



Cherrywood Strategic Development Zone

Access and Movement Strategy

Final Report
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Executive Summary

The Cherrywood SDZ Access & Movement Strategy was first published in 2016. This updated version of the Strategy has been prepared to reflect the content and recommendations of the Cherrywood Town Centre Urban Form Development Framework (UFDF) in September 2017.

Cherrywood Town Centre Urban Form Development Framework

The Cherrywood Town Centre UFDF defines the urban and built form of Cherrywood Town Centre and also details the Public Realm Strategy and the Access and Movement Strategy for the Town Centre area. The Framework defines the planned pedestrian, cycle, public transport and vehicular routes in and around the Town Centre area in greater detail than the original Cherrywood SDZ Planning Scheme report.

Context for Sustainable Travel at Cherrywood

The Planning Scheme for Cherrywood SDZ sets out ambitious targets for walking and cycling for internal trips, as shown below. To achieve the modal share targets for walking (30%) and cycling (45%) specific infrastructure networks and supporting urban realm for these modes needs to be prioritised and implemented. Internal walking and cycling trips need to be direct and convenient, possibly at the expense of direct routes for local car trips.

The modal share targets which were originally established by the Planning Scheme for external trips are considered to be conservative, in the context of recent trends of increased walking and in particular cycling within Dublin. As such, it is recommended that every effort is made to achieve a higher modal share for sustainable travel modes beyond the targets proposed.

This report provides recommendations and guidelines for the mitigation of risks to pedestrian and cyclist connectivity which need to be addressed if modal share targets are going to be achieved.

Mode	Internal Trips	External Trips	Overall Target
Walking	30%	2%	7.3%
Cycling	45%	5%	12.6%
Public transport	10%	38%	32.7%

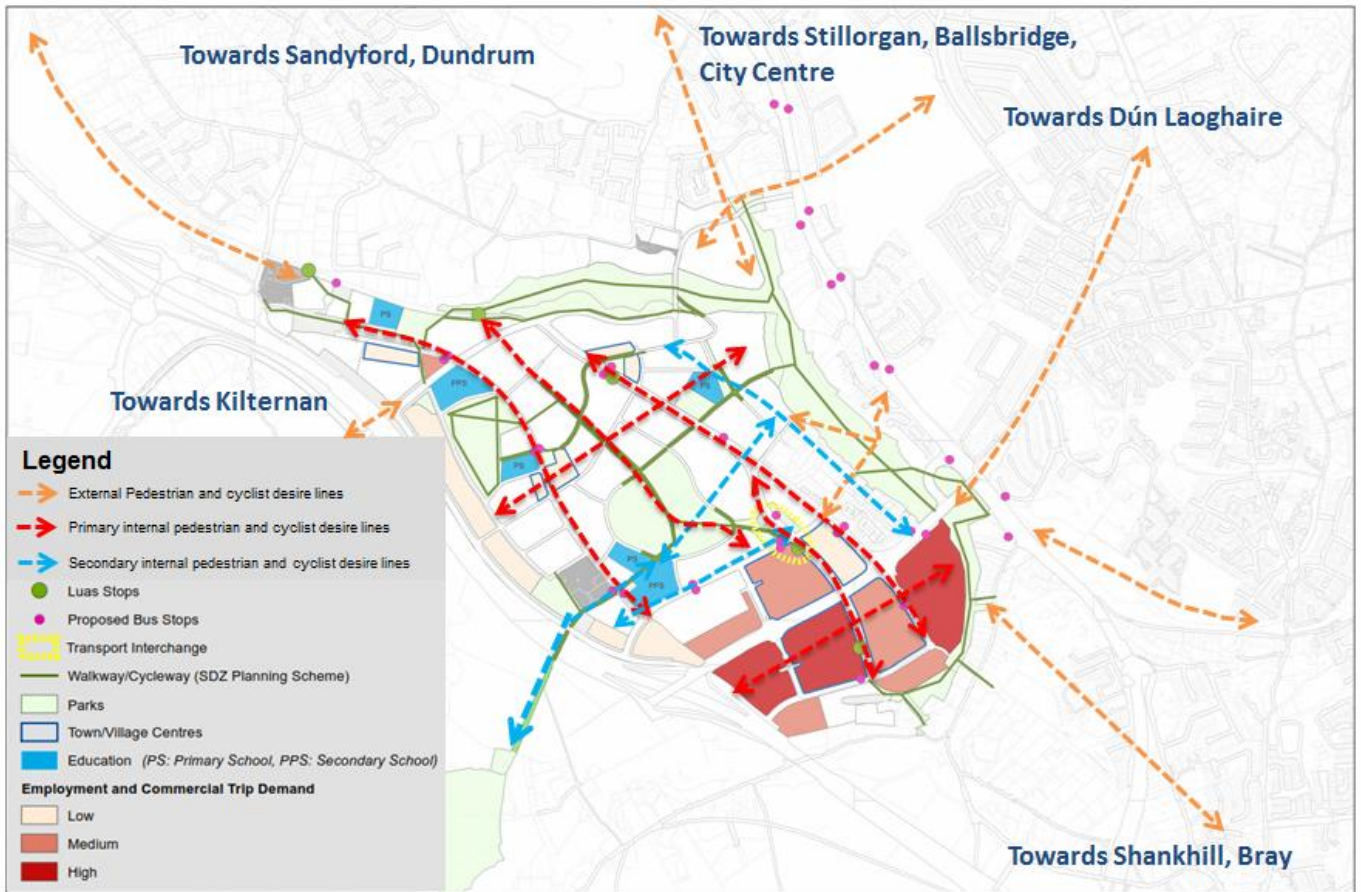
Desire Lines Analysis

An analysis of pedestrian and cyclist desire lines within and to/from the site was undertaken, including the identification of AM Peak trip demand for each development zone within the site. This AM Peak travel demand analysis showed that:

- Trips from residential units are distributed throughout the SDZ;
- The highest demand for trips from residential units is the Cherrywood Town Centre and to the north-west of the SDZ – locations of high density development; and
- The highest demand for arrivals to non-residential zones (employment, retail, non-retail and other commercial uses) is in the vicinity of Cherrywood Town Centre and adjacent employment zones.

The key desire lines identified are shown in the map below, and include:

- Three strong North/South desire lines along the alignments of Castle Street, through Tully Park and on Grand Parade, all terminating in the town centre;
- Strong East/West desire lines from residential areas to the schools on Castle Street, to village centres and within the town centre; and
- Very strong desire lines in the direction of Shankill and the city centre.



Map of Key Desire Lines within and to/from the SDZ

Summary SWOT Analysis

The table below summarises the key Strengths, Weaknesses, Opportunities and Threats (SWOT) which are relevant to the achievement of the modal split targets for sustainable transport as outlined in the Cherrywood Planning Scheme. Future applicants should take account of these factors as part of the planning and design process, to ensure that future development of the site, and in particular the proposed layout of the road network, will support sustainable transport journeys to and within the site.

Strengths	Weaknesses
<ul style="list-style-type: none"> - There are minimal existing spatial constraints to prevent the provision of generous and attractive footpaths and cycle facilities. - A 30km/h speed limit is proposed on Level 3, 4 and 5 roads (local neighbourhood roads), which will enhance the pedestrian and cyclist environment. - The proposed greenway network presents a significant opportunity to facilitate walking and cycling journeys on quiet, pleasant routes and particularly to encourage walking and cycling for school trips. - Good public transport links to Cherrywood (Luas and Bus) are proposed/in place. - The Cherrywood Planning Scheme is based on short walking distances from residential development to public transport and town/village centres. 	<ul style="list-style-type: none"> - There are limited opportunities to cross Wyattville Link Road. - Access between the linear park and N11 is currently poor. - A high volume of pedestrians and cyclists are likely to be directed through the Grand Parade/Bishop Street junction. - The pedestrian and cyclist desire line from the Town Centre towards Dún Laoghaire/Killiney and the nearest bus stops on the N11 is not well catered for by the proposed road network.

Opportunities	Threats
<ul style="list-style-type: none"> - There are opportunities to improve pedestrian and cyclist connections to key external desire lines, including links to the N11 and towards Shankill/Bray via Brides Glen viaduct and/or the grounds of Loughlinstown Hospital. - The mix of residential properties and schools within close proximity in this development presents an excellent opportunity to support and encourage sustainable travel habits at a young age among local school pupils (as well as their parents). - The UFDF outlines two grade-separated crossings of Wyattville Link Road linking the north and south sides of the town centre. There is an opportunity to maximise connectivity through these crossings by ensuring that routes to these crossings clearly defined and easily accessible. - There is an opportunity to extend the northern end of central greenway route to Brennanstown Luas stop. - There are two DART stations within approximately 3km and this presents an opportunity to promote Bike and Ride if linkages are improved. 	<ul style="list-style-type: none"> - It is recommended that mid-block permeability is maximised in future design and development. - Steep gradients will impede some pedestrian and cyclists desire lines. Links requiring the use of steps and lifts may also present a barrier to cycling. - The Grand Parade/Bishop Street junction will be a very busy node for pedestrians and cyclists. It is essential that the layout and timing of traffic signals give sufficient priority to pedestrians and cyclists and minimise journey time delay. - Inadequate attention to design of public realm - Inappropriate bicycle facilities

Summary of Recommendations

The following sections summarise the key recommendations outlined in this report, which should be addressed as part of future planning and development to support the achievement of the mode share targets for sustainable travel for internal and external trips:

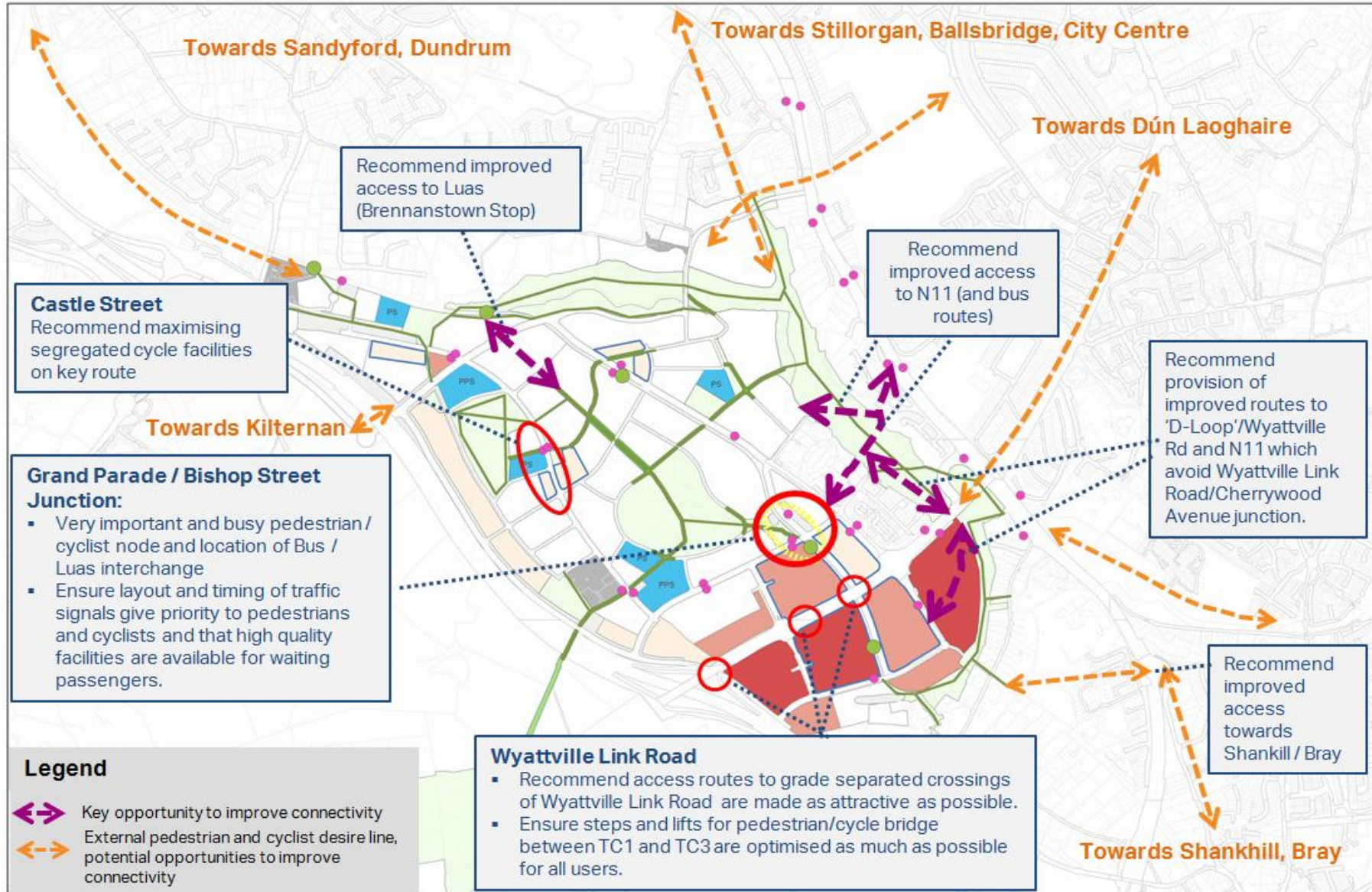
General Recommendations:

1. All future design should take account of the desire lines outlined in Section 2 of this report, and every effort should be made to provide high quality pedestrian and cyclist facilities (including crossing facilities) which will accommodate and encourage walking and cycling along these routes. A high level of permeability must be provided, including permeability through and within development "blocks".
2. The Town Centre UFDF outlines two grade-separated crossings of Wyattville Link Road. Due to differences in levels, one of these crossings will provide access via lifts / steps. To ensure security, the design of these lifts should ensure that they are well lit, built of transparent materials and clearly located, in order to provide passive surveillance. They should also be larger than standard sized lifts, to accommodate double-buggies and multiple / larger-sized bicycles (such as cargo bikes). 'Wheeling ramps' should be provided at the steps at these locations.
3. Footpath provisions in high volume areas should provide adequate width to comfortably accommodate expected pedestrian movements.
4. Segregated cycle facilities should be incorporated as much as possible along key desire lines, as this type of facility is widely perceived as the safest and most attractive.
5. Lighting provision should provide adequate lighting for footpaths and cycle paths as well as roadways, avoiding any obstruction for pedestrians and cyclists when positioning lighting columns.
6. Planting and landscaping proposals should not obstruct visibility or sight-lines for pedestrians or create personal safety concerns.
7. There should be high-quality signage and entryway treatments for pedestrian and cyclist routes, to ensure they are clearly identifiable and legible. It would also be desirable to have wayfinding maps at key locations such as town / village centers, parks and public transport stops.

