

Chapter 4: Physical Infrastructure

4 Physical Infrastructure

The Physical Infrastructure for Cherrywood is broken down into 5 distinct types:

- 1) Environmental infrastructure – water and drainage.
- 2) Transportation – public transport, cycling, walking and car.
- 3) Utilities and ICT – electricity, gas and telecoms.
- 4) Energy.
- 5) Waste management.

Whilst the majority of the lands in the Planning Scheme area are undeveloped, Cherrywood is part of a larger catchment area for infrastructure and this needs to be considered when proposing future plans for the growth of Cherrywood. To plan for future development, the carrying capacity of the area was established. This has informed the required network of infrastructure and services and the phasing of the same. General Infrastructure includes the provision of Green Infrastructure. This is dealt with in detail in Chapter 5.

4.1 Environmental

The Minister for the Department of the Environment, Community and Local Government (DECLG) is considering proposals relating to the establishment of Irish Water. While a decision has yet to be made around the format of the new entity, it is envisaged that responsibility for strategic planning and investment for water services infrastructure will be transferred from the DECLG and Local Authority to Irish Water.

4.1.1 Water Supply

General

As with all major developments in the Dublin region, the availability of a supply of water is a regional strategic issue which may be a constraining factor on future growth. This is outside the ability of the SDZ area to resolve and will require continual review by Dún Laoghaire-Rathdown County Council.

In terms of local infrastructure, the Planning Scheme benefits from having an existing reservoir nearby at Rathmichael which is at a suitable elevation and could provide adequate local storage to service the full development.

However, the supply to this reservoir is currently inadequate primarily because of its total reliance on Roundwood Water Treatment Works. The solution to the supply difficulties are outside the direct control of Dún Laoghaire-Rathdown County Council and will require the active involvement of Dublin City Council and the Department of the Environment, Community and Local Government.

The local water distribution network within the zone will need to be installed in a co-ordinated manner to facilitate orderly development. The proposed water supply infrastructure is shown on Map 4.1.

Source Considerations

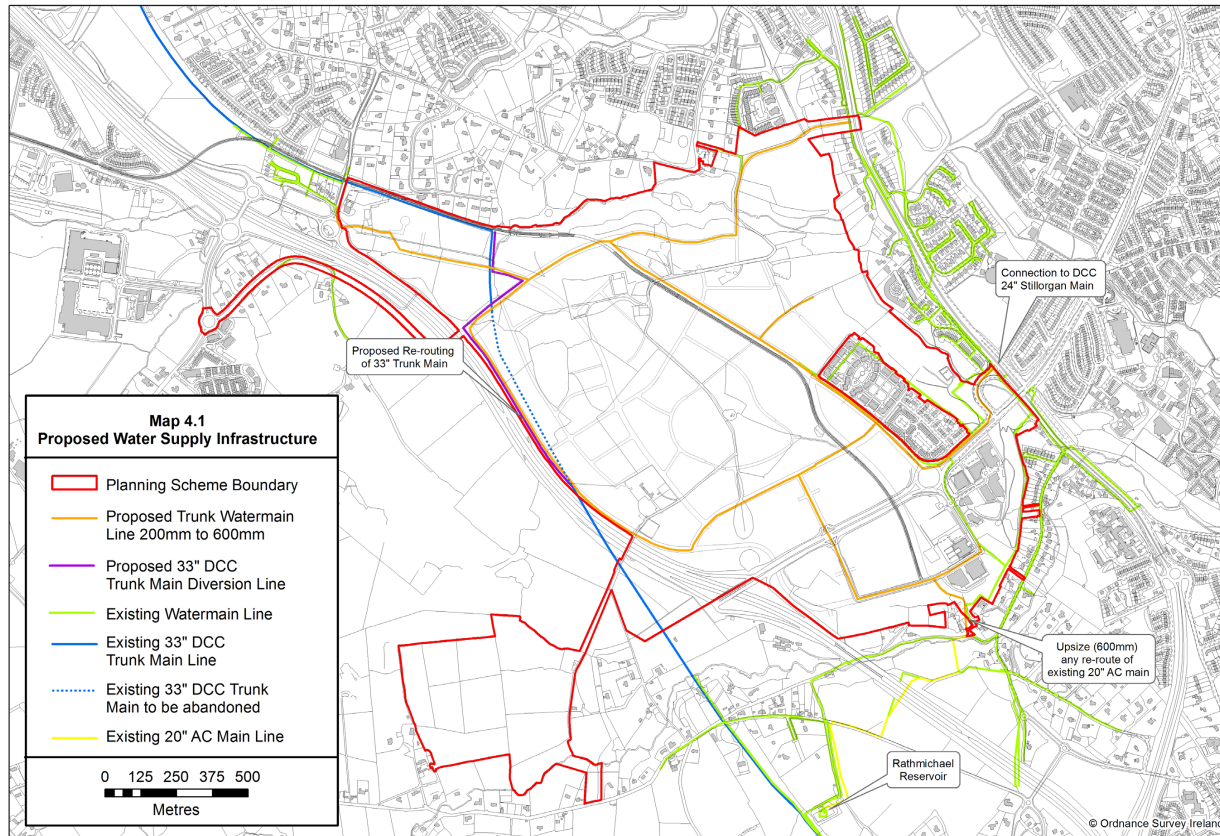
The need to provide water supply to the Cherrywood Planning Scheme is taken account of and relies upon elements of the following:

- i The Dublin Supply Project – Major Source.
- ii Dublin Water Supply Storage Study 2007.
- iii The Old Connaught Woodbrook Water Supply Scheme (OCWSS).

The 2007 Dublin Water Storage Study outlined infrastructural requirements for water supply to the south east of the Dublin Region, including the Cherrywood area. The area is totally reliant on Roundwood Water Treatment Works which delivers water into Stillorgan reservoir for Dublin City while supplying much of the coastal area of North Wicklow and Dún Laoghaire-Rathdown County Council en-route through two of Dublin City Council's arterial watermains.

The Study envisions that progressively less water will reach Stillorgan as future development in north Wicklow and the south-east of Dublin Region (including Cherrywood) abstracts more water from these watermains. Eventually, it will be necessary to pump water back up one or both watermains to supply the additional demand.

Since the completion of the Storage Study, the Roundwood source has suffered a reduction in output and may be further reduced. As a result, the security of supply to the area is currently unsatisfactory and Rathmichael reservoir is particularly badly affected. There is no alternative source and additional development of any significance could not be serviced until this difficulty is remedied.



There are measures which would improve the situation for Cherrywood by prioritising water from Dublin City Council's arterial watermains into Rathmichael at the expense of water delivery to Stillorgan reservoir for supply to Dublin City. These measures can only be progressed in consultation with Dublin City Council. Their Water Services Division is aware of the current supply problem and future planning difficulties for Dún Laoghaire-Rathdown County Council and are currently exploring solutions, especially in the context of contingency plans in the event of major failure of the Roundwood supply. The resolution of this constraint is thus outside the direct control of Dún Laoghaire-Rathdown County Council and must be progressed in a regional water supply context.

A secondary approach could include measures to provide alternative supplies for areas currently supplied by Roundwood. One such measure identified is the laying of a strategic watermain from the Council's Church Road Reservoir to Shankill. The preliminary design of the Old Connaught Woodbrook Water Supply Scheme (OCWWSS) includes this watermain. This could enable the coastal strip to be taken off the Roundwood supply thus improving supply security and holding the prospect of improved development potential south of Shankill. However, it would not directly enable supply to Cherrywood and, of itself, is insufficient to secure supplies for development there.

Local Storage Considerations

A preliminary design for a major water storage and distribution scheme, the Old Connaught Woodbrook Water Supply Scheme (OCWWSS), has been prepared by Dún Laoghaire-Rathdown County Council and covers the local supply requirements for all development in the South East of Dún Laoghaire-Rathdown County Council area including Cherrywood. The Scheme design takes account of the 2007 Storage Study and was submitted to the DEHLG in 2008. The full development of the Planning Scheme would require completion of this scheme. However, a significant proportion of the development might progress with a phased implementation of the water scheme.

The scheme proposes extensive network reconfiguration which would enable Rathmichael reservoir to be dedicated primarily to the supply of the Planning Scheme. Some of that reconfiguration has now been implemented. Were it not for the source constraints outlined above, up to c. 4ML/day would be immediately available for development at Cherrywood or its environs. This is equivalent to c.70% of the current maximum development forecast of 7,736 residential units and 350,000 sq.m commercial or a lesser quantum if other new developments are progressed in the supply area (Shankill, Woodbrook, Shanganagh etc.)

For development beyond that quantum, it will be necessary to construct the OCWWSS so that the remaining areas of Shankill and Mullinastill can be transferred to a new reservoir at Ballyman.

The trunk mains from Rathmichael reservoir to the Planning Scheme are adequate. However, a short (150m) length of 20" AC main from Bride's Glen Road, should be renewed with DI or PE piping at an early stage as it is in a restricted wayleave and is critical to the development.

The OCWWSS scheme also includes an outline of the water distribution network within the Planning Scheme. The network design may need to be updated as the overall design evolves but it will be essential that a planned approach is taken to ensure co-ordinated development within the zone.

Specific Objectives:

- PI 1** In common with all development in the Dublin region, development in the county is dependent on an adequate supply of water for the Dublin region. It is an objective to liaise with the Department of Environment Community and Local Government (DECLG) and Dublin City Council on regional water supply availability.
- PI 2** It is an objective to reach agreement with Dublin City Council on measures to reprioritise water allocation to Rathmichael reservoir. This may also involve installation of a new strategic watermain to Shankill to reduce over-reliance on Roundwood Water Treatment Works.
- PI 3** Development beyond 4ml/day capacity in the Planning Scheme and other new developments in the supply area (including Shankill, Shanganagh and Woodbrook) will require construction of the Old Connaught Woodbrook Water Supply Scheme. It is an objective to progress this scheme which is currently awaiting approval of the DECLG.
- PI 4** It is an objective to ensure a planned approach is taken to the local distribution network within the zone to facilitate co-ordinated development. To support the use of water saving systems and landscaping. Where national standards are adopted, under the Water Services Act 2007 or otherwise, for rainwater harvesting and/or greywater recycling for use within buildings, these will be incorporated to the maximum practicable extent.
- PI 5** It is an objective to replace a short portion of critical trunk main from Bride's Glen Road at an early stage to secure supply.

4.1.2 Surface Water Drainage

Development Stormwater Management

Urbanisation disrupts natural soil profiles, increases impervious surfaces and decreases vegetation cover. These disruptions increase stormwater runoff resulting in downstream flooding. In addition the disruptions impair groundwater recharge, degrade water quality and impair aquatic habitat.

Map 4.2 illustrates the proposed stormwater network for the Planning Scheme. The outline network design proposed in this section incorporates the recommendations of the Greater Dublin Strategic Drainage Study 2005 (GSDSDS), Regional Drainage Policies – Volume 2 New Development.

For the purpose of establishing the outline layout of the stormwater network to serve the Planning Scheme, the area was sub-divided into a number of sub-catchments based generally on existing land topography.

The sizes of the secondary surface water sewers were established by applying the GSDSDS design principles to a hydraulic model of the area and the sewers were routed along the primary roads. The sewer levels have been established by assuming that the development ground floor levels will be broadly similar to existing ground levels.

Specific Objective:

- PI 6** It is an objective to promote Sustainable Urban Drainage Systems (SuDS) to manage surface and groundwater regimes sustainably. The following measures are the key elements of the SuDS solution proposed for the Planning Scheme area in the public realm areas, i.e those areas not within private developments. Measures within private development sites are also listed below.

These SuDS requirements are to be read in tandem with GI15, GI16, GI55 and GI60 in Chapter 5 Green Infrastructure.

Measures in Public Realm Areas:

- **Ponds** located at several major outfall locations. These will provide storage to meet attenuation requirements for the 1 in 100 year criterion. Ponds will provide the final stage of treatment for water runoff prior to discharge to the watercourses. The ponds, which are located in open space areas will also provide amenity and biodiversity benefits in accordance with best design practice.
- **Detention basins** adjacent to existing and proposed roads. These are vegetated surface storage basins that provide flow control through attenuation of stormwater runoff. They also facilitate some settling of particulate pollutants. They are normally dry and in most cases can accommodate soft landscaping and contribute to local amenity.
- **Infiltration basins** located at carefully selected locations in the detention basins. These are vegetated depressions designed to store run off and infiltrate it gradually into the ground. These are very effective at pollutant removal and contribute to groundwater recharge.
- **Infiltration trenches and engineered swales** located throughout public realm spaces and along selected routes including green routes and cycle routes. These are narrow excavations (1 to 2m depth) filled with selected stone that create temporary subsurface storage for infiltration of stormwater runoff.
- **Underground Modular systems** with a high void ratio (e.g. Stormtech system or similar) will be used subject to agreement with the Local Authority in any suitable locations of open spaces and parks subject to level and ready access to provide below ground storage and infiltration.
- **Tree Root Structural Cell Systems** (e.g. Silva Cell) are subsurface tree and stormwater systems that hold large soil volumes while supporting traffic loads beneath paving and hardscapes. It is proposed that these will be used throughout the Planning Scheme area to assist with attenuation and groundwater recharge.

