

Cherrywood SDZ
Development Sequencing and Phasing Amendment

Background Technical Note

Client: Dun Laoghaire Rathdown County Council
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Quality information

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Table of Contents

1.0	Overview.....	4
2.0	Understanding of Potential Issues	5
3.0	Methodology.....	8
4.0	Findings.....	9
5.0	Summary and Recommendations	29
	Appendix A.....	33
	Appendix B	35

1.0 Overview

Cherrywood is a largely undeveloped land-bank in Dún Laoghaire-Rathdown, and is approximately 360 hectares in size. Cherrywood is situated approximately 8 kilometres south of Dún Laoghaire town centre near Loughlinstown, between the N11 and the M50. Construction is currently underway on the first phase of the road network whilst a planning application for the town centre has been recently submitted to DLRCC. Figure 1.1 shows the location of the Cherrywood development lands.

Dún Laoghaire-Rathdown County Council (DLRCC) have commissioned AECOM to provide transport advice to inform a potential amendment to the Cherrywood Strategic Development Zone (SDZ).

The purpose of the proposed amendment to the phasing and sequencing of development as currently set out in the Cherrywood Planning Scheme 2014 and as amended 2017, is to introduce greater flexibility into the scheme to facilitate the delivery of housing. The Scheme which was prepared in 2012 and approved by 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).

In the interim there has been significant up-front delivery of substantial elements of infrastructure, for example, the road infrastructure and parks, which was not envisaged under the phasing requirements as set out in the scheme. This and other factors such as the imperative to increase housing supply to address current demand, Government policy as set out in the Rebuilding Ireland and feedback received by DLRCC from the Department of Housing, Planning and Local Government (DHPLG) in 2016 – all underpin the rationale for assessing the potential to amend the current phasing and sequencing provisions as set out in the Cherrywood Planning Scheme.

The rationale for the need to assess the potential phasing and sequencing of development is further summarised below.

- To amend the prescriptive sequential nature of the spatial phasing as set out in the scheme to allow flexibility so that some development in the second and growth areas may proceed subject to no infrastructural impediments;
- Impetus feedback from the DHPLG (2016) as well as a number of landowners within the scheme;
- To reflect the up-front delivery of infrastructure (Roads Phase 1 & Parks: Tully, Beckett, Ticknick Park);
- Ensure efficient use of public investment in infrastructure (Luas, Roads, etc);
- Housing Crisis / Demand for Housing / Need to increase housing supply;
- Feedback received from DLRCC from DHPLG on the prescriptive nature of phasing set out in the Planning Scheme;
- Government Policy: Rebuilding Ireland & Local Infrastructure Housing Activation fund (LIHAF);
- Facilitate and expedite delivery of housing units; and
- Contributing to supply of housing and affordability in the Dublin Area.

Cherrywood SDZ provides a unique opportunity to develop a sustainable community with a balance across all transport modes. The success of the area, in transport terms, is heavily dependent on the achievement of a high PT/Active mode share and a high percentage of internal sustainable mode trips between the residential/employment/education/leisure uses within

Cherrywood. The aim of this note is to ascertain the feasibility of bringing forward housing development earlier than currently allowed for in the planning scheme. Should this be feasible it is proposed that the mechanism for early delivery of housing will be explained through the text of the proposed planning scheme amendment. This note focusses 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.

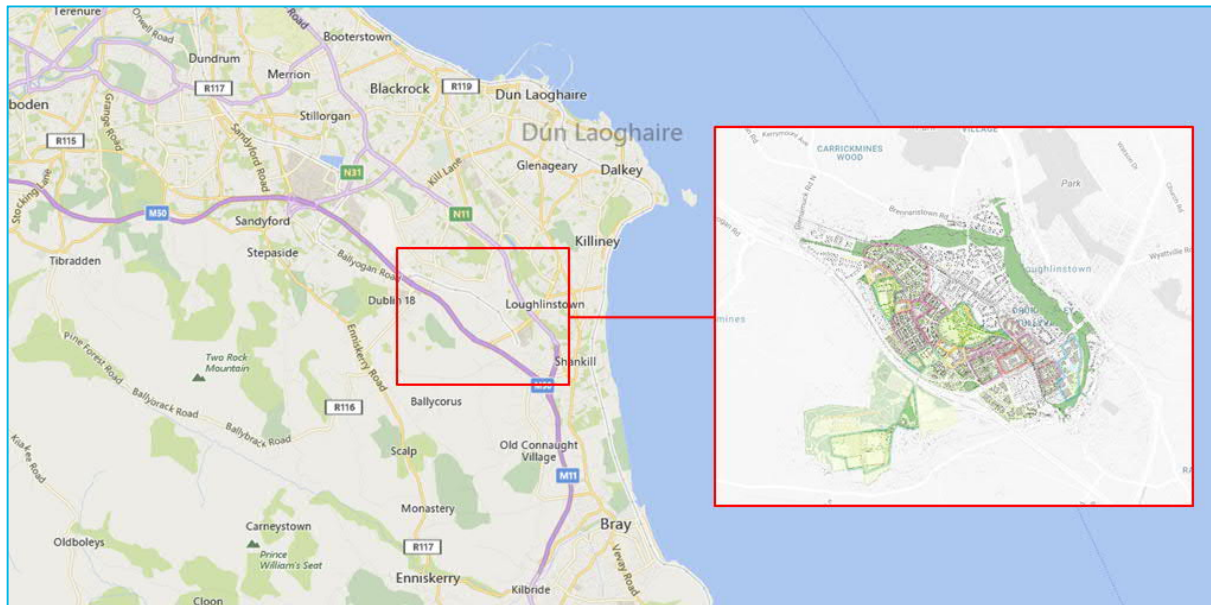


Figure 1.1 - Cherrywood Development Lands Location

This note is structured as follows:

- Section 1 – Presents an Overview of the task;
- Section 2 – Provides an understanding of the potential issues that this task is assessing;
- Section 3 – Methodology used in understanding the potential impact of the moving forward of development phasing;
- Section 4 – Presents the Findings; and
- Section 5 - Summary and Recommendations.

2.0 Understanding of Potential Issues

Given the housing crisis currently being experienced in Ireland, and in Dublin in particular, there is significant pressure to deliver housing and an onus on local authorities to expedite the delivery of housing in their areas. With this in mind, DLRCC are assessing the potential for bringing forward housing development earlier than currently allowed for in the planning scheme. This note will set out the findings of an assessment which seeks to understand whether the transport infrastructure & services due to be delivered prior to the delivery of the 1st Growth Area have sufficient capacity to cater for the additional residential units or whether the additional units are premature pending the delivery of further transport infrastructure.

The overall SDZ plan is divided into 8 Development Areas which are grouped together into 3 Growth Areas as shown in Figure 2.1.

- First Growth Area: Development Areas 2, 4, 5 and 6A;

- Second Growth Area: Development Areas 1, 2 and 3; and
- Third Growth Area: Development Areas 6B, 7 and 8.

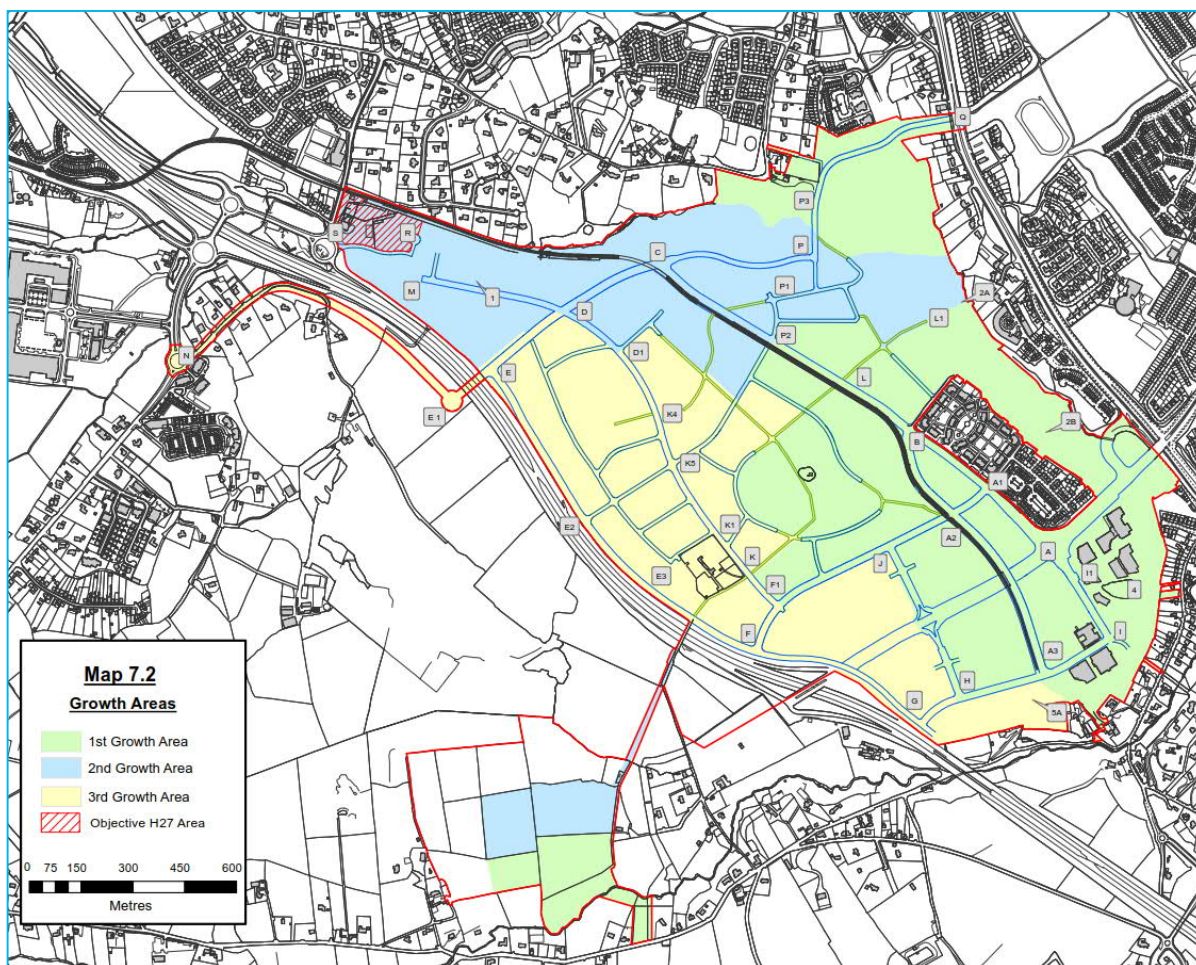


Figure 2.1 - Cherrywood Growth Areas

Source: Cherrywood Planning Scheme, DLRCC, 2014

The schedule of development phasing for each of the growth areas are summarised in Table 2.1 and illustrated in Figure 2.2.

Table 2.1 - Phasing – 2017 Update of Cherrywood Planning Scheme as amended and approved

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
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

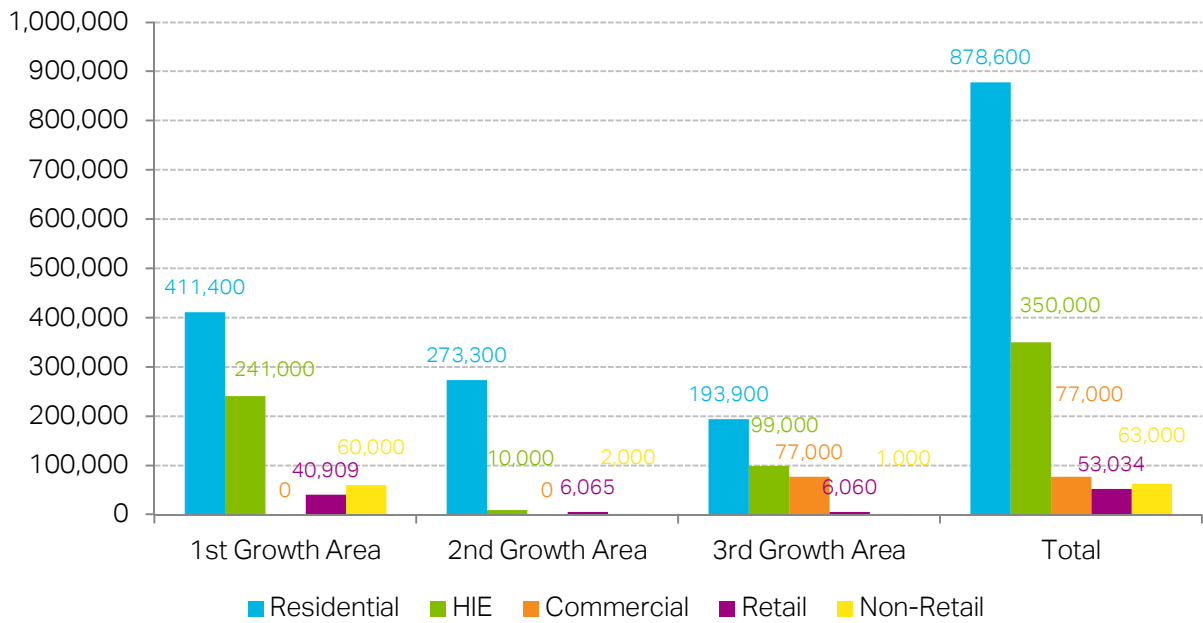


Figure 2.2 - Cherrywood Development Phasing – Proposed 2017

In terms of phasing of the road infrastructure, Road Phase 1 (Ref: DZ15A/0758) as shown in Figure 2.3 is currently under construction whilst there is a planning application currently with DLRCC for permission to deliver Road Phase 2 (Ref: DZ17A/0862). Road Phase 1A is likely to be delivered as development applications are submitted along this section.