8. Street design should incorporate elements to encourage low vehicle speeds where appropriate, for example on predominantly residential streets, in the vicinity of schools and within town / village centres.
9. It is recommended that “island” style bus stops (as detailed in the National Cycle Manual) are considered in order to provide a high level of priority to cyclists where there are potentially high volumes of buses anticipated in the future.
10. Gradients should receive particular attention when considering the required design speed of cycling infrastructure, particularly any greenway routes on which cyclists share space with pedestrians.
11. It is recommended that adequate provision is made for cycle parking at all key locations, including public transport stops (Luas and bus), parks and recreational facilities, schools, workplaces and town / village centres.
12. As part of the planning and design process, due cognisance must be given to the impact of design on journey distances and times for pedestrians and cyclist. This includes consideration of block permeability, correspondence of routes with desire lines, topography, crossing opportunities and wait times.

Specific Opportunities for Pedestrian and Cyclist Routes (refer to Map below):

13. The Bishop Street / Grand Parade junction and public transport interchange is a key pedestrian and cyclist node and should provide a high quality environment for pedestrians, cyclists and passengers.
14. It is recommended that alternative routes for pedestrians and cyclists to Wyattville Link Road should be maximised, such as potential links to the N11 and to the proposed Shankill / Bray pedestrian and cycle route (see below) via Brides Glen viaduct and/or the grounds of Loughlinstown Hospital. The use of alternative routes may be somewhat limited if they divert significantly from cyclist desire lines, however alternative routes should nonetheless be provided as close as possible to desire lines to accommodate and encourage pedestrians and cyclists who prefer to avoid busy roads and intersections.
15. In order to mitigate the severance issue caused by limited crossing opportunities on Wyattville Link Road, it is essential that every effort is made to maximise connectivity corresponding to key desire lines to/from the Town Centre.
16. It is recommended that the central greenway link through Tully Park be continued west to link through to Brennanstown Luas Stop.
17. It is recommended that there are two pedestrian and cyclist connections through to the N11 (linking to N11 bus routes and residential / employment areas to the north / northeast), as indicated in Figure 2.3.
18. It is recommended that there is an access point to the proposed greenway utilising the Brides Glen Viaduct and the grounds of Loughlinstown Hospital from the internal pedestrian and cycle route, to improve access to Cherrywood for pedestrians and cyclists from the south east.



Map of Specific Recommendations for to enhance pedestrian and cyclist access within the site and to the external network

1 Context

1.1 Background

Dún Laoghaire Rathdown County Council (DLRCC) first engaged AECOM to undertake an Access and Movement Strategy for the Cherrywood Strategic Development Zone (SDZ) in 2016. The overarching aim of this work was to build on the guidance provided by the Cherrywood SDZ Planning Scheme and provide further clarity to future applicants regarding the provision of walking and cycling infrastructure and facilities. This will ensure that future development of the site, and in particular the proposed layout of the internal road, cycle and pedestrian network, will support sustainable transport journeys to, from and within the site as set out in the Cherrywood SDZ Planning Scheme.

In September 2017 the Cherrywood Town Centre Urban Form Development Framework (UFDF) was completed. In February 2018, this Access and Movement Strategy was updated to reflect recommendations of the UFDF.

1.2 Town Centre Urban Form Development Framework

The proposed Town Centre, as outlined in the SDZ Planning Scheme Report, is located in the south-eastern corner of the SDZ area and is comprised of (TC1, TC2, TC3 and TC4), as illustrated in Figure 1.1. The Town Centre is located around the existing Wyattville Link Road, which connects the M50 (Junction 16) to the N11 (via the 'D' Loop) and on towards Glenageary and Dún Laoghaire (Figure 1.2).

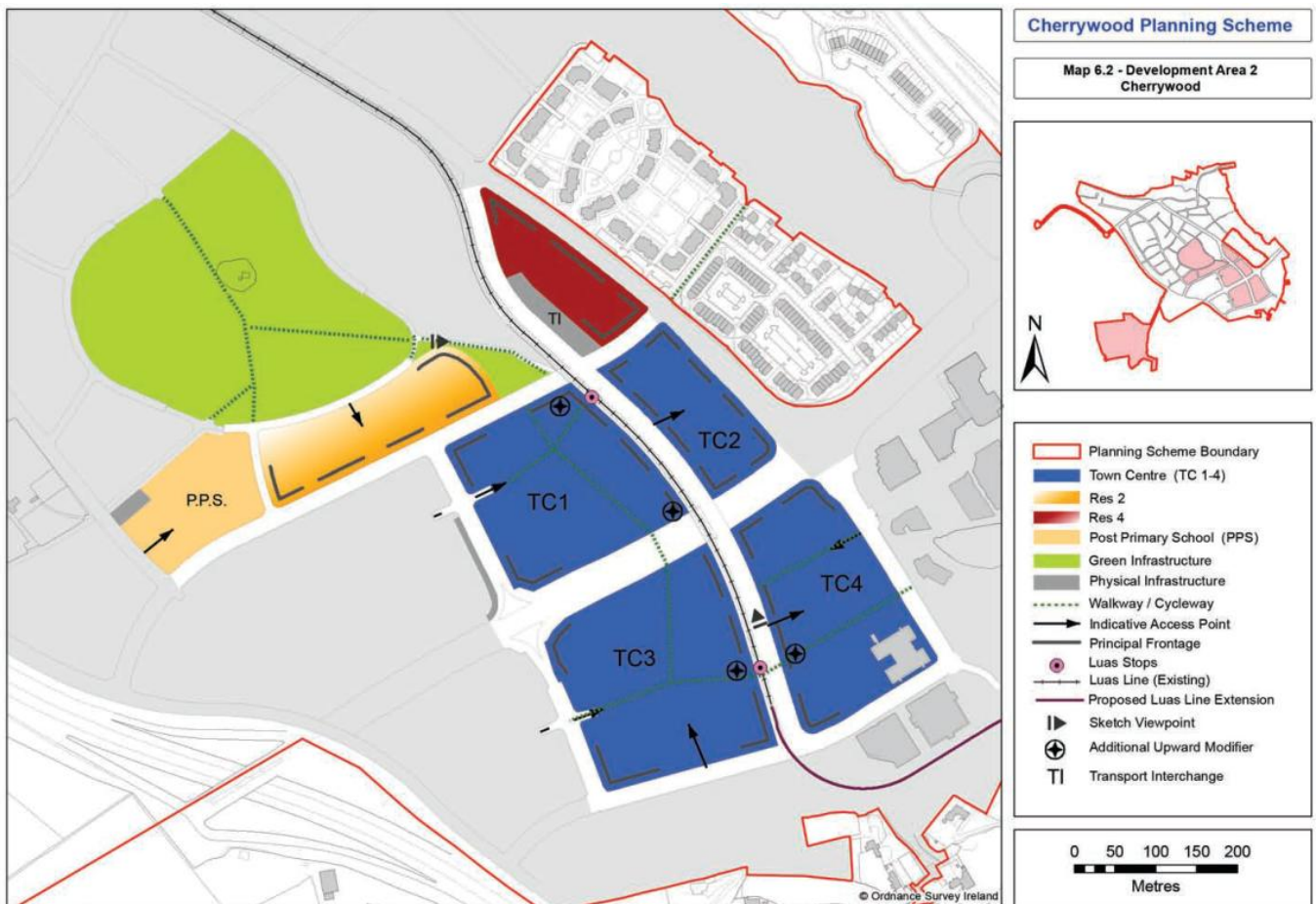


Figure 1.1: Town Centre Quarters Outlined in SDZ Planning Scheme (Map 6.2 Development Area 2: Cherrywood)

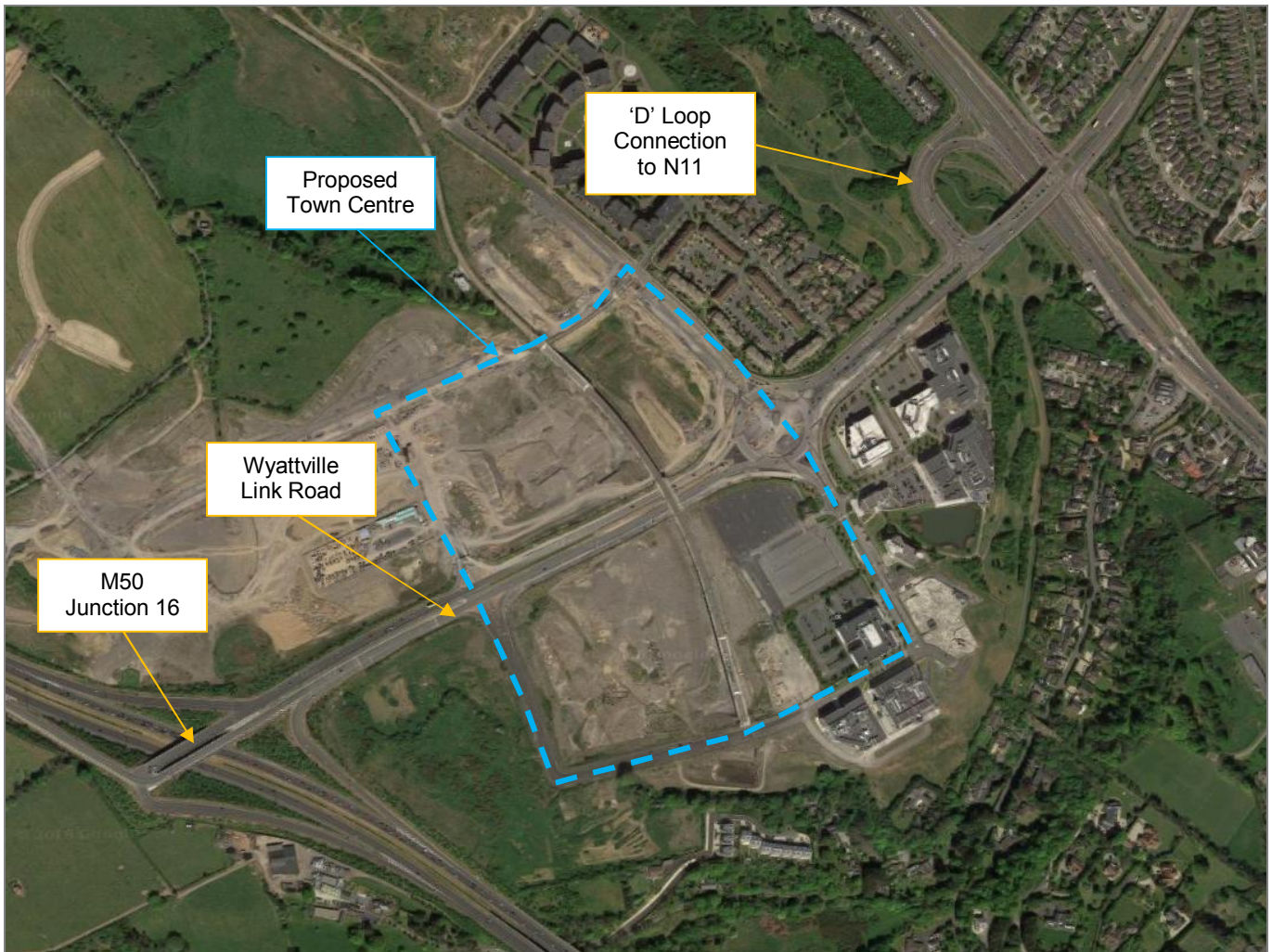


Figure 1.2: Town Centre Location Relative to Existing Major Roads

The UFDF provides a greater level of detail on the proposed land use within the town centre area (Figure 1.3) and defines the urban and built form of the Town Centre and also details the Public Realm Strategy and the Access and Movement Strategy for the Town Centre area. The Framework defines the planned pedestrian, cycle, public transport and vehicular routes in and around the Town Centre area in greater detail than the original Cherrywood SDZ Planning Scheme report.

On the basis of the availability of this more refined level of detail for Cherrywood Town Centre, the following amendments were made to this report:

- References to the severance impact of Wyattville Link Road have been updated. The UFDF provides for two grade-separated crossings of Wyattville Link Road linking the north and south sections of the Town Centre. One crossing will be provided via pedestrian and cyclist facilities on the Wyattville Link Plaza on Grand Parade, while the second will be a dedicated footbridge between TC1 and TC3 (see Figure 1.1). Minor updates have also been made to desire line maps to more clearly reflect this. The key recommendation is now focused on ensuring that all access routes to these grade-separated crossing points are as attractive as possible;
- As a result of the challenge presented by gradients within the Cherrywood site, a number of links within the Town Centre have been identified as requiring 'steps/lifts' (Cycle Movement Strategy). The report recommends that these facilities are well integrated within pedestrian and cyclist networks and offer a high standard of security. This recommendation is particularly relevant to the planned pedestrian/cycle bridge between TC1 and TC3;

- With regard to 'external network connectivity', recommendations regarding the need for new and improved links into Cherrywood which divert some pedestrians and cyclists away from Wyattville Link Road have been reworded for clarity and now also reference the requirement for some of these links to tie into the 'D' Loop (see Figure 1.2);
- Minor amendments have been made to the mapping of the transport interchange and bus stops surrounding the town centre on maps within this document, to ensure consistency with the UFDF;
- Recommendations regarding the design of particular locations with the Town Centre area, such as the Bishop Street/Grade Parade junction have been amended to reflect that design work is substantially complete;
- Minor amendments have been made to the text of the recommendation on Greenway Connectivity from the Town Centre to include the locations of access points shown in the UFDF.

The recommendations contained within this report must be addressed if the ambitious mode share targets proposed for the SDZ are to be achieved.



