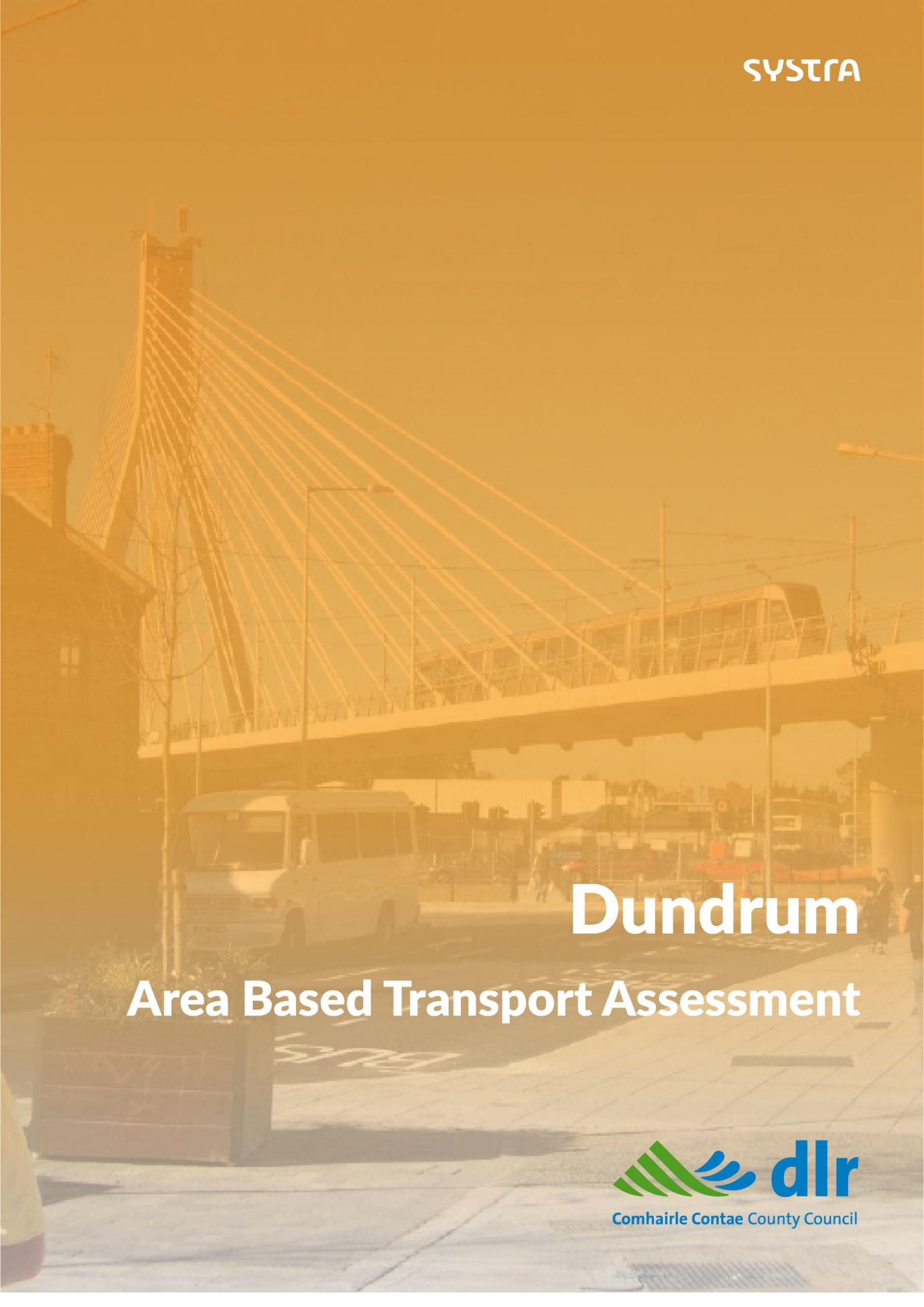

SYSTRA

Dundrum

Area Based Transport Assessment

dlr

Comhairle Contae County Council

DUNDRUM AREA-BASED TRANSPORT ASSESSMENT

DUNDRUM ABTA REPORT

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1. INTRODUCTION

1.1 Background to the Dundrum ABTA

SYSTRA Ltd and JB Barry & Partners, have been commissioned by Dún Laoghaire-Rathdown County Council (DLRCC) to assist them in developing an Area Based Transport Assessment (ABTA) for Dundrum and its environs. The key purpose the ABTA is to guide the future transport and mobility needs of the Dundrum Local Area Plan (LAP) area, taking into account the transport demand arising from existing and projected development both within the LAP boundary and the wider area of influence. It is one of a number of complementary assessment processes which will be used in the development of the Dundrum LAP that is currently being prepared by the council.