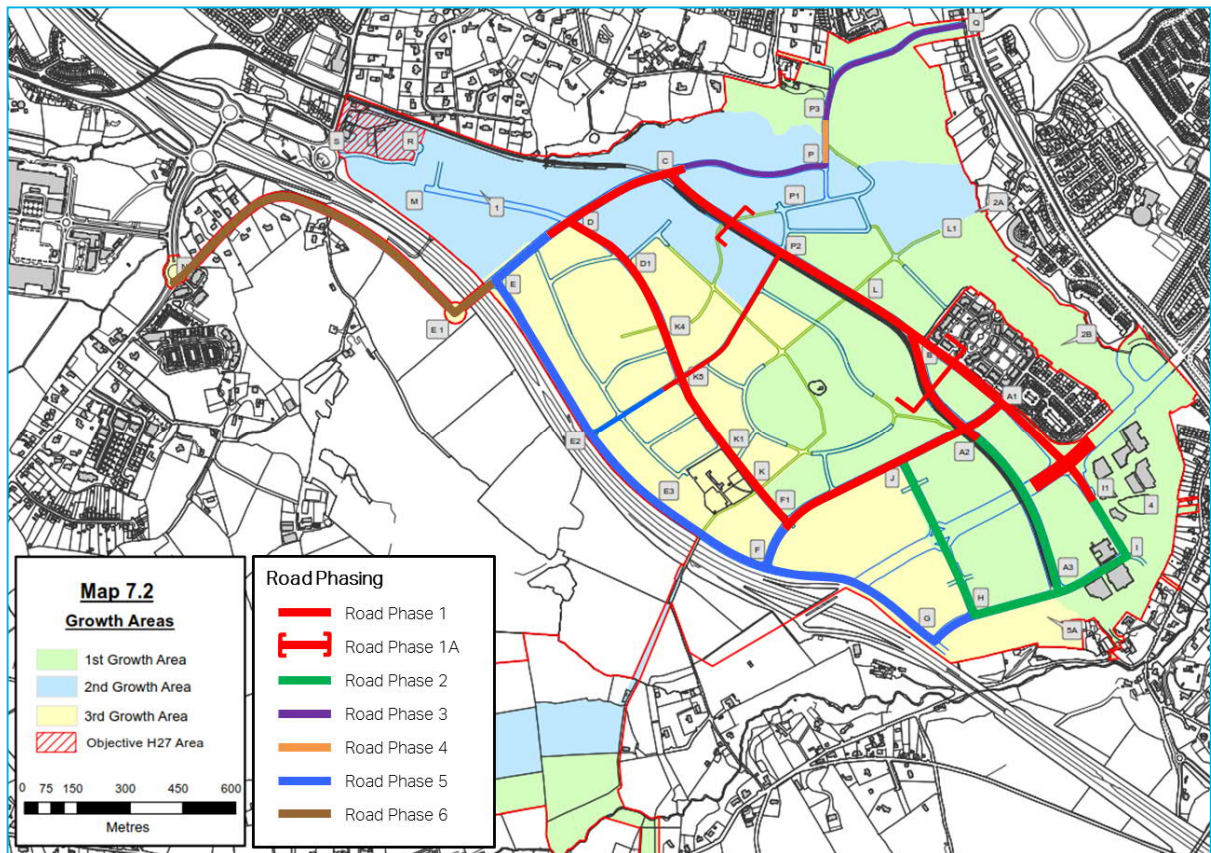


Figure 2.3 Cherrywood Transport Infrastructure Phasing

Source: DLRCC, 2017

In summary, the problem to be assessed as part of this report is “can the transport infrastructure, existing and currently under construction (Luas and Road Phases 1, 1A and 2), cater for any additional trips during the peak periods without negatively impacting upon mode share

aspirations for the area or causing significant traffic impacts and if not, what additional infrastructure or measures would allow for additional trips in the short to medium term”.

3.0 Methodology

This section summarises the methodology undertaken to understand the potential for bringing forward housing development earlier than currently allowed for in the planning scheme.

1. The success of the Cherrywood SDZ, in transport terms, is **heavily dependent on the achievement of a high PT/Active mode share and a high percentage of internal sustainable mode trips between the residential/employment/education/leisure uses within Cherrywood**. In this regard, any plans to move forward phasing of residential development will need to provide evidence that firstly sufficient capacity exists in the public transport system to cater for this additional demand and secondly that the infrastructure and policies are in place to allow mode share forecasts to be met and potentially exceeded. In addition, the walking and cycling infrastructure will need to be in place to provide access to public transport, internally between complementary land uses and externally. Our methodology to assess this is set out below.
 - Utilise outputs from the NTA ERM models, under various future year and infrastructure scenarios, to understand the available capacity on the Luas and bus.
 - Ensure that the walking and cycle infrastructure designs proposed for each phase of growth will provide a reasonable level of service to users.
 - Assess whether key desire lines will be served by the proposed sustainable transport infrastructure.
2. The **road infrastructure** set out in the Cherrywood Planning Scheme (April 2014) and subsequent Cherrywood Planning Scheme Urban Form Development Framework (UFDF) (Sept 2017) has been designed to cater for the full development of the SDZ. In this regard, this assessment will seek to understand how the bringing forward of residential development earlier than currently allowed for in the planning scheme will impact on the road network expected to be in place in early 2018. In understanding the potential impacts of this the following methodology is proposed;
 - In order to understand the need to bring forward any road infrastructure to cater for any additional residential development the role and traffic impact of the 'external access links' will be assessed, namely the Druids Glen Road and Barringtons Road access onto the N11 and the Kiltarnan Link Road access point onto the Carrickmines Interchange.
 - Information on forecast mode shares for Cherrywood will be collated for various future development and infrastructure scenarios.
 - An assessment will also be undertaken to ascertain the need for additional internal road infrastructure to allow for the bringing forward of some residential development.

4.0 Findings

4.1 Assumptions

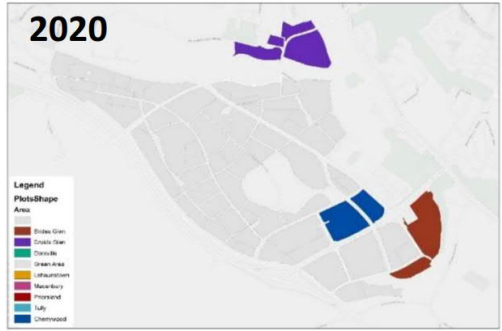
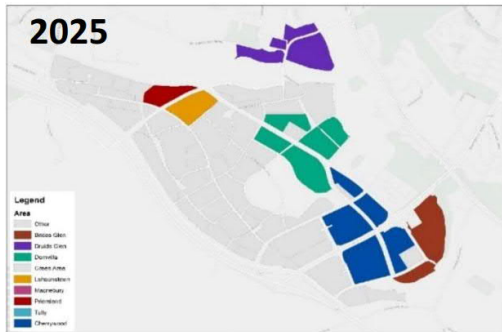
In order to understand the capacity of the Luas system, outputs from the NTA’s Eastern Regional Model (ERM) were used in tandem with capacities for the Luas Green Line supplied by TII. TII are planning a number of interventions to the Luas Green Line in the coming years as set out below.

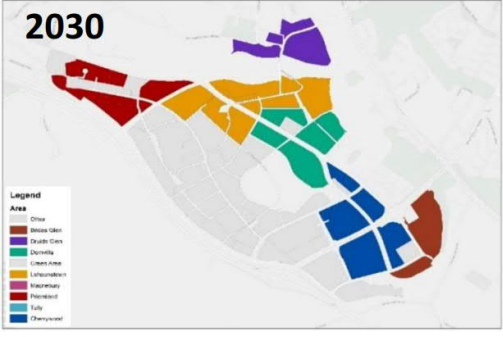
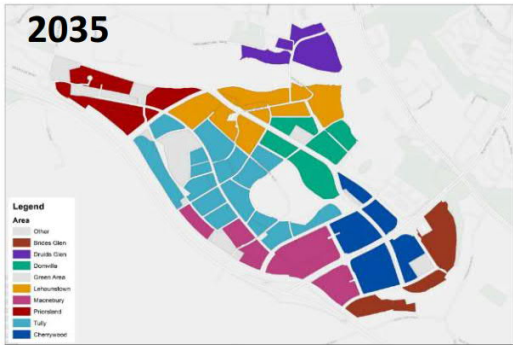
Table 4.1 Planned Capacity Upgrades to Luas Green Line (Source: TII)

Intervention	Year	Trams	Peak Service Frequency	Capacity
Luas Cross City	2017	14*43m & 7*55m	10 ph – Broombridge to Parnell 21ph – Parnell to Sandyford 10 ph – Sandyford to Brides Glen	6,400 pphpd
Fleet Renewal	2020	21*55m	10 ph – Broombridge to Parnell 21ph – Parnell to Sandyford 10 ph – Sandyford to Brides Glen	7,150 pphpd
Expanded fleet	2022	24*55m	10 ph – Broombridge to Parnell 24ph – Parnell to Sandyford 12 ph – Sandyford to Brides Glen	8,200 pphpd
Metro South	2027 - 2035	-	30 ph – Sandyford to City Centre 12 ph – Sandyford to Bray	~ 14,000 pphpd

These capacities were assessed against forecast passenger demand extracted from the NTA ERM. The NTA ERM was ran for each year under various transport network and land use scenarios as set out in Figure 4.2.

Table 4.2 NTA ERM Scenario Assumptions

Scenario Year	Infrastructure	Land Use
2020	Luas Cross City Phoenix Park Tunnel Link	2.5k residents, 2.3k jobs 
2025	Green Line Enhancement Core Radial Bus Network Core Orbital Bus Network Core Regional Bus Network N11 Widening New Metro North	7.7k residents, 9.1k jobs 

Scenario Year	Infrastructure	Land Use
2030	DART Expansion Programme Dart Frequency of 5 Minutes	<p>13.1k residents, 9.9k jobs</p>  <p>2030</p> <p>Legend</p> <ul style="list-style-type: none"> Other Black Glen Drish GLEN Donnalla Green Area Lisnashelton Macintyre Phonend Tully Cherrywood
2035	Metro South M50 Widening between J14 and J17	<p>17.2k residents, 16.9k jobs</p>  <p>2035</p> <p>Legend</p> <ul style="list-style-type: none"> Other Black Glen Drish GLEN Donnalla Green Area Lisnashelton Macintyre Phonend Tully Cherrywood

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

4.2 Findings - Public Transport - Luas

The northbound direction was found to carry the highest passenger load and was therefore used as the basis for the assessment. A key caveat on the analysis below is that below values assume that the transport infrastructure outlined in Table 4.2 for each scenario is in place. It should be noted however that the infrastructure in place for the 2020 scenario is currently in place.