Figure 1.3: Town Centre Land Use Strategy Outlined in UFDF (Map 2)

1.3 Cherrywood SDZ Planning Scheme

A Planning Scheme for the Cherrywood SDZ was approved by An Bord Pleanála and adopted by Dún Laoghaire Rathdown County Council in 2014. The Planning Scheme sets out a proposal for development of almost 190ha of land located to the north of the M50 and M11 merge, close to Loughlinstown. The development will be composed of 75ha of residential development and 61ha of green infrastructure distributed throughout the site. A 16ha town centre will be located to the south of the development as well as a further 16ha of high density employment. Additional village centres are distributed across the site offering local services and amenities. Primary and secondary

schools make up 7ha of the site, also distributed across the residential areas. The overall planning scheme is shown in Figure 1.4.

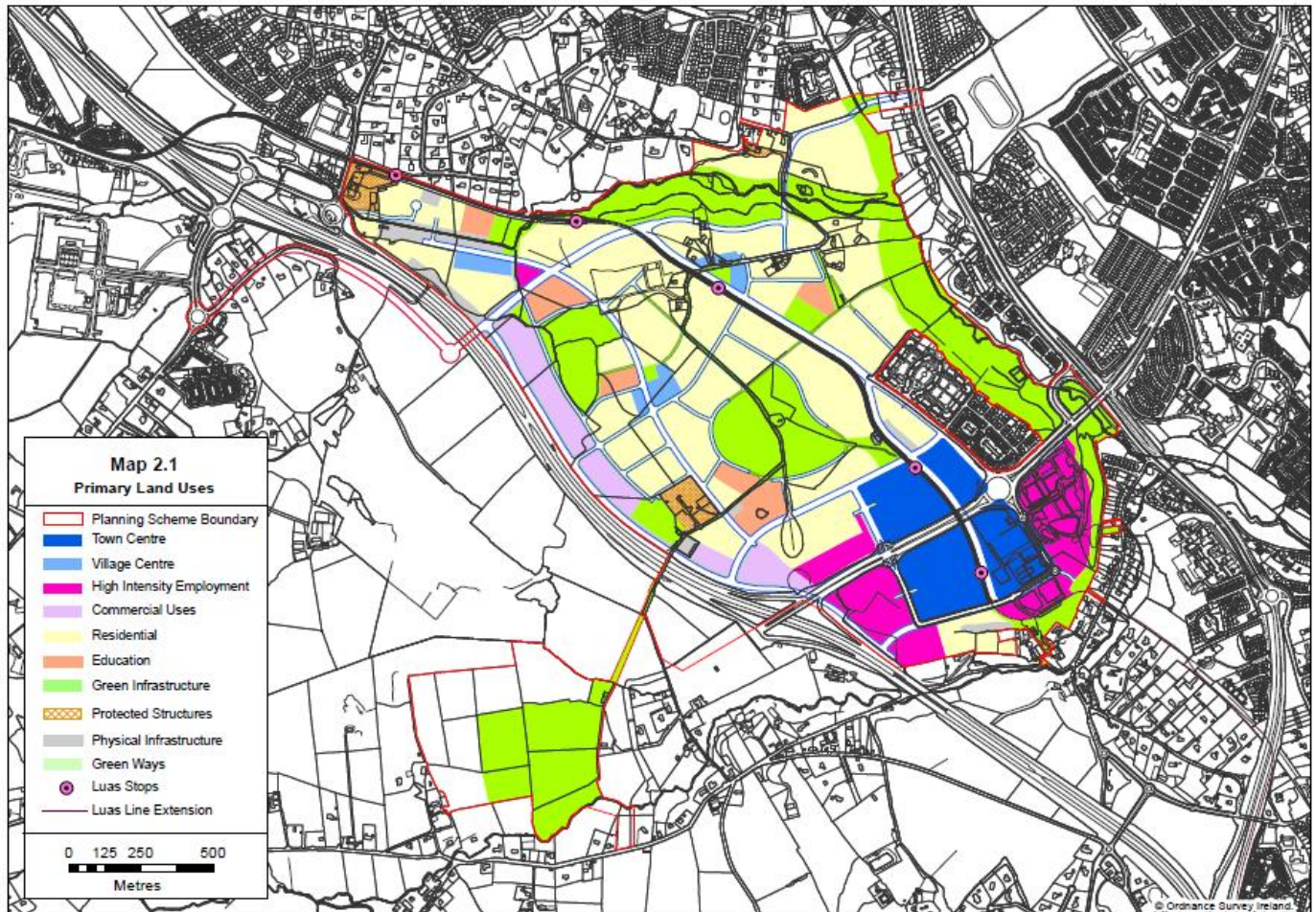


Figure 1.4: Cherrywood Planning Scheme, DLRCC, 2014

Sustainable travel is at the core of the plan for development of Cherrywood with ambitious targets established for walking, cycling and public transport as outlined in Table 1.1 below. The Planning Scheme outlines high mode share targets for public transport and other sustainable travel modes such as walking and cycling. Achieving these targets will be dependent on the permeability and convenience of the first and last walking/cycling kilometre. The challenge will therefore be in ensuring that pedestrian and cyclist desire lines between residential areas, employment/retail sites and public transport stops are accommodated in a holistic way throughout development of the site, from the road network planning task through to building layout.

Table 1.1: Sustainable Cherrywood SDZ Planning Scheme

Mode	Internal Trips	External Trips	Overall Target
Walking	30%	2%	7.3%
Cycling	45%	5%	12.6%
Public Transport	10%	38%	32.7%

In light of the mode share expectations, an analysis of the desire lines for pedestrians and cyclists was undertaken to inform future designs. Our methodology for undertaking the assessment is set out below.

1.4 Methodology

Our assessment of the Cherrywood Planning Scheme has been undertaken on two levels. Firstly a 'desire line' analysis was undertaken to assess the likely demand for walking and cycling trips. Secondly, a strategic level assessment of the planning scheme was undertaken on the basis of identified desire lines. These two tasks are outlined below.

1.3.1 Desire Line Analysis

The identification of desire lines was informed by an analysis of the various land uses and associated densities which make up the Cherrywood Planning Scheme area. Trip rates were applied to the key types of land use to gain an understanding of the proportion of person trips generated in different sections of the development area. External desire lines were informed by the NTA 2030 Transport Strategy Model estimates for the distribution of work trips to and from Cherrywood, as reported in the Planning Scheme, as well as analysis of the existing and planning walking, cycling and public transport network surrounding the site. The outputs of this element of the Strategy will indicate requirements for public realm and urban design.

1.3.2 Strategic Assessment

Our assessment of pedestrian and cyclist accessibility and subsequent development of key recommendations has been based on the following guidelines which provide an exemplary basis for sustainable transport and land use development:

- Spatial Planning and National Roads, Guidelines for Planning Authorities, Department of Environment, Community and Local Government, 2011;
- Smarter Travel, A Sustainable Transport Future, Department of Transport, Tourism and Sport, 2009;
- National Cycle Policy Framework. Department of Transport, Tourism and Sport, 2009;
- Transport Strategy for the Greater Dublin Area 2016 - 2035, National Transport Authority (2015);
- Best Practice Guide on Providing for Permeability in Existing Urban Areas, National Transport Authority (2015);
- National Cycle Manual, National Transport Authority (2011); and
- Greater Dublin Area Cycle Network Plan, National Transport Authority (2014).

1.5 Report Structure

The following section of the report (Section 2) details the methodology and results of the pedestrian and cyclist desire line analysis undertaken for the Cherrywood site. The remaining sections (Sections 3-6) present a high level assessment of the proposed pedestrian and cyclist networks, in the context of the determined desire lines. The assessment is set out as follows:

- **Section 2:** Desire Line Analysis – outlines the methodology and results of desire line analysis;
- **Section 3:** Pedestrian Access – assesses pedestrian accessibility in the context of the desire line analysis, and key recommendations for future development;
- **Section 4:** Cyclist Access – assesses cyclist accessibility in the context of the desire line analysis, and key recommendations for future development
- **Section 5:** Proposed Greenway Network – presents the proposed greenway network in the context of the desire line analysis, and key recommendations around the provision of a greenway network in the SDZ area.

2 Desire Line Analysis

2.1 Introduction and Methodology

Key desire lines within the site were identified through an analysis of the linkages between the person trips in each zone dependent on land use i.e. strong link between residential and employment/education in morning peak etc. The analysis consisted of an examination of the density of trip generators (residential development) and key trip attractors (retail, non-retail, high intensity employment, other commercial uses and education) at each plot throughout the area. The following assumptions were made:

- An average of the minimum and maximum units or square metres specified for each area was used in calculating trip proportions;
- In the case of residential land use, where the quantity of units specified in the Planning Scheme was spread over a number of plots of the same density, these were distributed proportionately according to plot size; and
- In the case of 'other commercial uses', no maximum development area was specified so in this case the minimum amount plus an additional 33% was used.

The output of the process focuses on the proportional linkages and is not significantly dependent on development quantum as long as it is done in a consistent manner.

AM Peak Trip Demand

AM peak hour trip rates were then applied to each type of development to provide some indication of the overall trips which are expected to be associated with each type of land use and geographic area.

Figure 2.1 illustrates the estimated proportion of morning peak departures from residential units which would be generated in the different areas of the site, while Figure 2.2 illustrates the estimated proportion of morning peak arrivals attracted to employment, retail, non-retail and other commercial uses across the various plots. In each instance, the estimated level of travel demand generated by the development has been summarised into low, medium and high categories. It can be seen in Figure 2.1 that the highest level of AM peak trips from residential areas will be from the south-east and north-west of the site, corresponding with high density development. However, residential development of varying densities is distributed across the entire site and therefore trips will be generated throughout.

Figure 2.2 shows that the majority of trips will be to the south-east of the site. This is as expected, as it is the location of high-intensity employment and Cherrywood Town Centre. Trips to schools have not been specifically illustrated in Figure 2.2 (Trip Attractors) as the size of schools and estimated numbers of pupils which are expected to be accommodated in each are not determined in the Planning Scheme. However, the sites of primary and post primary schools are identified on the maps in this chapter and were fully taken into consideration in the identification of desire lines.

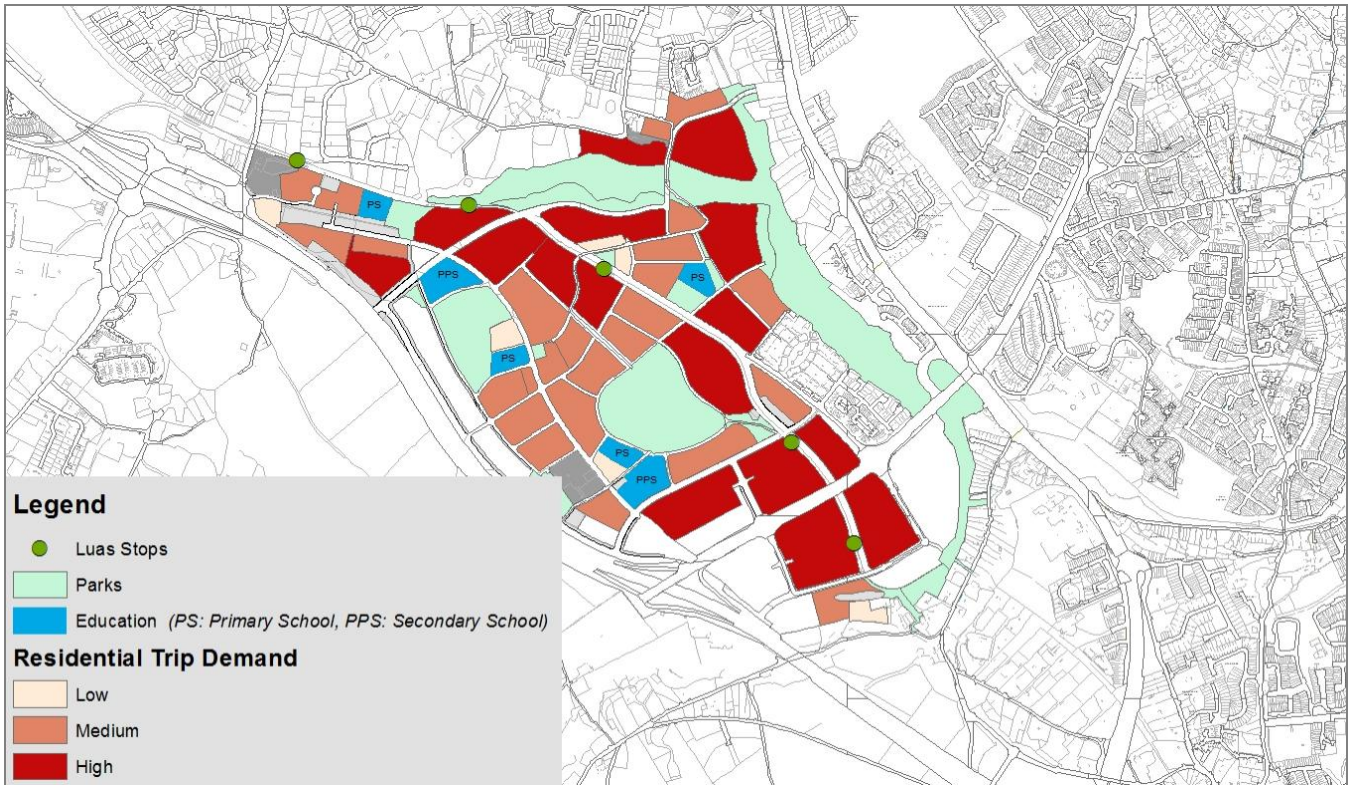


Figure 2.1: AM Peak Internal Trip Generators (Residential)