ABTAs seek to maximise opportunities for the integration of land use and transport planning, with an emphasis on delivering sustainable travel solutions. The Dundrum ABTA has been undertaken to determine the key infrastructure measures, as well as policy and behavioural change measures, required in Dundrum to tackle existing constraints in transport capacity, to plan for appropriate levels of development to facilitate the projected growth in population and employment, and to encourage sustainable mobility.

1.2 ABTA Methodology

The Dundrum ABTA has been undertaken following the guidelines set out in TII/NTA's 'Area Based Transport Assessment (ABTA) Guidance Notes – December 2018', and the NTA's ABTA How To Guide Pilot Methodology[1]:

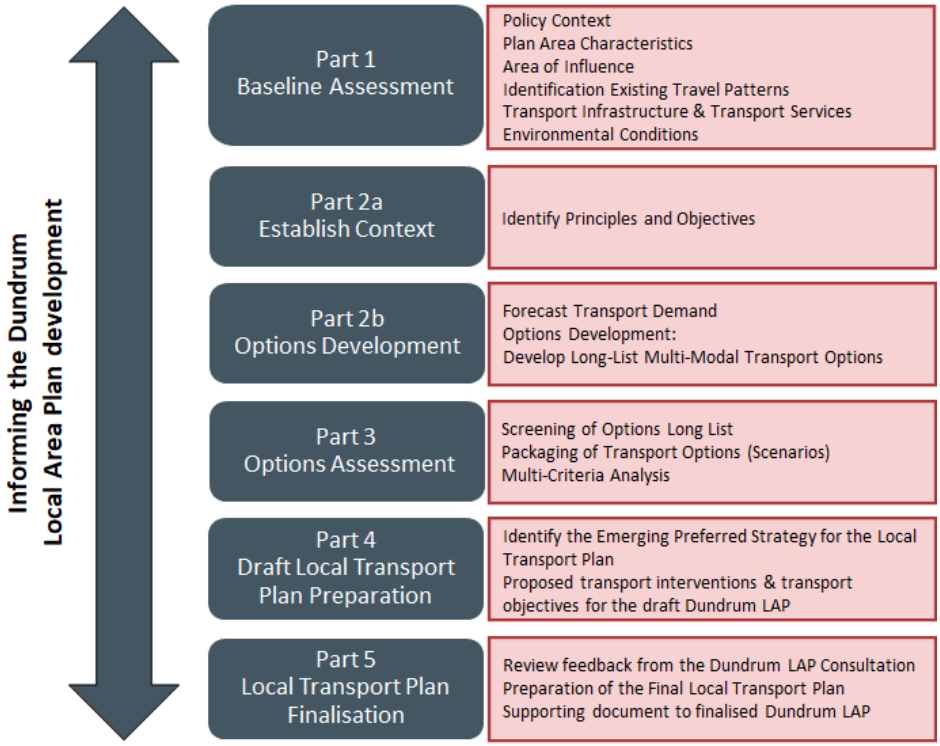


Figure 1.1 Dundrum ABTA Methodology

[1] https://www.nationaltransport.ie/planning-and-investment/strategic-planning/guidance-documents/

This report covers parts 1-4 of the ABTA methodology, and provides an overview of all tasks undertaken to derive the emerging preferred strategy for transport and mobility related improvements in the area. The preferred strategy will feed transport interventions and objectives into the draft Dundrum LAP for public consultation. Feedback from the consultation process will then be used to update and inform the finalised strategy for the Dundrum ABTA study area.

The following chapters provide information on the key stages in the ABTA methodology, including:

Chapter 2 – Baseline Assessment

Chapter Two provides a summary of the Baseline Assessment undertaken to gain a clear understanding of the existing Dundrum area characteristics in terms of transport demand / demand patterns, mode split and infrastructure provision.

Chapter 3 – Context for the ABTA

Chapter Three outlines the defined principles and objectives which underpin the transport strategy. Information is provided on the methodology used to derive these objectives.

Chapter 4 – Options Development

Chapter Four outlines the process for developing the long-list of transport options to overcome existing constraints within the study area and assist in achieving the overall ABTA objectives.

Chapter 5 – Options Assessment

Chapter Five sets out the methodology used to screen and assess the long-list of options to identify the emerging preferred transport strategy.

Chapter 6 – Draft Dundrum ABTA Recommendations' Report

Chapter Six presents the full list of transport and mobility related recommendations for the study area.

Chapter 7 – Summary

Finally, Chapter Seven provides a general summary of this report.