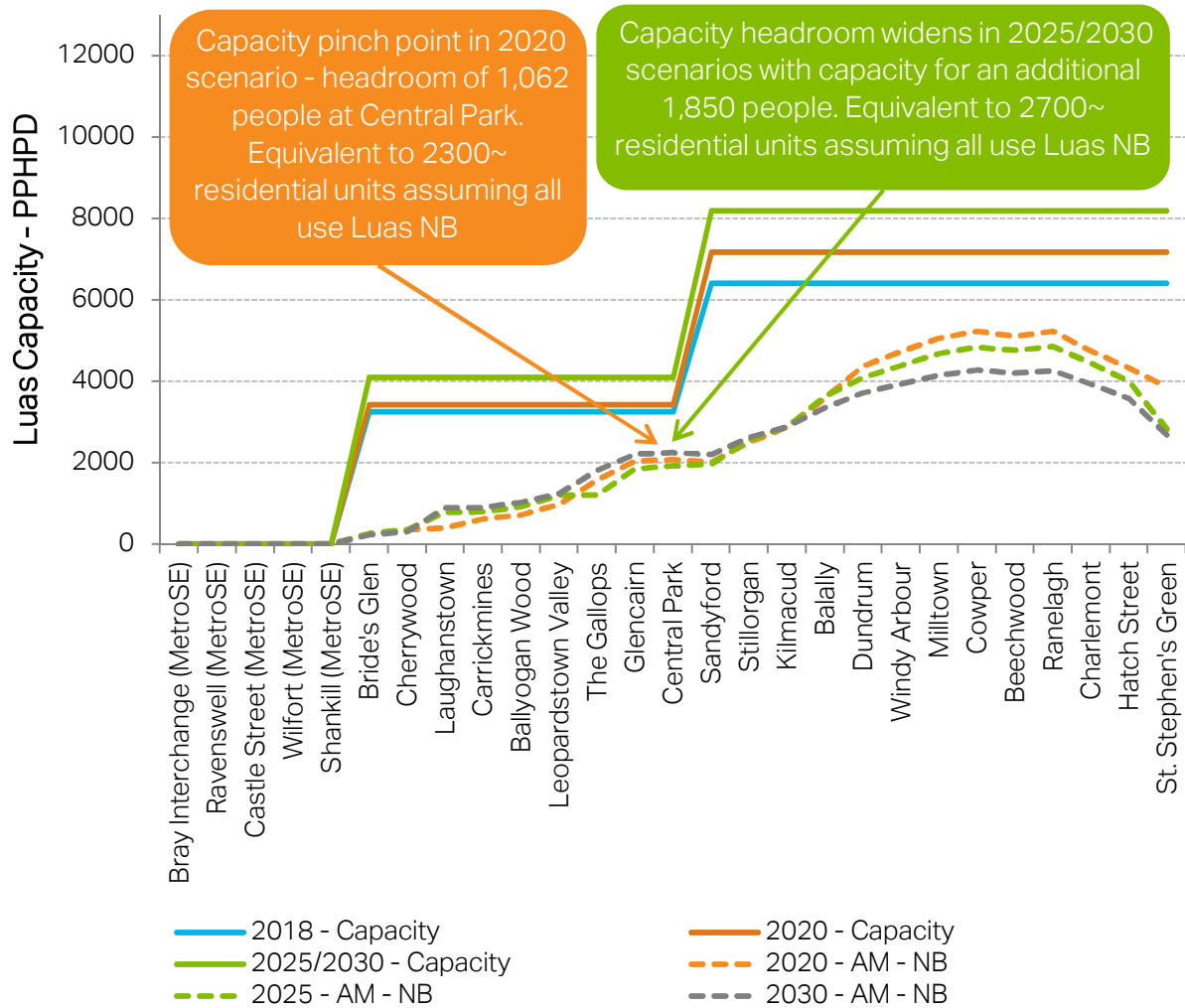


Figure 4.1 Cherrywood Transport Infrastructure Phasing

Source: ERM Outputs provided by Systra (working on behalf of Hines) and TII Luas Green Line Capacity Data

4.2.1 Findings – Luas

As outlined above, there is capacity on the Green Line Luas to allow for an additional 1,181 people in 2020 (1,060 assuming a peak hour factor of 0.9) following the Luas first phase of capacity upgrades. As shown above, based on passenger demand forecasts developed by the NTA, sufficient capacity exists on the Luas to support bringing forward housing development earlier than currently allowed for in the planning scheme. The NTA ERM suggests that based on the assumptions outlined in Table 4.2 the Cherrywood SDZ could achieve a car mode share of 76%, 65%, 62% and 55% in 2020, 2025, 2030 and 2035 respectively.

Information from the NTA ERM suggests based on AM peak demand forecasts there is spare capacity for 1,060 people on the Luas in 2020. Assuming an overall mode shift occurred so the differential in trips were entirely accounted for by an increase in Luas trips an additional 2,300 residential units could be allowed for in 2020. In a scenario where these additional 2,300 units are delivered prior to 2025 the Luas system could cater for an additional ~600 trips by 2030 which could allow for an additional 1,400 residential units. These values are in addition to those

presented in Table 4.2 for each scenario year. In essence this would allow for 6,400 units by 2020 (4,114 in 1st Growth Area + 2,300 additional).

It should be noted however that for PT to cater for trips generated by these additional units, without any impact on road traffic demand, there would need to be measures put in place to ensure an overall mode shift to PT. A key element of the shift from 76% car mode share in 2020 to 65% in 2025 is increased road congestion and the delivery of the core bus network. The NTA plans to deliver the radial elements of the network by 2019/2020 so conditions will exist by 2020 which will allow this improved mode share to be realised sooner than forecast in the NTA ERM. The continued advancement of the planned Luas capacity enhancements would be required to cater for increased Luas trips. It should be noted however that the Luas corridor is limited in its catchment so a complimentary bus network would be required to adequately serve the PT needs of Cherrywood.

4.3 Findings - Public Transport - Bus

The Cherrywood Planning Scheme includes significant investment in bus priority though the delivery of a QBC along Wyattville Link Road and Bishop Street and through bus priority measures along Castle Street. These are shown in Figure 4.2 and 4.3. As set out in Figure 2.4, these bus measures are incorporated within Road Phases 1, 1a and 2.

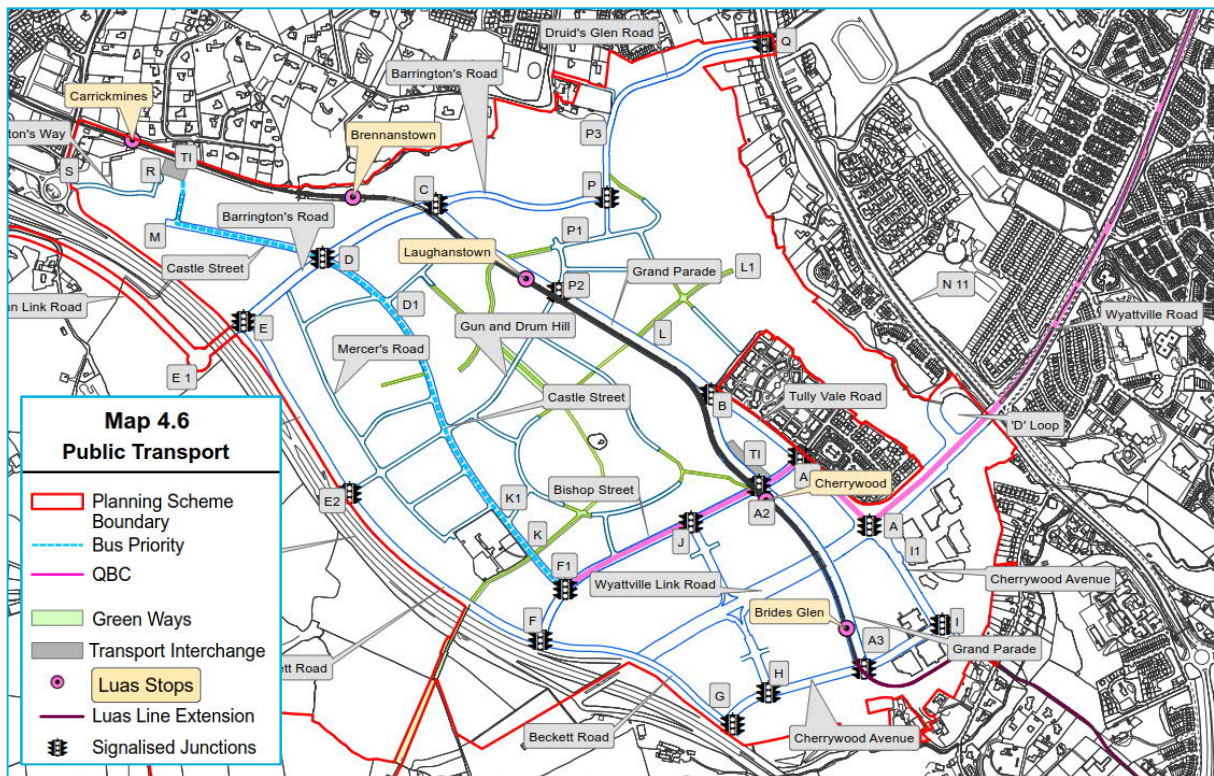


Figure 4.2 – Public Transport Movement Strategy

Source: Cherrywood Planning Scheme, DLRCC, 2014



Figure 4.3 – Cherrywood Town Centre - Public Transport Movement Strategy

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

Given the wide distribution of origin and destinations both to and from Cherrywood, and the limited corridor served by Luas Green Line, the bus services will perform a key role in responding to public transport demands. Analysis of public transport demand was undertaken to understand the percentage of demand catered for by Luas and the percentage that will needed to be catered for by bus. 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 the first developments in the SDZ. The below figures are based on a low frequency service which serves the town centre only.

Table 4.2 Public Transport Patronage – AM Peak – Boarding & Alighting Combined

Scenario	Bus Patronage	Luas/Metro Patronage	Bus Share %	Luas/Metro Share %
2020	72	291	20%	80%
2025	265	995	21%	79%
2030	361	1387	21%	79%
2035	354	2961	11%	89%

Source: Hines 2017. Results based on runs of the NTA ERM undertaken by Systra (on behalf of Hines)

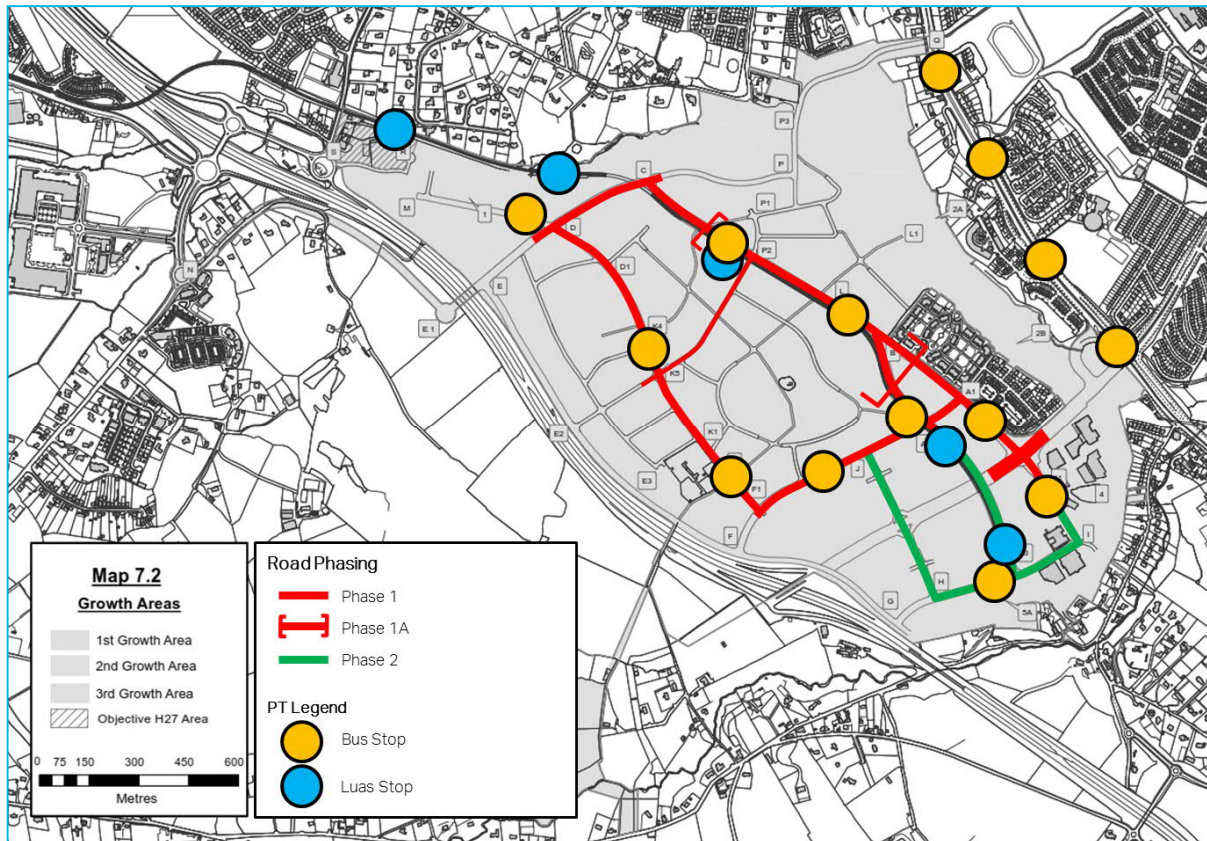
Table 4.2 Public Transport Patronage – PM Peak – Boarding & Alighting Combined

Scenario	Bus Patronage	Luas/Metro Patronage	Bus Share %	Luas/Metro Share %
2020	55	242	18%	82%
2025	191	736	21%	79%
2030	256	1031	20%	80%
2035	297	1957	13%	87%

Source: Hines 2017. Results based on runs of the NTA ERM undertaken by Systra (on behalf of Hines)

In 2020, the max number of bus boardings in Cherrywood in the peak hours is ~40 passengers (out of 72 total boardings and alightings). 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 NTA ERM forecasts the max bus boardings at Cherrywood in a peak hour increases to nearly 150 passengers in 2025 and 200 passengers in 2030 and 2035.