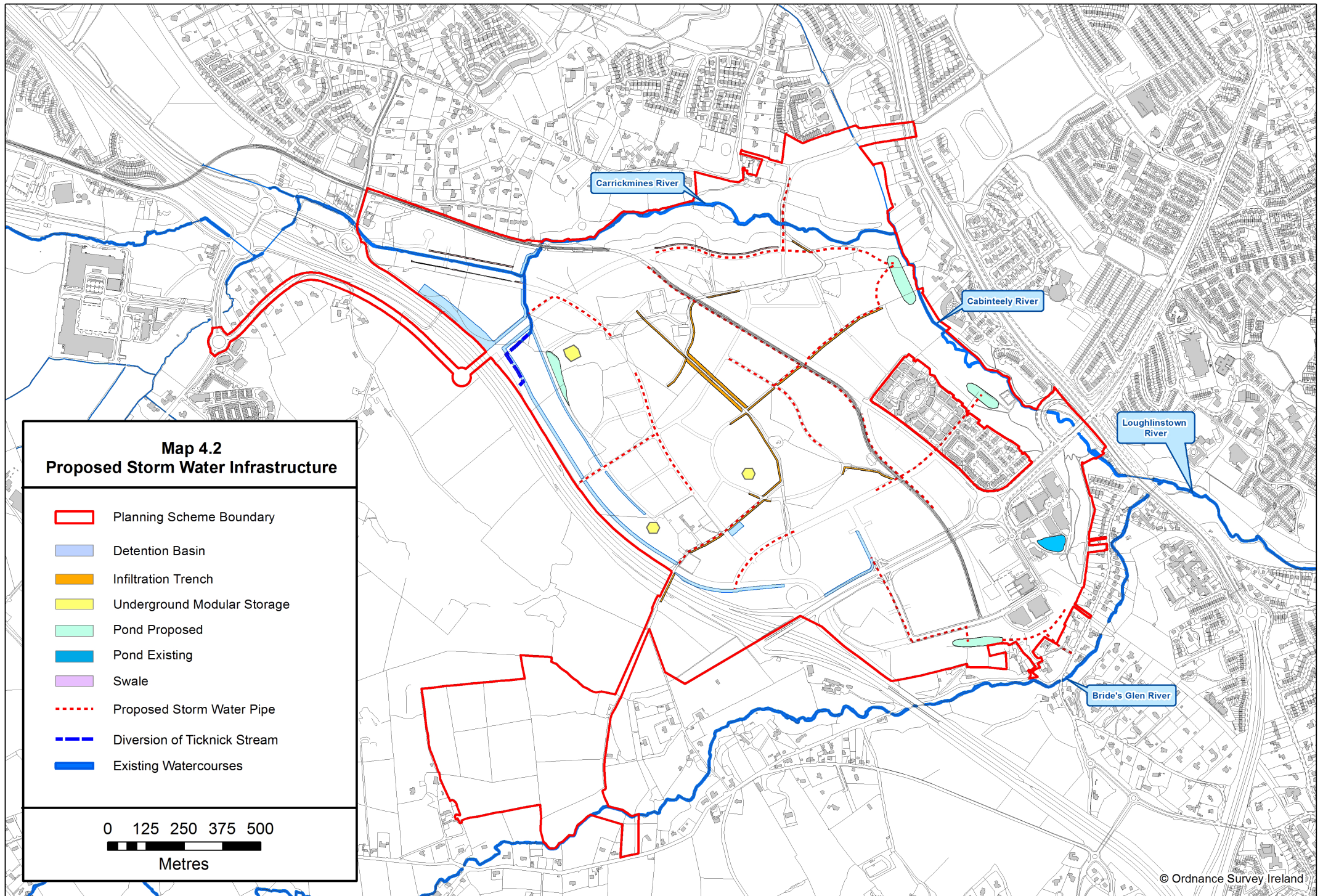
The size of the existing Town Centre pond – both treatment storage and flood attenuation storage – needs to be confirmed, to check suitability and available capacity prior to permitting further stormwater runoff into it (see Map 4.2).

Measures within Private Development Site Boundaries:

The Stormwater Management Guidelines for the Cherrywood Rathmichael Development Area 2009 list various SuDS measures that are required for different development types. These include:

- Green Roofs
- Pervious Paving [proposals where surface water accesses the underground storage via gaps in interlocking paving will not be permitted – grilles, gullies, or similar, that are easily maintained are only permitted.
- Infiltration Trenches – if ground conditions permit.
- Detention Basins.
- Swales.
- Water Butts.
- Tree Root Structural Cell Systems.
- Rainwater Harvesting.

Runoff from all sites must pass through at least one level of treatment using a SuDS component prior to the final level of treatment in the public realm areas.



In view of the need to ensure strict adherence to the drainage requirements / of the Building Regulations, a system of drainage design and construction audit procedures will be implemented throughout the Planning Scheme area as outlined in the Stormwater Management Guidelines.

The increasing frequency and intensity of significant rainfall events in the County since the completion of the Stormwater Management Guidelines in 2009, has resulted in Dún Laoghaire-Rathdown County Council requiring that all developments allow for 'exceedance' in their internal surface water drainage design. In particular the design of all drainage systems shall allow for surface flood pathways, on-site low level storage in less vulnerable areas (car parks, planted areas, driveways etc), over and above the SuDS volumes required.

In addition given the severe impact downstream of the 2011 flood events (contributed in part by urban stormwater run off) it is necessary to restrict the run off from developments in the Planning Scheme area to 1 litre per second per hectare, unless otherwise agreed with Dún Laoghaire-Rathdown County Council. In order to assist in the implementation of this requirement it is necessary to limit the size of outlet surface water pipes within the boundary of private developments to a maximum diameter of 150mm per hectare unless otherwise agreed with Dún Laoghaire-Rathdown County Council.

Specific Objectives:

- PI 7 It is an objective to ensure that stormwater management, flood attenuation and Sustainable (Urban) Drainage Measures (SuDS), including a requirement to undertake Stormwater Audits, shall form part of the pre-planning, planning and post construction stages of any application.
- PI 8 It is an objective to ensure that SuDS measures shall be fully implemented on all sites to 1 litre per second per hectare runoff rates, unless otherwise agreed with Dún Laoghaire Rathdown County Council. In this regard solutions other than tanking systems shall be required for all developments. For larger applications Green Roofs shall be used in accordance with Dún Laoghaire-Rathdown County Council's Green Roofs Guidance Document.
- PI 9 It is an objective to ensure urban areas are designed to accommodate surface water flood flow at times of extreme events through the dual use of roads and pathways as flood conveyance channels and low value areas (parkland, car parks, large paved areas etc) used as temporary flood ponding areas.
- PI 10 It is an objective to ensure that all trees planted in/adjacent to hard paved areas (footpaths, parking areas etc) incorporate tree root structural cell systems.

River Flooding

Two rivers flow through the Planning Scheme area, namely the Carrickmines River and the Loughlinstown (or Bride's Glen) River, prior to their confluence into the Shanganagh River at the N11. The Shanganagh River flows eastwards passing alongside Commons Road and then outfalls to the sea beside the Shanganagh Waste Water Treatment Plant.

Extensive hydraulic modelling was carried out on the above rivers in 2007/8 as part of the Carrickmines/Shanganagh River Catchment Study Update, RPS, June 2008, commissioned by Dún Laoghaire-Rathdown. Areas of river flooding for a 1 in 100 year storm were predicted using a hydraulic model of the entire river catchment. 'Out of bank' flooding was predicted to occur in six general locations in the Cherrywood Planning Scheme area and environs.

Four areas of predicted flooding do not pose a risk to existing or future development, as they are located in open space. These are: Carrickmines interchange, Lehaunstown Bridge, Foxrock Stream Confluence and the Cherrywood Valley.

Two areas of predicted flooding do pose a risk to existing or future development, namely at Priorsland and 'The Big Tree' at Loughlinstown. Outline solutions were presented at these 2 locations to alleviate the predicted flooding.

The results of more detailed flood modelling at Priorsland indicate that the predicted floodwaters for the 1 in 1000-year event (including the impacts of climate change) can be contained within a bypass culvert. In addition significant flood resilience (the capacity to accommodate flood flows greater than predicted) required by the Flood Risk Management Guidelines is provided by allowing the floodwaters to spill over the river banks into a 'containment zone' approx 40m in width which extends from the environs of the existing twin culvert under the existing Luas car park access road down to the river's junction with the Ticknick Stream. This zone provides enough storage capacity for the predicted flood volume associated with a 1 in 1000-year event. It is proposed that ground levels at the edges of the containment zone be raised by approx 500mm.

The 'flood containment zone' is shown on Map 4.3.

Specific Objective:

- PI 11 It is an objective to ensure that predicted flooding in the Priorsland area does not pose an unacceptable risk to persons or property. In this regard a flood containment zone shall be constructed in the Priorsland area by raising adjacent ground levels approx 500mm and by incorporating a large diameter (1650mm) bypass culvert.

4.1.3 Foul Water Drainage

Foul sewerage within the Planning Scheme area discharges to the Shanganagh Wastewater Treatment Works (SWTW) which are located approximately 2km to the east. The SWTW has been upgraded as part of the Shanganagh Bray Wastewater Project, to cater for existing and all projected future catchment development flows.

Both future development areas of Cherrywood and Rathmichael are serviced by the existing foul sewer network infrastructure. A trunk sewer known as the 'Carrickmines Trunk Sewer' was constructed along the valley of the Carrickmines River through the Cherrywood SDZ area in 1996. This sewer, which ranges in diameter from 600mm to 900mm in the Planning Scheme area, also serves Stepside, Ballyogan, Carrickmines and parts of Cabinteely. This sewer is also designed to carry flows (existing and predicted flows) from the Glenamuck/Kiltarnan LAP area.

Map 4.4 shows the existing and proposed foul sewer network for the area.

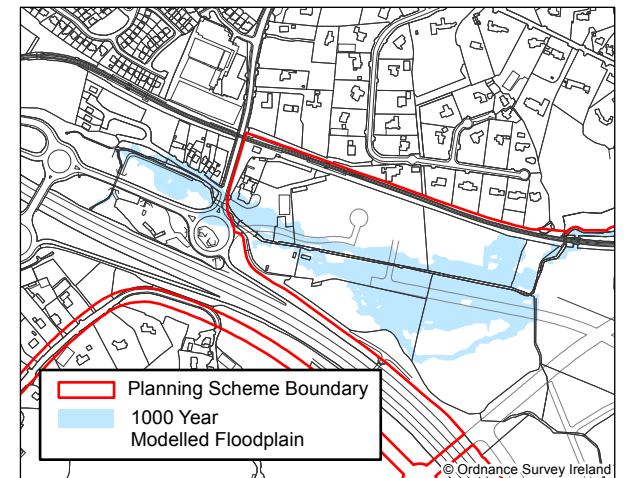
Specific Objective:

- PI 12 It is an objective that significant foul trunk sewer infrastructure is provided within the Planning Scheme area.

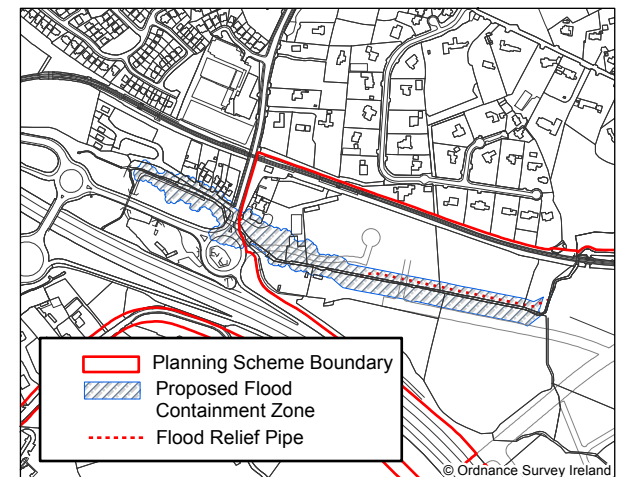
4.2 Transportation

It is a fundamental objective of the Cherrywood Planning Scheme to ensure that the future demands for travel are met in a sustainable way. The plan envisages Cherrywood developing as a network of interconnected urban villages and employment/mixed use quarters where walking and cycling will be a convenient alternative to the private car. The strategy of the plan is to limit car usage by making alternative modes of access more attractive. The first phase of development will be directed towards areas with convenient access to Luas stops in order to foster sustainable travel patterns from the outset.