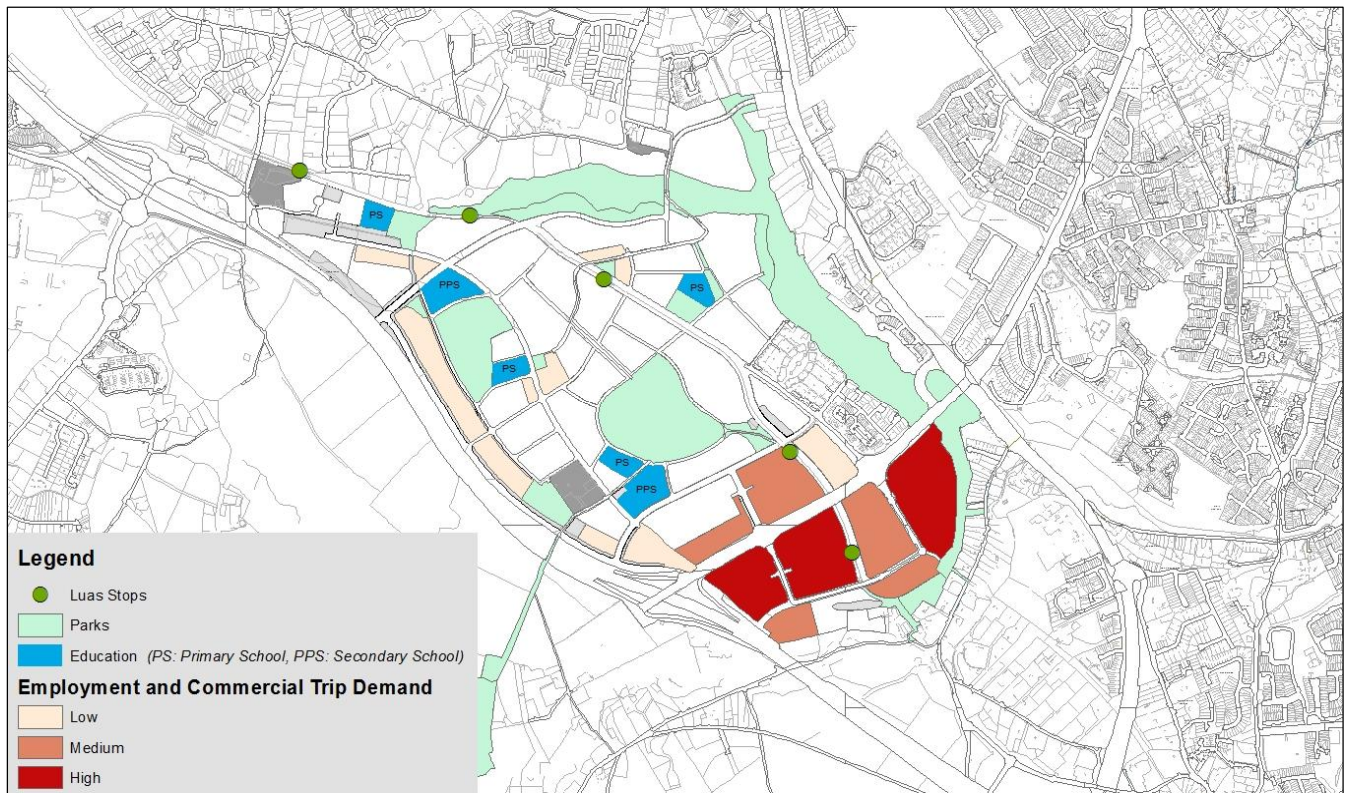


Figure 2.2: AM Peak Internal Trip Attractors (Non Residential Trips)

External Trips

In addition to analysing travel demand generated within the site, consideration has also been given to the key external areas which are expected to produce and attract trips to and from Cherrywood. Commuting trips, both incoming and outgoing, are expected to make up a large proportion of overall external trips. Table 2.1 and 2.2 below, taken from the Cherrywood Planning Scheme document, indicate the key origins and destinations of commuters to and from Cherrywood according to the NTA 2030 model¹.

A relatively large number of residents are expected to both live and work in Cherrywood, with the remainder of trips destined to locations dispersed throughout the Greater Dublin Area (GDA). Similarly, it is also expected that the origin of trips to Cherrywood will be dispersed across the GDA, with significant numbers of commuters travelling from Bray, Greystones, Wicklow and Dún Laoghaire in particular.

A more specific analysis of the most important areas for external walking and cycling trips was also conducted based on NTA modelling of walking and cycling trips in the year 2021. Some of the most important areas highlighted included Stillorgan/UCD, Sandyford, Cornelscourt, Carrickmines, Loughlinstown and Bray.

Table 2.1: Distribution of work trips to Cherrywood – NTA 2030 Transport Strategy Model (as per Cherrywood SDZ Planning Scheme)

Area	%
Bray	13
Cherrywood	9
Greystones	7
Wicklow	5
Dún Laoghaire	4
Kilternan	3
Nutgrove	3
Sandyford	3
Arklow	3
Kilcoole	3
Cornelscourt	3
Blackrock	3
Ballsbridge	3
Rathmines	2
Dundrum	2
Newtown Mt Kennedy	2
Point Village	2
Tallaght	2
Stillorgan	2
Other	24

¹ It should be noted that this model includes significant additional public transport provision and hence the proportion of trips to and from certain areas may be overestimated.

Table 2.2: Distribution of work trips from Cherrywood – NTA 2030 Transport Strategy Model (as per Cherrywood SDZ Planning Scheme)

Area	%
Sandyford	10
Cherrywood	10
Point Village	8
Ballsbridge	7
Stephens Green	7
Dún Laoghaire	7
Bray	5
North City	4
Cornelscourt	4
Dundrum	4
Blackrock	4
Rathmines	4
Tallaght	2
Kylemore	2
Kiltarnan	2
Stillorgan	2
Liberties	2
Other	15

2.2 Key Desire Lines

Figure 2.3 and Figure 2.4 below illustrate key internal and external desire lines for cyclists and pedestrians. Figure 2.3 overlays the desire lines with the distribution of AM peak residential trip demand throughout the site, while Figure 2.4 overlays the desire lines with the distribution of AM peak trip demand to trip attractors (employment, commercial and retail land uses). These Desire Lines Maps provides an indication of key desire lines only, and there will be multiple additional pedestrian and desire lines throughout the site. The overall objective of the Access and Movement Strategy is to ensure that there is permeable, legible pedestrian and cyclist network which connects to all trip attractors including public transport, residential, employment, retail and residential developments.

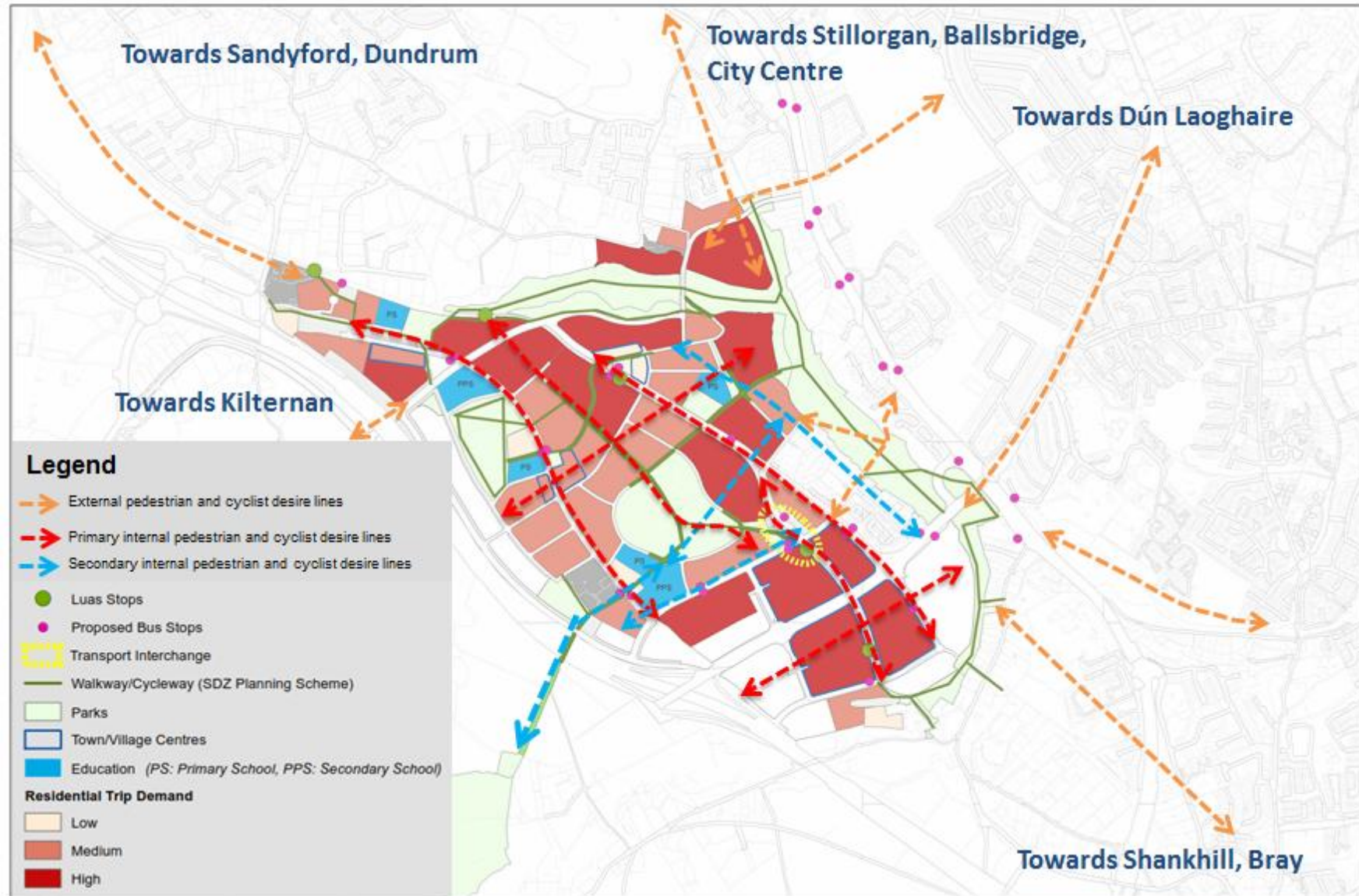


Figure 2.3: Internal and External Pedestrian and Cyclist Desire Lines and Residential Trip Generation

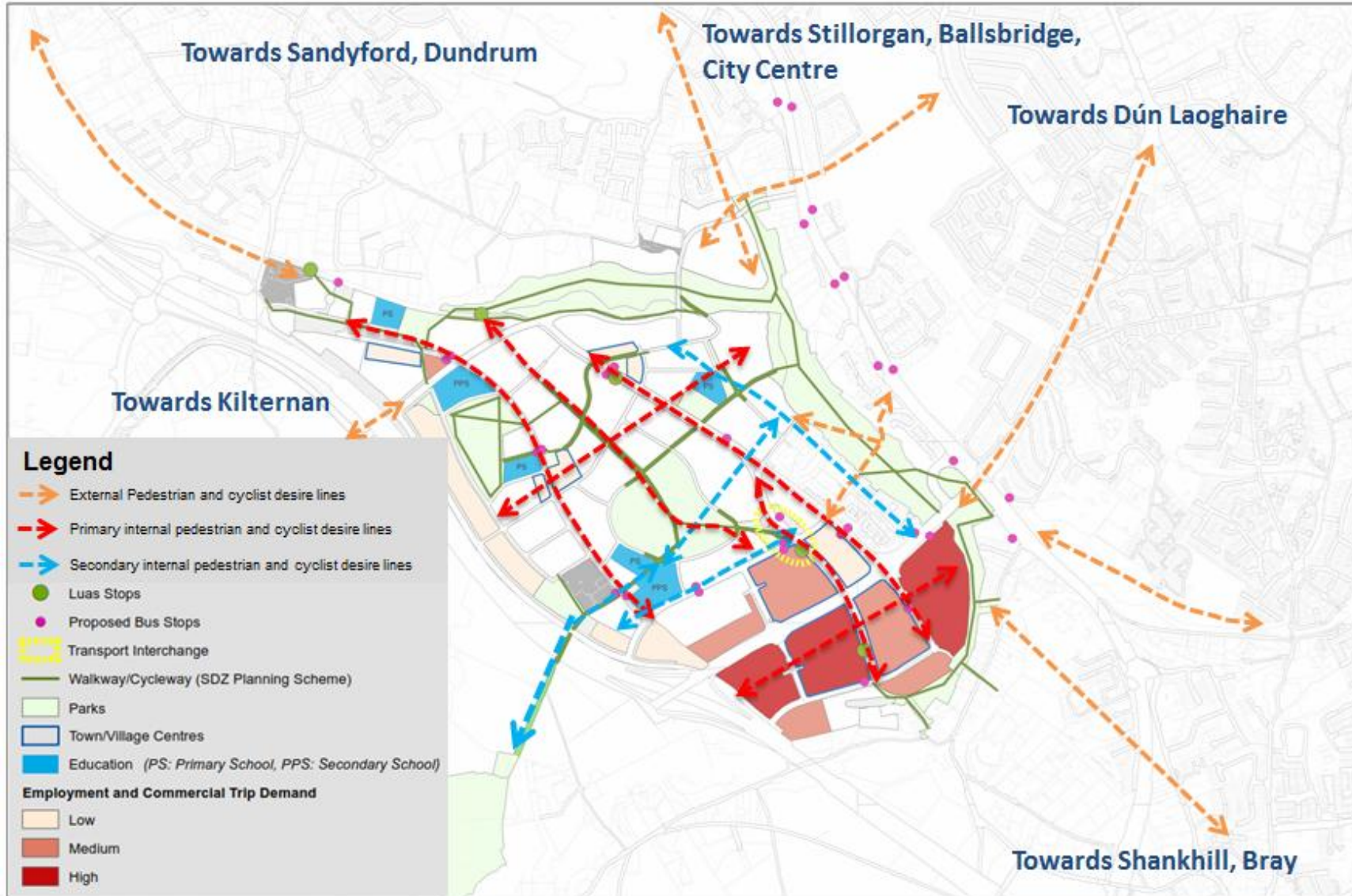


Figure 2.4: Internal and External Pedestrian and Cyclist Desire Lines and Employment and Commercial Trip Generation

The following key points emerge from an analysis of desire lines:

- The location of Cherrywood Town Centre at the southern end of the development area, alongside a large amount of high intensity employment results in strong north-south desire lines **internal** to the development area.
- Five of the six schools planned for the development area are located along Castle Street in the western part of the development area. This will be a key **internal** desire line for many pupils and there will also be large numbers of school journeys between the east and west of the site (some of which will be between the north east and the south west), as residential development is dispersed throughout the SDZ.
- Key **external** desire lines for pedestrians and cyclists can be broken down into five main directions as discussed below.
 - **Sandyford, Dundrum and Tallaght:** Sandyford in particular is expected to be an important employment destination for residents living in Cherrywood and vice versa.
 - **Cornelscourt, Stillorgan, Ballsbridge and the City Centre:** Amongst residents living in Cherrywood and travelling outside the area for work, the largest proportion is expected to be travelling in this direction.
 - **Blackrock and Dún Laoghaire:** Although lower numbers of trips between Blackrock and Dún Laoghaire and Cherrywood are expected, important desire lines still exist.
 - **N11 Bus Stops:** Cherrywood will initially be served by the No. 7 bus route and new routes may also be introduced over time. However, it is not planned to divert strategic services, such as the No. 145, from their current routes on the N11 and hence pedestrian access to these bus stops is an important consideration.
 - **Shankill and Bray:** A very significant proportion of employees working at Cherrywood are expected to be coming from these areas, while a much smaller proportion of Cherrywood residents would also be commuting to employment sites in these areas.
 - **Kiltarnan:** There is likely to be a moderate number of trips from residential areas adjacent to Glenamuck Road and Kiltarnan, as well as Carrickmines retail and business park (“The Park”).

