards are outlined in Table 3-5.

#### Table 3-5: Proposed Amendments to Car Parking Standards

Land Use Type	Current Cherrywood Parking Standard	Proposed Maximum Parking Standard
HIE		
Office	1 per 100 sqm	1 per 140 sqm
Land Use Type	Current Cherrywood Parking Standard	Proposed Maximum Parking Standard
-----------------	--	--------------------------------------
Industry	1 per 200 sqm	1 per 280 sqm
Retail		
Food Retail	1 per 20 sqm	1 per 35 sqm
Non-Food Retail	1 per 50 sqm	1 per 85 sqm

It should be noted that, the Cherrywood Non-Residential Car Parking Amendment was submitted to An Bord Pleanála (ABP) on the 29<sup>th</sup> of November 2024, however at the time of writing no decision has been made on this application.

# 4. Cherrywood SDZ Construction Phasing

To achieve the transit orientated vision for the Cherrywood SDZ, it is crucial that infrastructure and services are provided in a timely manner. To help achieve this, the overall SDZ plan is divided into eight Development Areas, which have been grouped into three Growth Areas (see Figure 4-1) which will be developed in the following construction phasing (see Figure 4-2):

- 1. Growth Area 1: Development Areas 2, 4, 5 and 6a.
- 2. Growth Area 2: Development Areas 1 and 3.
- 3. Growth Area 3: Development Areas 6b, 7 and 8.



Source: Cherrywood Planning Scheme, DLRCC, 2014

#### Figure 4-1: Cherrywood SDZ Development Areas

As outlined in Amendment 5 Section 7.2.1 Sequencing and Implementation, residential development in Growth Area 1 can proceed immediately. In addition, development of residential units in Growth Areas 2 and 3 may be permitted in tandem with Growth Area 1 up to a maximum of 2,300 units. This is on the basis of the infrastructure permitted to date and under construction including Roads Phase 1, Tully Park, Ticknick Park and Beckett Park.

The sequencing requirements allow for the delivery of residential units in Growth Areas 2 and 3 in tandem with Growth Area 1. Additionally, the village centres may be permitted as supporting uses for the initial threshold of 2,300 residential units in Growth Areas 2 and 3.

The Cherrywood SDZ cannot be developed in isolation and is dependent on the provision of external strategic infrastructure and services, measures to improve the M50/M-N11 corridors, upgrades to public transport in the region and pedestrian and cycle networks. The phasing of strategic infrastructure, the agencies involved, and the development growth thresholds required for their implementation are also set out within the Planning Scheme.

A number of amendments to development types are being proposed within Cherrywood Town Centre as part of the Cherrywood Town Centre and Environs (TCE) Review in light of the Building Height and Density Review. DLRCC has commissioned AECOM to undertake a peer review of applications received for change of use to determine the impacts that the change may have on infrastructure capacity. This change of use may comprise change from

retail to residential usage, potentially of up to 800 units. However, it is noted that this figure may increase to +1000 units depending on the outcome of review studies.

As part of this review, changes to the phasing and sequencing of the development of roads and active travel measures are also proposed within the Cherrywood TCE Review. These changes are detailed in Section 4.2. The NTA has emphasised that bus services will be provided at an early stage of the Cherrywood SDZ development to facilitate and establish sustainable travel patterns.

Section 7.2.2 Infrastructure Delivery of Amendment 5 also outlines that the primary aim is to secure the infrastructure as set out in the sequencing requirements and the specific infrastructure requirements under each Development Area.

However, it is acknowledged that there may be exceptional or unforeseen circumstances beyond the reasonable control of an individual developer or the local authority, whereby a piece of infrastructure necessary to progress the development of a Growth Area cannot be provided in the short to medium term (circa 0-3 years).

In such instances, there may be an appropriate alternative utilising other infrastructure as provided for under the Planning Scheme, as an interim measure to facilitate the early delivery of housing, and early engagement with the Development Agency will be an essential prerequisite.



Figure 4-2: Cherrywood SDZ Growth Areas

# 4.1 Infrastructure Requirements and Associated Phasing

The Cherrywood SDZ transport network will be delivered in a sequenced manner to ensure that modal choice for residents evolves in a sustainable manner. Therefore, active travel and high-quality public transport networks, such as the Green Luas Line and pedestrian and cycle facilities, will be developed alongside each other and traffic demand onto the road network will be managed.

### 4.1.1 Pedestrian and Cycle Infrastructure

Provision of improved and appropriate internal pedestrian and cycle facilities in Development Areas as per best practice guidelines. Pedestrian and cycling infrastructure forms part of individual planning applications and as such are constructed in tandem with the proposed development.

### 4.1.2 Public Transport Infrastructure

Provision of internal bus route to Cherrywood Luas Station, bus shelters and Cherrywood Luas stop interchange facility.

Provision of an internal Bus turn-back facility which must be completed prior to the occupation of any new development in either Growth Area 2 or 3.

### 4.1.3 Roads Infrastructure

The current requirements for the delivery of the Growth Area 1, and Growth Area 2 and/or Growth Area 3 are detailed in the following sections.

It should be noted that changes to the phasing and sequencing of the development of roads and active travel measures are proposed within the Cherrywood TCE Review, these are detailed in Section 4.2.

#### **Requirements for Development in Growth Area 1**

Druid's Glen Road Q-P3. Planning permission must be granted prior to any permission being granted in Development Area 5.

Roads Phase 1: Junction at A, roads I1-A-A1-B-L-P2-C-D-D1-K1-K-F1-J-A1-A1 and B-A2. Work commenced in early 2017 and must be completed prior to the occupation of any new development in either Development Areas DA2 or DA4

Pedestrian crossing and street from A2-A3 Grand Parade. Planning permission must be granted prior to any permission being granted in Development Area 2.

#### Requirements for Development in Growth Area 2 and/or Growth Area 3

Roads Phase 1: Junction at A, roads I1-A-A1-B-L-P2-C-D-D1-K1-K-F1-J-A1-A1 and B-A2. Work commenced in early 2017 and must be completed prior to permission being granted for any new development in Growth Areas 2 and 3

Barringston's Road Druid's Glen Road P3-P-C. Work must be commenced prior to granting permission for residential development in Growth Area 2 and 3 that exceeds 2,300 units.

Castle Street D-M-TI. Work must be commenced prior to granting permission for any new development in Development Area DA3.

Cherrywood Avenue and Beckett Road Underpass H-G-F-F1. Planning permission must be granted prior to any planning permission being granted in either Development Area 6B or 7, or for residential development in Growth Area 2 and 3 that exceeds 2,300 units.

Barrington Road D-E and Beckett Road E-F. The infrastructure must be completed to a given standard prior to permission of HIE employment development within Cherrywood's boundary exceeding 241,000 sqm.



Source: Cherrywood SDZ Town Centre & Environs Amendment (Jan 2025)

### Figure 4-3: Cherrywood SDZ Infrastructure Requirements

The phasing of strategic infrastructure is currently linked to development thresholds across the entire planning scheme, under three phases, each with a threshold of residential units and high intensity employment (HIE) floor space. However, changes to the phasing and sequencing of the development of roads and active travel measures are proposed within the Cherrywood TCE Review. These changes are detailed in Section 4.2.

Many elements of the transport infrastructure required at the Cherrywood SDZ is of a strategic / wider regional nature and as such require multi-agency collaboration and government funding.

Both the NTA and Transport Infrastructure Ireland (TII) are identified as either the lead agency for implementation and / or the agency with primary funding responsibility for the required infrastructure in each of the three phases in conjunction with DLRCC as outlined in Table 7.5 of the Planning Scheme's Phasing and Sequencing document (detailed below).

Phase1 – Up to 165,000sqm HIE (8,250 employees) and up to 6,414 dwellings:

- Provision of direct / dedicated walking / cycling link between Bray and Cherrywood SDZ.
- Provision of improved walking/cycling links between the N11 corridor and Cherrywood SDZ.
- Provision for additional traffic and demand management measures onto the M50.
- In line with the emerging BusConnects Network, review and as necessary provide for new / improvements/ extensions to bus routes, including by way of example, Orbital Bus Services from Tallaght, Cherrywood <-> Dún Laoghaire, Cherrywood <-> City Centre, Cherrywood <-> North Wicklow).
- Incremental increase of Luas capacity between Sandyford and St. Stephen's Green.
- Progress the provision of a direct/ dedicated walking/cycling link between Sandyford Business District and the Cherrywood SDZ area.
- Opening of Brennanstown Luas stop (depending on adjacent development).

Phase 2 – Up to 241,000sqm (over 165,000sqm) of HIE (12,050 employees) and up to 8,786 dwellings (over 6,414):

- Review bus services, in light of implementation of BusConnects Project.
- Assessment of strategic road network performance.
- Provision for additional traffic and demand management measures to the M50 / M11 along with any capacity enhancement measures as identified in GDA Strategy.
- Incremental increase of Luas capacity, between Sandyford and St. Stephen's Green as identified in GDA Strategy.

Phase 3 – Over 241,000sqm of HIE (12,050 employees):

- Extension of Luas to Bray unless deviation agreed in writing by the local authority.
- Commence Construction for the Kilternan Link Road and Priorsland overbridge.
- Review bus services, in light of implementation of Bus Connects Project (including for example consideration of link to Kilternan LAP depending on demand).
- Assessment of strategic road network performance.
- Upgrade of Luas Green Line to Metro unless deviation agreed in writing by the local authority in consultation with the NTA.

### 4.2 Cherrywood TCE Review

Amendments to development types are being proposed within Cherrywood Town Centre in light of the Building Height and Density Review. This change of use may comprise change from retail to residential usage, potentially of up to 800 units. However, it is noted that this figure may increase to +1000 units depending on the outcome of review studies.

Each change of use application will be assessed with a standalone risk register detailing a number of key risks if change of use is granted. One significant risk is the impact of parking i.e. residential use will require significantly more parking than retail usage.

Changes to the phasing and sequencing of the development of roads and active travel measures are also proposed within the Cherrywood TCE Review. These are:

### Roads

The following key indicators and thresholds have been identified as being appropriate for determining the requirement for the Kilternan Link Road:

- Max Degree of Saturation at Junction A:
  - Threshold of 105%
- Queue Lengths on Wyattville Link Road:
  - Threshold of 650m towards M50
  - Threshold of 240m towards N11

The above thresholds are levels at which it is determined that Kilternan Link Road is required. Therefore, to ensure delivery of Kilternan Link Road in advance of reaching these thresholds, it is recommended that development of Kilternan Link Road commence when any of these thresholds reach 80% of the level identified above.

An annual assessment of the strategic road network performance is undertaken by DLRCC in conjunction with TII and in consultation with the NTA. This assessment is undertaken using annual traffic surveys, which are completed in November each year. It is proposed to expand the scope of this assessment to include:

- An assessment of Junction A operational performance using LinSig or similar software.
- Analysis of recorded queue lengths towards on Wyattville Link Road.

### **Active Travel**

Grand Parade needs to be completed between 2028 and 2043 as it was found to be at capacity in 2028 with all the measures described in place. Grand Parade should be completed in accordance with the phasing of

development under the existing grant of permission DZ17A/0862, as amended, or prior to the occupation of any additional development within TCC1, TCC2 or TCC4 (this would then accord with the proposed amendment. It is worth noting that Wyattville Link Road is a hostile environment for vulnerable road users and causes severance issues within the existing Cherrywood Town Centre. Therefore, it is recommended that Grand Parade be completed as soon as possible to address severance issues.