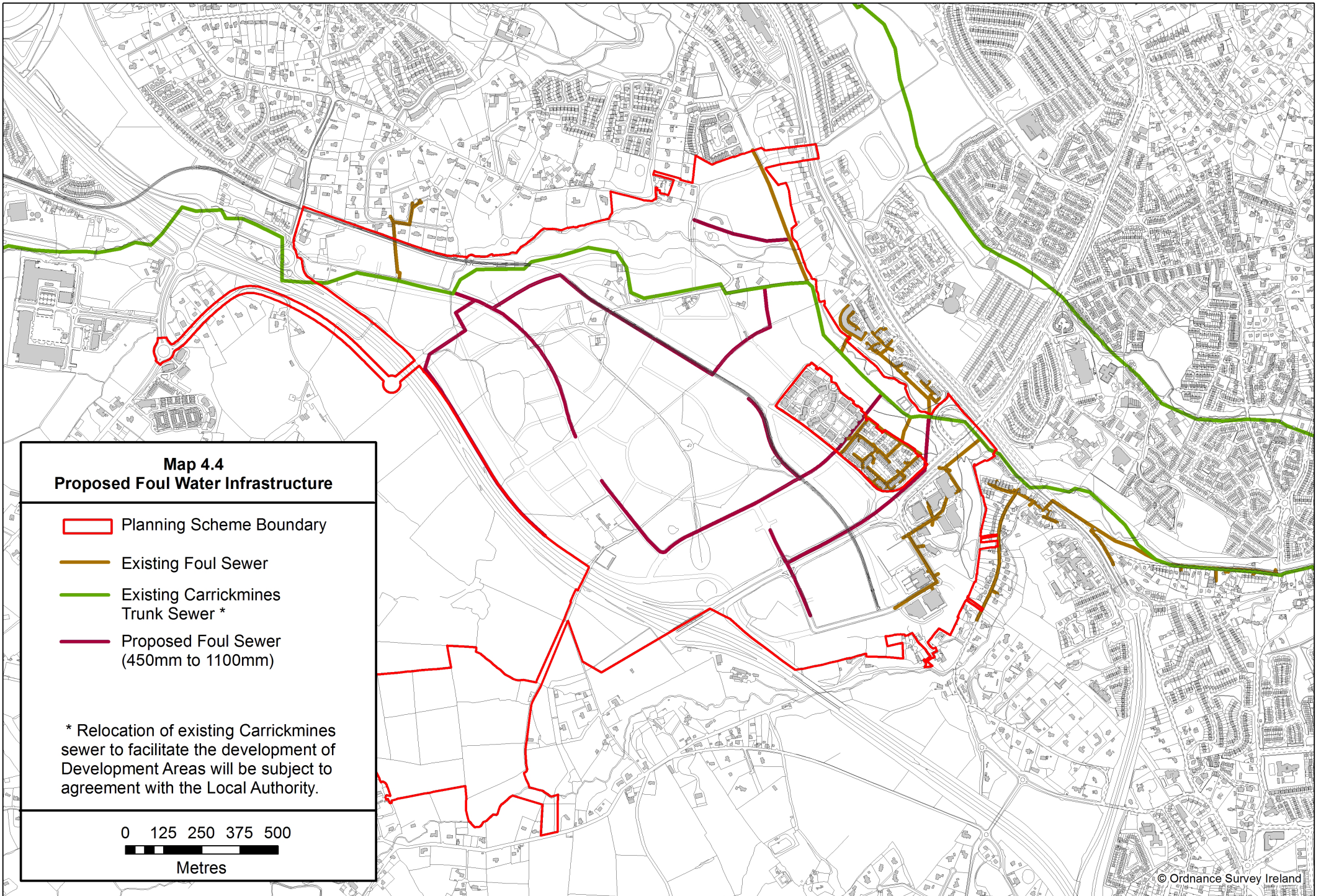
Map 4.3 Flood Management - Priorsland



1000 Year Modelled Floodplain



Proposed Flood Containment Zone



Specific Objective:

PI 13 It is an objective to develop and support a culture of sustainable travel into and within the Planning Scheme.

Development in the Planning Scheme shall constrain work related commuting so as to achieve a transport modal split of 45% trips by car drivers (maximum) and 55% trips by public transport, walking, cycling and other sustainable modes (minimum) as per Government policy (see the Department of Transport’s ‘Smarter Travel, A Sustainable Transport Future 2009-2020’).

4.2.1 Sustainable Travel Targets

The Planning Scheme sets challenging but achievable targets for sustainable travel modes in Cherrywood and identifies the measures for achieving them. Separate targets have been adopted for internal and external trips.

Census 2006 data for 7 Electoral Districts similar to the proposed Cherrywood development showed an existing average of 14% internal trips. Therefore a higher target of 19% is set for Cherrywood as it is an objective to promote internal trips by creating a self sustaining mixed use development, reducing the need for external travel.

National Smarter Travel targets for sustainable travel in the year 2020 have been adopted for external trips. The main objectives of Smarter Travel are to reduce dependency on car travel and long distance commuting, increase public transport modal share and encourage walking and cycling. The policy document supports greater integration between spatial planning and transport policy and sets a target to reduce car based commuting from 65% to 45% by 2020.

Table 4.1: Sustainable Travel Targets

Mode	Mode Share	Measures
Car driver	45% of external trips 15% of internal trips 39.3% overall	A parking strategy will be used to determine car use. Road proposals will limit private car access and prioritise walking, cycling and public transport.
Car sharer	10% of external trips 0% of internal trips 8.1% overall	Car sharing will be promoted through mobility management planning and use of the NTA car share portal.
Luas	25% of external trips 5% of internal trips 21.2% overall	Development will be phased in line with capacity enhancements to Luas.
Bus	12% of external trips 5% of internal trips 10.7% overall	A practical “pump priming” scheme will be introduced to allow for the funding of the extension of bus services and the provision of new bus services as development occurs. This funding will occur over a period of time and will reduce as patronage increases. A development contribution scheme will include the provision of bus infrastructure. Major employers may be required to provide local bus services as part of their Travel Plans. Any new bus services should not duplicate the existing or proposed bus network in the area.
Cycling	5% of external trips 45% of internal trips 12.6% overall	A network of cycleways, covered cycle parking stands at schools, offices and Luas stops and shower and changing facilities at places of employment will promote cycling between different land uses at Cherrywood.
Walking	2% of external trips 30% of internal trips 7.3% overall	A network of footpaths and pedestrian crossings will promote walking between different land uses at Cherrywood.
DART	1% of external trips 0% of internal trips 0.8% overall	The DART would provide connectivity not available by other modes to Northeast Dublin and Greystones.

4.2.2 Potential for Public Transport

Understanding the future distribution of trips to and from the Cherrywood Planning Scheme is fundamental to planning for public transport demand. The demand for public transport is greatest in the am peak hours with trips to work being the dominant travel purpose in this time period. Therefore employment trip projections derived from the model used for the NTA 2030 Transport Strategy for the GDA was used to give an indication of future travel patterns in the Cherrywood Planning Scheme. This data represents all work trips to and from the Cherrywood Town Centre in the three hour period 7am-10am.

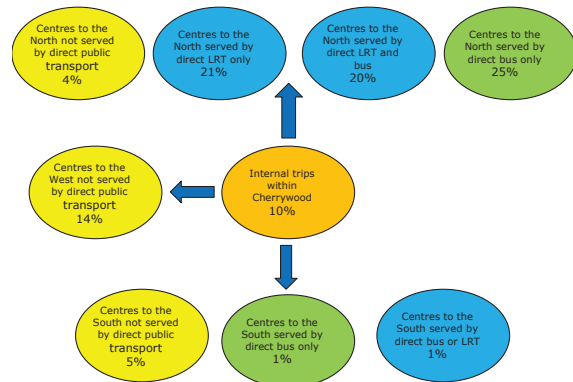
Table 4.2: Distribution of work trips from Cherrywood (NTA 2030 Transport Strategy Model)

District Centre	%
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%
Kilternan	2%
Stillorgan	2%
Liberties	2%
Other	15%
Total	100%

The model indicates that 10% of work trips from Cherrywood in the 2030 a.m. peak hour would be internal. (The model does not take account of the specific measures proposed in this Planning Scheme to reduce the need for external travel by creating a self sustaining mixed use development.) Externally a large percentage of workers would travel to Sandyford (10%) and to the City Centre locations of Point Village (8%), Ballsbridge (7%), Stephens Green (7%) and North City (4%). There would also be a significant amount of work trips going to the neighbouring centres of Dún Laoghaire (7%), Bray (5%) and Cornelscourt (4%).

The NTA model takes account of land use planning policy, new transport infrastructure, changes to public transport operations, enhanced traffic management arrangements and travel demand management measures. In the 2030 model Cherrywood is connected by Metro / BRT to Bray, the City Centre, Dublin Airport and Swords, while the capacity of the N11 QBC is upgraded to a BRT level of service. A region wide road user charge applies as well as restrictions on parking in the City Centre. When the proposed transport networks for 2030 are taken into account, an approximate indication of the areas served by public transport may be presented as follows [prepared by the NTA]:

Figure 4.1: Distribution of work trips from Cherrywood (NTA 2030 Transport Strategy Model)



It can be seen that in the longer-term there is potential for the use of public transport for a large proportion of trips from the Planning Scheme, with only 23% of trips not served by direct public transport.



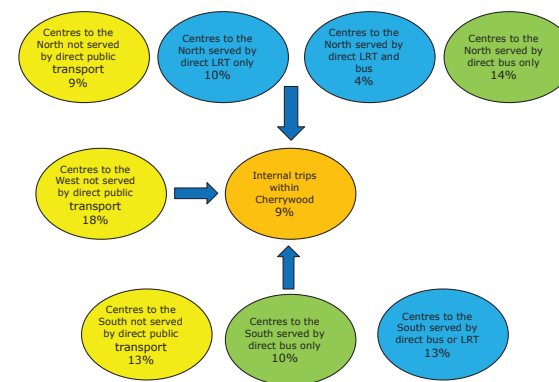
Table 4.3: Distribution of work trips to Cherrywood (NTA 2030 Transport Strategy Model)

District Centre	%
Bray	13%
Cherrywood	9%
Greystones	7%
Wicklow	5%
Dún Laoghaire	4%
Kiltarnan	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%
Total	100%

The model indicates that 9% of work trips to Cherrywood in the 2030 am peak hour would be internal. Externally a large percentage of workers would originate in Bray (13%), Greystones (7%), Wicklow (5%) and other areas of County Wicklow (8%). There would also be a significant amount of work trips coming from the neighbouring centres of Dundrum / Sandyford (5%), Dún Laoghaire (4%), and Kiltarnan, Nutgrove, Cornelscourt, Blackrock and Ballsbridge (3% each).

When the proposed transport networks for 2030 are taken into account, the data may be presented as follows:

Figure 4.2: Distribution of work trips to Cherrywood (NTA 2030 Transport Strategy Model)



In terms of trips to the Planning Scheme, just over a quarter would travel from areas served by rail, including Bray and areas served by Metro North. A significant proportion of trips would come from the north and west, areas not served by rail. Some of this demand may be served by the proposed orbital QBC and associated interchange with light rail.

4.2.3 Potential for walking and cycling

The primary indicator of the potential for walking and cycling is the distance travelled. The majority of walking trips are less than two kilometres, whereas cycling journey distances tend to be between two and ten kilometres in length.

In terms of distance travelled, the 2030 model data indicates that 23% of future trips to work originating in Cherrywood will be less than 5km and a further 27% will be less than 10km. The proportion of future trips to work with a destination in the Cherrywood Town Centre will be 28% less than 5km and a further 22% less than 10km. These percentages show significant potential for cycling and walking to and from locations such as Bray, Sandyford and Dún Laoghaire.

Besides the distance travelled, the potential for walking and cycling will also depend on the quality and convenience of the networks. The difficult topography of the area and the presence of heavily trafficked roads may counter a potential mode shift to walking and cycling. The relative convenience of the private car and public transport will mean that a number of short trips are likely to be undertaken by these modes.

4.2.4 Overall potential for sustainable travel

An assessment of the achievable mode share in the Planning Scheme can be made using data from the NTA 2030 Transport Strategy Model. The mode share for 2030 was extracted for future work trips to and from the Cherrywood zone in the 3 hour am peak period.