The remaining sections of this report provide a high level strategy for the delivery of walking and cycling accessibility, including proposed greenways, in the context of facilitating movement along the desire lines identified above. It includes recommendations in relation to the planning and design of future development, building on the contents of SDZ Planning Scheme to further enhance the provision for pedestrians and cyclists and outlines methods to provide support for sustainable travel to, from and within the site.

3 Pedestrian Access

3.1 Assessment of Pedestrian Accessibility

This section provides an overview of the key factors which must be considered in relation to accessibility for pedestrians, in the context of the desire lines outlined in Chapter 2 as well as the main trips generators within the site:

3.1.1 Town Centre / Village Centre Connectivity

There will be multiple pedestrian desire lines to the town and village centres from residential properties within the SDZ, from surrounding local areas and from transport stops (bus and Luas). These pedestrian trips are therefore quite dispersed, although there will be a large concentration of trips originating / terminating at the Town Centre to the east where there is a high concentration of employment. An extensive and highly permeable pedestrian network will be required to support pedestrian trips to the town / village centres, as detailed below.

Cherrywood Town Centre: Figure 2.4 outlined several potential north-south desire lines to Cherrywood Town Centre, while Figure 3.1 illustrates the Pedestrian Movement Strategy outlined in the UDF and highlights the town centre desire lines in greater detail.



Figure 3.1: UDF Pedestrian Movement Strategy

Based on the information provided in the abovementioned figures there are a number of recommendations which must be taken into account by future development applicants:

- In general, the identified pedestrian desire lines should be served by pedestrian facilities on the proposed road network, including Grand Parade, Tully Vale Road, the central greenway links through Tully Park and Castle Street.

- As noted in Section 3.1.2, Castle Street will be a key pedestrian link for five out of the six schools in the SDZ, and the proposed footpath width must be generous enough to allow comfortable movement of commuters, school pupils and their parents as well as other pedestrians accessing the Village Centre. It is essential that ample footpaths are provided on this and all other key pedestrian routes to accommodate high volumes of pedestrians (3m wide footpaths are recommended).
- In order for walking to be an attractive mode choice, there must be safe, legible and convenient routes along key desire lines including routes to and within the Town Centre. As such, Wyattville Link Road presents a risk to pedestrian and cyclist connectivity and permeability. The UDFDF outlines that two grade-separated pedestrian crossings of Wyattville Link Road (as outlined in Figure 3.2) connecting the northern and southern quarters of the Town Centre will be provided. Grand Parade is the main north-south running street through the town centre and follows the alignment of the existing Luas line. It will comprise a wide boulevard layout with dedicated footpaths and cycle lanes. It will cross Wyattville Link Road via the Wyattville Link Plaza (See Figure 3.3). A separate pedestrian/cycle bridge will be provided between TC1 and TC3. No crossing of the Wyattville Link Road will be possible in between the pedestrian/cycle bridge and the underpass on Beckett Road at the south west boundary of the site. To mitigate the severance impact of Wyattville Link Road it is important that access routes to these crossing points for pedestrians and cyclists should be made as attractive and direct as possible.

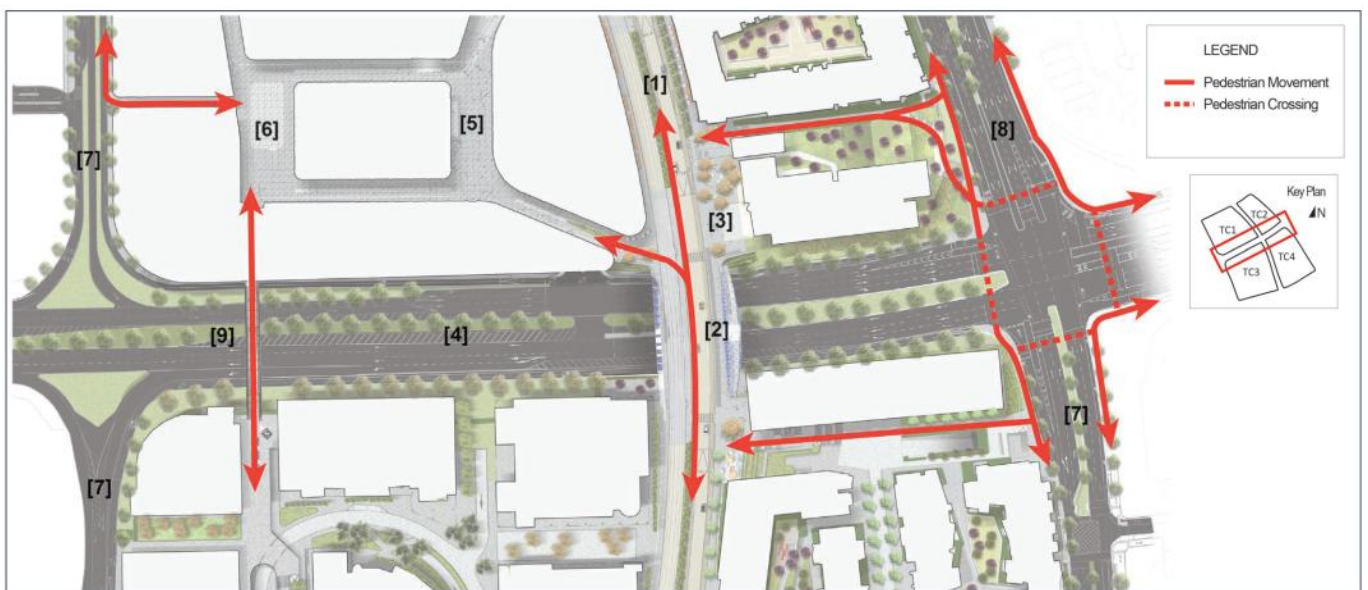


Figure 3.2: Proposed Pedestrian Crossings on Wyattville Link Road

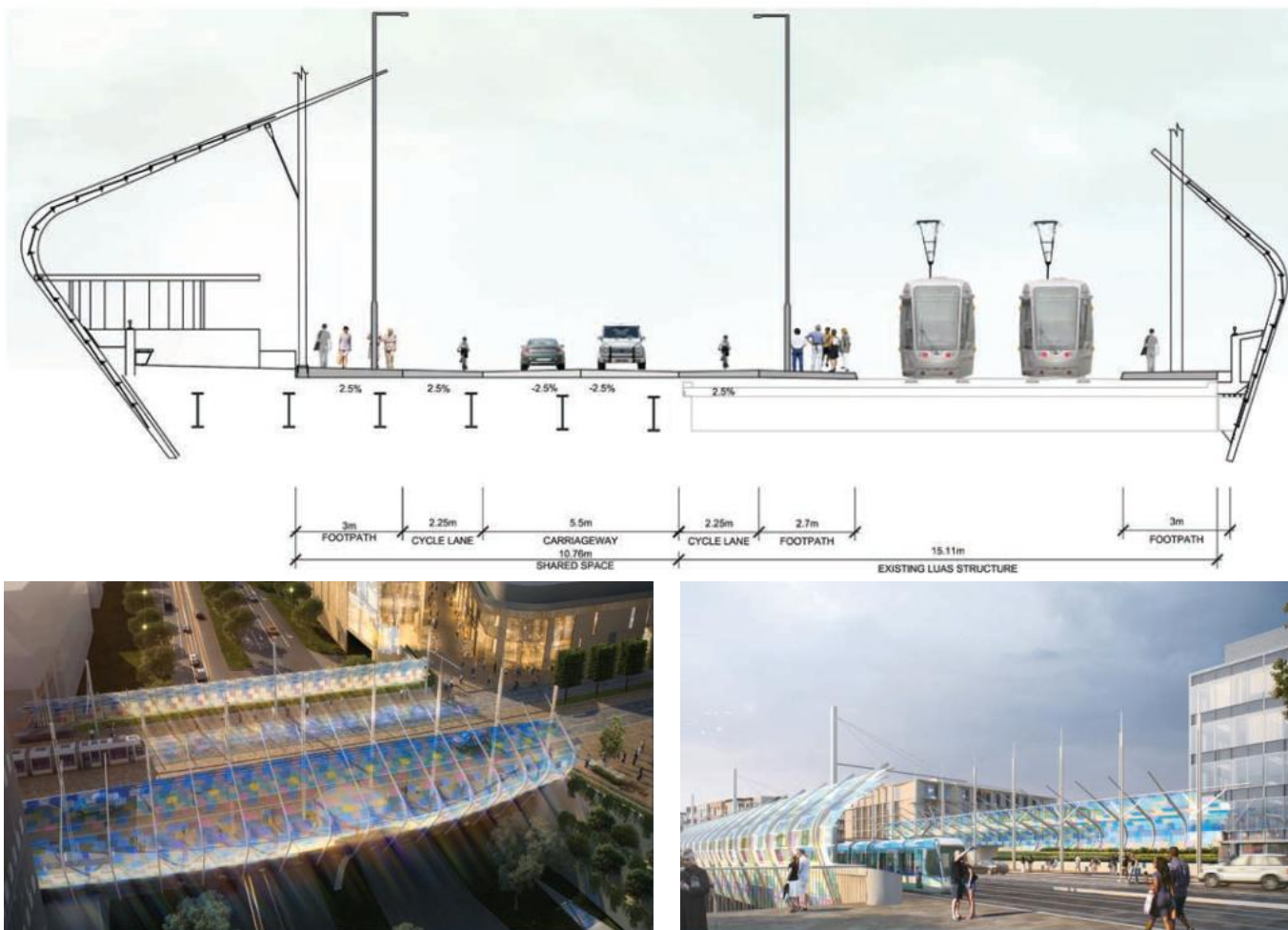


Figure 3.3: Proposed Cross Section and Illustrative Layout for Wyattville Link Plaza

- The layout of town centre is designed to ensure that buildings do not provide direct access on to the Wyattville Link Road and the UDFD explicitly states that at-grade crossing of Wyattville Link Road within the Town Centre is 'positively discouraged'. The design of the Macnebury development area to the west of the town centre, where significant amount of employment will be located, must similarly ensure that it will not facilitate pedestrians attempting to cross Wyattville Link Road at-grade.
- The Grand Parade/Bishop Street junction will be a key pedestrian and cyclist node. Routes from Grand Parade and Bishop Street, as well as one of the two routes from Tully Park converge here and it is also the location of the Cherrywood Luas Stop, the proposed public transport interchange and 'Cherrywood Square' a major civic space and gateway to the Town Centre. It is essential to ensure that the layout and timing of all traffic signals at this junction are designed to give priority to pedestrians and cyclists.
- It is extremely important that there is a high level of permeability through and between development "blocks" within the Town Centre and surrounding employment zones.

Village Centres: There are three village centres proposed as part of Cherrywood SDZ – at Lehaunstown, Priorsland and Tully. Each of these will be accessible via the proposed road network, however it is important that these links provide safe and good-quality crossing opportunities for pedestrians. There will be a strong pedestrian desire line across Grand Parade to Laughanstown Village (following the proposed Lehaunstown Lane Greenway route), across Barrington Road along Castle Street to Priorsland Village and across Castle Street at Tully Village. A high level of pedestrian priority should be provided at these junctions (and other key pedestrian crossing points), including "all red" pedestrian stages at traffic signals where appropriate.

3.1.2 School Connectivity

There will be strong pedestrian desire lines to each of the primary and secondary schools within the SDZ. The mix of residential properties and schools within close proximity in this development presents an excellent opportunity to support and encourage sustainable travel habits at a young age among local school pupils (as well as their parents). Every effort should be made to ensure that key pedestrian routes to schools are safe, convenient and attractive. The following recommendations must be taken into account by all future applicants:

- As shown in Figure 2.4 and noted above, there is a major southeast-to northwest desire line, linking to three primary and two post-primary schools. This route has the potential to be well-served by Castle Street, however it will important that ample footpaths are provided on this and all other key pedestrian routes (3m wide footpaths are recommended).
- Safety will be a key concern of the parents of school going children within Cherrywood. Appropriate crossing facilities at regular intervals and at each school will be required. Traffic calming measures (see below) should be incorporated within road and street designs to promote low vehicle speeds and enhance the pedestrian environment on local and residential streets. The SDZ Planning Scheme identifies roads which have been designated as low speed – for example the proposed speed limit on Castle Street is 30km/h.
- There is a primary school to the north of the site, which has pedestrian desire lines extending into each of the surrounding residential areas. This site should be well served by the adjacent greenway together with sufficient high-quality connections into surrounding residential areas. The provision of additional links between future residential areas and the greenway to the north and east of the school site should be incorporated within future development to facilitate local pedestrian trips to the school. In general, permeable residential development should maximise access to greenways throughout the site and facilitate school trips. There are also a number of existing schools in the vicinity of Cherrywood SDZ, and it is likely that some pupils living within the SDZ will attend these. In particular, there is a cluster of primary and secondary schools to the east of the site in the vicinity of Loughlinstown / Ballybrack, including St Laurence College directly north east of the SDZ (across the N11). These schools will be accessed via the external network – see section 3.1.3 and 4.1.4 for further details.