The delivery of the Main Street Bridge, crossing between TC1 and TC3, will help improve connections between various development types. It will facilitate active travel trips within the Cherrywood Town Centre and between the Town Centre and wider SDZ. Additionally, given the hostile nature of Wyattville Link Road, delivery of this infrastructure will provide a safe, segregated route for active travel trips. It is therefore recommended, that Main Street Bridge is to be provided in conjunction with the respective development parcels in TC1 and TC3, namely TCC1B-5 / TCC1B-6 or TCC3-2 / TCC3-3.

The delivery of active travel crossing facilities at Junction O will improve connections between TC1 and TC3 and will result in an alternative at-grade crossing to Junction A. It is recommended that Junction O should be provided prior to the occupation of any additional development within the Town Centre Core or Town Centre Environs (TCC1, TCC3, TCE4 and TCE5).

Junction A is an existing signal-controlled junction which comprises Wyattville Link Road, Cherrywood Avenue and Tully Vale Road. Measures should be provided at this junction to segregate cyclists from vehicular traffic on all arms. Additionally, signal timings should be examined to determine if enhancements to pedestrian crossing times are possible. Any proposed changes should be cognisant of traffic impacts associated with signal timing changes and should balance the needs of all users. It is recommended that any improvements to Junction A should be provided prior to the occupation of any additional development within the Town Centre Core.

# 4.3 Potential Sequencing

Given the current housing crisis, there is significant pressure to deliver housing and an onus on local authorities to expedite the delivery of housing in their areas. On this basis, DLRCC are assessing the potential for bringing forward housing development earlier than currently allowed for in the planning scheme.

An earlier assessment (Cherrywood SDZ, Development Sequencing and Phasing Amendment, Background Technical Note, AECOM, 2018) suggested that an additional 2,300 residential units in the 2nd and 3rd Growth Areas could be brought forward earlier than currently allowed for in the planning scheme. This note sets out the findings of an update to the earlier assessment to consider any amendment to the amount of housing which can be brought forward based on the amount of available capacity within the transport system and the influence of transport policy in affecting mode choice.

The schedule of development phasing for each of the growth areas are summarised in Table 4-1.

Land Use	1st Growth Area (Constructed Feb 2012)	1st Growth Area (Remainder)	1st Growth Area	2nd Growth Area	3rd Growth Area	Total
Residential (sqm)	60,000 (600 units)	351,400 (3,514 units)	411,400 (4,114 units)	273,300 (2,733 units)	193,900 (1,939 units)	878,600 (8,786 units)
Primary School		1	1	1	2	4
Post Primary School		1	1	0	1	2
Retail (sqm)		40,909	40,909	6,065	6,060	53,034
Non Retail (sqm)		60,000	60,000	2,000	1,000	63,000
High Intensity Employment (HIE, sqm)	66,334	174,666	241,000	10,000	99,000	350,000

### Table 4-1: 2017 Update of Cherrywood SDZ Planning Scheme as amended and approved

Commercial Uses (sqm)	0	0	0	77,000	77,000	
Community (sqm)	3,000	3,000	1,000	500	4,500	
Green Infrastructure – Class 1 (ha.)	10	10	1	6.5	17.5	
Green Infrastructure – Class 1 (ha.)	n/a	n/a	0.2	0.2	0.4	

A number of amendments to development types are being proposed within Cherrywood Town Centre in light of the Building Height and Density Review. The latest approved Amendment 8 dated May 2021 revises the proposed number of total residential units in the Cherrywood SDZ to 10,500 (see Table 4-2).

#### Table 4-2: Revised Residential Units - Amendment 8 Building Height and Density Review

Growth Area	Growth Area 1	Growth Area 2	Growth Area 3	Total
Residential Units	4,528	3,630	2,349	10,500

The current number of total permitted residential dwelling units in all Growth Areas (1 -3) is 4,666 comprised of 2,790 units in Growth Area 1 and 1,876 units in Growth Areas 2 & 3. This is excluding 200 dwelling units located on land 'zoned' for Village Centre.

The aim of this current transport assessment is to determine how many additional units can be brought forward for development. Regardless of this assessment and in the absence of delivery of Druids Glen Road, housing units in Development Area 5 can be brought forward for development (as these will not impact on the performance of the road network serving Cherrywood).

In terms of phasing of the road infrastructure, Road Phase 1, Phase 1A and Phase 2 as shown in Figure 4-4 are delivered whilst there is a planning application currently in process with DLRCC for permission to deliver Road Phase 3. Road Phase 4 is likely to be delivered as development applications are submitted along this section.



Source: DLRCC, 2017

Figure 4-4: Cherrywood SDZ Transport Infrastructure Phasing

# 5. Assessment of Transport Capacity

# 5.1 Methodology

The following methodology has been applied to assess the potential for bringing forward housing development earlier than currently allowed for in the planning scheme:

- 1. Adopting an assessment year of 2028, the currently permitted developments within the Cherrywood SDZ were fed into the National Demand Forecasting Model (NDFM) from which updated trip levels were fed into the relevant zones covering the Cherrywood SDZ within the Eastern Regional Model (ERM), replacing the previous trip quanta representing the ERM Reference Case. This scenario assumes a 57%/43% Car/Non-Car mode split in the AM Peak.
- 2. The ERM was run with the updated assumptions described in point 1, providing forecast Base 2028 highway and public transport network demand flows in the Cherrywood SDZ.
- 3. Using the Base ERM forecasts, available capacity on the public transport network (Luas and bus) was assessed along with potential to accommodate further demand. Interrogation of the ERM confirmed that the Brennanstown Luas stop is to remain closed in this scenario.
- 4. Using the Base ERM forecasts, available capacity on the highway network was assessed along with potential to accommodate further demand. This included analysis of Junction A using LinSig software. The Base forecasts assume Druids Glen Road, Barrington's Road and Kilternan Link Road are not open in 2028. It may also be noted that the opening of Druids Glen Road is directly linked to Barrington's Road as Barrington's Road would be required to be in place prior to the opening of the through route along Druids Glen Road.
- 5. Using the ERM 2028 scenario as the basis, the impact of the opening of Druid's Glen Road/Barrington's Road and Kilternan Link Road on the performance of the highway network was assessed within the highway assignment part of the ERM only.
- 6. Using the Base ERM forecasts several further scenarios were generated to assess whether capacity constraints identified at Junction A in the Base scenario could be mitigated, as follows:
  - a. Druid's Glen Road/Barrington's Road open.
  - b. Kilternan Link Road open.

Note the scenarios below were assessed through manual adjustment of model demand flows at the key capacity pinch-points on the public transport (AM Luas demand flow from Central Park to Sandyford) and highway (Junction A) networks.

- c. Adjusted PT mode share targets. It should be noted that these scenarios were developed and analysed prior to the approval of the Cherrywood Residential Car Parking Amendment (Amendment No 9) on 22nd November 2024.
  - i. Adjustment in line with published mode share targets contained in the Cherrywood SDZ Planning Scheme document (Table 4.1, Chapter 4). This scenario assumes a 47%/53% Car/Non-Car mode split in the AM Peak. This scenario assumes that the now approved Cherrywood Residential Car Parking Amendment (Amendment No 9), is not approved and that the previously approved car parking standards are utilised within the SDZ.
  - ii. Adjustment in i plus further shift to public transport based on stricter parking standards. This scenario assumes a 34%/66% Car/Non-Car mode split in the AM Peak. Car parking standards within this scenario are based on the Cherrywood Residential Car Parking Amendment which was submitted to An Bord Pleanála (Amendment No 9) and was approved on 22nd November 2024.
- d. Adjusted PT mode share targets (scenario c.i) plus 20% of permitted developments not constructed.

### 5.2 Planning Data Preparation

The main input to the NDFM is a planning data sheet which contains a range of demographic information such as population, employment, commercial and educational details at Census Small Area level. The Cherrywood SDZ Planning Scheme contains details on proposed development in terms of floor area and residential units. The

following assumptions (Table 5-1) were adopted for converting the planning scheme information into numbers of employees/residents ready for input into the NDFM.

### Table 5-1: Land Use Density Assumptions

Land Use	Density	Source
Retail - Shopping	30 Sqm/ Employee	analysis undertaken by NTA on Liffey Valley & Dundrum Shopping Centres
High Intensity Employment	20 Sqm/ Employee	specified in the Cherrywood Planning Scheme
Commercial	47 Sqm/ Employee	* 'light Industrial' from Homes & Community Agency Employment Density Guide 2015 <sup>1</sup>
Non-Retail	20 Sqm/ Employee	Homes & Community Agency Employment Density Guide 2015
Hotel	0.3 Staff/ Room	staff per room - analysis undertaken by NTA for Docklands Development
Residential	2.06 Per /unit	Average residential occupancy - analysis undertaken by NTA for Docklands Development.

Source: Appendix A - 20170405 Cherrywood SDZ Transport Modelling Report v5.8 by Systra (on behalf of Hines)

### 5.3 Trip Rate Assumptions

The trip rates used in the NTA's ERM (see Table 5-2) have been used to convert residential units into numbers of vehicles, as part of the manual adjustment of demand to assess the impact of bringing forward additional units for development on Junction A.

### Table 5-2: Trip rates per Residential Unit

Development type	АМ		PM	
	Arrivals	Departures	Arrivals	Departures
Residential trip rates - vehs per unit	0.00415	0.36342	0.16582	0.13265

Source: NTA Eastern Regional Model

Table 5-3 summarises the estimated number of vehicles that different residential development quantum would generate using the trip rates outlined previously in Table 5-2.

### Table 5-3: Estimation of trips based on different development levels

Development Quantum – residential only	AM – two-way traffic flows	PM – two-way traffic flows
500	184	149
1,000	368	298
1,500	551	448
2,000	735	597

# 5.4 Model Validation

A model validation exercise was undertaken to ensure that the NTA ERM outputs are representative of current traffic levels within the Cherrywood area. This validation was undertaken using actual and modelled queue length data for Junction A. Actual queue length data was recorded for three neutral days in November 2024 and the average queue length was calculated based on these surveys. The anticipated queue lengths were obtained from the LinSig model developed using the base 2028 ERM model.

Whilst the ERM replicates observed queues on Arms A and B reasonably well, it significantly under-estimates observed queues on Arm C (by approximately 60%). This most likely reflects an under-estimation of background traffic in the 2028 ERM as the SDZ is only partially built out at present. However, the future 2043 scenarios examined within the Cherrywood SDZ as part of this study are based on a detailed bottom-up review of planned development within the SDZ. As such we have confidence in the robustness of the overall traffic levels and queue lengths forecast.

An additional modelling exercise was undertaken using 2024 survey data to compare the existing AM and PM peak performance of Junction A. It was found that Junction A currently operates with a DoS of 102.0% in the AM peak scenario. In the PM peak scenario, Junction A is operating with a peak DoS of 94%. Therefore, as the junction operation is more critical in the AM peak period, this assessment will focus on the operation of the Junction A during this time period.

That is, LinSig models were run for both AM and PM peaks using only the 2024 traffic count data. The LinSig results presented in Appendix A correspond only to forecast year scenarios, and all are for the AM peak period.

Specific examination of Junction A in both the AM and PM Peak period are included in Appendix B.

## 5.5 Findings – Public Transport – Luas

To understand the capacity of the Luas system, outputs from the NTA's ERM were used to inform demand in tandem with capacities for the Luas Green Line. The assumed operating capacity of the Luas Green line in 2028 AM peak hour is shown in Table 5-4.