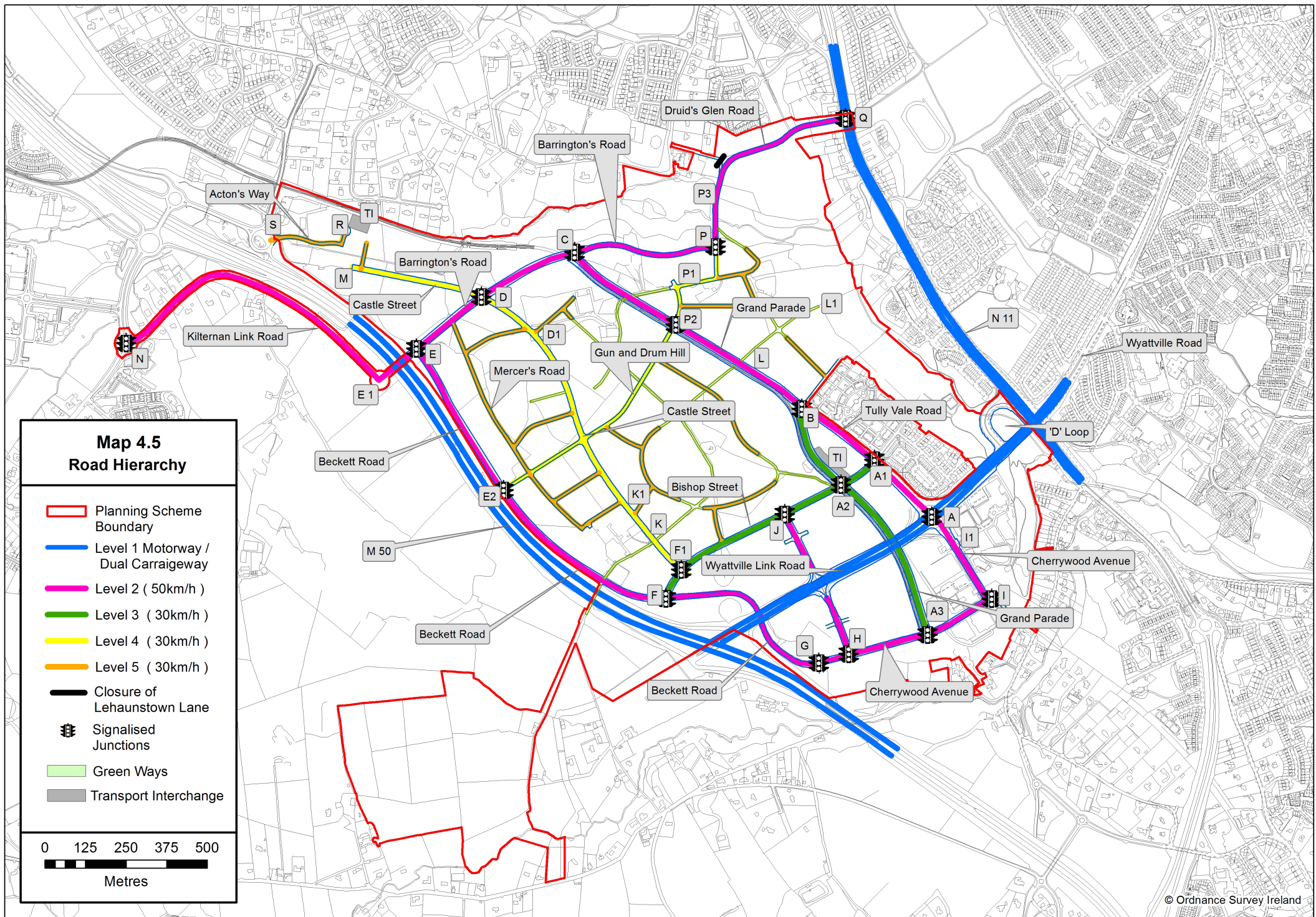
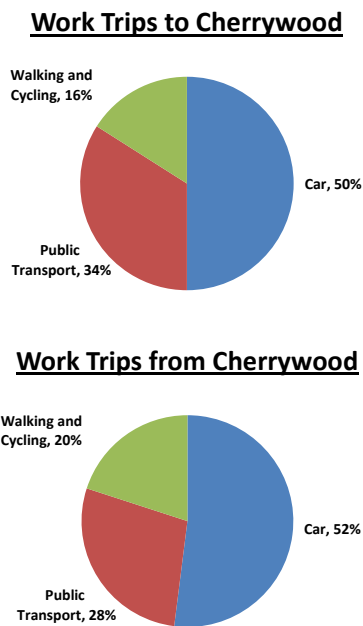


Figure 4.3: Cherrywood Mode Share (NTA 2030 Transport Strategy Model)



It can be seen that the NTA 2030 Transport Strategy Model estimates public transport mode share at 28% to 34%, which agrees well with the overall target of 32% set out in Table 4.1. Walking and cycling at 16% to 20% is estimated slightly lower than the target of 20% and the car mode share at 50% to 51% is estimated slightly higher than the target of 48% for car drivers and car sharers.

However the data confirms that the target mode shares can be achieved by the provision of an excellent public transport service, an attractive environment for walking and cycling and disincentives to the use of the private car.

4.2.5 Existing Transportation Infrastructure

Roads

Cherrywood is well situated adjacent to the strategic national road network. It has access to the M50 motorway at Lehaunstown interchange, which directly links the site into the national inter-urban motorway network and also provides vehicular access to centres to the south (Bray / Wicklow), the north (Sandyford / Dundrum) and the west (Tallaght / Blanchardstown). The site also has access to the N11 dual carriageway at Wyattville interchange, which provides access to Dublin city centre via Cornelscourt, Stillorgan, UCD and Donnybrook.

The Wyattville Link Road traverses the site between the two interchanges. It forms part of a route that has been developed over many years to improve access from Dún Laoghaire town and environs to the N11 and M50. The Glenamuck Road is an important link road to the north of the site between Kilternan and Cornelscourt.

On the northern boundary of the site is Brennanstown Road, a sylvan route that passes through Cabinteely Village and cannot be upgraded to provide adequate access to Cherrywood without seriously undermining the environmental quality of the area.

Cherrywood Road is also sylvan in nature with limited ability to be upgraded. Lehaunstown Lane is a winding, narrow lane that runs through Cherrywood and the alignment, width and character of the road could not serve significant increases in traffic.

Public Transport

The Cherrywood area is served by the N11 QBC and the No.7 bus route. On the N11 QBC in the am peak hour there are currently (2012) seven No. 145/45 buses operating between the City Centre and Wicklow and one No. 84 bus operating between UCD and Newcastle. The No.7 bus operates 5 services between the Cherrywood / Loughlinstown area and the City Centre via Dún Laoghaire. In the short term it is proposed to move the No.7 terminus to a bus / Luas interchange at Bride's Glen stop, where shelters, bus stops, RTPI information signs etc. will be provided (see Map 4.6).

The Luas Green Line traverses the Planning Scheme with stations at Carrickmines, Brennanstown, Lehaunstown, Cherrywood and Bride's Glen. The total journey time from Stephen's Green to Bride's Glen is estimated at 40 minutes. Currently, parts of this service operate 40m trams at up to 18 times in the peak hour (8-9 am) providing an achievable hourly capacity of c.4,200.

Demand for public transport is greatest in the am peak hour. In the 2010 TII Rail Census, the highest am peak hour inbound line flow was 3,740 between Beechwood and Ranelagh. The demand peaks at 8.27am with 294 passengers on board. The highest am peak hour outbound lineflow was 1,647 at the section between Milltown and Windy Arbour. There is more demand from passengers wishing to go to jobs in the city centre than vice versa.

The nearest DART stations to Cherrywood are approximately 2.5km away at Killiney and Shankill. The DART provides a high frequency rail service to Dublin City Centre.

Walking and Cycling

Existing pedestrian and cycle facilities adjacent to Cherrywood include:

- Segregated one-way cycle lanes and footways on Wyattville Road, crossing the N11 to Wyattville Link Road as far as Cherrywood roundabout;
- Pedestrian phases in the various sets of traffic signals at the Wyattville interchange;
- Segregated one-way cycle lanes and footways along the majority of the N11;
- Pedestrian footbridges over the N11 at Johnstown Road and Loughlinstown roundabout;
- Two signalised pedestrian crossings of the N11 between the Wyattville interchange and the Johnstown Road junction (Kilbogget and Shanganagh Vale).

The Planning Scheme Area suffers from high levels of severance due to the steep topography of the Carrickmines and Bride's Glen river valleys and the M50 motorway. The surrounding road network, particularly the N11, is not an attractive environment for cyclists and pedestrians due to the type, speed and volume of the traffic.

The Council, in conjunction with the NTA, is currently progressing two proposals for pedestrian / cycle routes between Cherrywood and Shankill:

- Via Brides Glen viaduct and the grounds of Loughlinstown hospital to the pedestrian bridge at Loughlinstown roundabout and then to Dublin Road, Shankill.
- Via Loughlinstown Main Street (Old Bray Road) and a Toucan crossing of the N11 near its junction with Cherrywood Road and then along the east side of the N11 to Dublin Road, Shankill.

4.2.6 Future Road Strategy

Specific Objective:

- PI 14** It is an objective to implement the road infrastructure (including segregated pedestrian / cycle routes) proposed in this Planning Scheme to facilitate access to and within the area by all travel modes (see Map 4.5).

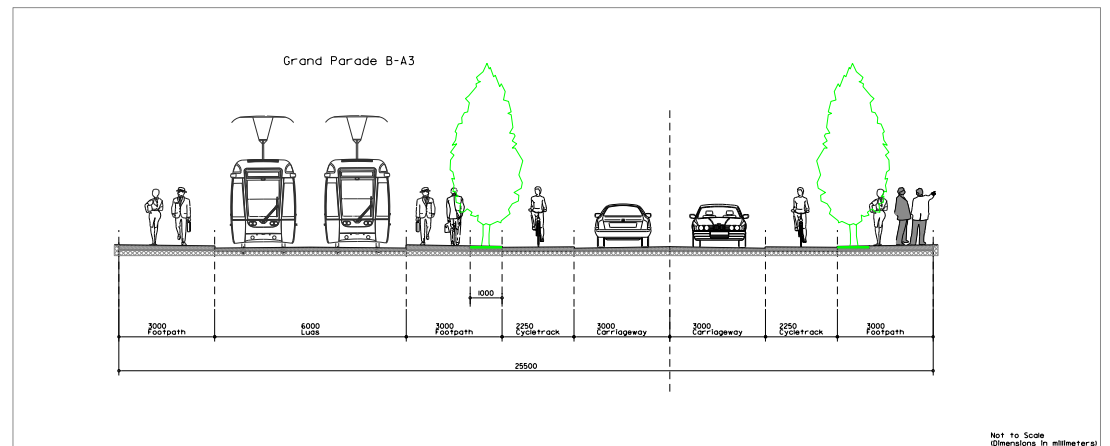
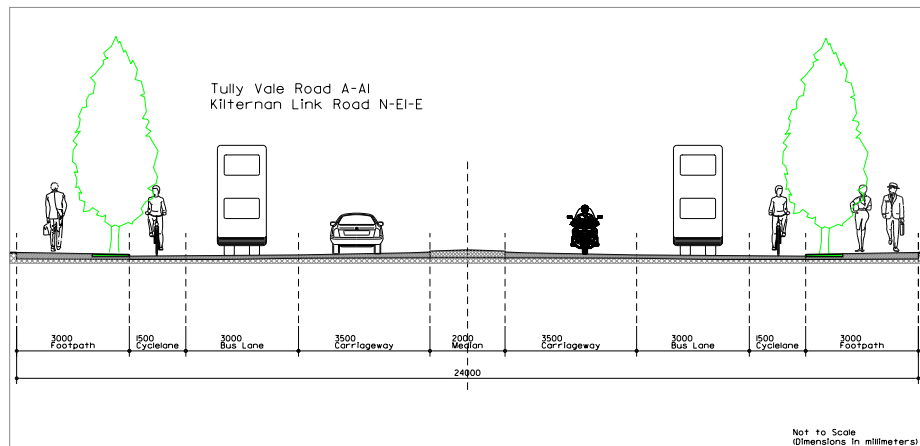
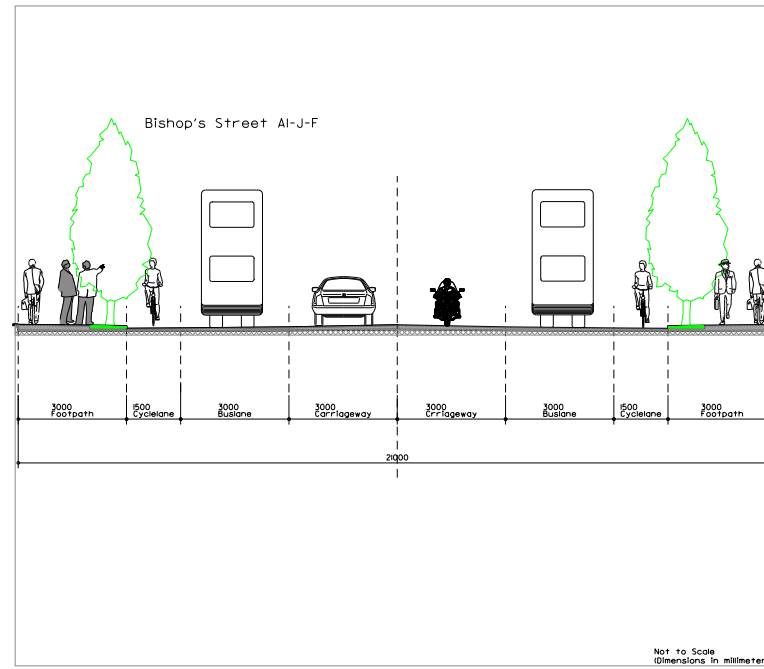
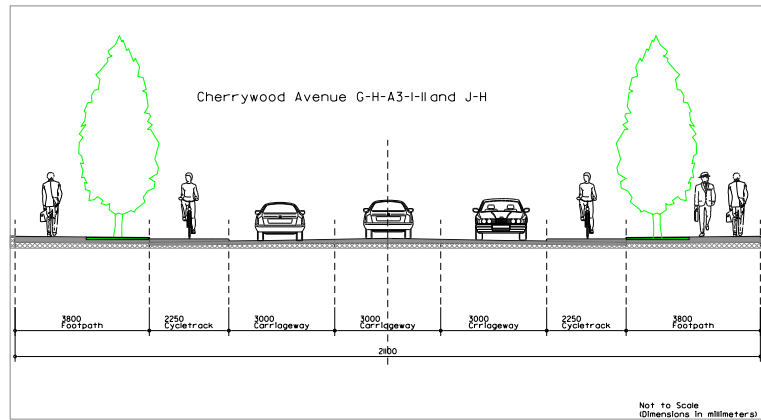
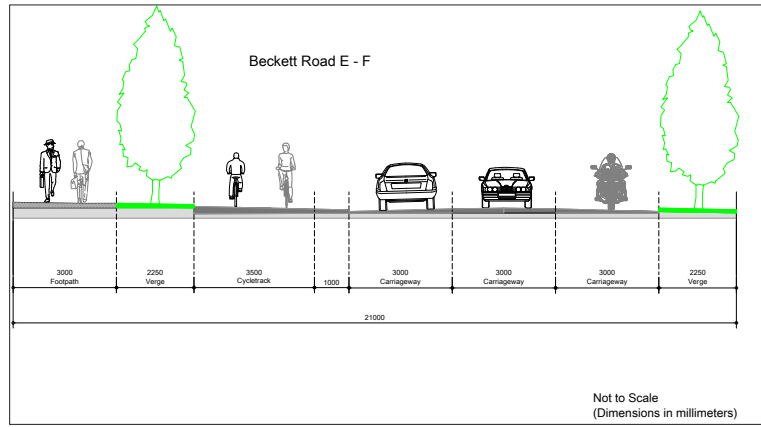
Four detailed studies have informed the proposed road infrastructure, its deliverability and implementation, namely:

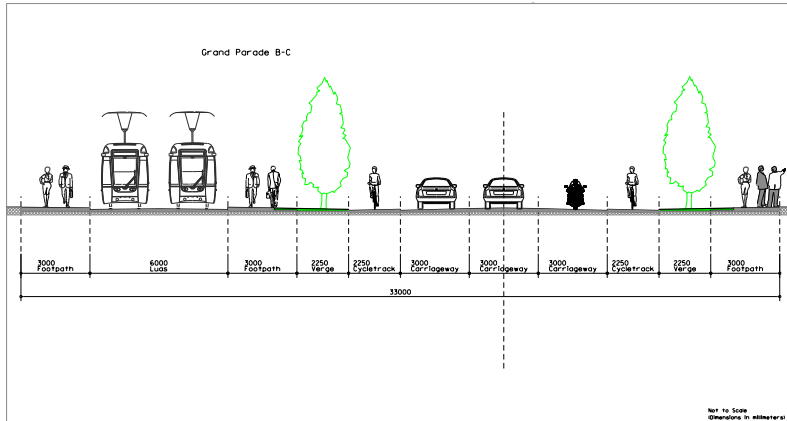
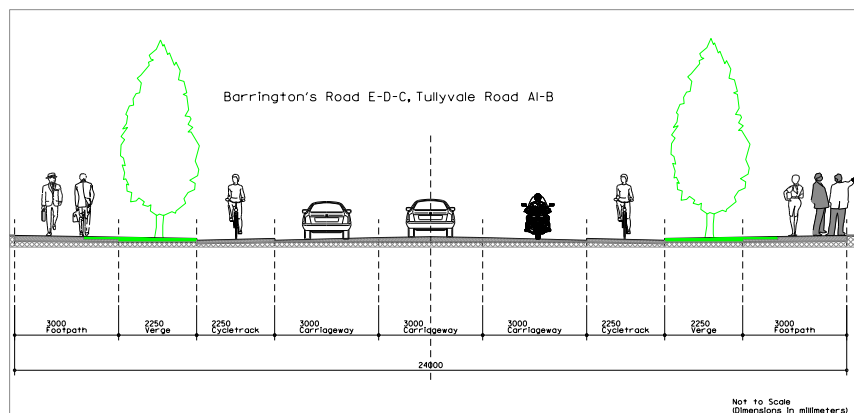
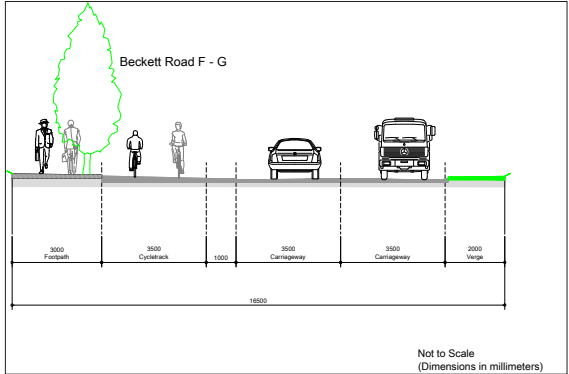
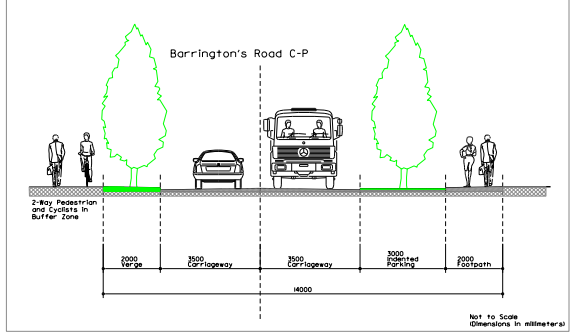
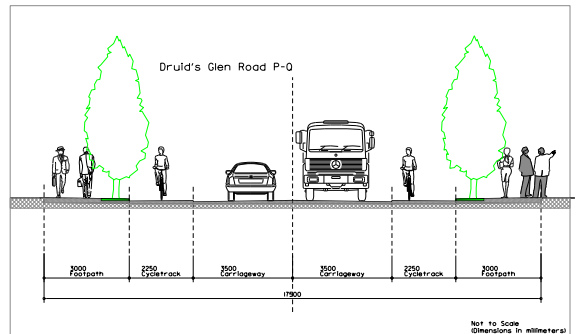
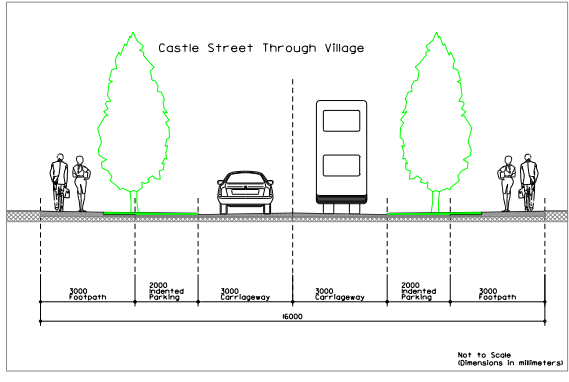
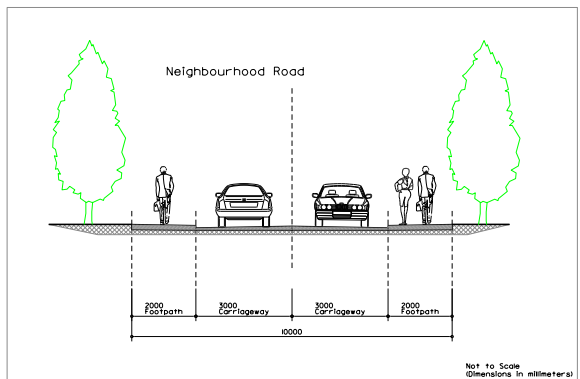
- 1) The Mouchel Parkman Traffic Management Plan (Jan. 2007) was commissioned to optimise and manage the capacity of the existing road network, determine the need for new transport infrastructure to facilitate predicted development growth and define the maximum scale of development that is sustainable in transportation terms.
- 2) The Cherrywood Town Centre Development – Tunnel Appraisal Report (RPS/Delcan April 2007) was a review of a developer proposal to bridge the Wyattville Link Road with streets and buildings linking both sides of the proposed Town Centre.
- 3) The Cherrywood Common Infrastructure Implementation Plan (RPS Feb. 2008) gave practical expression to the Mouchel Parkman Traffic Management Plan and provided a clear and detailed strategy to co-ordinate residential, commercial, retail and other development with the essential economic, social and physical infrastructure required to serve the new community.
- 4) Cherrywood Traffic Study – Update of Traffic Model (RPS May 2010) was a review of the Mouchel Parkman Traffic Management Plan of January 2007 in the context of changes to the infrastructure proposed in the RPS Implementation Plan of March 2008. The study created an updated SATURN Model to demonstrate that the existing and proposed infrastructure would be adequate to cater for the phased Cherrywood Development.

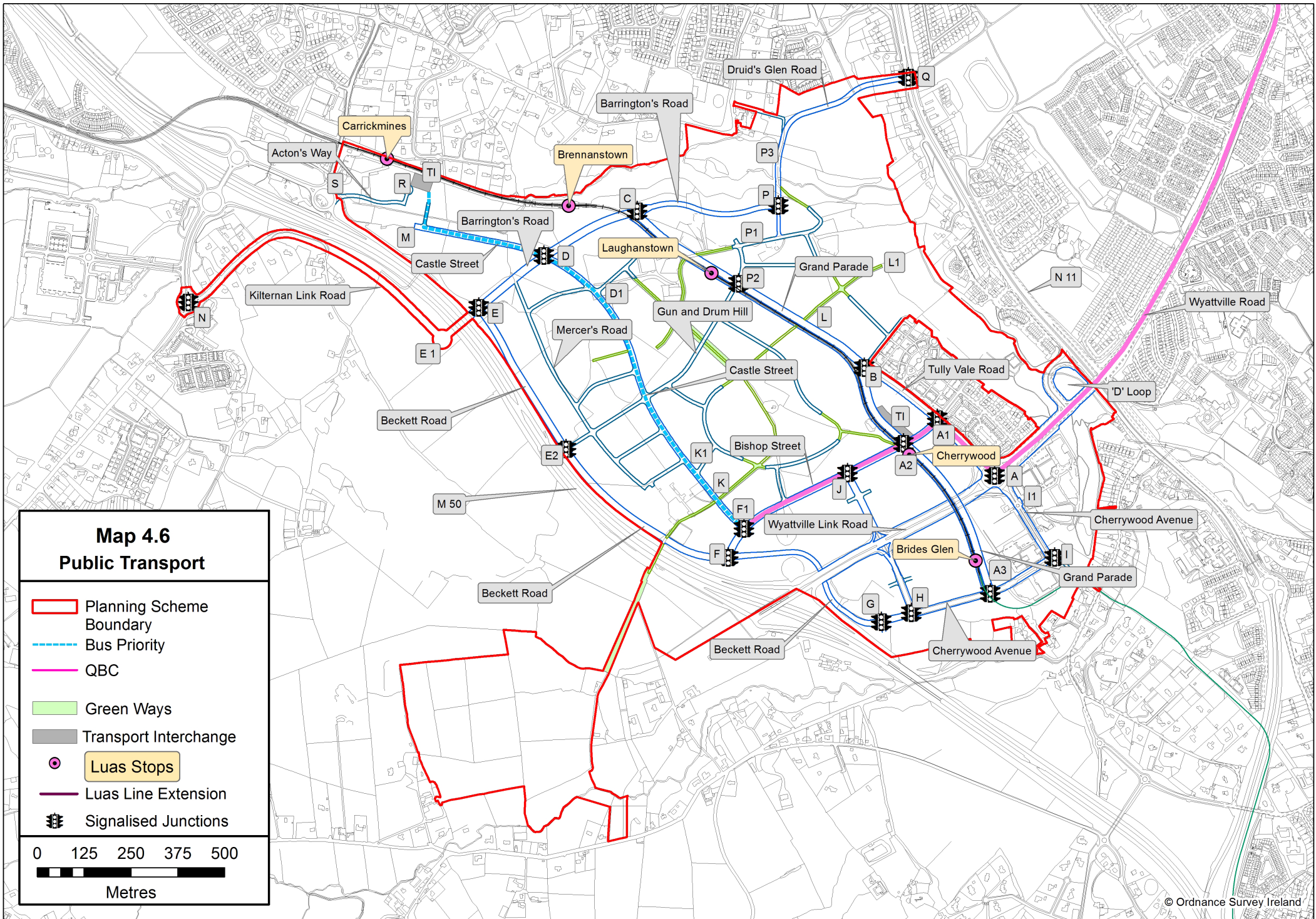
A number of key proposals have emerged to address the constraints on the Plan Area, (see Map 4.5) as follows:

- A new route onto the N11 at Cabinteely will provide essential access into the north-east area of Cherrywood and promote use of the N11 to the maximum extent, while protecting the village of Cabinteely and the character of Brennanstown Road (Barrington's Road and Druid's Glen Road);
- A new route over the M50 will link Cherrywood to Carrickmines and Kilternan / Glenamuck (Kilternan Link Road);
- One grade separated crossing of the Wyattville Link Road will facilitate ease of movement between both sides of the Town Centre and eliminate traffic crossing at-grade between Lehaunstown interchange and Cherrywood roundabout;
- Access to the M50 from the Cherrywood area will be limited to the Lehaunstown interchange, which was upgraded at the time of construction to cater for the predicted demand.

Figure 4.4: Indicative Road & Street Sections







4.2.7 Internal Road Proposals

The required network of internal roads is shown on Map 4.5 and on the accompanying Road / Street Sections. It is based around the creation of a circular route to distribute traffic within the area and onto the adjacent highway network. From the existing Tully Vale Road, Grand Parade will run northwards alongside the Luas as far as the existing underpass where it will intersect with Barrington's Road coming from the N11 and leading to the new bridge over the M50. Beckett Road will run southwards from Barrington's Road, parallel to the M50, until it meets the junction with Bishop's street, runs to the north of the Cairn/Wedge Tomb and then passing under the Wyattville Link Road to the eastern side of Cherrywood, where it will connect back to Tully Vale Road via Cherrywood Avenue

Bishop Street will run east-west on the northern side of the Wyattville Link Road, connecting Tully Vale Road with Beckett Road via a level crossing of the Luas line at Grand Parade. Castle Street will run north-south from Bishop Street passing through Tully Village and leading to Priorsland. Streets will provide connectivity within and between neighbourhoods. Independent development blocks will be served from these streets and additional streets linking into the circular network. The access points indicated on the Development Area Maps may be relocated subject to traffic safety considerations.