2. BASELINE ASSESSMENT

The following chapter provides an overview of the Baseline Assessment undertaken for the Dundrum ABTA. The aim of the Baseline Assessment was to gain a clear understanding of the existing spatial characteristics, land uses, transport conditions and constraints relating to the Plan area, focusing on:

- **Policy Context:** outlining the key policies and plans that inform the ABTA;
- **Dundrum Area Characteristics:** reviewing the study area including demographics, land-use and physical constraints;
- **Existing Travel Patterns:** outlining the distribution of trips to/from the study area, journey lengths by mode, and overall mode share;
- **Existing Transport Infrastructure:** reviewing the existing walking, cycling, public transport and road networks within the study area; and
- **Environmental Conditions:** establishes the environmental, heritage and archaeological considerations for the ABTA;

The following sections provide a summary of the key elements outlined above. Further detail is provided in the full Baseline Assessment Report in Appendix A.

2.1 Policy Context

Table 2.1 below outlines the key existing National, Regional and local polices, plans, and guidelines, relevant to the development area that were used to inform the Dundrum ABTA.

Table 2.1 Planning and Policy Documents

National Level
• Project Ireland 2040: National Planning Framework 2040 • Project Ireland 2040: National Development Plan 2018 – 2027 • Smarter Travel – A Sustainable Future 2009 – 2020 • National Climate Action Plan 2019
Regional Level
• Eastern & Midland Regional Assembly Regional Spatial & Economic Strategy (RSES) 2019 – 2031 • Metropolitan Area Strategic Plan (MASP) • Transport Strategy for the Greater Dublin Area 2022-2040 • Greater Dublin Area Cycle Network Plan
Local Level
• Dún Laoghaire-Rathdown County Development Plan 2016-2022 • Dún Laoghaire-Rathdown County Development Plan 2022-2028 • Dún Laoghaire-Rathdown County Council Climate Change Action Plan 2019-2024 • Pre-Draft Issues Paper for the Dundrum Local Area Plan • Dún Laoghaire-Rathdown Cycle Network Review (2012) • Dundrum Community, Cultural & Civic Action Plan (CCCAP) • Goatstown Local Area Plan 2010-2022

Guidance Documents

- National Cycle Manual
- Design Manual for Urban Roads and Streets
- Permeability: A Best Practice Guide
- Sustainable Urban Housing: Design Standards for New Apartments – Guidelines for Planning Authorities

The document review process ensured that the ABTA aligned with wider National and Regional policy objectives. It also assisted in defining principles and objectives for the ABTA, and identifying options for assessment. In summary:

- National, Regional and Local policy all include objectives to support compact growth and shift demand away from the private car onto more sustainable modes such as walking, cycling and public transport.

- There are a number of key transport infrastructure measures which form a part of the Government's Project Ireland 2040 - National Planning Framework (NPF), the National Development Plan (NDP) 2018-2027, and the NTA Greater Dublin Area (GDA) Transport Strategy. The items relevant to Dundrum include:
  - Capacity enhancements to the Luas Green Line between St. Stephen's Green and Bride's Glen;
  - Metro;
  - Extension of Luas Green Line to Bray; and
  - Extension of Luas Cross City to Finglas.

- A number of design guidance have been reviewed including the National Cycle Manual, DMURS, and Permeability: A Best Practice Guide. These have been used to assess existing infrastructure in Dundrum and were referenced when identifying options for assessment.

- The Greater Dublin Area Cycle Network Plan, along with the Dún Laoghaire – Rathdown Cycle Network Review, sets out a proposed cycle network for the area around Dundrum. This was reviewed in further detail when identifying options for improving cycle infrastructure as part of the ABTA.

- A number of local policies, plans and strategies have been referenced such as the DLRCC County Development Plan, Dundrum Community, Cultural and Civic Action Plan (DCCCAP) and the Goatstown LAP. The implications of these strategies and plans were considered while developing the Local Transport Plan including specific land-use proposals and development objectives.

2.2 Dundrum Area Characteristics

2.2.1 Study Area Definition

Dundrum is a well-established Major Town Centre. Located in south Dublin, it serves the western side of the county of Dun Laoghaire – Rathdown. It is a major centre of employment and retailing as well as a focal point for the surrounding residential communities and has undergone significant

transformation in the last few decades with major infrastructural improvements such as the Luas and a new road network in combination with significant commercial, retail and residential development.

Through consultation with DLRCC and the NTA, the finalised study area for the Dundrum ABTA was defined (Figure 2.1) taking cognisance of:

- The potential catchment for walking and cycling and the '15-minute neighbourhood' concept;
- The impact of potential schemes on traffic movements; and
- Wider areas of interest which are likely to attract trips from the study area.

The study area extends north to capture access to the proposed development site at the Central Mental Hospital lands. It also extends westward to align with the Dún-Laoghaire Rathdown county boundary. Finally, the study area boundary was also aligned with Census Small Areas as this provided a direct link to:

- **Census data** on population, employment and travel patterns to/from the study area; and
- **East Regional Model (ERM) zones** which will facilitate easier analysis of model data when undertaking options assessment.