### Table 5-4: Luas Green Line Capacity in 2028 AM Peak Hour

Luas Section	Trams Capacity (passengers)	Service Frequency	Capacity
Parnell <> Sandyford	408	24 services / hour	9,792
Sandyford <> Brides Glen	408	12 services / hour	4,896

Source: Based on 2028 NTA ERM

The capacities presented in Table 5-4 were assessed against forecast passenger demand extracted from the NTA ERM. The northbound direction was found to carry the highest passenger load and was therefore used as the basis for the assessment.



### Figure 5-1: Luas Capacity Analysis

As outlined in the Figure 5-1 above, there is capacity on the Green Line Luas to allow for an additional 1,987 passengers in 2028 (1,498 assuming a peak hour factor of 0.9 for the available capacity). The use of 0.9 peak hour factor (PHF) allows for a margin of error and fluctuations in passenger flows. Therefore, sufficient capacity exists on the Luas to support bringing forward housing development earlier than currently allowed for in the planning scheme. The analysis above is based on the Base scenario outputs from the ERM 2028 which assumes a 57%/43% Car/Non-Car mode split in the Cherrywood SDZ. As per the SDZ planning document, Cherrywood aims to achieve a Car/Non-Car mode share of 47% / 53%.

Information from the NTA ERM suggests that based on AM peak demand forecasts there is spare capacity for 1,498 passengers on the Luas in 2028. Assuming an overall mode shift occurred so the differential in trips were entirely accounted for by an increase in Luas trips, an additional 4,000 residential units could be allowed for in 2028. The analysis above is based on the ERM outputs which assumes a 57%/43% Car/Non-Car mode split in the Cherrywood SDZ. Assuming the scenario with adjusted PT mode share based on stricter car parking standards (34%/66% Car/Non-Car mode share), Table 5-5 shows the impact of bringing forward varying levels of development in Brides Glen – Sandyford section of Luas.

Additional Development	AM Peak Additional Luas trips	Capacity Utilization (%)+
1,000 units	224	5%
1,500 units	336	7%
2,000 units	448	9%

#### Table 5-5: Luas Capacity Analysis\*

\* Assuming 34%/66% Car/Non-Car mode share in SDZ

\*Assuming a maximum capacity of 4,896 / hour in Brides Glen – Sandyford section of Luas

It is estimated that an additional 1,000 residential units in Cherrywood will add approximately 224 trips on the Luas Green line in the AM peak, utilising 5% of the capacity available at the Briden Glen – Sandyford section of the Luas. Similarly, 2,000 additional units in Cherrywood would utilise up to 9% of the total capacity available at the section in 2028.

For these additional units to achieve the 66% Non-Car mode share target, the various measures identified in the Cherrywood SDZ Planning Scheme as well as stricter parking controls would need to be implemented.

A key element of the shift from car mode share to public transport is the delivery of the core bus network and the continued advancement of the planned Luas capacity enhancements. It should be noted that as the Luas corridor is limited in its catchment, a complimentary bus network would be required to adequately serve the public transport needs of Cherrywood.

## 5.6 Findings – Public Transport - Bus

The Cherrywood SDZ Planning Scheme includes significant investment in bus priority though the delivery of a Quality Bus Corridor (QBC) along Wyattville Link Road and Bishop Street and through bus priority measures along Castle Street. These are shown in Figure 5-2 and Figure 5-3. As set out in Figure 4-4, these bus measures are incorporated within Road Phases 1, 1a and 2.



Source: Cherrywood SDZ Town Centre & Environs Amendment (Jan 2025)





Source: Cherrywood SDZ Planning Scheme Urban Form Development Framework (Sept 2017)

### Figure 5-3: Cherrywood Town Centre - Public Transport Movement Strategy

Given the wide distribution of origin and destinations both to and from the Cherrywood SDZ, and the limited corridor served by Luas Green Line, the bus services will perform a key role in responding to public transport demand.

Analysis of public transport demand was undertaken to understand the forecast demand accommodated by the bus services. This analysis will provide DLRCC and NTA information to ensure that sufficient services will be routed through Cherrywood by the NTA and their bus operators upon delivery of additional units in the SDZ. Figure 5-4 summarises the Cherrywood bus patronage in peak hours and are based on a low frequency service which serves the town centre only.



### Figure 5-4: ERM 2028 Cherrywood Peak Hour Bus Patronage

In 2028, the maximum number of bus movements (combination of boardings and alightings) in Cherrywood, in the peak hour, is approximately 400 - 500 passengers. Given the wide distribution of origin and destinations both to and from Cherrywood this would be a conservative forecast and could be improved through increasing the frequency of services through Cherrywood. Based on a projected Non-Car mode share of 66%, Table 5-6 below provides a summary of impact of additional development units on bus services. It is understood that a higher frequency service which serves the full SDZ area will be in place from the outset. It is likely this will be a rerouting of the existing 7 or another bus route.

### Table 5-6: Public Transport Patronage – Boarding & Alighting Combined

Additional Development	AM Trips	Increase in AM Demand (%)	PM Trips	Increase in PM Demand (%)
1,000 units	113	11%	92	11%
1,500 units	169	16%	137	17%
2,000 units	226	22%	183	22%

\*Assuming 34%/66% Car/Non-Car mode share in SDZ

Further analysis of the capacity of the N11 bus network was assessed against forecast passenger demand extracted from the NTA ERM. The northbound direction was found to carry the highest passenger load and was therefore used as the basis for the assessment. The results of this assessment are presented in Figure 5-5.



### Figure 5-5: Bus Capacity Analysis

As outlined in the Figure 5-5 above, the bus routes on the N11 will be operating at capacity in 2028. Various sections of the N11 from the Wyattville Link Road to UCD will be alternating between operating under capacity and overcapacity. However, it should be noted that the changes associated with the bringing forward housing development earlier than currently allowed are minimal.

Bringing forward housing development earlier than currently allowed for in the planning scheme will put pressure on all modes of transport but the congestion issues are likely to occur on the road infrastructure. In this regard, the effective use of bus services is imperative to maintain a sustainable modal share in Cherrywood. Discussions between DLRCC, the NTA and bus operators should focus on ensuring that attractive bus services are in place from day one to ensure people make their mode choice based on the full spectrum of options available. Given the availability and quality of the bus capacity provided within Cherrywood, additional bus services could be used to quickly respond to additional demand should the phasing of residential units be revised. A high bus mode share would help mitigate against bringing forward housing development earlier than currently allowed for in the planning scheme.

# 5.7 Findings – Accessibility to Public Transport

For DLRCC to bring forward housing development earlier than currently allowed for, the associated infrastructure and policies from later stages of the development will also need to be in place to ensure the mode share ambitions for Cherrywood are not negatively impacted upon through an over reliance on car mode. To assess this, the proposed active mode infrastructure was assessed based on accessibility and connectivity.

The key transport nodes are shown in Figure 5-6. It is expected that the delivery of Road Phase 1 and 2, and associated walking and cycling facilities, will provide access between the majority of development zones and the key transport nodes.



Figure 5-6: Cherrywood SDZ Public Transport Nodes

The Luas serves the majority of the Cherrywood SDZ and will provide a reliable, high frequency service to key destinations such as the city centre and Sandyford and also provide interchange to other transport systems. Whilst the Luas will respond to the majority of public transport needs for the Cherrywood SDZ, the bus network will be required to provide access to areas outside the Luas corridor.

There are plans in place to upgrade the bus services to Cherrywood and a higher frequency service which serves the full SDZ area will be in place from the outset. The NTA has plans to upgrade the bus services as part of BusConnects programme in response to the bus infrastructure delivered by the Development Agency. It is likely that given the new bus routes connectivity in Cherrywood, walking access to the N11 will be required to access the BusConnects corridor.

Development areas at the southern extent of the SDZ will have access to stops on the N11 via the WLR. In the absence of a connection between Druids Glen Road and Grand Parade it is important to extend buses into the northern extents of the SDZ due to the distance to the N11 via the WLR (>1km).

However, it should be noted that WLR in its current configuration is a hostile environment for active travel users. This link features high vehicle speeds and long, indirect crossings which may deter pedestrians and cyclists from crossing WLR. An alternative crossing is required which minimises interaction with traffic on WLR is required. The existing Luas bridge should be considered for this purpose as an interim solution prior to the development of dedicated crossings.



Figure 5-7: Wyattville Link Road

## 5.8 Findings – Car Mode

The SDZ road infrastructure has been designed to cater for the long-term full build out of the Cherrywood SDZ and was subsequently approved by An Bord Pleanala. The main area for potential concern is in terms of access to the external road network i.e. the M50 and N11. Accesses from the Cherrywood SDZ to the external road network are being delivered on a phased basis as shown below in Figure 5-8, and comprise the Druid's Glen Road (Phase 3 and Phase 4), and the Kilternan Link Road (Phase 6).

A secondary element of the analysis is whether the non-delivery of these external access links in the short term could have an impact on Junction A performance. As part of this analysis, local elements of the network within the SDZ site, which provide access to sites, are assumed to be delivered when required.



Source: DLRCC, 2017

### Figure 5-8: Cherrywood SDZ Road Phasing

Analysis indicates that in the absence of delivery of additional access point capacity to Cherrywood, congestion may occur at the Junction A, especially as development progresses. To understand the role and delivery timescales of future phases of road development to mitigate against this congestion i.e. mainly Druids Glen Road and Kilternan Link Road, a high-level assessment was undertaken using outputs from the NTA ERM for the year 2028.

### 5.8.1 Druids Glen Road and Barrington's Road Scenario

Initially, the delivery of Druids Glen Road (Q-P3 Link) only provides access into the northerly development lands (Development Area 5), once delivered it will provide an alternative access route to the N11. Barrington's Road is also required to provide a link from Druids Glen Road to the internal road network within the Cherrywood SDZ. However, given the location of the majority of the 1st Growth Area near the WLR, it is likely that accesses from WLR will be preferred by motorists until congestion on WLR results in travel time saving for vehicles detouring to the N11 and utilising Druids Glen Road and Barrington's Road .

The role of Druids Glen Road is illustrated in Figure 5-9and Figure 5-10. Outputs from the Cherrywood SATURN model suggest that the Druids Glen Road will be an attractive link providing access to Cherrywood, in particular the northern development areas and the town centre. The following figures illustrate that it is anticipated that 162 vehicles will utilise the Druids Glen Road in the AM peak, and 220 vehicles will utilise it in the PM peak.



Source: Results based on runs of the 2028 NTA

### Figure 5-9: Inbound routing of traffic on the Druids Glen Road- 2028 AM Peak



Source: Results based on runs of the 2028 NTA

### Figure 5-10: Outbound routing of traffic on the Druids Glen Road- 2028 AM Peak

The need for Druid's Glens Road's in providing access to the Cherrywood SDZ is similar to the D-Loop junction further south with Figure 5-11 showing the impact of removing Druids Glen Road. The lines in blue represent a reduction in traffic flow as a result of the removal of Druids Glen Road, whilst green represents an increase. The

majority of traffic on Druid's Glen Road is bound to/from the northern end of the Cherrywood SDZ however, as development increases it does provide an alternative for traffic which would otherwise have to use the N11/WLR/D-Loop and Junction A.



Source: Results based on runs of the 2028 NTA ERM

### Figure 5-11: Difference Plot of the Druids Glen Road–AM Peak

The analysis shows the value of the Druids Glen access in relieving pressure on the N11/WLR/D-Loop and Junction A A detailed Junction Performance analysis for WLR/Tullyvale junction has been included in Section 5.8.3 and Linsig outputs are provided in Appendix A of this report (AM peak only).