Neighbourhood roads will be designed so as to be part of the built environment, appropriate in scale to adjoining development with low speeds that facilitate pedestrian and cycle movements and also allowing for the space to be part of the public realm in respect to communal space. There may be opportunities to develop 'home zones' and planning applications should explore this option.

The design of roads and streets shall accord with the detailed guidance in the current editions of:

Traffic Management Guidelines - DoELG, DoT and DTO, 2003.

National Cycle Manual - NTA, 2011.

Design Manual for Roads and Bridges - TII, 2011.

Manual for Streets - DfT (UK), 2007.

Design Manual for Urban Streets - DTTAS, due 2012.

Development Works in Residential and Industrial Areas (Guidance Document) - DLRC, 2012.

In general footpaths shall be 3m wide to allow for the planting of street trees while still maintaining an unobstructed width of 2m for pedestrians. Additional width may be required in areas of high pedestrian flow, at bus/Luas stops and at gathering places such as schools and shops. Cycletracks, designed in accordance with the National Cycle Manual, will be 2.25m wide. Combined bus/cycle lanes shall be 4.5m wide. Traffic lanes shall be 3 - 3.5m wide depending on traffic volume and composition. Residential car parking may be provided on Neighbourhood Roads and short stay parking on Streets. Trees should be spaced at intervals of not more than five perpendicular or two parallel car parking spaces.

External Road Proposals

The existing at-grade junctions along the N11 especially Leopardstown Road, Clonkeen Road and Johnstown Road will be assessed to identify measures to improve capacity and reduce congestion.

It is a long term objective of the County Development Plan 2010-2016 to upgrade Loughlinstown Roundabout to a grade separated junction. In the shorter term the Council will progress the option of conversion to a staggered T-junction.

It is a six-year objective of the County Development Plan 2010-2016 to secure improvements to the 'Cherrywood to Dún Laoghaire Strategic Route (R118 Wyattville Road to Glenageary Roundabout)'. Measures to be assessed include the provision of 2 straight through lanes at the junctions of Wyattville Park and Loughlinstown Drive and the provision of an additional left turn stacking lane on the Wyattville Intersection D-Loop.

Specific Objective:

PI 15 The Council will support the TII in consultation with the NTA in implementing measures to improve the functioning of the M50/M-N11 road corridor.

The 'National Roads Traffic Management Study' (TII February 2011) proposes a range of measures, including traffic management and capacity enhancements, to preserve the strategic capacity of national roads for longer distance travel, particularly by goods and freight.

At present the M11/N11 south of the M50 is congested in the am and pm peak hours. It was estimated in Figure 4.2 that in 2030 36% of trips to employment in Cherrywood would come from areas to the south. The pace of employment development in Cherrywood will take account of the capacity of the strategic road network to the south of Cherrywood.

The M50 between the M11 and Sandyford has spare capacity, but this is limited for northbound trips in the am peak. Trips to work from Cherrywood will impact on the M50 northbound in the am peak so the pace of residential development at Cherrywood will take account of the capacity of the M50 northbound in the am peak hour.

The phasing of development set out in Chapter 7 provides for an assessment of road network performance at set intervals in conjunction with the TII / NTA. The draft NTA Transport Strategy proposes to evaluate the feasibility and potential benefits of measures to manage travel demand on roads in the Greater Dublin Area, including the implementation of ramp metering, variable speed limits or hard shoulder running on dual-carriageways or motorways, at times and places where congestion on these strategic roads is affecting journey time reliability and disrupting traffic flows. In the longer term it may be necessary to upgrade the M50 between Sandyford and Bray South, including an upgrade of Carrickmines interchange.

4.2.8 Public Transport Strategy

Specific Objective:

PI 16 It is an objective to support and facilitate the development of an integrated public transport network in the Planning Scheme, in association with relevant transport providers, agencies and stakeholders.

Luas

The Greater Dublin Area - Draft Transport Strategy 2011-2030 (NTA) proposes significant increases in the capacity and interconnectivity of the Luas Green Line including the following:

- Broombridge Luas from St. Stephens Green to Broombridge via Grangegorman providing a direct link from the Cherrywood Planning Scheme area through the City Centre to the north of the City;
- Increased passenger capacity on Green Line through extended trams;
- Extension of the Luas Green Line to North Bray;
- Extension of Metro North tunnel to the Luas Green Line, linking Cherrywood to the City Centre, Dublin Airport and Swords;
- Upgrade of Luas Green Line to Metro.

The Draft Transport Strategy states: "A southbound extension of the Green Line from Brides Glen to the Bray area is proposed to improve public transport accessibility for this Designated Town. This will be subject to timing and scale of new development in this area, and appraisal, including economic assessment. A comparative analysis with a BRT alternative will be undertaken prior to final progression to Railway Order".

Other measures which do not affect the Luas Green Line directly will also have a major impact on connectivity to and from the Planning Scheme area. These would include DART Underground and the two Luas lines from the City Centre to Tallaght and Lucan respectively, all of which will interchange with the upgraded Luas Green Line.

It was estimated in Figure 4.1 that in 2030 41% of Cherrywood residents will travel to work to centres to the north served by Luas. This indicates that there will be sufficient demand to achieve the target 25% of external trips to work by Luas. Based on a resident population of 20,000 the demand could be serviced by longer trams at more frequent intervals.

It was estimated in Figure 4.2 that in 2030 only 14% of trips to employment in Cherrywood will come from centres to the north served by Luas. A further 13% will come from centres to the south assuming Luas / BRT is extended to Bray. This illustrates the need to extend the catchment served by Luas in order to achieve the target mode share of 25% Luas for work trips to Cherrywood. The phasing of development set out in Chapter 7 will ensure that employment growth in Cherrywood Planning Scheme occurs in tandem with the improvement of public transport connections and services within the wider Metropolitan Area.

Bus

Specific Objectives:

PI 17 It is an objective to facilitate and promote the enhancement of bus services through the implementation of QBCs and bus priority measures, and by ensuring that the design and layout of neighbourhoods facilitates the expansion of bus services.

PI 18 It is an objective to pump prime the extension of bus services and the provision of new bus services during the early stages of development in the Planning Scheme area.

It was estimated in Figures 4.1 and 4.2 that in 2030 49% of Cherrywood residents will travel to work in external centres not served by Luas and 64% of trips to employment in Cherrywood will come from external centres not served by Luas.

Bus services will play an important role in providing public transport to the Cherrywood Planning Scheme from these areas, principally:

- Bray and environs (in advance of the Luas Green Line / BRT extension to Bray);
- Dún Laoghaire/Blackrock;
- Ballsbridge/Stillorgan/ Cornelscourt;
- Kilternan (subject to development);
- North Wicklow (outside of Bray);
- Dublin city not served by Luas.

As the Cherrywood Planning Scheme area develops, the bus links from these areas to the Planning Scheme will need to improve over time. This would likely involve new routes, increased frequencies on existing services and higher capacity bus services. In order to achieve the target of 12% external trips by bus, an approximate estimate is that the capacity equivalent of 8 extra buses would be required to serve demand for trips to work from Cherrywood in the am peak and the equivalent of 13 extra buses for inward demand.

As the NTA licences bus routes and enters into contracts for the provision of public transport services, it is within the function of the Authority to provide for improved bus services to the Cherrywood Planning Scheme area as it develops. The Planning Scheme will ensure that essential bus infrastructure is in place to serve the Planning Scheme area so that improved services can be introduced over time. The phasing of development set out in Chapter 7 provides for bus services to be reviewed at set intervals in conjunction with the NTA.

It is an objective of the Dún Laoghaire–Rathdown County Development Plan 2010-2016 to implement a QBC / Bus Priority Measures from Dún Laoghaire to Cherrywood via Mounttown, Upper Glenageary Road, Sallyglan Road, Church Road and Wyattville dual carriageway, with a link to the Rock Road QBC via Rochestown Avenue, Abbey Road, Stradbroke Road and Frascati Road. It is envisaged that the bus service from Dún Laoghaire / City Centre will enter Cherrywood from Wyattville Road and turn onto Tully Vale Road to interchange with Luas at the Cherrywood stop. It will continue along Bishop Street and then along Castle Street passing through Tully Village and Priorsland to enter the proposed transport interchange at Carrickmines Luas stop. This will require the following infrastructure:

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

Wide verges on the Grand Parade, Barrington's Road and Beckett Road will facilitate additional bus lanes if required in the future. Provision will also be made for the possible introduction of bus priority measures on the N11 Link Road whereby any widening shall maintain a planted verge area.

The N11 QBC is critical to serving existing and future passenger demand to/from Bray/North Wicklow and to/from areas between Cherrywood and the City Centre not served by the Luas Green Line (e.g. Ballsbridge). The draft NTA Strategic Transport Plan for the Greater Dublin Area (2030 Vision) proposes infrastructural measures that will substantially reduce journey delays and improve service reliability on the N11 QBC. The potential for an upgrade to Bus Rapid Transit will also be explored.

It is not envisaged that strategic bus services between Bray and the City Centre would divert off the N11 QBC into Cherrywood. In the early phases of development, most of the employment/residential areas will be located within walking distance of the N11. Improvements to pedestrian routes between the N11 bus stops and Cherrywood will be required at an early stage. Ultimately the extension of the Luas Green Line from Bride's Glen to the Bray area will serve the public transport demand between Bray/North Wicklow and Cherrywood.

There may be demand for new services/route variances on the N11 QBC between the Cherrywood Planning Scheme area and the City Centre to serve areas that are not served by the Luas Green Line. The Planning Scheme provides for this public transport issue to be revisited as development occurs in the area.

The Greater Dublin Area – Draft Transport Strategy 2011-2030 (NTA) proposes a South Orbital QBC, linking Dún Laoghaire / Blackrock area to Sandymount / Dundrum and the Tallaght area. To access Cherrywood from areas along the orbital route such as Tallaght, it is envisaged that public transport trips would operate via orbital bus/Luas interchange at Sandymount/Dundrum.

Provision of services between Kiltarnan/ Glenamuck and the Cherrywood Planning Scheme area would depend on demand emanating from the Kiltarnan/ Glenamuck area. Therefore, the provision of a dedicated bus lane on the Kiltarnan Link Road will be subject to future review depending on the progress of development in Kiltarnan/Glenamuck.

Transport Interchange / Taxis

Specific Objective:

PI 19 It is an objective to construct a Transport Interchange in the vicinity of the Cherrywood Luas stop (see Map 4.6).

The Planning Scheme identifies a location for a Transport Interchange near Cherrywood Luas stop. Provision will be made for conveniently accessible bus and taxi waiting areas, car drop off / pick up, cycle parking, public lighting and soft landscaping. Small scale retail in accordance with section 2.3.2 may be acceptable subject to the overall requirements of Table 6.2.1. Similar facilities are planned at Carrickmines stop. In the short term a temporary bus / Luas interchange will be constructed at Bride's Glen stop with shelters, RTPI signs etc.

Provision will be made for taxi ranks at convenient locations in Town and Village Centres including:

- Cherrywood Town Centre Transport Interchange,
- Carrickmines Luas stop Transport Interchange,
- Lehaunstown Village,
- Tully Village.

Taxi ranks shall be designed in accordance with NTA guidelines to be wheelchair accessible with shelters where appropriate.

4.2.9 Pedestrian and Cycle Movement Strategy

Specific Objective:

PI 20 It is an objective to prioritise walking and cycling in the internal route hierarchy, to create a network of walking and cycling routes within the Planning Scheme and to improve circulation and permeability. All proposed access points, routes, mews and streets must connect logically with the existing street network to aid legibility, permeability and walkability and also must complement local user desire lines.

The proposed network of walking and cycling routes are shown on Map 2.5. Cherrywood has been designed with a hierarchy of streets where the main vehicular traffic will be directed onto the major routes. Below this level the routes are to be progressively more pedestrian/cycle friendly with a low speed limit of 30 kph.

The overall plan strategy is based on five and ten minute walking distances (400 and 800 metres) from public transport and district / neighbourhood centres. Accordingly, it should be possible to walk or cycle between all the principal nodes in Cherrywood (i.e. Luas stops, bus stops, Town and Village Centres, schools and public open spaces) via a number of pleasant, safe and direct routes.

Pedestrians and cyclists will be facilitated internally by:

- The design of new roads and junctions will provide for the safety of pedestrians and cyclists in particular taking account of the guidance provided by the National Cycle Manual;
- Segregated pedestrian / cycle routes will give safe and direct access to public transport, local facilities and services;
- Pedestrian / cyclist links through parks and along green routes;
- Signalised Toucan crossing facilities on main roads;
- Grade separated links across the Wyattville Link Road;
- Direct links to the pedestrian / cycle routes from residential areas;
- A high standard of surfacing and continuity of routes;
- Cycle parking at transport interchanges, Luas stops, employment and retail locations;
- A 30 km/ph speed limit for internal routes to slow traffic to the benefit of pedestrians and cyclists.