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.



4.3.1 Findings – Bus

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 initially 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 DLRC, the NTA and their 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, above that forecasts above, would help mitigate against bringing forward housing development earlier than currently allowed for in the planning scheme. Key destinations to/from Cherrywood are the city centre and the wider Dun Laoghaire Rathdown area.

4.4 Active Modes

The key priorities to ensuring that residents, employees and visitors in Cherrywood are provided with attractive options for sustainable travel from the outset are set out below.

- Safe, direct and attractive access to public transport from residential, employment and leisure zones.

- Safe and direct walking and cycling routes to and from the surrounding area
- Investment in, and prioritisation of, buses on the internal road network

For DLRC to bring forward housing development earlier than currently allowed for in the planning scheme the associated infrastructure and policies from latter 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 over reliance on car mode. To assess this, the proposed active mode infrastructure was assessed based on accessibility and level of service provision.

4.4.1 Accessibility and Connectivity

The key transport nodes were identified and are shown in Figure 4.4. The analysis found 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. Road Phase 1A, and associated active mode infrastructure, will be required as development progresses along this section of Grand Parade.

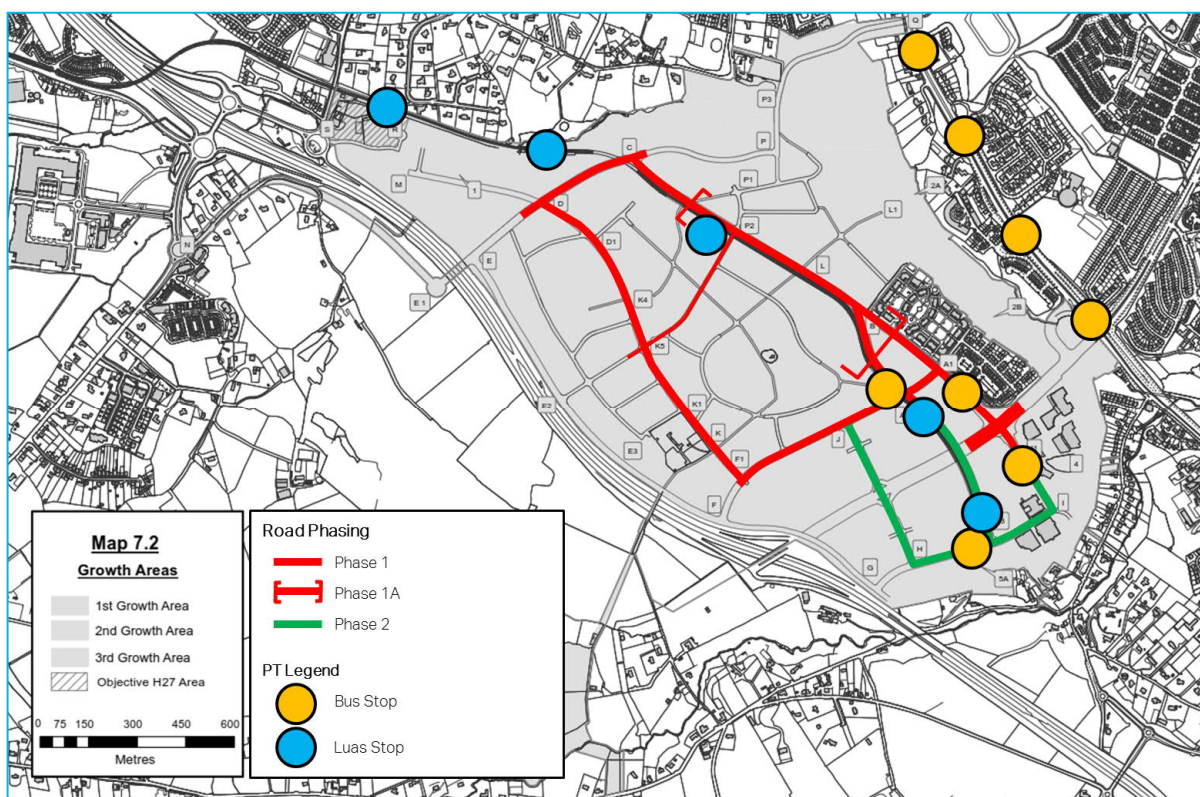


Figure 4.4 – Cherrywood Public Transport Nodes

In order to understand the accessibility and connectivity provided by the transport infrastructure, both existing and currently under construction (Luas and Road Phases 1, 1A and 2), a detailed accessibility of walking and cycling catchments was undertaken using Network Analyst in ArcGIS.

Figure 4.5 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 will provide 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.



Figure 4.5 – Luas Stop 1km Walking Catchment

Whilst the Luas will respond to the majority of public transport needs for Cherrywood the bus network will be required to provide access to areas outside the Luas corridor. Figure 4.6 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 PT from Cherrywood.



Figure 4.6 – Bus Stop Walking Catchment

Whilst the NTA has plans to upgrade the bus services to Cherrywood as part of Bus Connects in response to the bus infrastructure delivered by the Development Agency it is likely that given bus routes some people will require walking access to the N11 to access the N11 QBC. 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 the analysis highlights the importance of extending buses into the northern extents of the SDZ due to the distance to the N11 via the WLR (>1km).

Whilst access to public transport is the key element in ensuring that the Cherrywood area develops in a sustainable manner the encouragement of internal trips will play a key role also. In this regard it is important that residential development develops in the vicinity of the town centre and villages at the outset to develop communities and to allow residents to access jobs and services via sustainable modes, in particular walking and cycling. The key areas for development are highlighted in Figure 4.7/4.8 below. Whilst it is not envisaged the Planning Scheme will be restrictive in terms of the order in which zones in each Development Area can develop, each area should be built out in line with good planning principles centred around the town centres/villages.



Figure 4.7 – 1km Catchment of town centre/villages

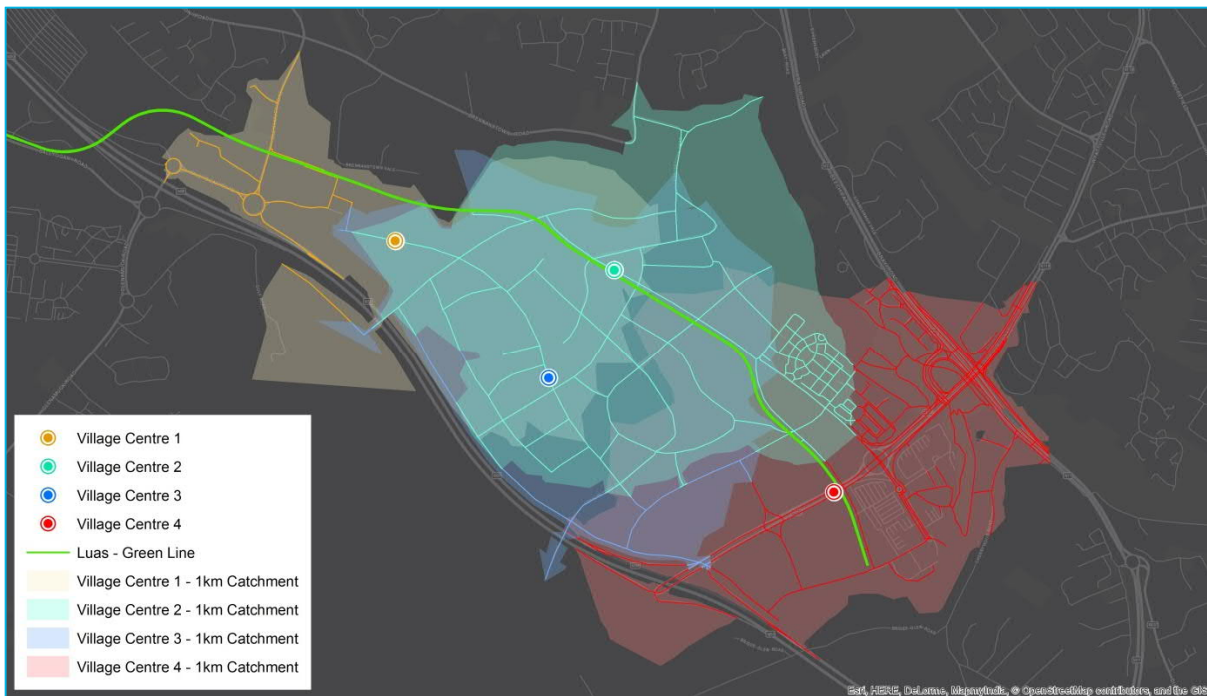


Figure 4.8 – 1km Catchment of each individual town centre/villages

In order to support the operation of this bus route either the bus link from Barringtons Roads to the Carrickmines P&R needs to be in place prior to the delivery of residential units outside the walking catchment of the town centre or a temporary bus terminus will need to be constructed along the road network.

To ensure that mode choice for residents evolves in a sustainable way as set out in the planning scheme In both scenarios, only housing located within the walking catchment of the Luas/bus stops are suitable for being brought forward earlier than currently allowed for in the planning scheme and preference should be given to locations within walking distance of both bus and Luas. The combined Luas and/or bus walking catchment is shown in Figure 4.9.



Figure 4.9 –Walking Catchment Isochrones from Luas/Bus Stops

4.4.2 Level of Service

The Transport Level of Service (LoS) Assessment for Cherrywood, undertaken by Hines in consultation with DLRCC, NTA and TII in 2017 was referenced as part of this assessment. The LoS assessment used NTA ERM outputs (based on the full build out of the SDZ) to understand potential cyclist demand on the key cycling links and developed a LoS based on criteria and guidelines set out in the Highway Capacity Manual (HCM) and the NTA's National Cycle Manual.

4.4.2.1 Cycling

As illustrated in Figure 4.10 the key cycling facilities provide a high level of service for users even with the demand associated with the full build out of the SDZ in place. Given that the majority of the key cycle routes shown below are currently under construction it is considered that the cycle facilities will be capable of supporting the bringing forward of housing development earlier than currently allowed for in the planning scheme. The delivery of Roads Phase 1A along Grand Parade is key to providing a coherent network for all modes.

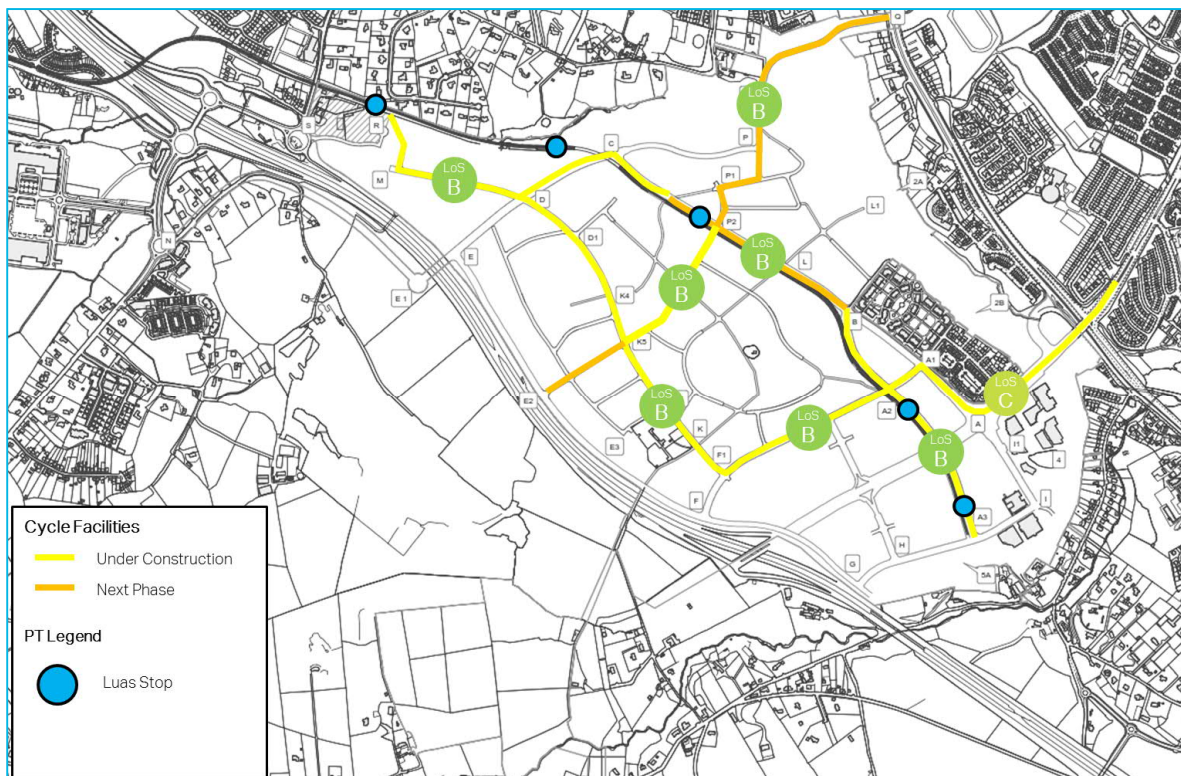


Figure 4.10 – Key Cycle Infrastructure and Level of Service

Source: Data sourced from Hines Level of Service Assessment 2017

The recently published Cherrywood Planning Scheme UDF (Sept 2017) set out the cyclist movement strategy for the town centre itself as per Figure 4.11. The full extent of the cycle facilities shown below will be delivered as part of the town centre development, part of the 1st Growth Area, and will therefore be capable of supporting the bringing forward of housing development earlier than currently allowed for in the planning scheme.