Druid's Glen Road, and Road Phase 1A (Grand Parade) which provides access between Druid's Glen Road and the WLR, would give alterative accesses and resilience to the road network in case of incidents. Given the likely duration of the planning and construction stage of the scheme it is recommended that the planning of the scheme be brought forward in the short-medium term. Irrespective of Druid's Glen Road, it is important for the Cherrywood SDZ to achieve a higher Non-Car mode share.

### 5.8.2 Kilternan Link Road Scenario

The role of the Kilternan Link Road is illustrated in Figure 5-12. Outputs from the Cherrywood SATURN model suggest that the Kilternan Link will be an attractive link for through traffic when it, and the Druids Glen Road, are both in place. Kilternan Link Road – Druid's Glen Road corridor could act as an alternate link between M50 and N11 and would be helpful in relieving the pressure on Junction A. In the absence of Druids Glen Road, its role will be to provide access to Cherrywood, in particular the northern development areas and the town centre.



Source: Results based on runs of the 2028 NTA ERM



Figure 5-12: Inbound routing of traffic on the Kilternan Link – 2028 AM Peak

Source: Results based on runs of the 2028 NTA ERM

### Figure 5-13: Outbound routing of traffic on the Kilternan Link – 2028 AM Peak

The role of Kilternan Link Road in providing access to Cherrywood is similar to the Lehaunstown junction further south. Due to the complexity in planning and construction, it is likely that the Druid's Glen Road would be completed first before the Kilternan Link Road. The difference plot shows that extent of through traffic on the

link which transfers across from the WLR. The below shows the impact of the scheme with blue showing a decrease in traffic as a result of removing the scheme and green an increase.



Source: Results based on runs of the 2028 NTA ERM

### Figure 5-14: Difference Plot – Impact of the Kilternan Link –AM Peak

The need for the Kilternan Link Road is linked to the operation of the Lehaunstown junction and the Wyattville link Road in providing access to Cherrywood. A detailed junction performance analysis for WLR/Tulluvale junction has been included in Section 5.8.3 and Linsig outputs are provided in Appendix A of this report (AM peak only). It is expected that the Kilternan Link Road would also remove some traffic from the J14-J15 section of the M50. Given the likely duration of the planning and construction stage of the scheme it is recommended that the planning of the scheme is commenced in the short to medium term.

### 5.8.3 WLR / Tullyvale Road Junction (Junction A)

As indicated in the previous section, the main area of potential concern for Cherrywood development is in terms of accesses to the external road network i.e. the M50 and N11, which are being delivered on a phased basis. In the absence of delivery of additional access points, the Cherrywood traffic completely depends on the WLR for accessing the external network and the performance of (Junction A is a main concern.

Given the status of the planning application of the schemes, it is unlikely that Druids Glen and Kilternan Link Road will be delivered by 2028. Therefore, more detailed analysis of the performance of Junction A has been undertaken in Linsig<sup>2</sup>, assuming both Druid's Glen Road and Kilternan Link Road are not open in the short term.

### Mode Share Adjustment

Bringing forward residential development earlier than currently allowed for in the planning scheme is largely dependent on the achievement of a high public transport and active travel mode share. As per the planning scheme, Cherrywood aims to achieve a Car / Non-Car mode share of 47% / 53%. However, to maximise the

<sup>&</sup>lt;sup>2</sup> LinSig is an industry standard software to model the capacity and queuing of signalised junctions. When considering signalised junctions, a Ratio of Degree of Saturation (DoS) of greater than 90% (0.90) would indicate a junction to be approaching capacity, as operation above this DoS value is poor and deteriorates quickly resulting in traffic congestion in the form of longer queues.

quantum of residential development which can be brought forward, an increased mode share for Non-Car modes is required.

The key facilitator of car trips in Cherrywood for housing, employment, retail, leisure etc. will be car spaces. Car parking standards should be directly linked to the transport capacity and developments adjacent to Luas stops should require less spaces as a result.

AECOM has developed the following scenarios for Junction A considering these changes in mode share and its impact on performance of Junction A.

• Base Scenario:

The 2028 Base scenario assumes the mode share for Cherrywood is based on ERM outputs (57% car/43% Non-Car modes). As indicated in the previous section, both Druid's Glen and Kilternan Link Road are assumed to not be in place.

- Adjusted Mode Share Scenario #1:
- The Cherrywood Planning Scheme indicates a Non-Car mode share of 53%. These mode shares are based on the mode share targets contained in the Cherrywood SDZ Planning Scheme (47%/53% car/non-car) which assume a range of measures (Figure 5-15) will be in place to enable this mode shift. As these measures are implicit within the target mode shares, it was possible to test this scenario by simply adjusting the outturn mode shares from ERM. This scenario assumes that the now approved Cherrywood Residential Car Parking Amendment (Amendment No 9), is not approved and that the previously approved car parking standards are utilised within the SDZ.



Figure 5-15: Cherrywood SDZ Mode Share Measures

• Adjusted Mode Share Scenario #2:

A review of policies at national, regional and local level was undertaken to determine if additional measures could be implemented to further increase PT and active mode share. This identified that the parking standards within the Cherrywood Planning Scheme are not geared towards maximising public transport and active mode use and could be made stricter in line with this ambition. Table 5-7 below shows the parking standards in the Cherrywood Planning Scheme and an adjusted set of standards based on the Cherrywood Residential Car Parking Amendment which was submitted to An Bord Pleanála (Amendment No 9) and was approved on 22nd November 2024.

Development Type	Cherrywood Planning Scheme Parking Standards (Minimum)	Amendment to Planning Scheme Parking Standards (Maximum)	
Town Centre	0.9 spaces per unit	0.5 spaces per unit	
Village Centres	0.9 spaces per unit	0.5 spaces per unit	
Residential (1,2, 3 and 4 bedrooms)	0.9 spaces per 1 bed unit	0.5 spaces per unit	
	1.2 spaces per 2 bed unit/house	0.75 spaces per 2 bed unit/1 space per 2 bed house	
	1.4 spaces per 3 or more bed unit	1.25 spaces per 3 or more bed unit	
	2.0 spaces per 3 or more bed house	1.5 spaces per 3 or more bed house	
All Residential Units/Houses	Minimum 0.01 Car Share space per unit	Minimum 0.02 Car Share space per unit	

### **Table 5-7: Cherrywood Parking Standards**

• Using the development information in the Cherrywood Planning Scheme, the impact of stricter parking standards (in line with approved amendments to residential parking standards and proposed non-residential parking standards) on mode share was derived by calculating proxy car trip levels within the SDZ based on planned parking standards within the SDZ, as contained in the Cherrywood Planning Scheme document and comparing this with equivalent trip levels assuming the stricter standards. Applying the parking standards above, an adjusted Non-Car mode share has been calculated of 66% which assumes the amended standards. A manual adjustment was applied to the Base scenario traffic flows through Junction A reducing external private vehicle trips to/from the Cherrywood SDZ in line with the revised mode share.

Examination of 2024 AM peak survey data revealed that there is an existing demand of 404 vehicles leaving Tullyvale Road. It was determined that 656 vehicles are anticipated to leave Tullyvale Road in the 2028 base scenario. This illustrates that there is a lot of vehicle demand growth beyond present traffic levels to take place in the future whilst the SDZ grows and sustainable measures are put in place, so it should be possible to influence much of this demand for car in the base scenario.

• Adjusted PT Mode Share Scenario #1 with 20% Reduced Development Occupancy:

Analysis of mode share scenarios indicates that bringing forward residential development earlier is largely dependent on the achievement of a high public transport and active travel mode share. Also, there is a high likelihood that not all permitted developments will be completed by 2028. Therefore, a further scenario has been developed, incremental to the public transport mode share scenario #1, which assumes that 20% of development will not be completed by 2028. A manual adjustment was applied to the public transport mode share scenario #1 flows through Junction A. This adjustment reduced external private vehicle trips to/from the Cherrywood SDZ in line with 20% reduced occupancy.

### **Junction Performance**

The operational assessment of Junction A has been assessed for the base and each of the adjusted mode share scenarios outlined above. The AM peak hour was found to carry the highest passenger demand and was therefore used as the basis for the assessment (AM peak only).

Table 5-8 summarises maximum Degree of Saturation (DoS) modelled at the junction for the AM peak and the amount of additional residential units that can be brought forward for development in 2028 based on the available capacity at the junction. Detailed Linsig outputs for the scenarios are included in Appendix A (AM peak only).

Scenario	Am Peak Maximum Degree of Saturation (DoS)	Additional residential units that can be brought forward in 2028
Base Scenario	108.50%	-
Adjusted Mode Share Scenario #1	97.10%	-
Adjusted Mode Share Scenario #1 with 20% reduced occupancy.	94.10%	1,000

### Table 5-8: Junction A Capacity Analysis

Adjusted Mode Share Scenario #2

79.90%

2,000

The analysis indicates that Junction A will operate overcapacity in the base scenario (maximum DoS 108.5%) and just below capacity in the adjusted mode share scenario #1 (maximum DoS 97.1%). With the adjusted mode share scenario #1, the junction would operate within capacity (maximum DoS 94.1%) and will be able to accommodate traffic from up to 1,000 additional residential units. Similarly, the adjusted mode share scenario #2 further improves operations at the junction (maximum DoS 79.9%) and can accommodate traffic from up to 2,000 additional residential units in Cherrywood.

The additional 2,000 units identified above comprises:

- 1,500 units currently allowed for under the 2,300 unit threshold for the development of residential units in Growth Areas 2 and 3 in tandem with Growth Area 1. These are units which are allowed to progress but without approved planning permission.
- An additional 500 units.

Based on this assessment, the 2,300 unit threshold can be increased to 2,800 units.

It is anticipated that the proposed additional units would result in some capacity pressures in the morning peak hour at the junction. This capacity pressure is anticipated for a short period of time, it should be noted that within the DMURS Guidelines that the capacity thresholds cannot always be achieved in urban areas and that "In areas ...such as in Neighbourhoods and Centres ...junctions may have to operate at saturation levels for short periods...".

However, it is not anticipated that the increase in the unit threshold will have an impact on the operation of the adjoining national road network.

### Junction A Improvements

Adjustments to the signal timings, phasing and sequencing which may improve the operational efficiency of Junction A have been considered. However, based on the LinSig assessment undertaken, it was determined that the junction performance is already optimised.

Additionally, it should be noted that any measures which result in additional green time for vehicular traffic will have a negative impact on active travel users crossing Wyattville Link Road.

The delivery of Grand Parade will help improve active travel connections between various development types. Following delivery of this infrastructure, it may be possible to examine adjustments to the timings, phasing and sequencing of the signals at Junction A.

### 5.8.4 Summary – Car Mode

The proposed road infrastructure in Cherrywood has been designed to respond to the traffic generated by the full build out of Cherrywood. Some of the key issues examined in relation to capacity of the road network are as follows:

- Capacity of the existing access points at Lehaunstown onto the M50 and via the WLR onto the N11 to cater for any additional development in Cherrywood.
- Capacity of Junction A and its ability to cater for increased demand.
- Measures which could be taken to influence car mode share in a positive way to reduce the impact of the additional development, especially during peak periods.

The findings are summarised as follows:

• The analysis suggests that delivery of additional access point capacity to Cherrywood i.e. Kilternan Link Road and the Druids Glen Road would have a significant impact on network performance. The analysis shows the long-term importance of the schemes in relieving pressure on the N11/WLR/D-Loop and Junction A. Given the likely duration of the planning and construction stages of the schemes, it is recommended that construction of the schemes is brought forward in the short to medium term.