Specific measures on accessibility and improvements for pedestrians and cyclists were focused within the identified 15-minute walk catchment. However, outside of the defined study area, the influence of proposed measures on access to key destinations was also considered.

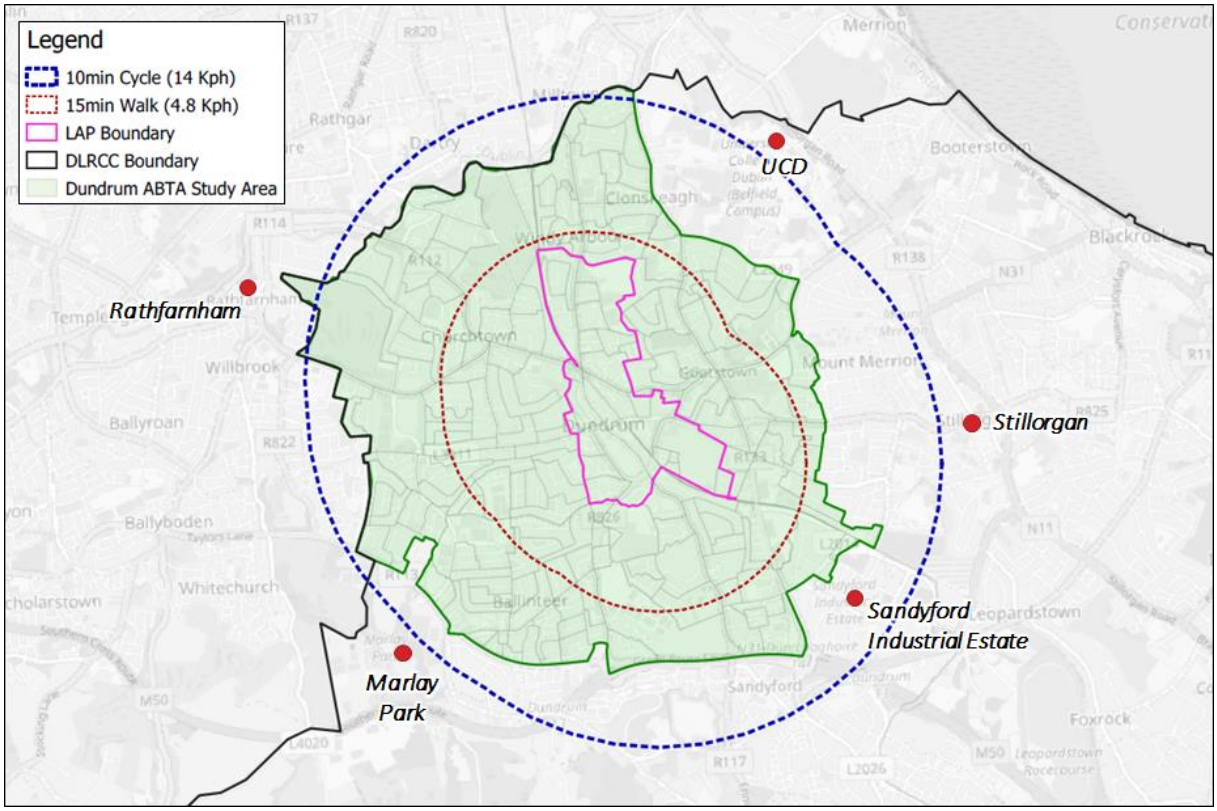


Figure 2.1 Dundrum ABTA Study Area

2.2.2 Demographic Profile

Data extracted from the 2016 Census Small Area Population Statistics (SAPS) dataset[2] was used to gain a better understand the profile of residents in the area, and their travel patterns.

Population and Employment

The Dundrum ABTA study area has an estimated population of 51,483 according to the 2016 Census. Figure 2.2 outlines the principal economic status for population aged 15 years and older for the study area, DLR County and the Republic of Ireland (National). The results indicate that approx. 54% of residents within the study area are employed, which is in-line with both the county and national average. The proportion of residents which are unemployed (4%) and classed as 'Other' (10%) are also in-line with the County average. Of those that are employed, a significant proportion (72%) are in professional, managerial, administrative and technical occupations (primarily office based employment).