Figure 4.11 – Cherrywood Town Centre Cyclist Movement Strategy

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

The above infrastructure will create an extensive cycling network and provide options for various types of cyclists. It was acknowledged that the required scale of the WLR/Tully Vale junction may discourage some cyclists/pedestrians so the delivery of the alternative routes between Tully Vale/Cherrywood Ave and WLR to the east of this junction is important to encourage the use of these modes.

In addition to the above infrastructure the ongoing delivery of the Greenways associated with the Greater Dublin Cycle Network will provide key connections along the eastern boundary of the SDZ and will assist in providing cyclist/pedestrian access to the N11 prior to the delivery of the cycle/pedestrian facilities associated with the Druids Glen Link.

4.4.2.2 Pedestrians

Similarly to the cycling facilities the key pedestrian facilities provide a high level of service for users even with the demand associated with the full build out of the SDZ in place as illustrated in Figure 4.12. Given that the majority of the key pedestrian routes shown below are currently under construction it is considered that the pedestrian facilities will be capable of supporting the bringing forward of housing development earlier than currently allowed for in the planning scheme. Phase 1A of the road infrastructure, and associated active mode infrastructure, will be required as development progresses along this section of Grand Parade.

The recently published Cherrywood Planning Scheme UDF (Sept 2017) also set out the pedestrian movement strategy for the town centre itself as per Figure 4.13. The full extent of the pedestrian facilities shown below will be delivered as part of the town centre development, part of the 1st Development Area, and will therefore be capable of supporting the bringing forward of housing development earlier than currently allowed for in the planning scheme subject to the requirements set out in Section 4.4.1.

In addition, significant investment in Greenways is being progressed through the SDZ and along the eastern extent of the SDZ. These will encourage active for all trips purposes including commuting and leisure. Further information is provided in the AECOM Access & Movement Strategy for the Cherrywood.

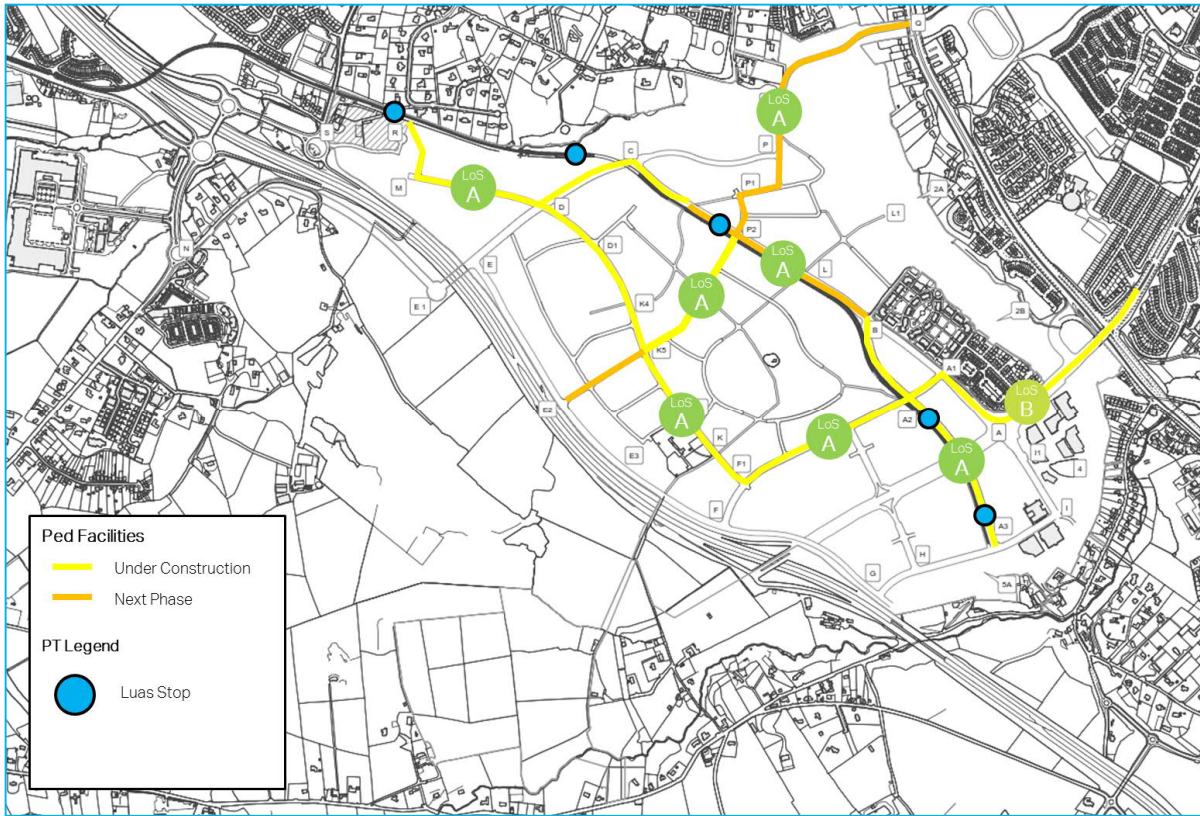


Figure 4.12 – Key Pedestrian Infrastructure and Level of Service

Source: Data sourced from Hines Level of Service Assessment 2017



Figure 4.13 – Cherrywood Town Centre Pedestrian Movement Strategy

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

4.4.3 Findings – Walking & Cycling

Overall, given the fact that the majority of walking and cycling infrastructure is being delivered prior to the delivery of the 1st Growth Area, there is sufficient capacity to support bringing forward housing development earlier than currently allowed for in the planning scheme whilst still providing a high level of service to users. There are a number of potential issues that will need to be monitoring as certain development areas progress;

- As development progresses, Phase 1A of the road infrastructure becomes more important for the accessibility of the adjacent development lands to public transport and key services in the town centre. This section of Grand Parade is therefore likely required before the delivery of any additional residential units are brought forward, or as development is delivered along Grand Parade, whichever is delivered first.
- For the development of lands at the north eastern extent of the SDZ (Development Area 5) to proceed it is suggested that pedestrian and cyclist access needs to be maintained between these lands and the Luas stop at Laughanstown either via Lehaunstown Lane or a new link.

To ensure that mode choice for residents evolves in a sustainable way as set out in the planning scheme only housing located within the walking catchment of the Luas/bus stops are suitable for being brought forward earlier than currently allowed for in the planning scheme and preference should be given to locations within walking distance of both bus and Luas. This is to ensure that mode choice for residents evolves in a sustainable way as set out in the planning scheme.

4.5 Car Mode

The aim of Cherrywood Planning Scheme was to develop a place to live, work and visit which could be accessed by sustainable means of travel. In this regard, and in consultation with NTA and TII, the road infrastructure was designed to provide adequate capacity to users but also designed to ensure capacity was not over provided to an extent which might discourage the use of active or public transport modes. The road infrastructure has been designed to cater for the long term full build out of Cherrywood and was subsequently approved by An Bord Pleanála. Given that the majority of the road network, aside from local access roads, the N11 Druids Glen Link and Kiltarnan Link are under construction, it can be assumed that capacity exists on a link by link basis to support bringing forward housing development earlier than currently allowed for in the planning scheme.

Therefore, the main area for potential concern is in terms of accesses to the external road network i.e. the M50 and N11, which are being delivered on a phased basis as shown below in Figure 4.14. A secondary element of the analysis is whether the non-delivery of these external access links in the short term could have a positive impact in terms of changing people's perceptions and encouraging the use of PT/Active modes from the outset of the development. 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 and are outside the scope of this analysis.

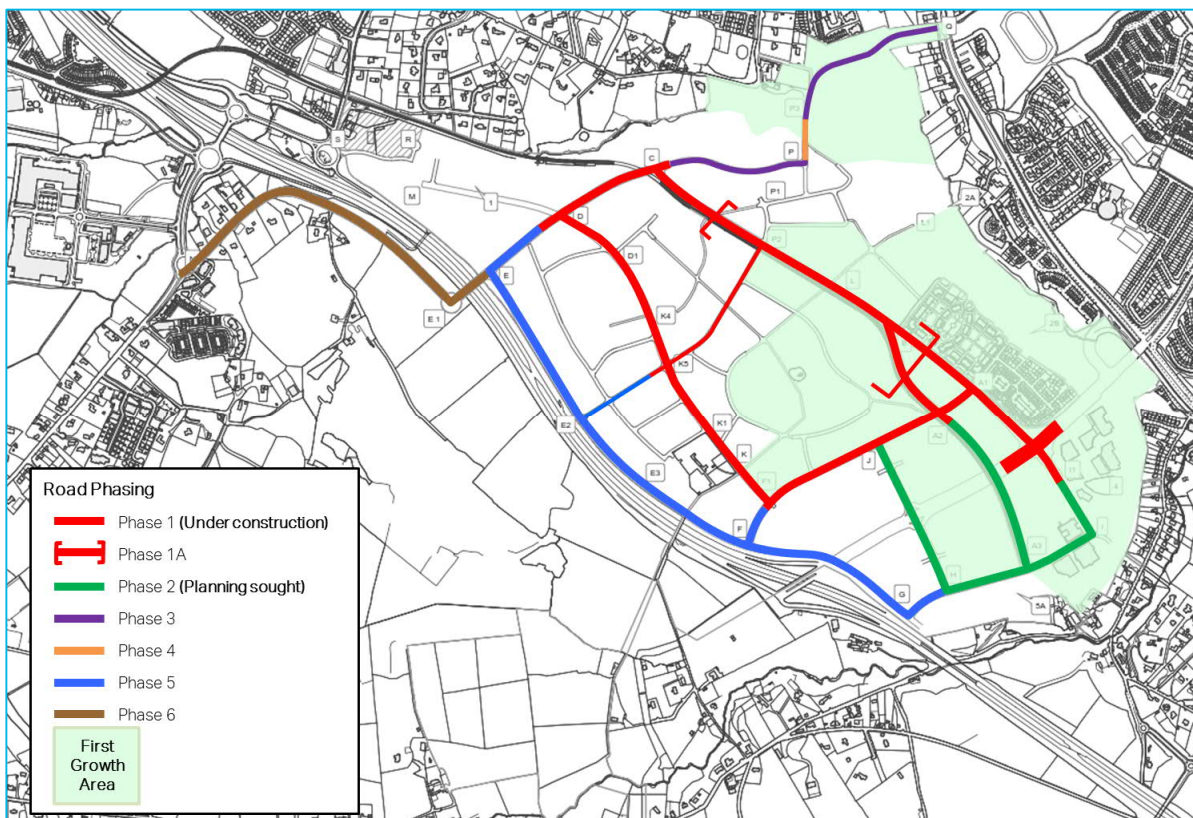


Figure 4.14 - Cherrywood Road Infrastructure Phasing

Source: DLRC, 2017

Based on junction performance analysis it is considered that, in the absence of delivery of additional access point capacity to Cherrywood, congestion may occur at the N11/WLR/D-Loop and the WLR/Tullyvale junctions in particular as development progresses. To understand the role and delivery timescales of future phases of road development to mitigate against this congestion i.e. Phase 1A and Phases 3-6, a high level assessment was undertaken using outputs from the Cherrywood SATURN model developed by Systra on behalf of Hines from the NTA ERM.

Druids Glen Road

Initially, the delivery of Druids Glen Road (Q-P3 Link) only provides access into the northerly development lands (Development Area 5). Once Grand Parade is delivered it will provide an alternative access route to the N11 however given the location of the majority of the 1st Growth Area near the WLR it is likely these accesses will be preferred until significant congestion influences route choice. The opening of Druids Glen Road is directly linked to Beckett Road as Beckett Road would be required to be in place prior to the opening of the through route along Druids Glen Road. The opening of Druids Glen Road would provide an alternative access/egress point for through traffic which, in the absence of Beckett Road, would be forced to route through the already congested WLR/Tully Vale Road junction.