- In the absence of additional access point capacity to Cherrywood, congestion occurs at the Junction A. The success of the planning scheme and possibility of bringing forward additional developments is heavily dependent on the achievement of a high public transport and active travel mode share, thus reducing car dependency.
- The key driver of car trips during the peak periods is commuters. In this regard with stricter car parking standards in place, based on an amendment to the Planning Scheme, Cherrywood is expected achieve a revised mode share of 34% / 66% between Car and Non-Car modes. The analysis of Junction A indicates that, with these revised mode shares, Junction A will be able to accommodate traffic from up to 2,000 additional residential units.
- The additional 2,000 units identified above comprises:
  - 1,500 units currently allowed for under the 2,300 unit threshold for the development of residential units in Growth Areas 2 and 3 in tandem with Growth Area 1. These are units which are allowed to progress but without approved planning permission.
  - An additional 500 units.
- Based on this assessment, the 2,300 unit threshold can be increased to 2,800 units. It should be noted that this increase relates to the number of residential units which can be developed with existing infrastructure in place. It is not an increase in the total number of residential units permitted in the completed Cherrywood Planning Scheme.
- In the absence of Druid's Glen Road, it will only be possible to access Development Area 5 directly via the N11 therefore having no impact on the internal Cherrywood Road network. Therefore, housing units in Development Area 5 can be brought forward for development, in addition to the units identified as part of the analysis of Junction A, without impacting on the performance of the road network serving Cherrywood.
- It is not anticipated that the increase in the unit threshold will have an impact on the operation of the adjoining national road network.

# 6. Maximising Sustainable Travel at Cherrywood SDZ

# 6.1 Application of Updated Policy Context to Cherrywood SDZ

Without a significant increase in the mode share for active travel and public transport, there will be capacity issues at Junction A. A plan to identify stronger supporting measures, which are backed up by policy, is needed along with an implementation plan for delivery.

Having identified relevant updated policies, including Project Ireland 2040 – National Planning Framework, Spatial Planning and National Roads Guidelines for Planning Authorities (2012), Regional Spatial and Economic Strategy (RSES) for the Eastern and Midland Region (2019-2031), National Transport Authority – Greater Dublin Area Transport Strategy 2022-2042, and DLRCC Climate Change Action Plan 2019-2024 in Section 2, this section aims to apply these policies within the context of the Cherrywood SDZ. Table 6-1 considers whether each policy/measure is reflected within the mode share targets described in section 5, which are required to facilitate a significant increase in development levels by 2028.

In particular, a number of further measures are identified (e.g. stricter parking standards for non-residential developments, implementation of travel plans, introduction of remote working hubs, promotion of active travel in schools and use of school enrolment policy to influence travel behaviour) which could be practically implemented in the short-term and therefore enhance the probability of achieving the mode share targets and potentially exceeding them.

Policy/Measure	Included within Mode Share targets?	Comment
Integration of Land Use and Transport	Yes	
High-quality inclusive and connected walking and cycling networks with direct routes to local destinations and public transport hubs	Yes	
Ten-minute neighbourhoods and compact climate resilient communities	No	Many of the measures underpinning these concepts will in reality be provided
Good quality bus infrastructure and services	Yes	
High-capacity bus infrastructure and services	Yes	
Car sharing scheme	Yes	
Implementation of car parking standards	Yes	
Provision of street lighting and other personal safety measures and accessibility measures for people with disabilities etc	Yes	
Luas Green Line Capacity Enhancement	Yes	
BusConnects (Bray to City Centre corridor along N11)	No	
Demand management on the N11/M11/M50	No	

#### Table 6-1: Application of policies to Cherrywood SDZ

Policy/Measure	Included within Mode Share targets?	Comment
Inclusion of Mobility Hubs	No	Very effective at encouraging modal shift – especially in areas where parking is tightly constrained
Reduced car parking provision in line with approved reduction in residential parking standards	Yes	Reflected in the higher Non-Car mode share target of 66% only
Reduced car parking provision in line with proposed reduction in non- residential parking standards	No	Could be practically implemented in the short-term and therefore realistically impact travel behaviour
A requirement that developments above a certain scale have viable travel plans in place	No	Could be practically implemented in the short-term and therefore realistically impact travel behaviour
Mobility Management measures	Yes	
Measures to adopt more sustainable movement of goods	No	Could be practically implemented in the short-term and therefore realistically impact travel behaviour
Inclusion of Remote Working Hubs	No	Critical to supporting remote working in high density residential environments with positive impacts for the transport network and community
Promotion of active travel in schools	No	Could be practically implemented in the short-term and therefore realistically impact travel behaviour
Use of school enrolment policy to influence travel behaviour	No	Could be practically implemented in the short-term and therefore realistically impact travel behaviour. The school enrolment policy for a school located in the Adamstown SDZ, aims to enrol local pupils thus encouraging use of active modes. Mode share at this school is currently over 63% for walking and cycling.
Mobility as a Service (MaaS) measures	No	Could be practically implemented in the short-term and therefore realistically impact travel behaviour
Mixed-use development	Yes	
Transit-orientated development	Yes	

A range of additional measure have been identified which would maximise sustainable travel within the Cherrywood SDZ. These measures include:

- Early planning of and responsive provision of new bus services to new development phases.
- Integration of the bus services in Cherrywood with the wider public transport network with seamless links are provided to Luas, BusConnects and DART.
- Assess potential for Demand Responsive Transport (DRT) based services.
- Implementation of quality active mode networks which provide convenient access to public transport, encourage active only trips and internal development trips, review for filtered permeability opportunities.
- Planning of land-uses to encourage internal trip making within the development filtered permeability.
- Ensuring remote working hubs are incorporated in all village centres and/or large new developments.
- Preference for additional housing units located within the walking catchment of the Luas/bus stops.
- Introduction of shared mobility mobility hubs throughout the SDZ, including the Town Centre and Village Centres as well as within the residential areas.
- Appointment of a mobility manager for the Cherrywood SDZ who will have responsibility for annual travel surveys of local residents and can assist residents developing personalised travel plans.
- Provision of Public Transport Real Time information at all large workplaces. Development of a Cherrywood SDZ app which includes information and incentives for sustainable travel modes.
- Formation of a local resident's transport working group.
- Review provision of parking areas for shared electric cars, including charging infrastructure.
- Review the likely level of service /quality of proposed of walking and cycling links.
- Bring forward the implementation of an innovative and digital based behavioural change campaign.
- Identify community-based opportunities to support active travel culture.

### Potential for Mobility Hubs at Cherrywood

A mobility hub can be defined as a recognisable and easily accessible place that integrates multiple transport modes for the benefit of various users. It aims to provide a multimodal network for sustainable movement while enhancing connectivity. Mobility hubs can also provide supplementary facilities and services, which improve the users' trip experience.

The International Association of Public Transport (UITP) categorises mobility hubs into different types, depending on their scale and location, which affect their role in providing for access and enabling transfer, as illustrated in Figure 6-1. The Micromobility, Neighbourhood, Key Destination and Local Interchange Hubs are considered, at this point, most relevant to the Cherrywood SDZ.

Generally, mobility hubs are designed on a bespoke basis for specific locations and depending on demand in the area, appropriate components are chosen for each hub. Depending on their location and local demand, mobility hubs may include a variety of different services and functions, including:

- Shared mobility services for cars, bikes and scooters.
- Public transport services.
- EV charging infrastructure.
- Taxi rank.
- Travel information services.
- Bike parking.
- Improved public realm and supporting amenities such as: Wi-Fi, resting area, storage facilities / delivery pick-up lockers, coffee kiosks etc. are also components of some mobility hubs.

Mobility Hubs within Cherrywood could be located within the Town Centre, at key workplaces, residential areas and public transport nodes. Internationally, hubs in urban areas are distributed 500m apart which could also be a useful guide for Cherrywood.



Figure 6-1: Example Mobility Hub (source: CoMoUK)

# 7. Summary and Recommendations

# 7.1 Summary

This assessment has shown that in the absence of additional measures to increase available transport infrastructure or increase public transport and active mode share, sufficient capacity exists in the transport network serving Cherrywood, with the exception of Junction A at the Wyattville Link Road and Tullyvale Road. Various scenarios have been explored to identify ways in which demand at Junction A could be mitigated to facilitate additional development earlier than currently set out in the Planning Scheme.

The opening of Druid's Glen Road, Barrington's Road and Kilternan Link Road will facilitate additional northern access points into the Cherrywood SDZ, reducing demand on Junction A. However, given the agreed phasing within the Cherrywood SDZ Planning Scheme and the lead-in times to design and construct these access roads, reliance on these access roads is not appropriate for facilitating additional development in the short term. Additionally, delays in construction, or non-implementation of currently permitted schemes by developers showed significant capacity will be freed up at Junction A. However, as this is outside of the control of DLRCC and is based on commercial decisions by private developers it would be a risk to plan the development phasing on that basis. Furthermore, discussion with DLRCC has identified that expanding the capacity of Junction A would not be preferable from the point of view of fostering sustainable travel. Therefore, this leaves measures to increase public and active transport mode share as the only feasible strategy for facilitating the bringing forward of more development. In any case, this is the preferred option from the perspective of fostering sustainable travel to, from and within the development.

## 7.2 Recommendations

It will be possible to bring forward additional residential units for development in 2028 subject to:

- The implementation of measures (as outlined in the Planning Scheme) to ensure that a Non-Car target mode share of 53% is achieved this will allow for 1,000 additional units to be brought forward.
- The implementation of measures (as outlined in the Planning Scheme) to ensure that a Non-Car target mode share of 53% is achieved plus the implementation of stricter parking standards in line with the proposed amendment to the Planning Scheme (giving an overall Non-Car target mode share of 66%) this will allow for 2,000 additional units to be brought forward. Car parking standards within this scenario are based on the Cherrywood Residential Car Parking Amendment which was submitted to An Bord Pleanála (Amendment No 9) and was approved on 22nd November 2024.

The additional 2,000 units identified above comprises:

- 1,500 units currently allowed for under the 2,300 unit threshold for the development of residential units in Growth Areas 2 and 3 in tandem with Growth Area 1. These are units which are allowed to progress but without approved planning permission.
- An additional 500 units.

Based on this assessment, the 2,300 unit threshold can be increased to 2,800 units. It should be noted that this increase relates to the number of residential units which can be developed with existing infrastructure in place. It is not an increase in the total number of residential units permitted in the completed Cherrywood Planning Scheme.

### 7.2.1 Mode Share Targets

An objective of the Cherrywood SDZ Planning Scheme is to develop and support a culture of sustainable travel to and within the SDZ. Challenging yet achievable targets for sustainable travel modes were developed. The targets aim to:

- Reduce car dependency.
- Reduce long distance commuting.
- Increase public transport modal share.
- Encourage walking, cycling and wheeling.

A number of amendments to development types are being proposed within Cherrywood Town Centre in light of the Building Height and Density Review. DLRCC has commissioned AECOM to undertake a peer review of applications received for change of use to determine the impacts that the change may have on infrastructure capacity. This change of use may comprise change from retail to residential usage, potentially of up to 800 units. However, it is noted that this figure may increase to +1000 units depending on the outcome of a number of review studies.

A number of changes to the target modal share for the Cherrywood SDZ are proposed to continue to develop and support a culture of sustainable travel to and within the SDZ. The proposed target modal share are illustrated in Figure 6-2.