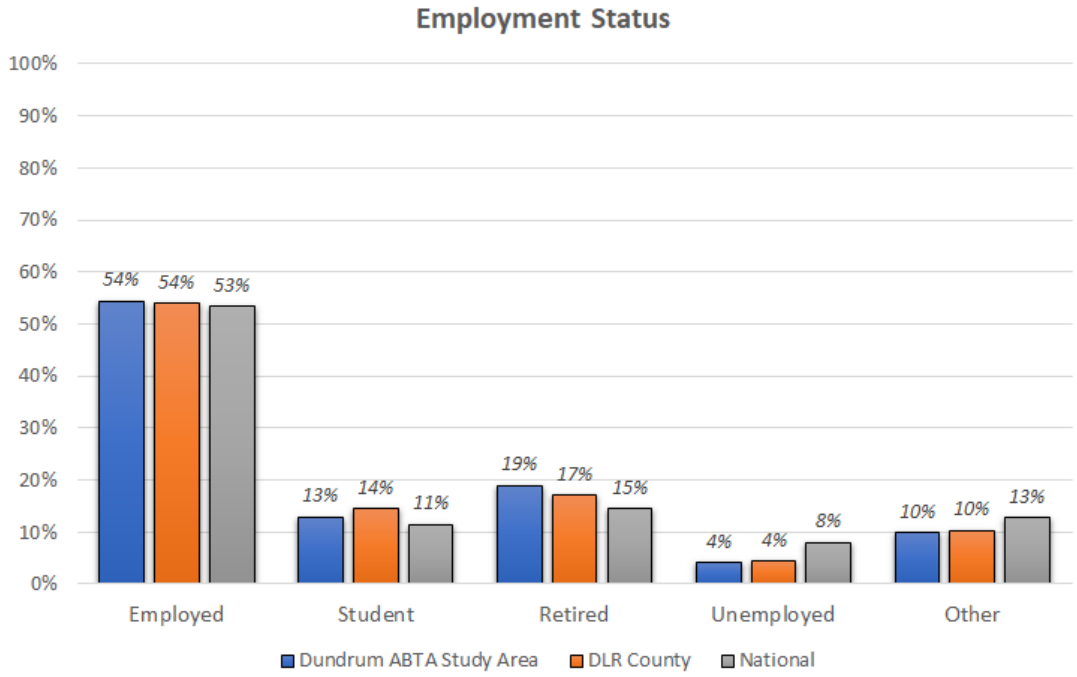


Figure 2.2 Employment Status

Car Ownership

Figure 2.3 outlines the level of car ownership within the Dundrum ATBA study area. The results indicate that approx. 12% of households do not own a car and may be reliant on other means of transport including public transport, cycling, walking, taxis, etc. However, in general car ownership is quite high within the study area with 86% of households owning at least one car, and 42% owning 2 or more. This would suggest that it's likely the private car is regularly used for discretionary trip making.

[2] 2016 Census Small Area Population Statistics available on the Central Statistics Office website at: https://www.cso.ie/en/census/census2016reports/census2016smallareapopulationstatistics/

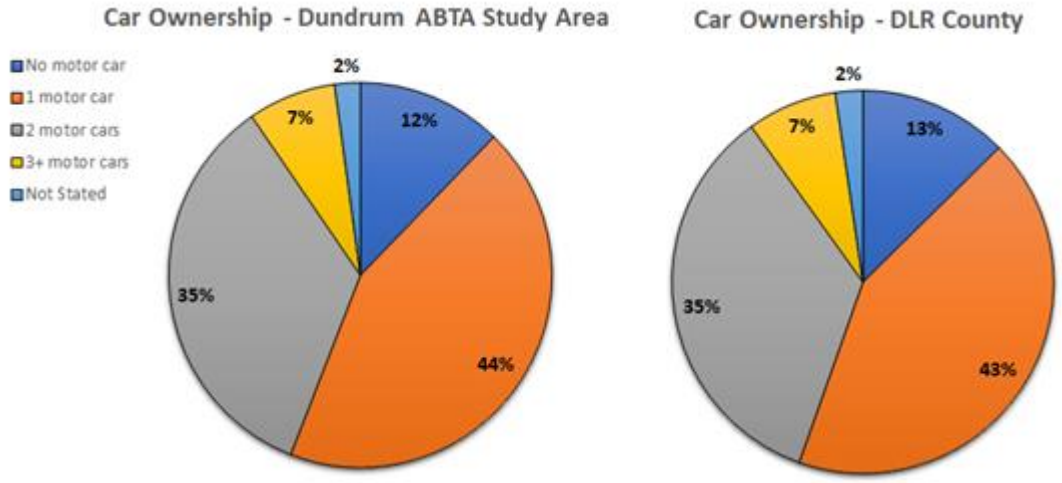


Figure 2.3 Proportion of Households with Cars

2.2.3 Existing Land Use

Population Density

The population density of the study area is illustrated in Figure 2.4 overleaf, and represents a relatively dispersed population in residential areas around Dundrum. The town centre itself has quite a low residential density and is primarily comprised of commercial and retail services. There are a number of higher density apartment complexes (illustrated in dark green in Figure 2.4) within the study area. Some of the other more densely populated areas include more established suburban areas such as Ballinteer, Goatstown and Clonskeagh.