Links to the wider pedestrian / cyclist network will include:

- Druid's Glen Road to the N11 at Cabinteely and onward connection with the Kilbogget Park greenway, which extends northwards to Deansgrange and is proposed to be extended to Blackrock;
- Greenway along the linear park from Cabinteely to Cherrywood and continuing towards Shankill;
- Lehaunstown Lane maintained as a green route connecting across the Carrickmines river to Brennanstown in the north and across the M50 to Rathmichael in the south;
- Through Priorsland to Glenamuck Road;
- Proposed greenway along Carrickmines river and Ballyogan stream to Stepside area;
- Proposed greenway along Carrickmines river and through Leopardstown Racecourse to Sandymount Business Estates;
- Footpaths and cycle lanes to Kiltarnan / Glenamuck via the proposed bridge across the M50, bypassing the roundabouts of Carrickmines interchange;
- Pedestrian / cyclist links to Cherrywood Road and Brides Glen Road;
- Pedestrian / cyclist link from the Bride's Glen Luas stop along the old viaduct to Shankill via Loughlinstown hospital;
- A proposed walking route through the Carrickmines Valley from Carrickmines through to the linear park. This new wooded route will be developed in conjunction with park and open space development.

The Planning Scheme includes an interlinked cycle and pedestrian network providing for safe and convenient access within the Plan Area and also connecting it with the wider locality. The Planning Scheme recognises the importance of providing a network of safe and overlooked cycle / walking routes for amenity / recreational and commuting purposes that follow particular desire lines, especially when linking with public transport and services.

The significant investment in both walking and cycling infrastructure within the Cherrywood SDZ area will ensure that the potential for internal walking and cycling trips is maximised. The hierarchy of road types and the inclusion of a coherent network for cyclists and pedestrians will ensure that cycling and walking are promoted as the mode of choice for internal trips.

The potential for external walking and cycling is limited by severance from the surrounding settlement centres, competition from public transport and the lack of significant employment adjacent to Cherrywood.

Special emphasis will be given to the assessment of pedestrian and cycle facilities at Planning Application level. They will be assessed according to the following criteria:

- 1) Is the route conveniently located?
- 2) Is the route safe and secure?
- 3) Is the route continuous and does it link with adjacent established or proposed routes?
- 4) Does the application adequately address the introduction of interim measures to provide continuous routes if necessary?
- 5) Does the route provide controlled crossing provision at roads?
- 6) Is sufficient width available to accommodate pedestrian flow?

4.2.10 Car Parking Standards

Specific Objective:

PI 21 It is an objective that car parking within the Planning Scheme be controlled so as to determine car use and promote sustainable travel modes. For residential development, this objective will be balanced with ensuring adequate car parking facilities are provided to meet car ownership needs in order to avoid any overspill car parking or adverse impacts on the public realm.

Reduced car usage can only be achieved over time with the development of the network of public transport routes and services. Car parking policies have to reflect this evolving/ expanding public transport network. This will be achieved by the use of temporary car parks that will be removed as development progresses and the public transport network improves.

Where multi use / public car parks are proposed, the management regime will be subject to the agreement of the local authority.

Managed on-street parking will provide surface animation and passive supervision in off-peak periods. Where on-street parking is provided adjoining a development plot it will count towards the maximum parking requirement. Priority will be given to unloading and service vehicles as well as disabled badge holders and car sharing proposals.

Innovative mobility solutions such as car sharing schemes have become increasingly popular in urban environments and have the potential to reduce car ownership levels. In this regard, technological changes are contributing to a change in personal car ownership levels and the link between car ownership and travel. Car sharing involves a recognised organisation or company that provides cars in various agreed locations. The cars shared amongst members, are either owned or leased by the car share provider or by members. A car sharing scheme may operate privately within a development subject to a strong central management regime, or may be in a publicly accessible location to serve a wider range of potential users.

Car sharing works best in areas of high urban density supported by good public transport access and is an innovation which would be acceptable throughout Cherrywood in the employment, retail and residential areas. Cherrywood with its permeable layout and attractive walking environment will afford a high degree of ease of access to the car sharing fleet for future residents and other potential users. Accordingly, car sharing schemes will be actively pursued in the implementation of the Planning Scheme.

In addition, all development will be required to ensure that all car parking spaces are future-proofed for Electric Vehicles (EVs) or 'EV Ready'. At a minimum, applicants for residential and non-residential developments will be required to future proof for electric vehicle charging points at appropriate locations, including homes, businesses, on-street and multi-storey car parks, where parking is provided through the installation of ducting.

The provision of electric charging points as part of residential and non-residential developments, including developments with publicly accessible car parking spaces, shall be provided in line with the standards outlined in the current Dun Laoghaire Rathdown County Development Plan.

For all developments, applicants will be encouraged to embrace emerging Smart City innovative technology with the use of pop-up EV chargers, or an appropriate alternative, which facilitates access to electric charging points in more dense urban environments without adding to visual or street clutter in the public realm.

It is not considered necessary for the purpose of this Planning Scheme to detail requirements for all land use types within Cherrywood. Those not detailed below are considered to be covered by the relevant policies and objectives in the current Dún Laoghaire-Rathdown County Development Plan for areas served by public transport.

Residential

Cherrywood is designed so that daily commutes for residents should not require the use of a private car. The plan facilitates local provision of residents' daily commercial, educational and recreational needs. It is laid out so that the majority of future residents can access their place of employment by walking, cycling or public transport. It is important to understand the difference between car usage and car ownership and for any parking standards to take cognisance of car ownership trends. In any development proposed a balance needs to be found between providing car parking in line with car ownership needs for residents whilst also ensuring parking is not overprovided. In addition, the provision of car sharing facilities and operators would encourage more environmentally friendly car usage, reduce the need for car ownership and car spaces whilst providing residents with the same mobility freedom.

It is critical to the success of the plan that the scale, layout, urban form, mix of uses and detailed design all contribute to an attractive environment for people to walk and cycle. The layout proposed in this plan provides a network of safe and attractive routes for the pedestrian and cyclist.

On that basis the residential car parking standards set out in Table 4.4 below shall apply in each of the areas where homes are permissible. The standards take cognisance of the guidance set out in the Ministerial Guidelines "Sustainable Urban Housing: Design Standards for New Apartments, March 2018", (DHPLG).

Table 4.4: Minimum Residential car parking standards

Town Centre	0.9 space per unit
Neighbourhood Centres	0.9 space per unit
Res 3 and 4	0.9 space per 1 bed unit.
	1.2 spaces per 2 bed unit / house
	1.4 spaces per 3 or more bed unit.
Res 1 and 2	2.0 spaces per 3 or more bed house
	Minimum 0.01 Car Share space per unit

NOTE: Under Table 4.4 a unit refers to an apartment, duplex or triplex and a house refers to a detached, semi-detached or terraced stand alone dwelling.

A lower standard may be considered for studio apartments in the range of 50-70% of the rate applied to a 1 bed unit/apartment, where provision is made for car sharing facilities and operators under a strong central management regime for the development.

For Build-To-Rent (BTR) developments, the relevant Government guidance is set out in Specific Planning Policy Requirement 8 (SPPR 8) of the 'Sustainable Urban Housing: Design Standards for New Apartments – Guidelines for Planning Authorities', 2018 (or as subsequently amended). In the case of Cherrywood, it is considered that there is limited capacity for further reduction of the above car parking standards for BTR, having regard to the fact that these standards already take cognisance of the ambitious modal split targets for sustainable transport modes; proximity to public transport services; and the potential for car sharing. Accordingly, car parking provision for BTR developments shall as a default minimal match the car parking standards for Res 1, 2, 3 and 4 as set out in Table 4.4 and the standards for studios set out above.

Car parking proposals will be assessed having regard to their impact on place making as well as providing residents with adequate and safe access to their private vehicle. Car parking for the whole plot should be considered at the strategic design stage prior to going into the detail of individual sites. A combination of approaches may be appropriate in the majority of plots.

Within the Town Centre, the village centres and the adjacent higher density residential plots, designated as Res 3 and Res 4, parking should be provided either in an underground or undercroft car park which has been designed to minimise any negative visual impact. Car parking may be provided in a mixed-use car park or in a peripheral location subject to there being environmentally attractive and safe pedestrian linkage between the residential units and the car park and subject to there being a limited amount of parking spaces available in the immediate vicinity for loading / unloading and for residents with disabilities.

The urban form envisaged for areas designated as Res 1 and Res 2 is street frontage, terraced housing, perimeter blocks, individual house designs, duplex and apartment mixes. The traditional layout with private car parking in the front garden will not be an option for the majority of homes in these areas so well considered undercroft car parking, grouped parking, offsite parking, etc should all be considered at the design stage.

High Intensity Employment (HIE)

The Dún Laoghaire-Rathdown County Development Plan 2010-2016 has maximum parking standards for high intensity employment that are appropriate on a countywide basis. In Cherrywood new neighbourhoods and a new Town Centre are being proposed in what is primarily green field property with no overhang of car parking that was permitted when the hierarchy of modal share was more private vehicular dominated. Therefore Cherrywood specific standards are required for higher density employment. In addition to the ratio of spaces to floor area the car parking locations are to be used in the Planning Scheme to enhance the urban form, support the mixed use nature of the district centre and reinforce the modal share targets.

On-site car parking will be permitted in accordance with the County Development Plan 2010-2016 maximum car parking standard for offices along public transport corridors. i.e. 1 space to 100sqm gfa of new office space. In addition, within the area of the Cherrywood Planning Scheme, off-site car parking consisting of temporary surface car parking and permanent multi-storey car parking will be permitted in accordance with Table 4.5. The temporary car parking will allow for the ratio of parking spaces to employees to be managed downwards over time in line with improvements to public transport. The permanent multi-storey car park will enable a turnover of spaces more in keeping with the mixed use nature of the area.

Table 4.5: Parking Standards for High Intensity Employment

	Existing	Proposed Development m ²						
		65,000 to 100,000	100,000 to 150,000	150,000 to 200,000	200,000 to 250,000	250,000 to 300,000	300,000 to 350,000	350,000 to 400,000
Floorspace	65,000	65,000 to 100,000	100,000 to 150,000	150,000 to 200,000	200,000 to 250,000	250,000 to 300,000	300,000 to 350,000	350,000 to 400,000
Employees (est.)	3,250	5,000	7,500	10,000	12,500	15,000	17,500	20,000
On-site parking (Cumulative)	1,100	1,450	1,950	2,450	2,950	3,450	3,950	4,450
Multistorey (Cumulative)			600	600	1,200	1,200	1,800	1,800
Temporary Surface (Cumulative) – Flexible	700	1,050	1,200	1,200	600	600		
Total Cumulative parking	1,800	2,500	3,750	4,250	4,750	5,250	5,750	6,250
Parking space to employee ratio incl. temp. spaces excl. temp. spaces	55% - 34%	50% - 29%	50% - 34%	43% - 31%	38% - 33%	35% - 31%	33%	33%

Note this table estimates the current car parking provision [2012]

Retail

As retail is primarily located within mixed use areas it is appropriate that retail parking be provided in village or Town Centre car parks either underground or multi storey rather than in individual car parks associated with each retail unit. Where surface car parking is proposed it will be required to demonstrate that this is not to the detriment of the vitality of the area, the public realm, pedestrian linkages, urban form and achieving the potential scale of development identified within the Development Area, see Chapter 6.

The car parking requirements are set out below.

Table 4.6: Maximum retail car parking standards

Retail - Food	1 space per 20sqm gross floor area
Retail - Comparison	1 space per 50sqm gross floor area
Retail - Shopping Centres & Stores	1 space per 50sqm gross leasable area

Primary and Post Primary Schools

Cherrywood is laid out as a number of neighbourhoods. The pedestrian/cycle network and urban form is such as to encourage and make attractive walking and cycling to school. An adequate number of school sites are being provided within the Plan Area to offer the choice of attending a local school. Schools are also easily accessed by public transport thereby providing accessibility for staff.

Parking provision within school sites should be less than 1 per classroom. The sites identified for schools cannot accommodate significant outdoor surface parking therefore the provision and location of car parking shall be agreed between the Department of Education and Skills and the Local Authority at pre application stage.

Park and Ride

The Green Luas line terminates at Bride's Glen. Due to the proximity of the N11 and M50 the stops at Carrickmines, Cherrywood, and Bride's Glen are accessible by car from a broad catchment.

An underground Park and Ride at Carrickmines was permitted as part of the rail order for the extension of the Luas line from Sandyford to Cherrywood. Due to a number of factors this has not been built. A temporary surface car park is in operation at the Carrickmines stop. The plan envisages this temporary surface car park being replaced by a multi-storey park and ride as this area is developed.

A temporary surface car park has also been permitted close to the Bride's Glen Luas stop. This temporary park and ride was considered appropriate due to the limited development to date in Cherrywood. Any long term provision of park and ride proximate to the Town Centre will be dependent on the proposal according with the NTA Strategic Transport Plan for the Greater Dublin Area.