Cherrywood SDZ Proposed Sustainable Travel Targets

### Figure 6-2: Proposed Cherrywood SDZ Sustainable Travel Targets

### 7.2.2 Key Considerations

There are various measures which will assist in achieving the Non-Car mode share targets and support bringing forward additional residential units for development. These include:

- Implementation of parking standards as per the non-residential car parking amendment to the Planning Scheme.
- Implementation of quality active mode networks which provide convenient access to public transport, encourage active only trips and internal development trips as currently prescribed in the planning scheme.
- Planning of land-uses to encourage internal trip making within the development filtered permeability as currently prescribed in the planning scheme.

Additional measures, which are outside of the control of DLRCC, but should be encouraged and/or facilitated within the Cherrywood SDZ include:

- Early planning of and responsive provision of new bus services, in conjunction with the NTA, to new development phases.
- Integration of the bus services in Cherrywood with the wider public transport network with seamless links are provided to Luas, BusConnects and DART.

- Encourage the introduction of shared mobility. The provision of mobility hubs throughout the SDZ, including the Town Centre and Village Centres as well as within the residential areas will be explored through the planning process.
- Encouraging the provision of remote working hubs in all village centres and/or large new developments.
- Appointing a mobility manager for each development within the Cherrywood SDZ, by the relevant landowner/management company, who will have responsibility for annual travel surveys of local residents and can assist residents developing personalised travel plans.
- Designate specific resources to demand management within the area.
- Provision of Public Transport Real Time information at all large workplaces. Development of a Cherrywood SDZ app which includes information and incentives for sustainable travel modes.
- Formation of a local residents transport working group.
- Identify community-based opportunities to support active travel culture.
- Improvements to the strategic road network. The strategic road network near Cherrywood currently experiences congestion at peak times which may result in the use of Wyattville Link Road for rat-running traffic. Measures which increase capacity or improvement operational efficiency should be encouraged.

Additionally, a range of policies/measures of relevance to Cherrywood have been identified based on a review of policy documentation. Those policies/measures which are in place (and therefore implicit within the Non-Car target mode share of 66% for Cherrywood) were identified against those policies/measures which are not in place and which could additionally be adopted to achieve and potentially exceed the mode share targets for Cherrywood. Such measures include stricter parking standards for non-residential developments, implementation of travel plans, promotion of active travel in schools and use of school enrolment policy to influence travel behaviour, all of which could be practically implemented in the short-term and therefore realistically impact travel behaviour upon delivery of residential units in 2028.

It should be noted that the proposed Cherrywood TCE amendment contains new sustainable travel targets of 66% for Non-Car mode share. The proposed Cherrywood TCE amendment identifies a range of measures to achieve these targets which includes the provision of additional Wyattville Link Road crossings as well as pedestrian and cycle facilities on both sides of Wyattville Link Road.

In summary, the analysis suggests that an additional 2,000 residential units could be brought forward earlier than currently allowed for in the planning scheme subject to the implementation of policies/measures to achieve a 66% Non-Car target mode share.

Overall, this would allow for 6,666 units by 2028 (4,666 units currently permitted + 2,000 additional). This excludes units which can be brought forward in Development Area 5 if Druid's Glen Road is not in place.

# 7.3 Next Steps

An application should be made to an Bórd Pleanála to bringing forward residential development earlier than currently allowed for in the planning scheme. The currently permitted residential development, up to a maximum of 2,300 residential units in total, in either Growth Area 2 or 3 which may be permitted in tandem with Growth Area 1 should be increased to 2,800 residential units.

Following the review of the relevant planning policy documents, and the identification of additional measures to encourage sustainable transport modes, a number of possible next steps are recommended to DLRCC. Primary amongst these is updating Chapter 4: Physical Infrastructure of the Cherrywood SDZ Planning Scheme.

Further studies and reviews within the Cherrywood SDZ could include the following elements:

- Determine whether the existing Luas Bridge over the WLR could be opened to pedestrians as an alternative to use of Junction A which acts as a barrier to active modes. Simultaneously, determine whether delivery of the proposed grade separated crossing of the WLR could be brought forward. The phasing and sequencing of grade separated crossings of WLR has been examined as part of the Cherrywood TCE Review. The recommendations of this review are included in the Cherrywood TCE Amendment.
- Undertake a quality/road-user audit to ensure that existing infrastructure maximises its potential to provide for sustainable transport modes.

- A review of phasing and sequencing of infrastructure with a particular focus on the provision of sustainable transport infrastructure. This review of phasing and sequencing has been undertaken as part of the Cherrywood TCE Review. The recommendations of this review are included in the Cherrywood TCE Amendment.
- A plan for mobility hubs which identifies locations, requirements and developer incentives for their provision.
- A review of planning incentives for development of remote working hubs, which will minimise travel out of the Cherrywood SDZ.
- Establishing an annual residents survey to determine the travel behaviour of residents and to identify measures which could be provided to encourage shifts to more sustainable travel modes. This could be supported by a local Sustainable Transport Working Group. The annual road monitoring surveys have been expanded (as of 2024) to include modal split surveys of residents of units in the Cherrywood Strategic Development Zone (SDZ).
- A review of filtered permeability within the Cherrywood SDZ to ensure the attractiveness of active travel modes.
# Appendix A Linsig Outputs AM Peak

# Basic Results Summary

#### User and Project Details

Project:	Cherrywood SDZ
Title:	Linsig Outputs
Location:	Cherrywood
Additional detail:	AM Peak
File name:	Cherrywood Junction 7 LinSig Model_v9.lsg3x
Author:	Arjun Vijayan
Company:	AECOM
Address:	4 <sup>th</sup> Floor, Burlington Plaza, Dublin 4

#### Scenario 1: Base Scenario Network Layout Diagram



Item	Lane Description	Lane Type	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network	-	-	-		-	-	-	-	-	-	108.5%	0	0	0	177.9	-	-
WLR/Tullyvale Junction	-	-	-		-	-	-	-	-	-	108.5%	0	0	0	177.9	-	-
1/1	Tullyvale Road N - Entry Left	U	L		1	50	-	252	1819	618	40.7%	-	-	-	3.0	42.8	8.3
1/2+1/3	Tullyvale Road N - Entry Right Ahead	U	J K		1	14	-	404	1939:1907	194+191	105.2 : 104.9%	-	-	-	24.8	221.1	24.9
2/2+2/1	Wyattville Link Road E - Entry Ahead Left	U	ΒF		1	32:52	-	842	2080:1778	458+319	108.4 : 108.4%	-	-	-	52.0	222.5	60.4
2/3+2/4	Wyattville Link Road E - Entry Ahead Right	U	ВD		1	32:33	-	713	2080:1947	458+202	108.2 : 108.2%	-	-	-	45.6	230.2	54.6
3/2+3/1	Tullyvale Road S- Entry Left Ahead Right	U	GI		1:2	9:49	-	100	1992:1808	133+176	32.4 : 32.4%	-	-	-	1.3	47.9	1.9
3/3	Tullyvale Road S- Entry Right	U	н		1	10	-	0	2105	154	0.0%	-	-	-	0.0	0.0	0.0
4/2+4/1	Wyattville Link Road W - Entry Left Ahead	U	ΑE		1	42:61	-	598	2065:1749	470+556	58.3 : 58.3%	-	-	-	6.9	41.5	10.4
4/3	Wyattville Link Road W - Entry Ahead	U	A		1	42	-	237	2065	592	40.0%	-	-	-	3.2	48.2	8.2
4/4	Wyattville Link Road W - Entry Right	U	С		1	42	-	601	1933	554	108.5%	-	-	-	41.0	245.6	55.7
Ped Link: P1	Unnamed Ped Link	-	М		1	14	-	0	-	0	0.0%	-	-	-	-	-	-
Ped Link: P2	Unnamed Ped Link	-	N		1	7	-	0	-	0	0.0%	-	-	-	-	-	-
Ped Link: P3	Unnamed Ped Link	-	0		1	19	-	0	-	0	0.0%	-	-	-	-	-	-
Ped Link: P4	Unnamed Ped Link	-	Р		1	8	-	0	-	0	0.0%	-	-	-	-	-	-

Ped Link: P5	Unnamed Ped Link	-	Q		1	19	-	0	-	0	0.0%	-	-	-	-	-	-
Ped Link: P6	Unnamed Ped Link	-	R		1	11	-	0	-	0	0.0%	-	-	-	-	-	-
Ped Link: P7	Unnamed Ped Link	-	S		1	14	-	0	-	0	0.0%	-	-	-	-	-	-
Ped Link: P8	Unnamed Ped Link	-	т		1	11	-	0	-	0	0.0%	-	-	-	-	-	-
C1 PRC Over All	Lanes (%):	F	PRC for Sig	gnalled Lan	es (%):	-20.5 To -20.5 To	otal Delay fo otal Delay C	or Signalled L Over All Lanes	anes (pcuHr): s(pcuHr):		177.86Cycle 177.86	e Time (s):	150				

# Basic Results Summary (AM Peak) Scenario 2: Adjusted Mode Share Scenario #1 Network Layout Diagram



Item	Lane Description	Lane Type	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network	-	-	-		-	-	-	-	-	-	97.1%	0	0	0	75.8	-	-
WLR/Tullyvale Junction	-	-	-		-	-	-	-	-	-	97.1%	0	0	0	75.8	-	-
1/1	Tullyvale Road N - Entry Left	U	L		1	53	-	207	1819	655	31.6%	-	-	-	2.2	38.7	6.4
1/2+1/3	Tullyvale Road N - Entry Right Ahead	U	JK		1	13	-	332	1940:1907	181+178	92.2 : 92.7%	-	-	-	10.8	117.2	11.4
2/2+2/1	Wyattville Link Road E - Entry Ahead Left	U	ΒF		1	36:56	-	782	2080:1778	513+293	97.1 : 97.1%	-	-	-	19.7	90.8	29.7
2/3+2/4	Wyattville Link Road E - Entry Ahead Right	U	ВD		1	36:37	-	672	2080:1947	513+186	96.1 : 96.1%	-	-	-	17.7	95.1	28.1
3/2+3/1	Tullyvale Road S- Entry Left Ahead Right	U	GI		1:2	9:46	-	82	1993:1808	133+178	26.3 : 26.3%	-	-	-	1.1	47.6	1.6
3/3	Tullyvale Road S- Entry Right	U	н		1	10	-	0	2105	154	0.0%	-	-	-	0.0	0.0	0.0
4/2+4/1	Wyattville Link Road W - Entry Left Ahead	U	ΑE		1	39:57	-	539	2065:1749	461+449	59.2 : 59.2%	-	-	-	6.7	44.8	10.3
4/3	Wyattville Link Road W - Entry Ahead	U	A		1	39	-	238	2065	551	43.2%	-	-	-	3.4	51.3	8.6
4/4	Wyattville Link Road W - Entry Right	U	с		1	39	-	492	1933	515	95.4%	-	-	-	14.1	103.0	26.8
Ped Link: P1	Unnamed Ped Link	-	М		1	14	-	0	-	0	0.0%	-	-	-	-	-	-
Ped Link: P2	Unnamed Ped Link	-	Ν		1	7	-	0	-	0	0.0%	-	-	-	-	-	-
Ped Link: P3	Unnamed Ped Link	-	0		1	19	-	0	-	0	0.0%	-	-	-	-	-	-
Ped Link: P4	Unnamed Ped Link	-	Р		1	8	-	0	-	0	0.0%	-	-	-	-	-	-