3.1.3 External Network Connectivity

As noted in Section 2.2 above, the Cherrywood development is likely to attract trips from the surrounding local area. In order to maximise the modal share for trips on foot, attractive and convenient links between the SDZ and the surrounding external road network must be provided. As well as employment and education trip attractors in the wider area, there are other local trip attractors in the immediate vicinity of the SDZ which are likely to be accessed by residents and employees from Cherrywood. These local attractors include Ballybrack Football Club, Seapoint Rugby Club Kilbogget Park, Carrickmines Golf Club and Cabinteely Park.

The following recommendations in relation to external network connectivity must be accounted for as part of any relevant future developments:

- There is a need for new/improved links from the SDZ to the N11 located between the Druids Glen and Wyattville access points, to accommodate pedestrian and cyclist movements to/from bus routes on the N11 as well as pedestrian and cyclist movements to and from residential areas to the northeast of the site on the opposite side of the N11. It is recommended that two new links are provided in line with the pedestrian (and cyclist) desire lines illustrated in Figure 2.3 and 2.4. This would provide enhanced connectivity for trips between the N11 (and beyond) and Cherrywood Town Centre, the Domville development area and existing development at Tully Vale.
- It is likely that there will be significant pedestrian and cyclist movements to/from the north-east and east of the site (towards Dún Laoghaire and Killiney) particularly as bus stops in this direction which are served by strategic routes on the N11 will be the closest such stops to parts of Cherrywood Town Centre and surrounding high intensity employment. Wyattville Link Road represents the most direct route to the N11 from the Town Centre and, as such, is likely to attract a large volume of pedestrians and cyclists. Pedestrian facilities will not be provided on the grade-separated section of Wyattville Link Road through the Town Centre and pedestrian access to/from the Town Centre will therefore be via Tullyvale Road and Cherrywood Avenue, as outlined in the Pedestrian Movement Strategy of the UDFD. However, Wyattville Link Road is the main vehicular access route to the SDZ area from the N11 and its junction with Tully Vale Road / Cherrywood Avenue ('Junction A' in the SDZ Planning Scheme) will present a significant barrier to pedestrian movements, due to its size and strategic traffic

function. As such, it is not desirable situation to have all pedestrian movements between the Town Centre and the N11 directed through this junction. With this in mind, the following measures are suggested to reduce potential pedestrian congestion at this location:

- Alternative pedestrian and cyclist accesses parallel to Wyattville Link Road should be delivered to ensure safety and ease of access. These alternative routes should be incorporated within highly permeable blocks of development for Cherrywood Town Centre and surrounding areas, and should also connect to the external network. For example, a pedestrian and cycle route through and to the rear of the existing Tullyvale/Gleann na Rí residential area and tying into the 'D' loop can provide more direct access from some parts of Cherrywood to the northern section of Wyattville Link Road and on towards the N11. This route is included in the UFDF as a 'secondary pedestrian route'
- Pedestrian crossings should be provided at optimum locations on Tullyvale Road and Cherrywood Avenue, to allow pedestrians to cross to/from the Town Centre at multiple locations, rather than solely at Junction A. these crossings will also be necessary to provide safe and convenient access to the Town Centre for passengers using the bus stops on these roads (see Section 3.1.4)

3.1.4 Public Transport Connectivity

As illustrated in Chapter 2, the key desire lines for public transport services are focussed on Grand Parade (where there are four Luas Stops and a Bus / Luas interchange) as well as bus stops along Bishop Street and Castle Street. The following recommendations in relation to planning and design for public transport connectivity and accessibility must be taken into account by all future applicants:

- It is important to ensure that there is sufficient footpath width along public transport routes to accommodate waiting passengers and pedestrians, and to avoid pedestrian and passenger "overspill" onto adjacent cycle paths.
- As noted above, the public transport interchange at the Cherrywood Luas Station (at the Grand Parade / Bishop Street junction) will likely be a very busy pedestrian node and it is essential that there is adequate pedestrian priority provided at this location.
- To the north-west of the site, there is a desire line between the central greenway and the Brennanstown Luas Stop. To enhance the permeability of the pedestrian and cycle network and support sustainable travel, this link could be continued to the Brennanstown Luas Stop by ensuring permeability through the residential blocks which align with the end of the greenway as it is currently proposed. An additional pedestrian and cycle crossing on Barrington's Road would also be required as part of this link.
- In general, bus and Luas stops should be high quality and provide a safe and comfortable environment for waiting passengers. There should be ample footpath space for those waiting, as well as shelter, seating and adequate lighting. Real Time Passenger Information (RTPI), timetable and route information should be provided at all stops and potentially in other key locations such as Town / Village Centres.
- As established in the above section on external network connectivity, there is a need for new links from the SDZ to the N11 located between the Druids Glen and Wyattville access points, to accommodate pedestrian and cyclist movements to/from bus routes on the N11.
- The Public Transport Movement Strategy in the UFDF (Illustrated in Figure 3.4) outlines additional bus stops on Tully Vale Road and Cherrywood Avenue that were not included in the original SDZ. The UFDF also notes that these stops are to be provided in tandem with adequate pedestrian crossings, to ensure safe and convenient pedestrian access to and from.



Figure 3.4: UDFD Public Transport Movement Strategy

3.1.5 Urban Design

Design of the urban environment within Cherrywood will have a direct impact on the potential for walking. Various factors will influence the quality of the walking environment such as the development patterns which optimise walking permeability, encouraging active frontage and natural surveillance onto footpaths and the pedestrian network, facilitating active open spaces, encouraging car free design, provision of natural shelter and providing an interesting and pleasant environment to walk in.

It is essential that consideration is given to the impact of design and development patterns on walking distances, particularly given the ambitious targets set for internal walking trips. The scale and layout of the SDZ will result in many trips throughout the extent of the site – for example there is likely to be high volumes of trips between schools to the west of the site and high density residential development located in the northeast of the site and Cherrywood Town Centre to the south. Journey distances and times must be within desirable limits in order for walking to be considered an attractive and viable mode option. Many factors will influence pedestrian journey times, including block permeability, correspondence of routes with desire lines, topography, crossing opportunities and wait times. Due cognisance must be given to this issue as part of the planning and design process. All pedestrian routes should have ample lighting (which provide light to footpaths as well as traffic lanes), to provide a sense of personal security to pedestrians at night. Planted verges should not obstruct visibility of / sight-lines for pedestrians. Pedestrians should be able to see other pedestrians / cyclists on approach and should be visible to passing cars.

3.1.6 Other Factors

The following points should also be taken into account by future applicants as part of the planning and design process, in order to maximise pedestrian accessibility to and within Cherrywood:

- **Infrastructure provision:** It is important to ensure that ample and high quality footpath provision is incorporated within all designs, particularly in areas where high volumes of pedestrians are expected (for example within Town

and Village Centres, along Castle Street, Grand Parade and Bishop Street). Opportunities to create pedestrian and cycle only streets should be maximised. .

- **Entryways and Signage:** Key pedestrian routes should be clearly sign-posted, with walking times to key destinations to encourage walking for short trips (for example “*X minutes’ walk from this Luas Stop to Village Centre*” etc). Greenways and quieter pedestrian routes can often form a “secondary layer” of the road network and are not always obviously located. It is important that signage and entryway treatments are clearly visible to assist pedestrians in choosing the optimum route.
- **Traffic Calming:** In order to provide safe, attractive pedestrian routes, roads should be designed in such a way as to ensure compliance with the speed limits on the road hierarchy set out in the Cherrywood Planning Scheme, in addition to slowing traffic in any other locations where this may be appropriate, such as near greenway crossings and the village centre on Grand Parade. A wide range of design elements including surface treatments, the inclusion of street furniture, signage and traffic calming may be needed to support low vehicle speeds. The principals of the Design Manual for Urban Roads and Streets (DMURS) must be strictly adhered to, to ensure that best practice design outcomes are achieved.

3.2 Recommendations Summary

The Cherrywood SDZ Planning Scheme proposes an extensive pedestrian network throughout the site. However in order to maximise opportunities to support and encourage pedestrian trips the following recommendations are proposed to enhance accessibility and connectivity for pedestrians:

1. The Bishop Street / Grand Parade junction and public transport interchange should provide a high quality environment for pedestrians and passengers, including signal timing at the crossing facilities which prioritises pedestrian movement, as well as ample footpath and waiting area capacity and waiting facilities (such as seating, shelter and service information). High quality waiting facilities should also be provided at all other bus and Luas stops throughout the development area.
2. In order to mitigate the severance issues caused by level differences and limited crossing opportunities on Wyattville Link Road, it is essential that every effort is made to maximise connectivity corresponding to key desire lines to/from the Town Centre.
3. There is an opportunity for the central greenway link through Tully Park to be continued west to link through to Brennanstown Luas Stop.
4. It is recommended that there are pedestrian and cyclist connections through to the N11 (linking to N11 bus routes and residential / employment areas to the north) from the centre of the northern-eastern boundary of the SDZ, corresponding with the desire lines shown in Figure 2.3.
5. It is recommended that alternative pedestrian/cycle routes are provided parallel to Wyattville Link Road, from the east and south east of the site, to provide alternatives to using the Wyattville Link Road/Cherrywood Avenue junction for access to the town centre.
6. Footpath provisions in high volume areas should provide adequate width to comfortably accommodate anticipated pedestrian movements and pedestrian priority may be considered for some links and crossings with reference to the NTA's Traffic Management Guidelines.
7. Lighting provision should provide adequate lighting for footpaths as well as roadways, avoiding any obstruction for pedestrians when positioning lighting columns.
8. Planting and landscaping proposals should not obstruct visibility or sight-lines for pedestrians or create personal safety concerns.
9. There should be high-quality signage and entryway treatments for pedestrian routes, to ensure they are clearly identifiable and legible. It would also be preferable to have wayfinding maps at key locations such as town / village centers, parks and public transport stops.
10. Street design should incorporate elements to encourage low vehicle speeds where appropriate, for example on predominantly residential streets, in the vicinity of schools and within town / village centres. This could potentially include a change in carriageway surface treatment, signage, narrower vehicle lane widths and the presence of street furniture and landscaping to indicate a pedestrian priority zone. The principals of the Design Manual for Urban Roads and Streets (DMURS) must be strictly adhered to in ensuring that best practice design outcomes are achieved.
11. The elements indicated above will need to be integrated in the Urban Form Development Framework especially with regard to the design of the public realm.

4 Cyclist Access

4.1 Assessment of Cycling Accessibility

In general, one of the main barriers to cycling in Cherrywood is likely to be the hilly terrain within and surrounding the Cherrywood Planning Scheme area. This may result in some cyclists opting to use the road network rather than a greenway route, if the road network presents a less steep gradient (or a more direct route). Therefore, the greenway network should be considered as just one component of the overall cycle network, which must be supplemented by high-quality cycle paths along the main road network.

The remainder of this section provides an overview of the key factors to be considered in relation to accessibility for cyclists. The recommendations are made in the context of the desire lines outlined in Chapter 2 as well as the main identified trips generators within the site.

4.1.1 Town Centre / Village Centre Connectivity

Recommendations for improved cycling connectivity to and within the proposed Town Centre and Village Centres are as follows:

Cherrywood Town Centre: Figure 2.4 outlined several potential north-south desire lines to Cherrywood Town Centre, while Figure 4.1 illustrates the Cycle Movement Strategy outlined in the UDF and highlights the town centre desire lines in greater detail.



Figure 4.1: UDF Cycle Movement Strategy

In general, the main north-south desire lines should be served by cycle routes on the proposed road network and greenway network as outlined in the SDZ Planning Scheme, including cycle routes along Grand Parade, Tully Vale Road, Castle Street and the central greenway links through Tully Park. However, there are a number of recommendations which must be taken into account by all future applicants:

- In order for cycling to be an attractive mode choice, there must be safe, legible and convenient routes along key desire lines including routes to and within the Town Centre. As outlined previously, gradients in Cherrywood present a challenge to the convenience of cycling. In particular, the Cycle Movement Strategy within the Cherrywood UFDF indicates that cyclists traversing a number of links both to and through the town centre will need to use steps or lifts. To ensure security, the design of these lifts should ensure that they are well lit, built of transparent materials and clearly located, in order to provide passive surveillance. They should also be larger than standard sized lifts, to accommodate multiple / larger-sized bicycles (such as cargo bikes). Where possible, lifts should allow access from opposite sides on different levels so that there is no requirement to reverse or turn bicycles to exit. In addition, it should be recognised that many people will prefer not to wait for a lift. Therefore, steps should also be provided with a 'wheeling ramp' for bicycles. To eliminate any strain experienced when pushing bikes up a ramp, modern systems are now available which include a conveyor belt and these should be deployed wherever possible. In addition, it is important that ramps used for pushing bikes down steps provide sufficient friction (e.g. 'gutter brushes').
- As detailed in Section 3.1.1, Wyattville Link Road presents a barrier to pedestrian and cyclist connectivity and permeability. The UFDF indicates two grade-separated crossings over Wyattville Link Road in the town centre (as illustrated in Figure 4.1) For cyclists, the potential severance impact of Wyattville Link Road is exacerbated by the fact that the access to the pedestrian/cycle bridge between TC1 and TC3 will be via steps or lift. As outlined above, 'wheeling ramps' should be included in the design of steps, in order to provide an alternative to waiting for a lift. This is particularly important at this location as the bridge is a key part of a direct route from the western part of Cherrywood and the central greenway to TC3, (where a significant amount of employment will be located) and therefore the bridge may be busy with commuters at peak times.
- While the Cycle Movement Strategy in the UFDF outlines that the primary cycle routes are generally away from Wyattville Link Road, this link is outlined as a secondary cycle route to/from the western sides of the Town Centre. Cycle facilities are to be provided on the grade-separated section of Wyattville Link Road through the Town Centre. These facilities should be segregated and designed in accordance with the NTA Cycle Manual so as to ensure cyclist safety on this section of road.
- It is essential that there is a high level of permeability for cyclists through and between development "blocks" within the Town Centre and surrounding employment zones and the UFDF outlines a number of tertiary cycle routes to this effect, through the Town Centre.
- As referred to previously in Section 3.1.1, the Grand Parade/Bishop Street junction will be a key node for both cyclists and pedestrians. Primary cycle routes on Grand Parade and Bishop Street converge here, while the junction also contains one of two links between the town centre and the greenway in Tully Park. It is therefore important that the design of this junction is safe and attractive for cyclists and that journey time delay for cyclists minimised as much as possible.