Trip Attractors

Dundrum town centre is the largest attractor of employment trips within the study area. In total, the Census records suggest that approx. 31% of all employment trips destined for the study area are travelling to Dundrum (over 7,000 trips).

Other large employment destinations within the study area include:

- Dundrum Business Park – 2,253 trips;
- Nutgrove Shopping Centre and Retail Park – 2,135 trips; and
- Stillorgan Business Park – 1,641 trips

In terms of education, the study area is well served with 16 primary schools and 8 post-primary schools. Holy Cross National School and Taney National School are located in very close proximity to Dundrum whilst the remainder of the schools are dispersed throughout the study area.

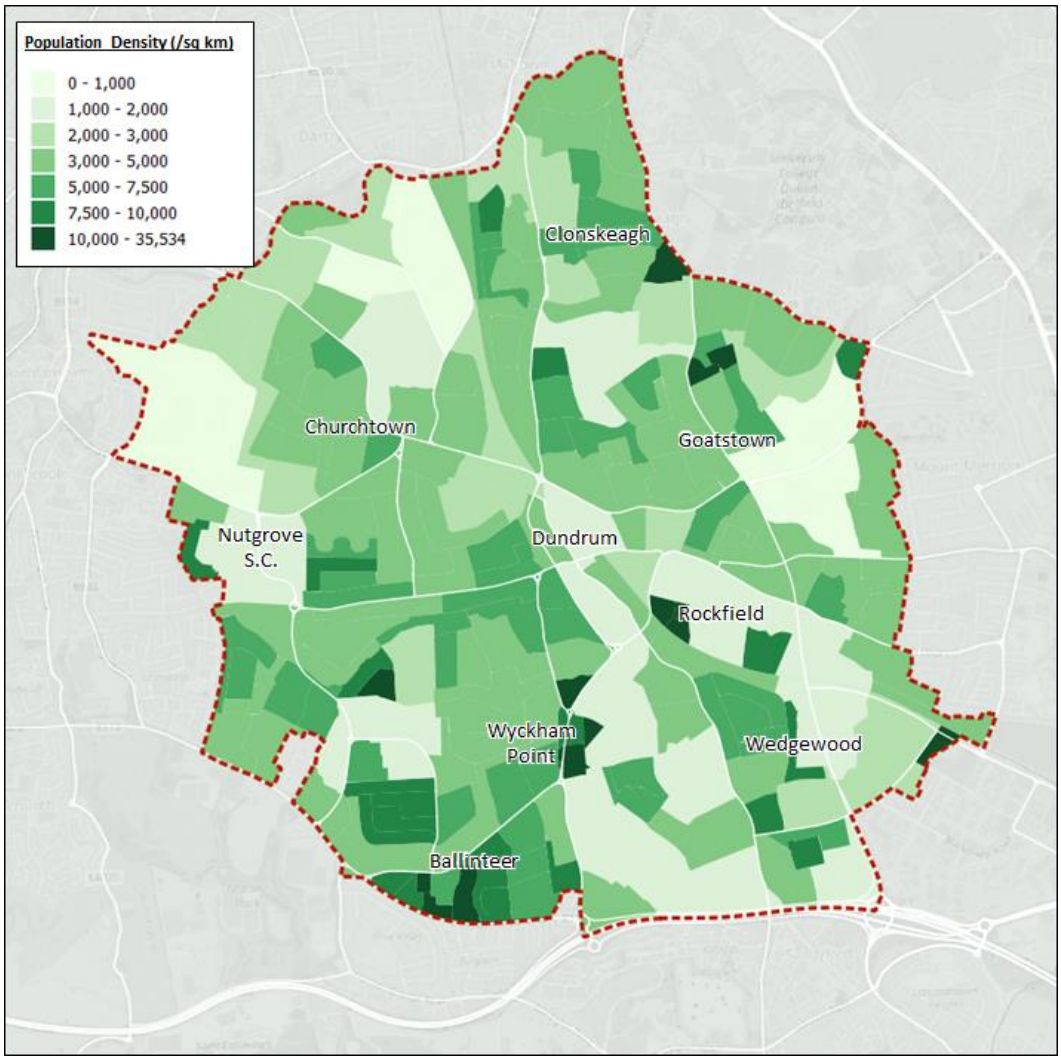


Figure 2.4 Population Density – Dundrum ABTA Study Area

Topography and Physical Constraints

A review was undertaken of physical constraints in the study area which may impact on mode choice and accessibility. Contour mapping indicated that Dundrum Main Street is at a low point to surrounding areas with relatively steep elevation changes to the east, south and west in particular. This topography makes modal shift to cycling a challenge, where steep gradients can be perceived as barriers to cycling. Sandyford Road, Kilmacud Road Upper, Taney Road and Overend Avenue have gradual steep hills which are difficult to navigate for new cyclists. There is potential for electric bikes to help address this issue while also positively impacting on new demographic and distance based market segment opportunities to increase cycling in the local area.