Ped Link: P5	Unnamed Ped Link	-	Q		1	19	-	0	-	0	0.0%	-	-	-	-	-	-
Ped Link: P6	Unnamed Ped Link	-	R		1	11	-	0	-	0	0.0%	-	-	-	-	-	-
Ped Link: P7	Unnamed Ped Link	-	S		1	14	-	0	-	0	0.0%	-	-	-	-	-	-
Ped Link: P8	Unnamed Ped Link	-	т		1	11	-	0	-	0	0.0%	-	-	-	-	-	-
C1 PRC Over All	Lanes (%):	Ρ	RC for Sig	nalled Lane	es (%):	-7.8 To -7.8 To	tal Delay fo tal Delay C	or Signalled La Iver All Lanes(	ines (pcuHr): pcuHr):		75.75Cycl 75.75	e Time (s):	150				

Basic Results Summary (AM Peak) Scenario 3: Adjusted Mode Share Scenario #1 with 20% reduced occupancy. Network Layout Diagram



Item	Lane Description	Lane Type	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network	-	-	-		-	-	-	-	-	-	94.1%	0	0	0	65.3	-	-
WLR/Tullyvale Junction	-	-	-		-	-	-	-	-	-	94.1%	0	0	0	65.3	-	-
1/1	Tullyvale Road N - Entry Left	U	L		1	52	-	165	1819	643	25.7%	-	-	-	1.8	38.3	5.0
1/2+1/3	Tullyvale Road N - Entry Right Ahead	U	JK		1	11	-	265	1939:1907	155+153	86.4 : 85.9%	-	-	-	7.8	105.5	8.3
2/2+2/1	Wyattville Link Road E - Entry Ahead Left	U	ΒF		1	37:57	-	780	2080:1778	527+302	94.1 : 94.1%	-	-	-	16.6	76.5	26.6
2/3+2/4	Wyattville Link Road E - Entry Ahead Right	U	ВD		1	37:38	-	674	2080:1947	527+191	93.9 : 93.9%	-	-	-	15.9	84.7	26.1
3/2+3/1	Tullyvale Road S- Entry Left Ahead Right	U	GI		1:2	9:47	-	65	1993:1808	133+176	21.1 : 21.1%	-	-	-	0.8	46.9	1.2
3/3	Tullyvale Road S- Entry Right	U	н		1	10	-	0	2105	154	0.0%	-	-	-	0.0	0.0	0.0
4/2+4/1	Wyattville Link Road W - Entry Left Ahead	U	ΑE		1	40:56	-	535	2065:1749	467+461	57.7 : 57.7%	-	-	-	6.6	44.4	10.0
4/3	Wyattville Link Road W - Entry Ahead	U	A		1	40	-	242	2065	564	42.9%	-	-	-	3.4	50.4	8.6
4/4	Wyattville Link Road W - Entry Right	U	с		1	40	-	492	1933	528	93.1%	-	-	-	12.5	91.5	25.2
Ped Link: P1	Unnamed Ped Link	-	М		1	14	-	0	-	0	0.0%	-	-	-	-	-	-
Ped Link: P2	Unnamed Ped Link	-	Ν		1	7	-	0	-	0	0.0%	-	-	-	-	-	-
Ped Link: P3	Unnamed Ped Link	-	0		1	19	-	0	-	0	0.0%	-	-	-	-	-	-
Ped Link: P4	Unnamed Ped Link	-	Р		1	8	-	0	-	0	0.0%	-	-	-	-	-	-

Ped Link: P5	Unnamed Ped Link	-	Q		1	19	-	0	-	0	0.0%	-	-	-	-	-	-
Ped Link: P6	Unnamed Ped Link	-	R		1	11	-	0	-	0	0.0%	-	-	-	-	-	-
Ped Link: P7	Unnamed Ped Link	-	S		1	14	-	0	-	0	0.0%	-	-	-	-	-	-
Ped Link: P8	Unnamed Ped Link	-	т		1	11	-	0	-	0	0.0%	-	-	-	-	-	-
C1 PRC Over All	Lanes (%):	Ρ	RC for Sig	nalled Lane	es (%):	-4.6 To -4.6 To	tal Delay fo tal Delay C	or Signalled La Iver All Lanes(	nes (pcuHr): pcuHr):		65.29Cycl 65.29	e Time (s):	150				

Basic Results Summary (AM Peak) Scenario 4: Adjusted Mode Share Scenario #1 with 20% reduced occupancy + 1,000 additional units. Network Layout Diagram



Item	Lane Description	Lane Type	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network	-	-	-		-	-	-	-	-	-	102.6%	0	0	0	112.5	-	-
WLR/Tullyvale Junction	-	-	-		-	-	-	-	-	-	102.6%	0	0	0	112.5	-	-
1/1	Tullyvale Road N - Entry Left	U	L		1	55	-	291	1819	679	42.9%	-	-	-	3.2	39.7	9.3
1/2+1/3	Tullyvale Road N - Entry Right Ahead	U	JK		1	17	-	466	1939:1907	233+229	101.0 : 100.9%	-	-	-	20.8	160.7	21.9
2/2+2/1	Wyattville Link Road E - Entry Ahead Left	U	ΒF		1	34:54	-	782	2080:1778	485+277	102.6 : 102.6%	-	-	-	31.3	144.1	41.1
2/3+2/4	Wyattville Link Road E - Entry Ahead Right	U	ВD		1	34:35	-	672	2080:1947	485+176	101.6 : 101.6%	-	-	-	26.5	142.0	36.7
3/2+3/1	Tullyvale Road S- Entry Left Ahead Right	U	GI		1:2	9:44	-	65	1993:1808	133+176	21.1 : 21.1%	-	-	-	0.9	47.7	1.2
3/3	Tullyvale Road S- Entry Right	U	н		1	10	-	0	2105	154	0.0%	-	-	-	0.0	0.0	0.0
4/2+4/1	Wyattville Link Road W - Entry Left Ahead	U	ΑE		1	37:59	-	540	2065:1749	448+438	61.0 : 61.0%	-	-	-	6.8	45.3	10.6
4/3	Wyattville Link Road W - Entry Ahead	U	A		1	37	-	238	2065	523	45.5%	-	-	-	3.5	53.6	8.7
4/4	Wyattville Link Road W - Entry Right	U	С		1	37	-	492	1933	490	100.5%	-	-	-	19.5	142.7	32.3
Ped Link: P1	Unnamed Ped Link	-	М		1	14	-	0	-	0	0.0%	-	-	-	-	-	-
Ped Link: P2	Unnamed Ped Link	-	Ν		1	7	-	0	-	0	0.0%	-	-	-	-	-	-
Ped Link: P3	Unnamed Ped Link	-	0		1	19	-	0	-	0	0.0%	-	-	-	-	-	-
Ped Link: P4	Unnamed Ped Link	-	Р		1	8	-	0	-	0	0.0%	-	-	-	-	-	-

Ped Link: P5	Unnamed Ped Link	-	Q		1	19	-	0	-	0	0.0%	-	-	-	-	-	-
Ped Link: P6	Unnamed Ped Link	-	R		1	11	-	0	-	0	0.0%	-	-	-	-	-	-
Ped Link: P7	Unnamed Ped Link	-	S		1	14	-	0	-	0	0.0%	-	-	-	-	-	-
Ped Link: P8	Unnamed Ped Link	-	т		1	11	-	0	-	0	0.0%	-	-	-	-	-	-
C1 PRC Over All	Lanes (%):	F	PRC for Sig	gnalled Lan	es (%):	-14.0 To -14.0 To	otal Delay fo otal Delay C	or Signalled L Over All Lanes	anes (pcuHr): s(pcuHr):		112.51Cycle 112.51	e Time (s):	150				

# Basic Results Summary (AM Peak) Scenario 5: Adjusted Mode Share Scenario #2 Network Layout Diagram



Item	Lane Description	Lane Type	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network	-	-	-		-	-	-	-	-	-	79.9%	0	0	0	45.9	-	-
WLR/Tullyvale Junction	-	-	-		-	-	-	-	-	-	79.9%	0	0	0	45.9	-	-
1/1	Tullyvale Road N - Entry Left	U	L		1	59	-	147	1819	728	20.2%	-	-	-	1.3	32.5	4.1
1/2+1/3	Tullyvale Road N - Entry Right Ahead	U	JK		1	11	-	236	1939:1907	155+153	76.7 : 76.7%	-	-	-	6.0	91.7	6.4
2/2+2/1	Wyattville Link Road E - Entry Ahead Left	U	ΒF		1	44:64	-	698	2080:1778	624+254	79.5 : 79.5%	-	-	-	10.1	51.9	20.8
2/3+2/4	Wyattville Link Road E - Entry Ahead Right	U	ВD		1	44:45	-	622	2080:1947	624+160	79.3 : 79.3%	-	-	-	9.9	57.1	20.7
3/2+3/1	Tullyvale Road S- Entry Left Ahead Right	U	GI		1:2	9:40	-	58	1992:1808	133+175	18.8 : 18.8%	-	-	-	0.8	48.6	1.1
3/3	Tullyvale Road S- Entry Right	U	н		1	10	-	0	2105	154	0.0%	-	-	-	0.0	0.0	0.0
4/2+4/1	Wyattville Link Road W - Entry Left Ahead	U	AE		1	33:49	-	457	2065:1749	429+303	62.5 : 62.5%	-	-	-	6.6	52.2	10.7
4/3	Wyattville Link Road W - Entry Ahead	U	A		1	33	-	243	2065	468	51.9%	-	-	-	4.0	58.8	9.4
4/4	Wyattville Link Road W - Entry Right	U	С		1	33	-	350	1933	438	79.9%	-	-	-	7.2	74.3	15.6
Ped Link: P1	Unnamed Ped Link	-	М		1	14	-	0	-	0	0.0%	-	-	-	-	-	-
Ped Link: P2	Unnamed Ped Link	-	Ν		1	7	-	0	-	0	0.0%	-	-	-	-	-	-
Ped Link: P3	Unnamed Ped Link	-	0		1	19	-	0	-	0	0.0%	-	-	-	-	-	-
Ped Link: P4	Unnamed Ped Link	-	Р		1	8	-	0	-	0	0.0%	-	-	-	-	-	-

Ped Link: P5	Unnamed Ped Link	-	Q		1	19	-	0	-	0	0.0%	-	-	-	-	-	-
Ped Link: P6	Unnamed Ped Link	-	R		1	11	-	0	-	0	0.0%	-	-	-	-	-	-
Ped Link: P7	Unnamed Ped Link	-	S		1	14	-	0	-	0	0.0%	-	-	-	-	-	-
Ped Link: P8	Unnamed Ped Link	-	Т		1	11	-	0	-	0	0.0%	-	-	-	-	-	-
C1 PRC Over All	Lanes (%):	Ρ	RC for Sig	nalled Lane	es (%):	12.7 To 12.7 To	tal Delay fo tal Delay C	or Signalled La Iver All Lanes(	nes (pcuHr): pcuHr):		45.88Cycl 45.88	e Time (s):	150				

# Basic Results Summary (AM Peak) Scenario 6: Adjusted Mode Share Scenario #2 + 2,000 additional units Network Layout Diagram