Village Centres: Each of the three village centres will be served by the proposed greenway network. It is important that particular attention is paid to the provision for cyclists within these village centres as well as at junctions on key routes. Segregated cycle facilities designed in accordance with the NTA Cycle Manual should be incorporated as much as possible along key pedestrian/cyclist desire lines, as this type of facility is widely perceived as the safest and most attractive – therefore provision of such facilities is likely to encourage greater numbers of cycling trips. It is important that segregated cycle paths provide continuous links between key trip attractors in order to minimise interactions between cyclists and vehicles.

There are a number of locations where the proposed greenway network crosses the road network. In particular there are strong desire lines for cyclists to access Lehaunstown Village Centre at the junction of the Lehaunstown Lane Greenway route and Grand Parade. Detailed design in these areas must focus on safe integration of the Greenway to the road network and facilitating safe crossing points.

4.1.2 School Connectivity

Integration of the cycling network with proposed schools could present significant benefits, especially in ensuring that sustainable travel is encouraged from a young age. The following recommendations must be taken into account as part of future planning and design:

- As noted above, segregated cycle facilities should be incorporated as much as possible along key cyclist desire lines – particularly on key routes to schools (such as Castle Street). Safety is a key concern of parents, and fully

segregated cycling facilities which provide a continuous link between residential areas and schools are likely to provide the most benefit in terms of actual and (in particular) perceived safety. The Bus Gate proposed for the western end of Castle Street will result in reduced levels of through traffic while in operation and therefore will mitigate safety concerns to some extent. However, there is still a key opportunity to optimise segregated facilities here and therefore maximise the real and perceived safety of cycling to schools and other destinations on the street.

- Some pupils living in the existing Tully Vale development and in new residential areas to the north and east of Tully Vale Road/Grand Parade will need to cross Tully Vale Road or Grand Parade to access the greenway network and local schools within Cherrywood. It is essential that safe and convenient crossing points suitable for both cyclists and pedestrians are provided.
- As noted in Section 3.1.2, it is likely that some pupils living with the SDZ will access schools in the surrounding vicinity of Cherrywood SDZ via the external network– see sections 3.1.4 and 4.1.4 for further details of the external network.

4.1.3 Public Transport Connectivity

Each of the proposed public transport hubs will be well connected to the cycle network outlined in the SDZ Planning Scheme. The following recommendations must be considered in relation to planning and design for public transport connectivity and accessibility:

- Conflict between cycle paths and bus stops should be minimised, to avoid situations where cyclists must “give-way” to buses or where there is potential conflict between cyclists and passengers waiting at bus stops.
- As there are two DART stations within approximately 3km of Cherrywood (Killiney and Shankill), there is potential to encourage ‘bike and ride’ amongst those commuters who are better served by the DART line than by Luas or bus. Access to these areas is covered in the Section (4.1.4).
- Consideration should be given to the provision of a public bicycle hire scheme, in order to enhance access and connectivity to public transport services within Cherrywood and surrounding areas.

4.1.4 External Network Connectivity

Connectivity to areas outside of Cherrywood for cyclists will be influenced by existing networks, the progress of planned schemes outside of the development area and by the connections between various parts of Cherrywood and these external links. As well as employment and education trip attractors in the wider area, there are other local trip attractors in the immediate vicinity of the SDZ which are likely to be accessed by residents and employees from Cherrywood. These local attractors include Ballybrack Football Club, Seapoint Rugby Club Kilbogget Park, Carrickmines Golf Club and Cabinteely Park.

Existing and proposed routes within the vicinity of Cherrywood are shown in Figure 4.2. It is essential that future development takes account of the following issues in relation to the main external desire lines:

- **Sandyford and Dundrum:** There are currently two main possible routes from Carrickmines to Sandyford - the Ballyogan Road or the existing road to the west of Leopardstown Race Course. The proposed Carrickmines Greenway along the eastern edge of Leopardstown Race Course as proposed in the GDA Cycle Network plan would further improve the attractiveness of cycling in this direction. Internally, the importance of connectivity between Carrickmines and the remainder of Cherrywood, particularly Cherrywood Town Centre, is increased by the need to facilitate connectivity to Sandyford.
- **Cornelscourt, Stillorgan, Ballsbridge and the City Centre:** The Cherrywood to Cornelscourt Greenway will connect the north east of the Cherrywood planning scheme area (at Brennanstown Road) to Cornelscourt via Cabinteely Park. It is also proposed to extend this route south-east into the linear park to the north of the site. The Cherrywood to Cornelscourt Greenway will provide a fully segregated pedestrian and cycling route parallel to the N11, and will serve four schools in close proximity to the route (St. Brigid’s Girls National School, Cabinteely Community School, St. Brigid’s Boys National School and Loreto College Foxrock). This scheme is currently at an advanced stage of planning. It should be expected that some cyclists will travel along the proposed Druid’s Glen Road or Brennanstown Road before joining the greenway and it is important the connection from Lehaunstown Lane to Brennanstown Road should be retained for pedestrians and cyclists. Route 12 of the proposed GDA Cycle Network is proposed to run along the alignment of the N11 and should

improve connectivity to the City Centre. Connectivity will be further enhanced by the provision of new links between the N11 and Cherrywood SDZ, as outline in section 3.1.3.

- **Blackrock:** There is for a desire line for cyclists to cross the N11 at the proposed new signalised junction with Druid's Glen Road and connect at Kilbogget Park with the Loughlinstown to Deansgrange greenway. The proposed N11 crossing at this junction will provide an important link to the external network. Access into and through Kilbogget Park for cyclists may require improvement. Some cyclists may also opt to travel via Johnstown Road and Rochestown Avenue, crossing the N11 at the junction with Brennanstown Road. There is presently no crossing at this location, however, a junction upgrade is planned and due for completion in 2016.
- **Dún Laoghaire:** Some cyclists travelling to and from Dún Laoghaire may travel through Kilbogget Park to Churchview Road and this should be facilitated by new and improved links to and across the N11 as discussed previously. However, others, particularly coming from the south of the planning scheme area will travel along Wyattville Link Road which is part of the most direct route to Killiney Dart Station. Junction A (Tully Vale Road/Wyattville Link Road) is part of the strategic road network and plays an important role in serving vehicular traffic. As a result, it is not an ideal route for pedestrians and cyclists. This junction presents a barrier to the Town Centre and therefore discourages use of surrounding cycle facilities which form part of the GDA cycle network. Opportunities to provide alternative routes which avoid this junction while still tying into the 'D' loop where possible (to provide access to the northern section of Wyattville Link Road) must be maximised. The Cycle Movement Strategy in the UDF outlines that the primary cycle routes to the N11 from the Town Centre are away from Wyattville Link Road.
- **Shankill and Bray:** Route 12A of the GDA Cycle Network is proposed along the Dublin road towards Shankill and Bray. This route presents an important opportunity to provide a more direct connection from external areas to the south east to Cherrywood Town Centre and surrounding employment sites, which may also be expected to offer a more gradual gradient than the existing routes. Two proposals are included in the Cherrywood Planning Scheme to connect with this route. One of these routes, which is partly in place, is via the Loughlinstown Main Street/Old Bray Road and provides good connectivity to the linear park and the north eastern part of Cherrywood. The second proposed route via Brides Glen viaduct and the grounds of Loughlinstown Hospital is not yet developed; however this option presents the most appropriate access for cyclists travelling to / from Shankill and Bray.
- **Kiltarnan:** A new link road from Cherrywood towards Kiltarnan (crossing over the M50) is proposed as part of the SDZ Planning Scheme (Kiltarnan Link Road). This route will provide an important link from Cherrywood to residential areas adjacent to Glenamuck Road, to Kiltarnan and to Carrickmines retail and business park ("The Park"). It is important to ensure that the pedestrian and cycling facilities provided along this route are of high-quality and fully segregated (for cyclists).

4.1.5 Urban Design

Design of the urban environment within Cherrywood will have a direct impact on the potential for cycling . Various factors will influence the quality of the cycling environment such as development patterns which optimise permeability, encouraging active frontage and natural surveillance onto network, facilitating active open spaces, encouraging car free design, provision of natural shelter and providing an interesting and pleasant environment to walk in.

Consideration must be given to the impact of design and development patterns on cycling distances, particularly given the ambitious targets set for internal trips. The scale and layout of the SDZ will result in many trips throughout the extent of the site – for example there is likely to be high volumes of trips between schools to the west of the site and high density residential development located in the northeast of the site and Cherrywood Town Centre to the south. Journey distances and times must be within desirable limits in order for cycling to be considered an attractive and viable mode option. Many factors will influence journey times, including block permeability, correspondence of routes with desire lines, topography, crossing opportunities and wait times. Due cognisance must be given to this issue as part of the planning and design process.

All routes should have ample lighting (which provide light to footpaths as well as traffic lanes), to provide a sense of personal security to pedestrians at night. Planted verges should not obstruct visibility of / sight-lines for pedestrians. Cyclist should be able to see other pedestrians / cyclists on approach and should be visible to passing cars.

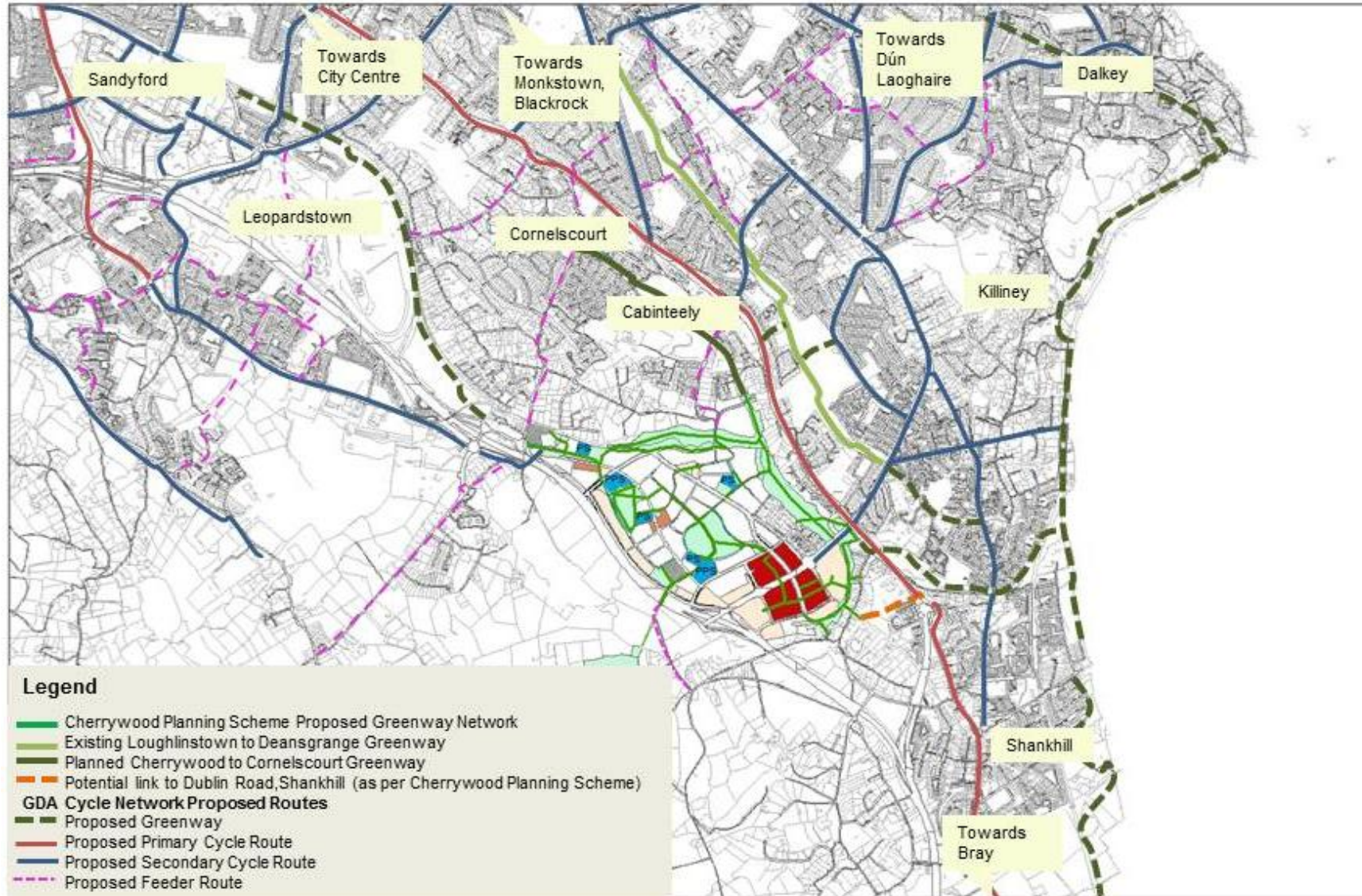


Figure 4.2 – GDA Cycle Network in the Cherrywood Area

4.2 Recommendations Summary

The cycle network proposed within the SDZ Planning Scheme is extensive, with provision of segregated cycling facilities along considerable sections of the network. However, in order to further enhance the quality of the network and therefore support and encourage cycle trips to and within the SDZ, the following recommendations should be considered:

1. A high level of permeability should be afforded to cyclists to ensure that direct routes to destinations are available where possible and provide opportunities to reduce the time spent on major roads. This should include permeability through and within development “blocks”. Where steps and lifts are required on links, their design should maximise cycling permeability. To ensure security, the design of these lifts should ensure that they are well lit, built of transparent materials and clearly located, in order to provide passive surveillance. They should also be larger than standard sized lifts, to accommodate multiple / larger-sized bicycles (such as cargo bikes). Where possible, lifts should allow access from opposite sides on different levels so that there is no requirement to reverse or turn bicycles to exit. Bike wheeling ramps/channels should be added to steps as an additional option for cyclists with more standard bicycles to reduce delay caused by waiting at lifts.
2. Opportunities to provide alternative routes for cyclists to Wyattville Link Road must be maximised. These include: potential improved links to the N11 between the Druids Glen and Wyattville access points; links which tie in with the ‘D’ loop (thereby providing access to Wyattville Link Road) but avoid Wyattville Link Road/Tully Vale Road junction; and links to the proposed Shankill / Bray cycle route (see below) via Brides Glen viaduct and/or the grounds of Loughlinstown Hospital. The use of alternative routes may be somewhat limited if they divert significantly from cyclist desire lines, however alternative routes should nonetheless be provided as close as possible to desire lines to accommodate and encourage cyclists who prefer to avoid busy roads and intersections.
3. Street design should incorporate elements to encourage compliance with the speed limits set out in the Cherrywood SDZ Planning Scheme and to encourage low vehicle speeds where appropriate, for example on residential streets, in the vicinity of schools, within town / village centres and in the vicinity of greenway crossings. The principals of the Design Manual for Urban Roads and Streets (DMURS) must be strictly adhered to in ensuring that best practice design outcomes are achieved.
4. Segregated cycle facilities designed in accordance with the NTA Cycle Manual should be incorporated as much as possible along key desire lines, as this type of facilities is widely perceived as the safest and most attractive – therefore provision of such facilities is likely to encourage greater numbers of cycling trips. It is important that segregated cycle paths provide continuous links between key trip attractors in order to minimise interactions between cyclists and vehicles.
5. Lighting provision should provide adequate lighting for cycle paths as well as roadways, avoiding any obstruction for cyclists when positioning lighting columns. The National Cycle Manual recommends a minimum clearance of 0.5m between lighting columns and cycle lanes or tracks.
6. It is recommended that “island” style bus stops (as detailed in the National Cycle Manual) are considered to provide a high level of priority to cyclists where there are potentially high volumes of buses anticipated in the future, particularly on Castle Street where safe and fully segregated facilities are strongly recommended to improve access to local schools.
7. Gradients should receive particular attention when considering the required design speed of cycling infrastructure, particularly any greenway routes on which cyclists share space with pedestrians.
8. Adequate provision must be made for cycle parking at all key locations, including Luas and bus stops, parks and recreational facilities, schools, workplaces and town / village centres. Cycle parking should be secure, covered and accommodate a variety of bikes including bikes with trailers etc. Bike lockers should also be provided for optional additional security, particularly at public transport stops where bikes will be left unattended for prolonged periods. It is also recommended that scooter parking is provided at locations likely to have large numbers of children such as schools and parks. Signage advising of best practice locking procedures should be incorporated into cycle parking areas, to further increase security.

5 Greenway Network

5.1 Proposed Greenway Network

A network of greenway (walking / cycling) routes which link to green spaces and parks is proposed as part of the Cherrywood SDZ Planning Scheme. The proposed greenway network is extensive, and includes Lehaunstown Lane, Tully Park link and Beckett Park link as well as a route through the linear park to the north of the SDZ. The extent of this network is shown in Figure 5.1.

The greenway network connects with each of the town and village centres within the planning scheme area, as well as to all schools and to public transport interchanges. It is intended that these routes will extend and integrate with other external greenways, providing walking and cycling connectivity to the wider area.

However, as noted in Section 4.1, the greenway network forms one component of the overall walking and cycling networks and in isolation would not provide sufficient connectivity and accessibility to support the high levels of walking and cycling desired for the site. Gradients, directness and safety (traffic / lighting / surveillance) will all impact on the route chosen by individual walkers and cyclists. Therefore, the provision of a network of high-quality route options for different end users - incorporating both greenways and roadway cycle facilities - must be included within future planning and design.

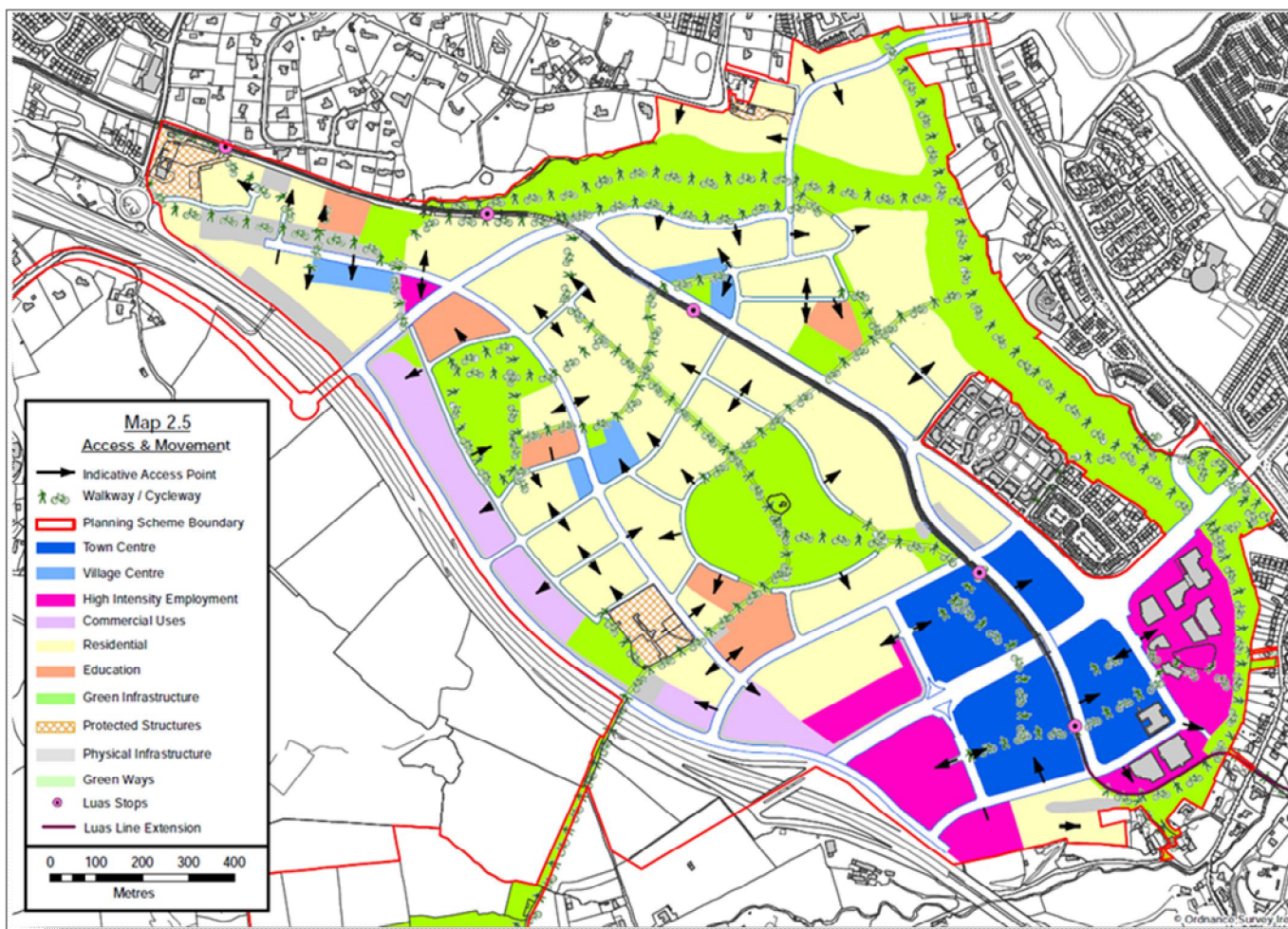


Figure 5.1: Greenway Network - Cherrywood Planning Scheme

It should be noted, however, that the 'Pedestrian Movement Strategy' and 'Cycle Movement Strategy' contained within the UDF, outlined previously in Figure 3.1 and Figure 4.1, respectively, supersede the greenway network map above and provide more detail with regard to planned walking and cycling routes in and around the town centre (although all routes may not be greenways). For example, the planned location of the pedestrian and cycle bridge between TC1 and TC3 is further north than shown on the greenway map, while an additional link from Tully Park is also planned and will connect with the western part of TC1 (Bishop Street Square) and provide a more direct route for some pedestrians and cyclists from Tully Park to the town centre than the Grand Parade/Bishop Street junction.

5.2 Assessment of Greenway Connectivity

This section provides an overview of the key recommendations which must be considered in relation to accessibility for pedestrians and cyclist on the proposed greenway network, in the context of the desire lines outlined in Chapter 2 as well as the main trips generators within the site:

5.2.1 Town Centre / Village Centre Connectivity

Pedestrian / cycle movements across Grand Parade at Lehaunstown Lane is likely to form one of the main north-south routes through the SDZ. A high level of priority should be afforded to pedestrians and cyclists and this crossing point should form part of a safe attractive route to Lehaunstown Village.

5.2.2 School Connectivity

The connections from the greenway network to schools provide a major opportunity to develop sustainable travel habits from a young age; however, the following considerations must be included as part of all future planning and design:

- As mentioned above, the Lehaunstown Lane crossing of Grand Parade should ensure a high level of priority for pedestrians and cyclists, as this forms part of a key route from residential areas in the north-east of the site to schools to the west.
- There are a number of other points where the greenway network crosses the road network which are particularly important for school journeys. The greenway route which links the centre of the linear park with Tully Park crosses Grand Parade, while the greenway route which runs along the north of the site crosses the Luas tracks near Brennanstown Luas Stop. There are also four greenway crossing points on Castle Street.

5.2.3 External Network Connectivity

As a wider examination of external network connectivity has already been undertaken in previous sections, the following points focus specifically on the extent to which proposed greenway routes may be used to access external networks.

- The proposed greenway to the new entrance at Druid's Glen Road is less direct when coming from the west of the site than Druid's Glen Road, and it should thus be assumed that high numbers of pedestrians and cyclists will use Druid's Glen Road to access external networks which should be accounted for in its design.
- In the south-east of the development area, the greenway (as marked in the original SDZ documents) takes a circuitous route, while the more direct Wyattville Link Road provides a poor environment for walking and cycling. As mentioned previously, additional walking and cycling connections to the N11 are required, and links which tie into 'D' loop (i.e. provide access to Wyattville Link Road across the N11 but avoid Wyattville Link Road/Tully Vale junction) are also very important to ensure a safe and direct network is available for pedestrians and cyclists..
- The proposed greenway access points along the south eastern perimeter of the area are key to improving access to and from the south east in conjunction with new proposed routes to the Dublin Road/Shankill.

5.2.4 Public Transport Connectivity

The proposed greenway network connects to public transport interchanges at Carrickmines and Cherrywood, as well as the Lehaunstown Luas Stop. There are a few additional opportunities to improve connectivity:

- As mentioned previously, there is an important opportunity to connect the proposed greenway network to bus stops at the N11 directly to the east of the development area. There is also an opportunity to connect Lehaunstown Lane to the Brennanstown Luas Stop. This may involve ensuring permeability through the

residential blocks which align with the end of the proposed greenway. An additional crossing of Barrington Road would also be required.

5.2.5 Other Factors

The following points should also be taken into account by future applicants as part of the planning and design process, in order to maximise greenway accessibility to and within Cherrywood:

- **Visibility:** Where possible, development should front onto the greenway network in order to ensure vibrancy and a level of passive security. This would also help to ensure the prominence of the greenway network as an obvious transport option.
- **Lighting:** Adequate public lighting must be provided in order to improve perceived and actual safety on greenway routes, although it is acknowledged that the level of lighting which can be provided may be restricted by the requirement not to impact on important wildlife habitats.
- **Entry Treatments and Crossing Points:** Entry treatments and appropriate signage are needed where greenways cross the road network. For example, signage may be required to highlight the greenway crossing to drivers on the road or to highlight the presence of the crossing to cyclists on the greenway. Raised tables may be appropriate in some locations to increase the comfort and protection offered to pedestrians and cyclists, particularly as it is expected that these crossings will be used by large numbers of school children. It is important that any gateway or entry treatments which may be required on greenway networks do not restrict access to greenways by users with larger than average bikes such as cargo bikes.

The timing of signalised crossings should afford a high level of priority to pedestrians and cyclists using the greenway, and the location and alignment of crossing points should correspond with desire lines as closely as possible (avoiding skewed movements for pedestrians and cyclists).

- **Interaction between Pedestrians and Cyclists:** The greenway network must be of adequate width to allow efficient commuting and to minimise conflicts between users. On key commuting routes which will be used by large numbers of pedestrians and cyclists, the two modes should be separated where possible.

5.3 Recommendations Summary

The proposed greenway network has the potential to provide a valuable component of a high-quality walking and cycling network in an attractive and safe environment, and will facilitate movement along a number of key desire lines. In order to maximise the opportunities to support and encourage pedestrian and cycling trips, the following recommendations should be incorporated in the planning and development of the greenway network to enhance its accessibility and connectivity:

1. Even where lighting is provided, personal safety concerns may still act to discourage the use of some sections of greenway at quiet times. In some sections of the network, greenway routes may also have a steeper gradient than alternative roads or follow a more circuitous route. The provision of the greenway network is therefore not an alternative to ensuring that the road network in general is also safe for walking and cycling.
2. Crossing facilities where the greenway network interacts with the road network should, where possible, align with the desire line of the greenway network and a high level of priority should be afforded to crossing pedestrians and cyclists. Crossings should also be wide enough to avoid conflict between pedestrians and cyclists.
3. Entry treatments and appropriate signage are needed where greenways cross the road network, to alert road users to the presence of pedestrians and cyclist (and vice versa).
4. As detailed in Section 3.1.1, it is recommended that connections are provided between the proposed greenway network and existing bus stops on the N11 in the vicinity of Willow Park/St. Laurence College.
5. Safe and convenient access points to the proposed greenway utilising the Brides Glen Viaduct and the grounds of Loughlinstown Hospital should be provided from both the Grand Parade/Cherrywood Avenue junction and the south east corner of Cherrywood Avenue, to improve access to Cherrywood for pedestrians and cyclists from the south east.