There are also significantly steep gradients on the western side of the Dundrum Bypass. This acts as a barrier for pedestrian/cycle accessibility to Main Street from residential areas to the west with a single bridge crossing at the Ballinteer Road. To the east of the village, the Luas line causes considerable severance for residential areas with only four crossing points of the Luas line within the LAP area (Taney Road, Dundrum Luas underpass, Kilmacud Road Upper and Overend Avenue).

2.3 Existing Travel Patterns

2.3.1 Trip Distribution

The POWSCAR database was analysed to identify the distribution of employment trips travelling to/from the Dundrum ABTA study area in the AM period, and the results are illustrated in Figure 2.5 overleaf.

Approximately 30% of work trips originating within the study area are travelling to Dublin City Centre. The largest attractor overall is the area to the southwest of city which is a large employment location and is also well connected from Dundrum via the Luas. 11% of commuting trips remain within the study area, and due to the local nature of these trips, there may be an opportunity to support this demand via walking and cycling. Other significant attractors of trips include:

- Sandyford Business Park (5%);
- Ranelagh and Ballsbridge Sector (7%);
- UCD (3%);
- Dún Laoghaire (3%); and
- Rathgar (3%).

Outside of these main attractors, the remaining commuting trips are quite dispersed with approx. 23% of demand distributed across a large number of settlements.

For trips travelling to Dundrum in the AM, the main origins include areas adjacent to the study area such as Rathgar, Rathfarnham, Ballyboden, South Tallaght and Sandyford. The Dundrum town centre is the largest destination for internal employment trips, representing approx. 28% of all internal demand (just over 1,000 trips). Other key destinations include Dundrum and Stillorgan Business Parks, Nutgrove Shopping Centre and Ballinteer. Strengthening links for walking and cycling between these key destinations and local residential areas is essential to support sustainable travel.