Figure 4.15 – Routing of traffic on the Druids Glen Road– 2020 AM Peak

Source: Hines 2017. Results based on runs of the NTA ERM undertaken by Systra (on behalf of Hines)

Its role in providing access to Cherrywood is similar to the D-Loop junction further south as evidenced by 4.16 which shows the impact of removing Druids Glen Road. In these figures 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 removal of Druids Glen Road results in traffic staying on the N11 and accessing Cherrywood via D-Loop. The majority of traffic on the Druids Glen Road is serving traffic demand to/from the northern end of Cherrywood however as development increases it does provide an alternative for traffic which would otherwise have to use the N11/WLR/D-Loop and the WLR/Tullyvale junctions. 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.

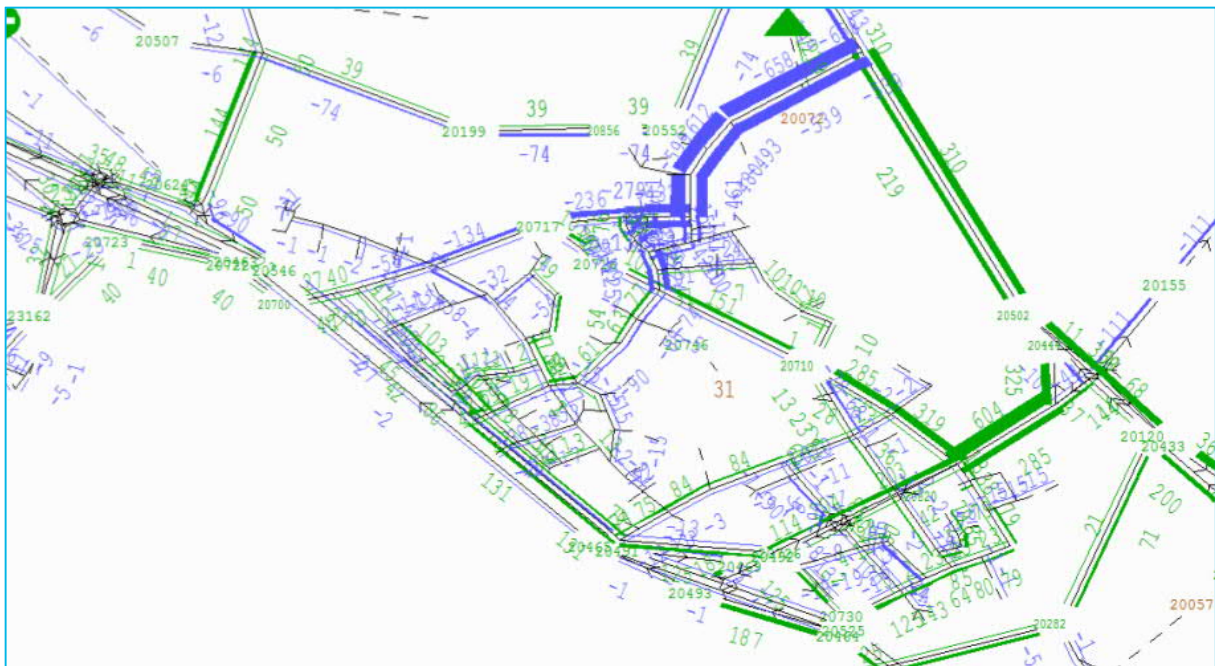


Figure 4.15 – Difference Plot of the Druids Glen Road–AM Peak

Source: Hines 2017. Results based on runs of the NTA ERM undertaken by Systra (on behalf of Hines)

The analysis shows the value of the Druids Glen access in relieving pressure on the N11/WLR/D-Loop and the WLR/Tullyvale junctions. The Druids Glen Road, and Road Phase 1A (Grand Parade) which provides access between the Druids Glen Link and the WLR, would give alternative accesses and resilience to the road network in case of incidents. The phasing of its delivery is linked, in traffic terms, to the operation of the N11/WLR/D-Loop junction.

Given the likely duration of the planning and construction stage of the scheme it is therefore recommended that the planning of the scheme is commenced in 2018 and brought through to construction. The construction of the bridge/link to Barringtons Road/Grand Parade is linked to the monitoring of conditions at the N11/WLR/D-Loop junction, journey times along this section of the N11 but also the overall mode share of the SDZ as premature delivery could influence mode share decisions.

Kiltarnan Link Road

The role of the Kiltarnan Link Road is illustrated in Figure 4.17. Outputs from the Cherrywood SATURN model suggest that the Kiltarnan Link will be an attractive link for through traffic when it, and the Druids Glen Road, are both in place. In the absence of the Druids Glen Road its role will be to provide access to Cherrywood itself in particular the northern development areas and the town centre.



Figure 4.17 – Routing of traffic on the Kilternan Link – 2025 AM Peak

Source: Hines 2017. Results based on runs of the NTA ERM undertaken by Systra (on behalf of Hines)

Its role in providing access to Cherrywood is similar to the Lehaunstown junction further south as evidenced by Figure 4.18 which shows the impact of removing the Kilternan Link. The difference plot shows that extent of through traffic on the link which transfers across from the R116. This figure also points to the scale of demand on the Kilternan Link being somewhat linked to the scale of future development that occurs in the Kilternan/Glenamuck area and the attractiveness of Cherrywood Town Centre to residents in that area. 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.

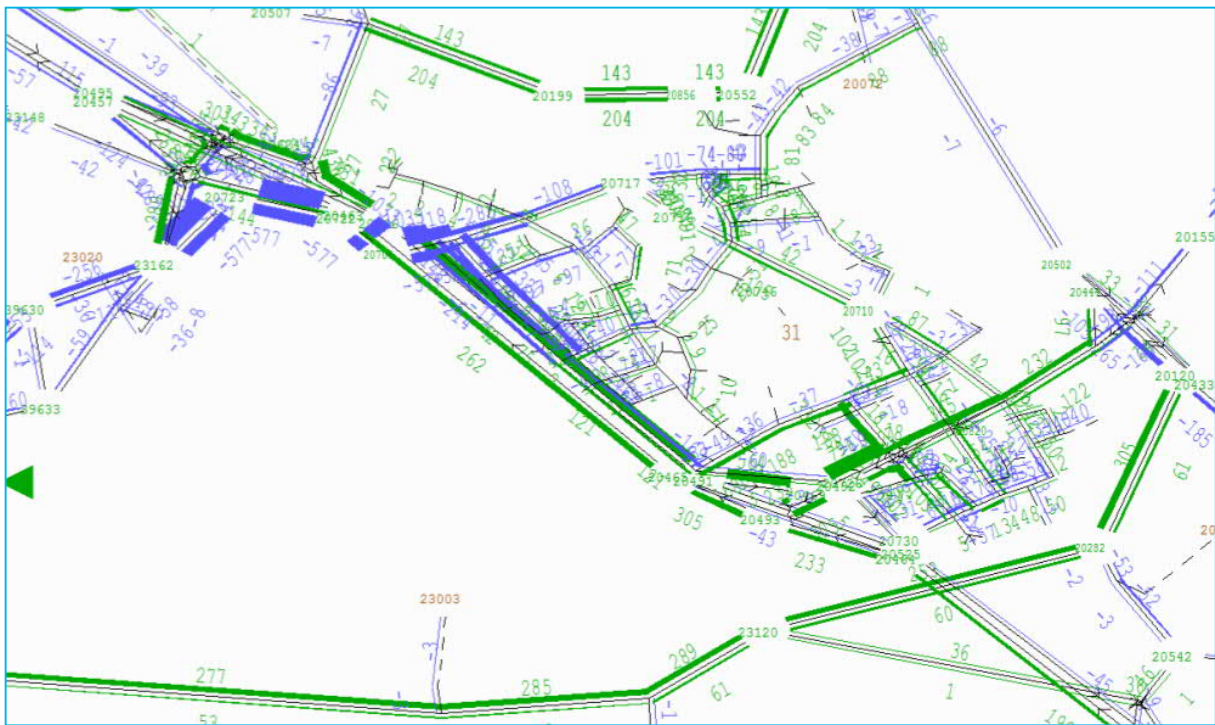


Figure 4.18 – Difference Plot – Impact of the Kilternan Link –AM Peak

Source: Hines 2017. Results based on runs of the NTA ERM undertaken by Systra (on behalf of Hines)

In this regard, the need for the connection is linked to the operation of the Lehaunstown junction and the Wyattville link Road in providing access to Cherrywood. The analysis suggests that in terms of the operation of key access junctions i.e. N11/WLR/D-Loop and the WLR/Tullyvale junctions the Kilternan Link Road would not have a significant impact in the 2020 or 2025 scenarios. The Kilternan Link Road would remove some traffic from the J14-J15 section of the M50. Outputs from the NTA ERM suggest that the ongoing reduction in car mode share between 2020 and 2035 allows journey times and traffic demand along the section of the M50 between north of Carrickmines and south of Lehaunstown to be reasonably maintained at 2020 levels.

Given the likely duration of the planning and construction stage of the scheme it is therefore recommended that the planning of the scheme is commenced prior to 2020 however the construction of the scheme is a long term objective. The construction date is linked to the delivery of Beckett Road, monitoring of conditions along the WLR and Lehaunstown junction, journey times along this section of the M50 but also the overall mode share of the SDZ as premature delivery could influence mode share decisions.

4.5.1 Findings – Car Mode

The road infrastructure currently being delivered in Cherrywood has been designed to respond to the traffic generated by the full build out of Cherrywood. In regard to the issues being addressed as part of this assessment i.e. is there sufficient capacity to support bringing forward housing development earlier than currently allowed for in the planning scheme, the main queries are as below;

- Are the existing accesses at Lehaunstown onto the M50 and via the WLR onto the N11 sufficient to cater for the proposed development as part of the 1st Development Area?
- Can the sections of the internal road network being delivered prior to the build-out cater for increased demand?
- What measures could be taken to influence car demand in a positive way to reduce the impact of the additional development in particular during the peak periods?

The findings in terms of the phasing of accesses are summarised below;

- The analysis suggests that in terms of the operation of key access junctions i.e. N11/WLR/D-Loop and the WLR/Tullyvale junctions the **Kilternan Link Road** would not have a significant impact on these junctions in the 2020 or 2025 scenarios until demand for travel across the M50 increased significantly. Given the likely duration of the planning and construction stage of the scheme it is therefore recommended that the planning of the scheme is commenced prior to 2019. The construction date is linked to the delivery of Beckett Road, monitoring of conditions along the WLR and at the Lehaunstown junction, journey times along this section of the M50 but also the overall mode share of the SDZ as premature delivery could influence mode share decisions.
- Prior to the completion of the **Druids Glen Road Bridge** the majority of traffic on the Druids Glen Road is serving traffic demand to/from the northern end of Cherrywood. With the connecting infrastructure in place and as development increases it does provide an alternative for traffic which would otherwise have to use the N11/WLR/D-Loop and the WLR/Tullyvale junctions. The analysis shows the long term importance of the Druids Glen access in relieving pressure on the N11/WLR/D-Loop and the WLR/Tullyvale junctions. Given the likely duration of the planning and construction stage of the scheme it is therefore recommended that the planning of the scheme is commenced in 2018. The construction of the bridge and link to Barringtons Road/Grand Parade is linked to the delivery of Beckett Road, the monitoring of conditions at the N11/WLR/D-Loop junction, journey times along this section of the N11 but also the overall mode share of the SDZ as premature delivery could influence mode share decisions.
- In relation to the internal roads, a key piece of infrastructure to ensure a reasonable level of service is provided to car trips is Road Phase 1A (Grand Parade). The completion of this link would give alternative accesses, provide resilience to the road network in case of incidents and is required to provide proper connectivity for Road Phase 1 and to allow for the bus gate on Castle Street adjacent to the Bishop Street junction.
- Given that the WLR will have signals along it in the future there is an opportunity to use the traffic signals to regulate traffic flow onto the N11 and M50 to mitigate any significant impacts.

The key facilitator of car trips to Cherrywood for 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. The key driver of car trips during the peak periods are commuters, in this regard DLRCC should ensure that mobility management plans are in place for all employers in the area to encourage initiatives such as flexible working hours, shared cars and the use of sustainable travel modes. Provision for this is included within the County Development Plan and in the UDFD for the Cherrywood Town Centre.

5.0 Summary and Recommendations

Dún Laoghaire-Rathdown County Council (DLRCC) have commissioned AECOM to provide technical advice to inform potential revisions to the Cherrywood Strategic Development Zone (SDZ) in relation to the phasing of development lands with the aim of bringing forward housing development earlier than currently allowed for in the planning scheme

In summary, the problem to be assessed as part of this report was **“can the transport infrastructure, existing and currently under construction, cater for any additional residential trips during the peak periods without negatively impacting upon mode share aspirations for the area or causing significant traffic impacts and if not, what additional infrastructure or measures would allow for additional trips in the short to medium term”**.