Item	Lane Description	Lane Type	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network	-	-	-		-	-	-	-	-	-	104.5%	0	0	0	122.1	-	-
WLR/Tullyvale Junction	-	-	-		-	-	-	-	-	-	104.5%	0	0	0	122.1	-	-
1/1	Tullyvale Road N - Entry Left	U	L		1	67	-	399	1819	825	48.4%	-	-	-	3.6	32.9	12.1
1/2+1/3	Tullyvale Road N - Entry Right Ahead	U	JК		1	29	-	639	1936:1907	351+268	103.2 : 103.2%	-	-	-	30.3	170.4	37.6
2/2+2/1	Wyattville Link Road E - Entry Ahead Left	U	ΒF		1	34:54	-	698	2080:1778	485+198	102.2 : 102.2%	-	-	-	27.9	143.9	38.6
2/3+2/4	Wyattville Link Road E - Entry Ahead Right	U	ВD		1	34:35	-	624	2080:1947	485+126	102.0 : 102.0%	-	-	-	26.0	150.0	36.9
3/2+3/1	Tullyvale Road S- Entry Left Ahead Right	U	GI		1:2	9:32	-	58	1992:1808	133+175	18.8 : 18.8%	-	-	-	0.8	51.0	1.1
3/3	Tullyvale Road S- Entry Right	U	н		1	10	-	0	2105	154	0.0%	-	-	-	0.0	0.0	0.0
4/2+4/1	Wyattville Link Road W - Entry Left Ahead	U	ΑE		1	25:59	-	468	2065:1749	358+247	77.4 : 77.4%	-	-	-	7.8	60.3	12.7
4/3	Wyattville Link Road W - Entry Ahead	U	A		1	25	-	234	2065	358	65.4%	-	-	-	4.7	72.1	10.0
4/4	Wyattville Link Road W - Entry Right	U	С		1	25	-	350	1933	335	104.5%	-	-	-	21.0	215.5	29.0
Ped Link: P1	Unnamed Ped Link	-	М		1	14	-	0	-	0	0.0%	-	-	-	-	-	-
Ped Link: P2	Unnamed Ped Link	-	Ν		1	7	-	0	-	0	0.0%	-	-	-	-	-	-
Ped Link: P3	Unnamed Ped Link	-	0		1	19	-	0	-	0	0.0%	-	-	-	-	-	-
Ped Link: P4	Unnamed Ped Link	-	Р		1	8	-	0	-	0	0.0%	-	-	-	-	-	-

Ped Link: P5	Unnamed Ped Link	-	Q		1	19	-	0	-	0	0.0%	-	-	-	-	-	-
Ped Link: P6	Unnamed Ped Link	-	R		1	11	-	0	-	0	0.0%	-	-	-	-	-	-
Ped Link: P7	Unnamed Ped Link	-	S		1	14	-	0	-	0	0.0%	-	-	-	-	-	-
Ped Link: P8	Unnamed Ped Link	-	т		1	11	-	0	-	0	0.0%	-	-	-	-	-	-
C1 PRC Over All	Lanes (%):	F	PRC for Sig	gnalled Lan	es (%):	-16.1 To -16.1 To	otal Delay fo otal Delay C	or Signalled L Over All Lanes	anes (pcuHr): s(pcuHr):		122.11Cycle 122.11	e Time (s):	150				

# Appendix B LinSig Outputs AM and PM Peak

# **Basic Results Summary**

### **User and Project Details**

Project:	Cherrywood SDZ
Title:	Linsig Outputs
Location:	Cherrywood
Additional detail:	AM/PM Peaks
File name:	Cherrywood_TCE LinSig Model_v5.1.lsg3x
Author:	Arjun Vijayan
Company:	AECOM
Address:	4 <sup>th</sup> Floor, Burlington Plaza, Dublin 4

## Scenario 1: 2024 AM Peak Network Layout Diagram



Network Results <sub>Item</sub>	Lane Description	Lane Type	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)	ltem
Network	-	-	-		-	-	-	-	-	-	102.0%	0	0	0	95.9	-	-	Network
WLR/Tullyvale Junction	-	-	-		-	-	-	-	-	-	102.0%	0	0	0	95.9	-	-	WLR/Tullyvale Junction
1/1	Tullyvale Road N - Entry Left	U	L		2	14	-	198	1819	194	102.0%	-	-	-	10.7	193.9	13.3	1/1
1/2+1/3	Tullyvale Road N - Entry Right Ahead	U	JК		1	7	-	206	1933:1907	103+102	100.9 : 100.3%	-	-	-	11.6	202.6	11.8	1/2+1/3
2/2+2/1	Wyattville Link Road E - Entry Ahead Left	U	ΒF		1	31	-	715	2080:1778	444+311	101.2 : 85.7%	-	-	-	21.2	106.7	28.3	2/2+2/1
2/3+2/4	Wyattville Link Road E - Entry Ahead Right	U	ВD		1	31:25	-	630	2080:1947	444+196	98.5 : 98.5%	-	-	-	20.5	117.4	28.4	2/3+2/4
3/2+3/1	Tullyvale Road S- Entry Left Ahead Right	U	GI		1:2	7:15	-	145	1972:1808	105+81	78.0 : 78.0%	-	-	-	3.9	97.6	5.0	3/2+3/1
3/3	Tullyvale Road S- Entry Right	U	н		1	7	-	63	1951	104	60.5%	-	-	-	2.0	111.8	3.3	3/3
4/2+4/1	Wyattville Link Road W - Entry Left Ahead	U	ΑE		1	48	-	595	2065:1749	659+28	86.6 : 86.6%	-	-	-	10.8	65.1	25.5	4/2+4/1
4/3	Wyattville Link Road W - Entry Ahead	U	A		1	48	-	581	2065	675	86.1%	-	-	-	10.6	65.4	25.5	4/3
4/4	Wyattville Link Road W - Entry Right	U	С		1	53	-	382	1933	696	54.9%	-	-	-	4.7	44.0	13.2	4/4

Ped Link: P1	Unnamed Ped Link	-	М		2	56	-	0	-	0	0.0%	-	-	-	-	-	-	Ped Link: P1
Ped Link: P2	Unnamed Ped Link	-	N		1	7	-	0	-	0	0.0%	-	-	-	-	-	-	Ped Link: P2
Ped Link: P3	Unnamed Ped Link	-	0		2	92	-	0	-	0	0.0%	-	-	-	-	-	-	Ped Link: P3
Ped Link: P4	Unnamed Ped Link	-	Ρ		1	13	-	0	-	0	0.0%	-	-	-	-	-	-	Ped Link: P4
Ped Link: P5	Unnamed Ped Link	-	Q		1	42	-	0	-	0	0.0%	-	-	-	-	-	-	Ped Link: P5
Ped Link: P6	Unnamed Ped Link	-	R		2	14	-	0	-	0	0.0%	-	-	-	-	-	-	Ped Link: P6
Ped Link: P7	Unnamed Ped Link	-	S		2	93	-	0	-	0	0.0%	-	-	-	-	-	-	Ped Link: P7
Ped Link: P8	Unnamed Ped Link	-	Т		1	12	-	0	-	0	0.0%	-	-	-	-	-	-	Ped Link: P8
C1 PRC Over All	Lanes (%):	-	PRC fo	r Signalleo	d Lanes (%)	- : -1 -1	3.4 Total 3.4 Total	Delay for Sig Delay Over A	nalled Lanes ( All Lanes(pcuH	pcuHr): r):		95.86Cycle 95.86	Time (s):	150	•	-	-	

# Basic Results Summary (PM Peak) Scenario 2: 2024 PM Peak Network Layout Diagram



Network Resultsite m	Lane Descriptio n	Lan e Typ e	Full Phas e	Arro w Phas e	Num Green s	Total Gree n (s)	Arro w Gree n (s)	Deman d Flow (pcu)	Sat Flow (pcu/Hr)	Capacit y (pcu)	Deg Sat (%)	Turner s In Gaps (pcu)	Turners When Unoppose d (pcu)	Turners In Intergree n (pcu)	Total Delay (pcuHr )	Av. Delay Per PCU (s/pcu )	Mean Max Queu e (pcu)	ltem
Network	-	-	-		-	-	-	-	-	-	94.4 %	0	0	0	66.4	-	-	Network
WLR/Tullyval e Junction	-	-	-		-	-	-	-	-	-	94.4 %	0	0	0	66.4	-	-	WLR/Tullyval e Junction
1/1	Tullyvale Road N - Entry Left	U	L		2	14	-	148	1819	194	76.3 %	-	-	-	2.9	69.9	4.9	1/1
1/2+1/3	Tullyvale Road N - Entry Right Ahead	U	JК		1	7	-	105	1955:190 7	104+102	50.8 : 51.1 %	-	-	-	2.5	86.7	2.6	1/2+1/3
2/2+2/1	Wyattville Link Road E - Entry Ahead Left	U	ΒF		1	27	-	455	2080:177 8	388+138	86.5 : 86.5 %	-	-	-	10.2	81.1	16.5	2/2+2/1
2/3+2/4	Wyattville Link Road E - Entry Ahead Right	U	ВD		1	27:25	-	549	2080:194 7	388+214	91.2 : 91.2 %	-	-	-	13.4	87.8	18.9	2/3+2/4
3/2+3/1	Tullyvale Road S- Entry Left Ahead Right	U	GI		1:2	11:19	-	296	1974:180 8	158+156	94.4 : 94.4 %	-	-	-	9.7	117.7	11.4	3/2+3/1
3/3	Tullyvale Road S- Entry Right	U	н		1	11	-	144	1951	156	92.3 %	-	-	-	6.4	161.0	9.6	3/3
4/2+4/1	Wyattville Link Road W - Entry Left Ahead	U	AE		1	44	-	556	2065:174 9	598+48	86.1 : 86.1 %	-	-	-	10.4	67.2	23.3	4/2+4/1

4/3	Wyattville Link Road W - Entry Ahead	U	A		1	44	-	527	2065	619	85.1 %	-	-	-	9.9	67.7	23.2	4/3		
4/4	Wyattville Link Road W - Entry Right	U	С		1	53	-	99	1933	696	14.2 %	-	-	-	1.0	35.4	2.9	4/4		
Ped Link: P1	Unnamed Ped Link	-	М		2	60	-	0	-	0	0.0%	-	-	-	-	-	-	Ped Link: P1		
Ped Link: P2	Unnamed Ped Link	-	Ν		1	7	-	0	-	0	0.0%	-	-	-	-	-	-	Ped Link: P2		
Ped Link: P3	Unnamed Ped Link	-	ο		2	92	-	0	-	0	0.0%	-	-	-	-	-	-	Ped Link: P3		
Ped Link: P4	Unnamed Ped Link	-	Р		1	13	-	0	-	0	0.0%	-	-	-	-	-	-	Ped Link: P4		
Ped Link: P5	Unnamed Ped Link	-	Q		1	46	-	0	-	0	0.0%	-	-	-	-	-	-	Ped Link: P5		
Ped Link: P6	Unnamed Ped Link	-	R		2	14	-	0	-	0	0.0%	-	-	-	-	-	-	Ped Link: P6		
Ped Link: P7	Unnamed Ped Link	-	S		2	89	-	0	-	0	0.0%	-	-	-	-	-	-	Ped Link: P7		
Ped Link: P8	Unnamed Ped Link	-	Т		1	16	-	0	-	0	0.0%	-	-	-	-	-	-	Ped Link: P8		
C1 PRC for Signalled Lanes (%): PRC Over All Lanes (%):							-4.8 Tot -4.8 Tot	al Delay for al Delay Ove	Signalled Lane er All Lanes(po	es (pcuHr): cuHr):	-	66.43 66.43	66.43Cycle Time (s): 150 66.43							