The siting of any such proposal should be such as not to undermine the pedestrian environment, particularly in the Town Centre. It should also be located with good pedestrian links to the Luas stop. It may be appropriate to provide this type of parking in a mixed use car park and to control the Park and Ride aspect of the usage by the method of charging / ticketing.

4.2.11 Bicycle / Motorcycle Parking Standards

Specific Objective:

PI 22 Development in the Planning Scheme shall adhere to the guidance and standards for cycle parking and associated cycling facilities for new developments set out in the current 'Dún Laoghaire-Rathdown County Council Cycling Policy' (June 2010 or as updated).

The Cycling Policy sets out the minimum cycle parking requirements for short (e.g. visitor cycle parking) and long term use for various types of development (including residential). It also sets out the appropriate quantum of showers and lockers, and incentives required to promote cycling in workplaces.

Dedicated Motorcycle parking spaces shall be provided at a minimum of four or more spaces per 100 car parking spaces. The general principles, indicative layouts and requirements for welfare facilities set out for Cycling parking in the Dún Laoghaire-Rathdown County Council Cycling Policy shall also apply to motor cycle parking.

4.2.12 Area Wide Travel Plans (formerly Area Wide Mobility Management Plans)

Specific Objective:

PI 23 The Council will prepare an Area Wide Travel Plan for the Planning Scheme in conjunction with the National Transport Authority and stakeholders in the area. Developers, employers and organisations in the area will be required through the planning process to work positively with others to achieve the objectives of the Plan.

Preparing an Area Wide Travel Plan to cover a particular set of developments has been found to increase the effectiveness of individual Travel Plans as it encourages the pooling of resources and thus increases the potential for effective initiatives to be identified for the area relating to sustainable travel.

This can further be enhanced through the setting up of a Local Travel Plan Network. This is a group of organisations working together to manage and reduce their car use in the area. It brings together individuals and organisations involved in preparing Travel Plans with the aim of facilitating the process.

The Council will support the set up and operation of a car club (short term car rental scheme) in the Cherrywood Planning Scheme to facilitate an overall reduction in car journeys and car-parking requirements for the area.

4.2.13 Travel Plans (formerly Mobility Management Plans)

Specific Objective:

PI 24 A Travel Plan will be required for developments in the Planning Scheme that exceed the thresholds for Mobility Management Plans set out in the current County Development Plan.

For developments that do not meet the thresholds, a Travel Statement will be required focusing on specific measures within the development to encourage and promote sustainable travel.

A Travel Plan is a long-term management strategy employed by an organisation that seeks to promote and deliver sustainable transport objectives through positive action and is articulated in a document that is regularly reviewed. A Travel Plan can bring a number of benefits to a new development for the developer, the users of the development and the Local Authority and can help instill a culture of sustainable travel at an early stage in the development.

Travel Plans will play a role in achieving the future modal split targets. It is proposed that Dún Laoghaire-Rathdown County Council and individual developers will appoint a steering group/ mobility manager for the co-ordination, development and implementation of behavioural change measures such as:

- School and Workplace Travel Plans;
- Cycling and Concessionary Fares;
- Personalised Travel Planning – Advisors visit households offering travel information and collating comments;
- Personal Travel Information Packages;
- Financial Incentives;
- Information on the health benefits of active travel.

4.2.14 Helipad

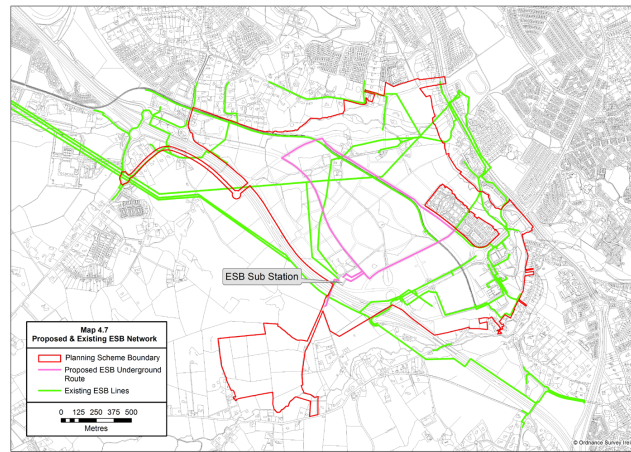
The Planning Authority will facilitate the provision of a helipad facility to serve the employment areas. The preferred option is for a collective facility to serve multiple users in order to avoid the proliferation of such facilities. There can be detrimental impacts from helipad facilities on adjacent residential areas and amenity uses and biodiversity, in terms of noise nuisance and any such proposals will have to be carefully assessed in this regard. The onus would be on any applicant to demonstrate that residential amenities and biodiversity will not be significantly negatively impacted upon and if necessary a temporary permission would be granted in the first instance. Any such facility would also have to adhere to best practice in safety regulation as laid down by the Irish Aviation Authority (IAA).

4.3 Utilities and Telecoms

4.3.1 Electricity

ESB have completed the construction of a HV substation, adjacent to Tully Bridge, which will provide for the initial electrical demand of the development. The high voltage connection to this substation will, at the outset, be overhead from existing lines. However it is intended that this ultimately will be replaced by an underground connection when the proposed roadways have been constructed through the development.

From the HV sub-station, connections will be provided to the individual developments at Cherrywood by medium and low voltage underground cables, which will be installed in the planned road networks on the site. See Map 4.7.



In order to cater for the total electrical demand of the Cherrywood Planning Scheme, a second HV substation site within the area is required. This substation would be optimally located close to or adjacent to the road between the northern or eastern boundary of the Town Centre and Bride's Glen Development Areas.

Given the safety issues relating to the provision of electrical supply, space restrictions will have to be accommodated with other services in the available road space.

In terms of priority, the MV underground network can be developed in a manner that will accommodate the phasing of the development i.e. clockwise or anti-clockwise to suit "development area" timing and requirements.

4.3.2 Gas

The existing development in the Planning Scheme area is served by gas from the existing gas network along the N11. However this supply will not be adequate to supply future development in the Planning Scheme.

There is a high pressure gas main on the south side of the M50 that will be the main supply for the future development in the Planning Scheme. This will involve the construction of an Above Ground Installation (AGI) near Tully Bridge to depressurise the gas crossing the M50, using the existing service ducts below the road near Lehaunstown Interchange. See Map 4.8

Specific Objective:

PI 25 An Above Ground Installation will be required near Tully Bridge to supply gas to the Planning Scheme Area. This will be provided in accordance with the phasing requirements of Table 7.10 in Chapter 7.

From the AGI, Cherrywood can be supplied from a distributor main running in the road network to form a loop in the road network, similar to the electricity supply. From this loop numerous take off points or pressure reducing facilities can be positioned as required for individual development plots.

4.3.3 Telecoms

There are a number of current telecommunications providers within the Plan Area. It is anticipated that the fiber network can be extended with the development of the road network. This should be considered at the detail design stage of the roads.

The service corridors required for the telecommunication networks is to be included in a services drawing submitted with planning applications so as to ensure that they do not reduce or impact on proposed landscaped areas or street trees. The sharing of trenches by suppliers is encouraged.

Specific Objective:

PI 26 It is an objective to require applications to include communication networks at the design stage of a scheme and to provide details of the proposed network with planning applications.

4.4 Energy

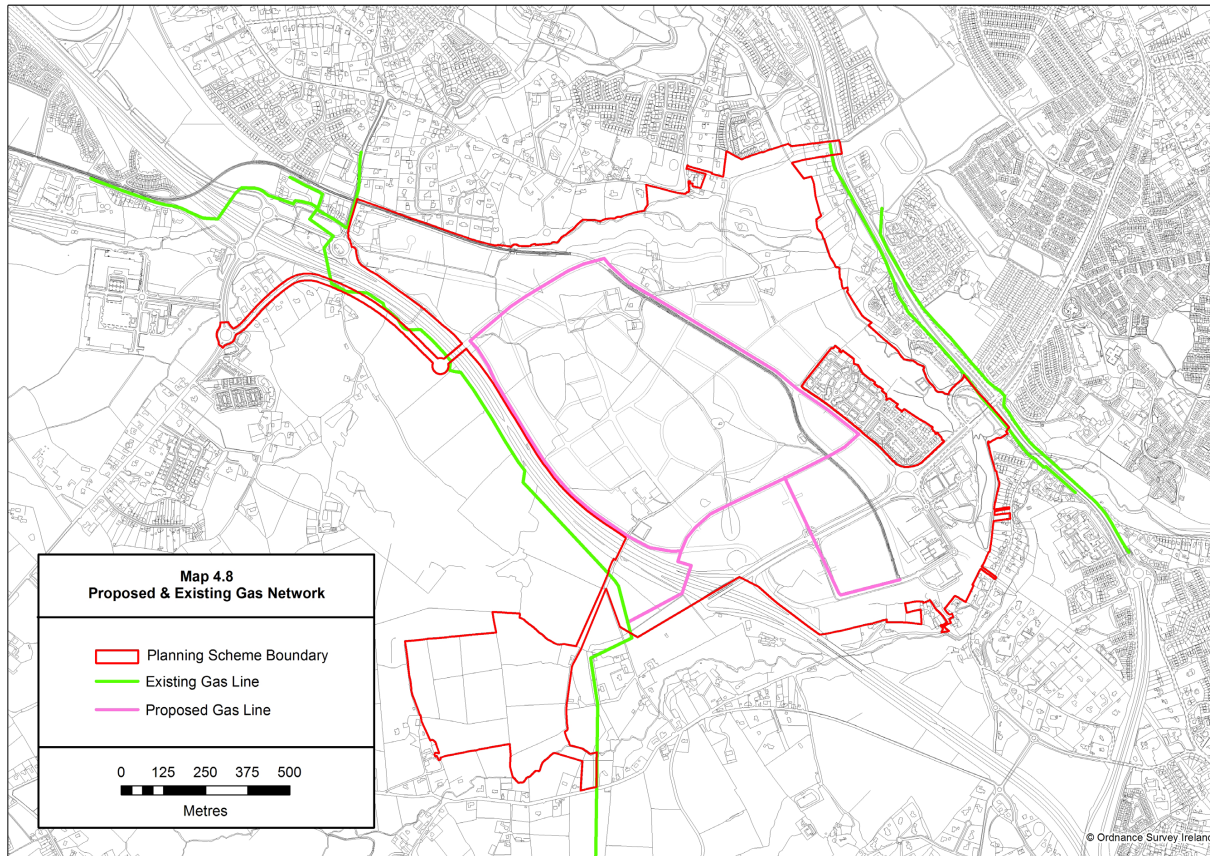
European and national energy policy is built around the three important pillars of security of supply, environmental sustainability, and economic competitiveness. This sustainable energy agenda is one of the principle drivers of innovation and resource management in the smart economy/ economic community. The scale of the Cherrywood Planning Scheme affords opportunities in its development that can contribute in a positive way to this agenda.

Research undertaken during the formulation of the Planning Scheme examined policy options, energy source options and an energy assessment of the proposed scheme itself. The Cherrywood Energy Assessment was undertaken in 2011 to assess the Planning Scheme. It assessed the Planning Scheme as divided into the 8 development areas under 2008 Building Regulations as well as two alternative construction scenarios – an improved scenario and a best practice scenario. The results revealed that the greatest energy demands are in Lehaunstown Village (Area 1) and the Town Centre (Area 2). This assessment included recommendations for maximising energy efficiency and reducing the carbon emissions in Cherrywood. Acknowledging the significant time horizon for the delivery of the full Planning Scheme, and the pace of change in the energy arena, it is considered too limiting to strictly define parameters in relation to energy and its provision. Technological innovations and strategic choice in this area will continue to develop in the future and it is not the intention of the Planning Scheme to restrict or hinder their contribution to the overall vision for Cherrywood.

Specific Objective:

PI 27 Within this framework it is an objective to encourage locally generated renewable and low emission energy to supply a proportion of Cherrywood's energy demand. This could include a range of energy options such as district biomass, solar thermal collectors, ground thermal energy storage, and integrated energy/heating systems such as Combined Heat and Power (CHP) at development area, neighbourhood and/or block scales, and the possible establishment of one or more Energy Service Companies (ESCO).

In this context the following apply:



Specific Objectives:

- PI 28 It is an objective to comply with all the objectives of the current County Development Plan in relation to energy.
- PI 29 It is an objective to embrace new and innovative technologies in this field, and to support their provision within the Planning Scheme.
- PI 30 It is an objective to support technologies and end-user behaviour to drive high levels of energy efficiency in end-uses.
- PI 31 It is an objective to support and encourage sustainable energy initiatives.

Ballyogan Recycling Park is located in close proximity to the Plan Area on Ballyogan Road. The Civic Recycling Facility at the recycling park contains extensive recycling facilities for domestic users and will also serve the new communities of Cherrywood. Therefore additional civic recycling facilities are not required at Cherrywood. Smaller scale bring centres will be required at suitable locations.

Specific Objective:

- PI 32 It is an objective that all developments will comply with the waste policy as set out in the current County Development Plan. Layouts should be designed to incorporate bring centres, refuse collection points and make provision for recycling and composting when required at suitable locations.

4.5 Waste management

Dún Laoghaire-Rathdown has to, in accordance with EU and National legislation, accord with the waste management hierarchy of waste prevention, waste recycling, energy recovery and disposal.