Given that the full build out of the SDZ, and supporting transport network proposed in the Cherrywood SDZ Planning Scheme, was gone through the statutory process and has approval from An Bord Pleanála the focus of the analysis was on the role of, and need for, the outstanding transport infrastructure in supporting the early delivery of residential units through the delivery of target mode share targets. This note focusses 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. The methodology focussed on understanding the capacity across all modes and how each mode and policies can influence the overall mode share, the findings of this analysis are set out below.

Public Transport

The key findings in relation to public transport are outlined below.

- The analysis used outputs from the NTA ERM and found that there is capacity on the **Green Line Luas** to allow for an additional 1,181 people in 2020 (1,060 assuming a peak hour factor of 0.9) and 1,850 (1,665 assuming a peak hour factor of 0.9) in 2030 following the Luas capacity upgrades. Information from the NTA ERM suggests that AM peak capacity for 1,060 and 1,665 people could allow for 2,300 and 600 (in addition to 2,300 in 2020) additional residential units in 2020 and 2030 respectively. These values are in addition to those set out in Table 4.2 for each scenario year. It should be noted however that for PT to cater for trips generated by these additional units, without any impact on road traffic demand, there would need to be measures put in place to ensure an overall mode shift.
- 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 initially 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 their 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 infrastructure 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, above those forecast above, would help mitigate against the additional residential development. Key destinations to/from Cherrywood are the city centre and the wider Dun Laoghaire Rathdown area. It is envisaged that the ongoing Bus Connect scheme will significantly improve bus services to Cherrywood and this is due to be implemented by 2019.
- Development areas at the southern extent of the SDZ will have access to stops on the N11 via the WLR. Prior to the delivery of a connection between Druids Glen Road and

Grand Parade the analysis highlights the importance of extending buses into the northern extents of the SDZ due to the distance to the N11 via the WLR (>1km).

- In order to support the operation of this bus route either the bus link from Barringtons Roads to the Carrickmines P&R or a nearby temporary terminus needs to be in place prior to the delivery of residential units outside the walking catchment of the town

To ensure that mode choice for residents evolves in a sustainable way as set out in the planning scheme, **only housing located within the walking catchment of the Luas/bus stops are suitable for being brought forward earlier than currently allowed for in the planning scheme and preference should be given to locations within walking distance of both bus and Luas.** This is to ensure that mode choice for residents evolves in a sustainable way as set out in the planning scheme.



Figure 5.1 – Walking catchment of Luas and/bus stops

Whilst access to public transport is the key element in ensuring that the Cherrywood area develops in a sustainable manner the encouragement of internal trips will play a key role also. In this regard it is important that residential development develops in the vicinity of the town centre and villages at the outset to develop communities and to allow residents to access jobs and services via sustainable modes, in particular walking and cycling. The key areas for development are highlighted in figure below. Whilst it is not envisaged the Planning Scheme will be restrictive in terms of the order in which zones in each Development Area can develop, each area should be built out in line with good planning principles centred around the town centres/villages.

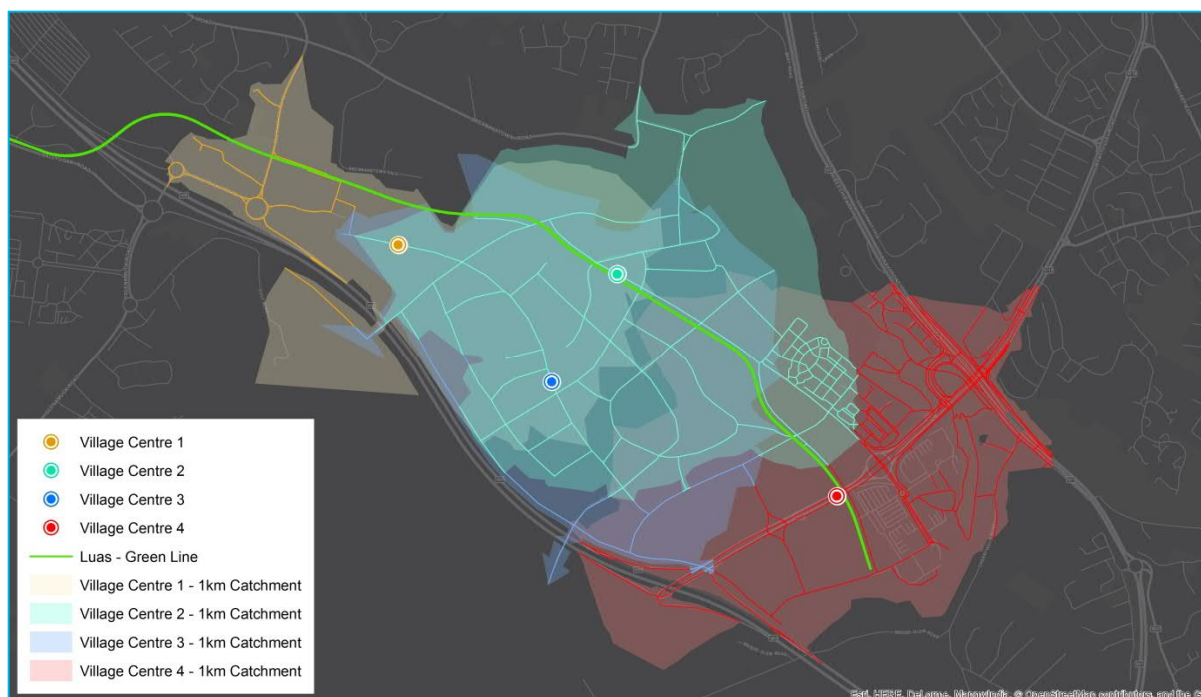


Figure 5.2 – Walking catchment of town centre/villages

Car Transport

- The analysis suggests that in terms of the operation of key access junctions i.e. N11/WLR/D-Loop and the WLR/Tullyvale junctions the **Kilterman Link Road** would not have a significant impact on these junctions in the 2020 or 2025 scenarios until demand for travel across the M50 increased significantly. Given the likely duration of the planning and construction stage of the scheme it is therefore recommended that the planning of the scheme is commenced prior to 2019. The construction date is linked to the delivery of Beckett Road, the monitoring of conditions along the WLR and at the Lehaunstown junction, and changes to journey times along this section of the M50 but also the overall mode share of the SDZ as premature delivery could influence mode share decisions.
- Prior to the completion of the **Druids Glen Road Bridge** the majority of traffic on the Druids Glen Road is serving traffic demand to/from the northern end of Cherrywood. With the connecting infrastructure in place and as development increases it does provide an alternative for traffic which would otherwise have to use the N11/WLR/D-Loop and the WLR/Tullyvale junctions. The analysis shows the long term importance of the Druids Glen access in relieving pressure on the N11/WLR/D-Loop and the WLR/Tullyvale junctions. Given the likely duration of the planning and construction stage of the scheme it is therefore recommended that the planning of the scheme is commenced in 2018. The construction of the bridge and link to Barringtons Road/Grand Parade is linked to the delivery of Beckett Road, monitoring of conditions at the N11/WLR/D-Loop junction, journey times along this section of the N11 but also the overall mode share of the SDZ as premature delivery could influence mode share decisions.
- The key facilitator of car trips to Cherrywood for employment, retail, leisure etc. will be car parking 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. The key driver of car trips during the peak periods are commuters, in this regard DL RCC should ensure that mobility management plans are in place for all employers in the area to encourage initiatives such as flexible working hours, shared cars and the use of sustainable travel modes.

Active Transport

- Given the extent of cycle facilities currently under construction and due to be delivered as part of the town centre development, it is concluded that the cycle network will be capable of supporting the bringing forward of housing development earlier than currently allowed for in the planning scheme
- The recently published Cherrywood Planning Scheme UDF (Sept 2017) also set out the pedestrian movement strategy for the town centre itself as per Figure 4.8. The full extent of the pedestrian facilities associated with will be delivered as part of the town centre development, which is part of the 1st Development Area, and will therefore be capable of supporting the bringing forward of additional residential development.
- The proposed infrastructure to be delivered as part of the town centre will create an extensive cycling network and provide options for various types of cyclists. It was acknowledged that the required scale of the WLR/Tully Vale junction may discourage some cyclists/pedestrians so the delivery of the alternative routes between Tully Vale/Cherrywood Ave and WLR to the east of this junction is important to encourage the use of these modes.

In summary the analysis suggests that an additional 2,300 residential units could be brought forward earlier than currently allowed for in the planning scheme subject to the conditions outlined above. Overall this would allow for 6,400 units by 2020 (4,114 in 1st Growth Area + 2,300 additional). It is recommended that, to ensure that mode choice for residents evolves in a sustainable way as set out in the planning scheme, the location of these additional units is restricted to areas within the walking catchment of both Luas and/or bus stops and that growth occurs around the town centre/villages. Internal roads required to provide access to a specific plot should be delivered through the planning process.

Appendix A

Full Scale replicas of report figures

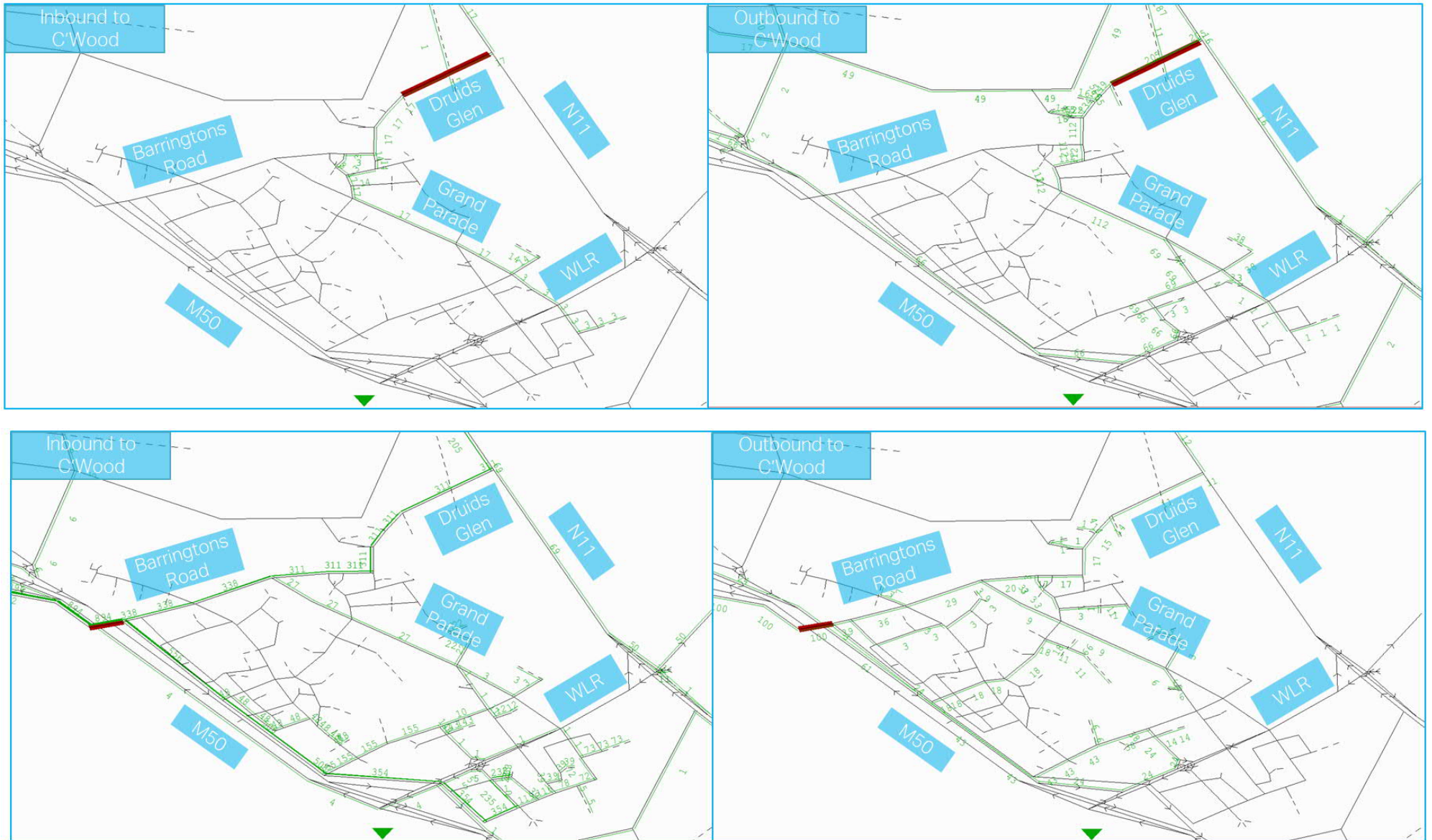


Figure A – Full size images of Figure 4.15 and 4.17

Appendix B

Development Sequencing and Phasing Amendment

Cherrywood SDZ

Proposed Approach to Phasing

Background Technical Note

Client: Dun Laoghaire Rathdown County Council
March 2018

Quality information

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2	19 th Feb 2018	WIP		
3	23 rd March 2018	Final		

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Table of Contents

1.0	Overview.....	4
2.0	Potential Phasing Approach	4

1.0 Overview

Cherrywood is a largely undeveloped land-bank in Dún Laoghaire-Rathdown, and is approximately 360 hectares in size. Cherrywood is situated approximately 8 kilometres south of Dún Laoghaire town centre near Loughlinstown, between the N11 and the M50. Construction is currently underway on the first phase of the road network whilst a planning application for the town centre has been recently submitted to DLRCC.

It is proposed by Dún Laoghaire-Rathdown County Council (DLRCC) to amend the Cherrywood Planning Scheme as published in 2014 by simplifying the phasing and sequencing as set out in Table 7.10 of the document. DLRCC have commissioned AECOM to set out their proposed phasing and sequencing to be contained within the amended Cherrywood Planning Scheme 2018.

2.0 Potential Phasing Approach

The Cherrywood Planning Scheme published in 2014 involved significant analysis to understand the optimum phasing and sequencing of transport policies and infrastructure linked to various development thresholds. This work informed the development of Table 7.10 and was accepted by stakeholders at the time. More recently AECOM undertook some analysis which concluded that, based on the transport network due to be in place in 2018, an additional 2,300 residential units could be brought forward earlier than currently allowed for in the planning scheme subject to a number of conditions. The phasing of the employment development was assumed to be the same as that contained in the 2014 Cherrywood Planning Scheme. In this regard a simplified version of the phasing is proposed which retains a close linkage between the infrastructure and quantum of development as outlined below. Table 2.1 sets out a comparison of the previous 2014 Planning Scheme to the proposed 2018 amendments to the phasing. Phases 1 – 4 from the 2014 Planning Scheme are combined into Phase 1 in the 2018 amendment. The quanta in both columns includes for circa 66,000sqm of HIE already built and occupied within the SDZ.

Table 2.1 – Phase 1 (as amended) compared to 2014 Planning Scheme

Cherrywood Planning Scheme 2014 - Table 7.10		Proposed Amendment 2018 - Table 7.4		Notes
Phase 1	Up to 90,000sqm High Intensity Employment (4,500 employees) and Up to 2,000 dwellings	Phase 1	Up to 165,000 sqm of High Intensity Employment (8,250 employees) and up to 6,700 dwellings (or equivalent)	
	Provision of internal bus infrastructure (bus route to Cherrywood Luas Station, traffic management, RTPI ¹ signs, bus shelters, Cherrywood Luas stop interchange facility).		Provision of internal bus infrastructure (bus route to Cherrywood Luas Station, traffic management, RTPI ¹ signs, bus shelters, Cherrywood Luas stop interchange facility).	<i>Internal infrastructure. Therefore moved to Table 7.3</i>
	Provision of direct/ dedicated walking/cycling link between Bray and the Cherrywood SDZ area.		Provision of direct/ dedicated walking/cycling link between Bray and the Cherrywood SDZ area unless deviation agreed in writing by the local authority in consultation with the NTA.	
	Provision of improved walking/cycling links between the N11 corridor and the Cherrywood SDZ area.		Provision of improved walking/cycling links between the N11 corridor and the Cherrywood SDZ area.	
	Provision of improved internal pedestrian and cycle facilities in Growth Areas as per objectives of Planning Scheme.		Provision of improved internal pedestrian and cycle facilities in Growth Areas as per objectives of Planning Scheme.	<i>Internal infrastructure. Therefore moved to Table 7.3</i>

Cherrywood Planning Scheme 2014 - Table 7.10		Proposed Amendment 2018 - Table 7.4	Notes
	Provision of temporary park and ride to serve the Bride's Glen or Cherrywood Luas stop.	Provision of temporary park and ride to serve the Bride's Glen or Cherrywood Luas stop.	<i>Requirement is now superseded</i>
	Provision for additional traffic and demand management measures onto the M50, in conjunction with NRA and in consultation with the NTA.	Provision for additional traffic and demand management measures onto the M50, in conjunction with TII and in consultation with the NTA.	
Phase 2	Over 90,000sqm (up to 115,000sqm) High Intensity Employment (4,500 employees) and Over 2,000 dwellings	-	
	Provision of internal bus route and turn back facility.	Provision of internal bus route and turn back facility.	<i>Internal infrastructure. Therefore moved to Table 7.3</i>
	Improvements/ extension to bus routes (Cherrywood <--> Dún Laoghaire, Cherrywood <--> City Centre, Cherrywood <--> North Wicklow) in conjunction with the NTA.	Improvements/ extension to bus routes (Cherrywood <--> Dún Laoghaire, Cherrywood <--> City Centre, Cherrywood <--> North Wicklow) in conjunction with the NTA.	
	Assessment of strategic road network performance in conjunction with NRA and in consultation with the NTA.	Assessment of strategic road network performance in conjunction with TII and in consultation with the NTA. (To be carried out agreed intervals in accordance with the Protocol agreed by TII/NTA/DLRCC)	
Phase 3	Over 115,000sqm (up to 140,000sqm) High Intensity Employment (5,750 employees) and Over 4,400 dwellings	-	
	Incremental increase of Luas maximum theoretical capacity, from the current 5,580 to 6,200.	Incremental increase of Luas maximum theoretical capacity to 6,400 following fleet renewal unless deviation agreed in writing by the local authority in consultation with TII/NTA.	<i>Capacities to be confirmed with TII.</i>
	Provision of orbital bus route from Tallaght to Sandyford.	Provision of orbital bus route from Tallaght to Sandyford unless deviation agreed in writing by the local authority in consultation with the NTA.	
	Provision of direct/ dedicated walking/cycling link between Sandyford Business District and the Cherrywood SDZ area.	Provision of direct/ dedicated walking/cycling link between Sandyford Business District and the Cherrywood SDZ area unless deviation agreed in writing by the local authority in consultation with the NTA.	
	Review bus services (consideration of link to Kiltarnan LAP depending on demand).	Review bus services in conjunction with the NTA. (consideration of link to Kiltarnan LAP depending on demand).	
	Provision of improved internal pedestrian and cycle facilities in Growth Areas as per objectives of Planning Scheme.	Provision of improved internal pedestrian and cycle facilities in Growth Areas as per objectives of Planning Scheme.	<i>Internal infrastructure. Therefore moved to Table 7.3</i>

Cherrywood Planning Scheme 2014 - Table 7.10		Proposed Amendment 2018 - Table 7.4		Notes
Phase 4	Possible closure of temporary park and ride and incorporation of park and ride into multi-storey car park in the medium to long term.	Closure of temporary park and ride at Carrickmines and incorporation of park and ride into multi-storey car park.		
	Opening of Brennanstown Luas stop (depending on adjacent development).	Opening of Brennanstown Luas stop (depending on adjacent development).		
	Capacity enhancements to M50/N11/M11, in conjunction with NRA and in consultation with the NTA.	Capacity enhancements to M50/N11/M11 unless deviation agreed in writing by the local authority in consultation with TII/NTA.		
	The capacity of the water supply network is to be reviewed and Ballyman reservoir to be available to supply Cherrywood if so required.	The capacity of the water supply network is to be reviewed and Ballyman reservoir to be available to supply Cherrywood if so required.		
	Agreement by the landowners and Local Authority with the ESB on the phasing and provision of a second sub station within Development Area 6	Agreement by the landowners and Local Authority with the ESB on the phasing and provision of a second sub station within Development Area 6		
	Over 6,700 dwellings	-		
	Review bus services in conjunction with the NTA.	Review bus services in conjunction with the NTA.		<i>Duplication to be deleted as included earlier in Phase 3</i>
DLRCC/NRA assessment of road network performance in conjunction with the NTA	Assessment of strategic road network performance in conjunction with TII and in consultation with the NTA. (To be carried out agreed intervals in accordance with the Protocol agreed by TII/NTA/DLRCC)			
Combined Quantum of Phase/s	Up to 140,000sqm (Over 115,000sqm) of High Intensity Employment (5,750 employees) and Over 6,700 dwellings	Up to 165,000 sqm of High Intensity Employment (8,250 employees) and up to 6,700 dwellings (or equivalent)		

The development quanta and phasing in the proposed amended Cherrywood Planning Scheme is largely unchanged from that published in 2014 however the proposed amendment allows for an additional 25,000 sqm of HIE.

Table 2.2 sets out a comparison of the previous 2014 Planning Scheme to the proposed 2018 amendments to the phasing. Phase 5 from the 2014 Planning Scheme is now Phase 2 in the 2018 amendment.

Table 2.2 – Phase 2 (as amended) compared to 2014 Planning Scheme

Cherrywood Planning Scheme 2014 - Table 7.10		Proposed Amendment 2018 - Table 7.4		Notes
Phase 5	Up to 165,000 sqm (Over 140,000sqm) of High Intensity Employment (7,000 employees) and Over 8,786 dwellings	Phase 2	Up to 241,000sqm (Over 165,000 sqm) of High Intensity Employment (12,050 employees) and Up to circa 8,786 dwellings (or equivalent)	
	Incremental increase of Luas maximum theoretical capacity, from 6,200 to 7,800.		Incremental increase of Luas maximum theoretical capacity, from 6,400 to 7,150 as part of fleet expansion unless deviation agreed in writing by the local authority in consultation with TII/NTA.	<i>Capacities to be confirmed with TII.</i>
	Review bus services in conjunction with the NTA.		Review bus services in conjunction with the NTA.	
	DLRCC/NRA assessment of road network performance in conjunction with the NTA		Assessment of strategic road network performance in conjunction with TII and in consultation with the NTA. (To be carried out agreed intervals in accordance with the Protocol agreed by TII/NTA/DLRCC)	
Combined Quantum of Phase/s	Up to 165,000 sqm (Over 140,000sqm) of High Intensity Employment (7,000 employees) and Over 8,786 dwellings		Up to 241,000sqm (Over 165,000 sqm) of High Intensity Employment (12,050 employees) and Up to circa 8,786 dwellings (or equivalent)	

Phase 2 is the only phase where the development quanta and phasing in the proposed amended Cherrywood Planning Scheme differs from that published in 2014. The amended version includes for an additional 76,000 sqm of HIE from the subsequent phases which will need to be supported by increased transport services however the transport infrastructure remains unchanged. It should be noted however that the extent to which bus services may be required will likely alter with increased services, over and above those that may have been required under previous Scheme phasing, serving Cherrywood to maintain sustainable travel mode share targets.

Table 2.3 sets out a comparison of the previous 2014 Planning Scheme to the proposed 2018 amendments to the phasing. Phases 6-7 from the 2014 Planning Scheme are combined into Phase 3 in the 2018 amendment.

Table 2.3 – Phase 3 (as amended) compared to 2014 Planning Scheme

Cherrywood Planning Scheme 2014 - Table 7.10		Proposed Amendment 2018 - Table 7.4		Notes
Phase 6	Over 165,000sqm High Intensity Employment (8,200 employees)	Phase 3	Over 241,000sqm of High Intensity Employment (12,050 employees)	
	Extension of Luas to Bray unless deviation agreed in writing by the local authority in consultation with the NTA.		Extension of Luas to Bray unless deviation agreed in writing by the local authority in consultation with TII/NTA.	

Cherrywood Planning Scheme 2014 - Table 7.10		Proposed Amendment 2018 - Table 7.4	Notes
Phase 7	DLRCC/NRA assessment of road network performance in conjunction with the NTA.	Assessment of strategic road network performance in conjunction with TII and in consultation with the NTA. (To be carried out agreed intervals in accordance with the Protocol agreed by TII/NTA/DLRCC)	
	Construction of Kiltarnan Link Road and Priorsland overbridge.	Construction of Kiltarnan Link Road and Priorsland overbridge.	
	Review bus services in conjunction with the NTA.	Review bus services in conjunction with the NTA.	
	Over 265,000sqm High Intensity Employment (13,250 employees)	-	
	Potential Upgrade of Luas Green Line to Metro unless deviation agreed in writing by the local authority in consultation with the NTA.	Potential Upgrade of Luas Green Line to Metro unless deviation agreed in writing by the local authority in consultation with the TII/NTA.	
	Review bus services in conjunction with the NTA.	Review bus services in conjunction with the NTA.	
	DLRCC/NRA assessment of road network performance in conjunction with the NTA.	Assessment of strategic road network performance in conjunction with TII and in consultation with the NTA. (To be carried out agreed intervals in accordance with the Protocol agreed by TII/NTA/DLRCC)	<i>Duplication to be deleted as included earlier in Phase 3</i>
Combined Quantum of Phase/s	Over 265,000sqm High Intensity Employment (13,250 employees)	Over 241,000sqm of High Intensity Employment (12,050 employees)	