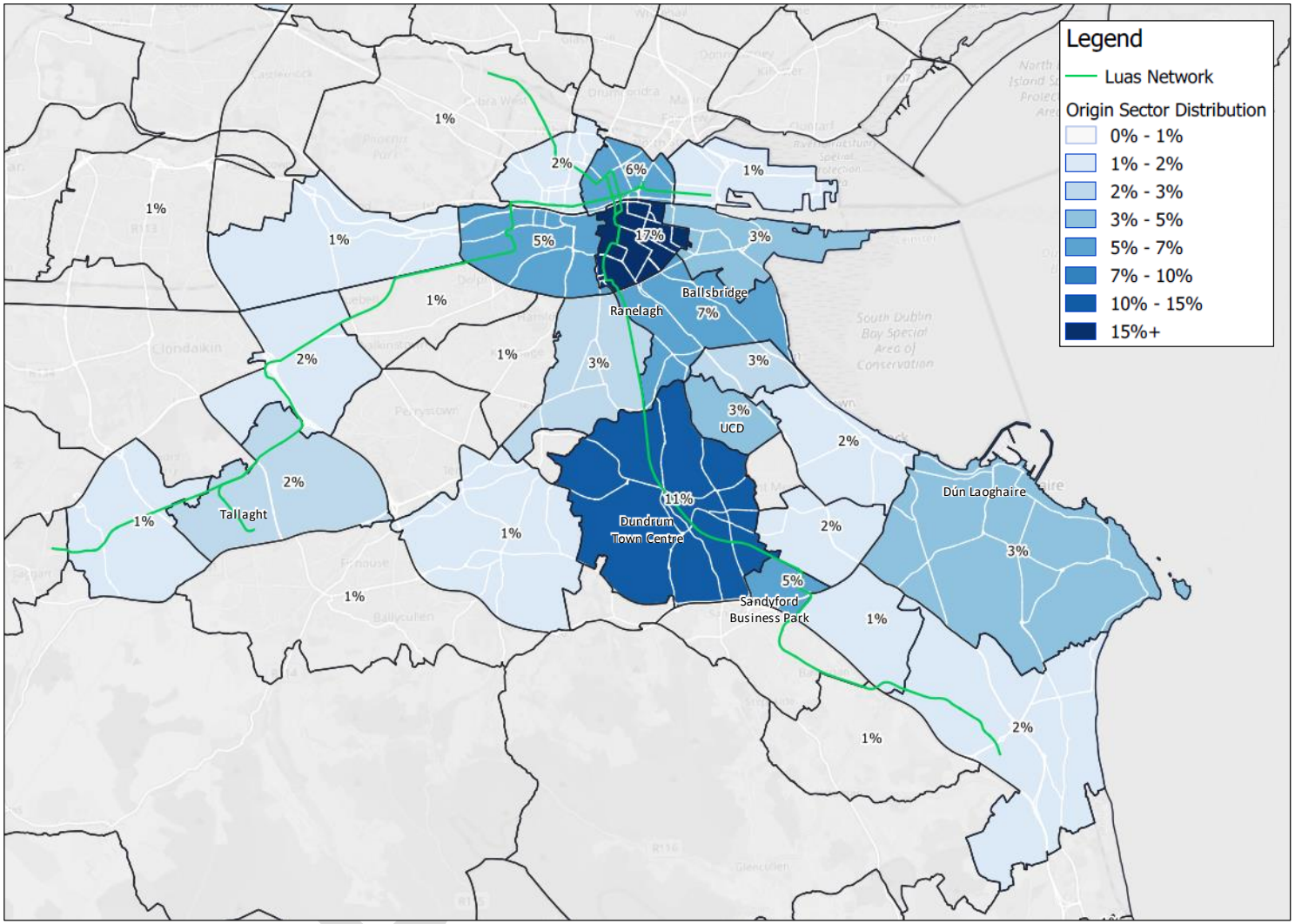


Figure 2.5 POWSCAR Trips to Work (%) – Originating within Study Area

2.3.2 Trip Length Distribution

There is a general association between trip length and mode choice. For example, at shorter distances the average person may be willing to walk or cycle to access goods, services or employment. However, as trip lengths increase, these modes become less attractive. Similarly, short distance trips by public transport may be unattractive compared to alternative modes as the wait time would be a significant proportion of overall journey time. In terms of distance, trips generally break down into:

- Short – generally serviceable by walking or cycling
- Medium – generally serviceable by cycling, public transport or car; and
- Long – generally serviceable by public transport or car.

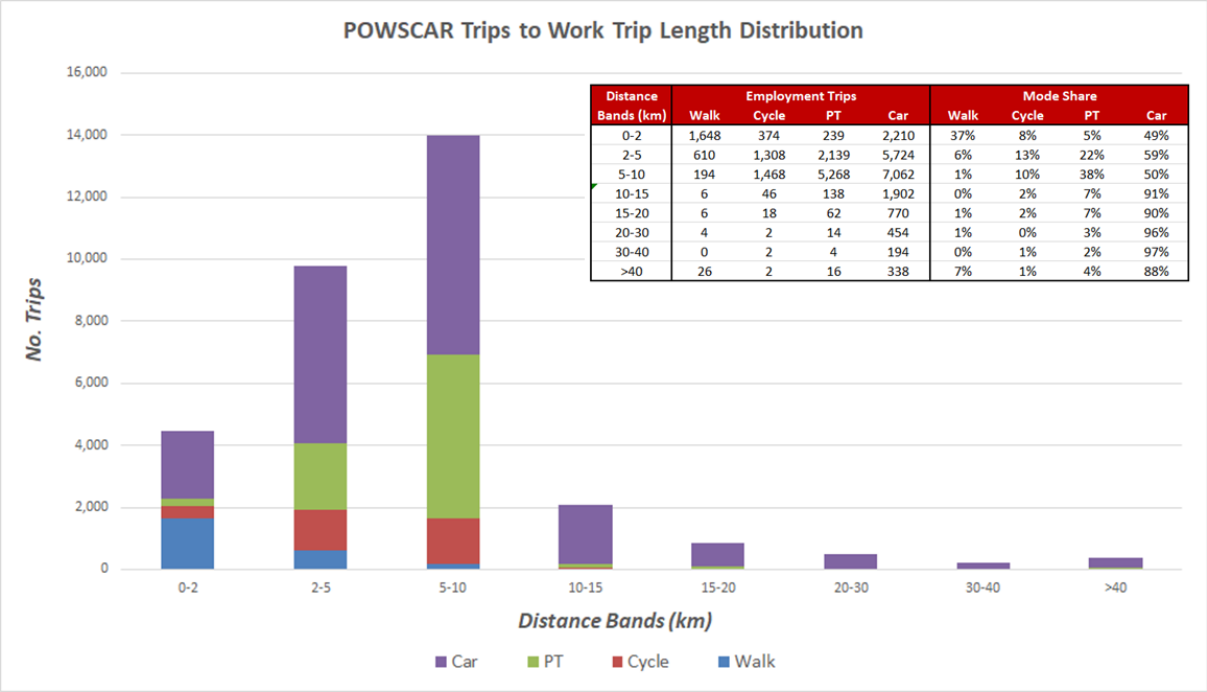
Analysis was undertaken to determine the trip length distribution by mode for employment and education purposes from 2016 POWSCAR data. This was used to establish the typical trip lengths, and modes used, for journeys by residents of the study area and help identify where opportunities might exist to further support a shift away from the private car and onto sustainable modes.

Employment

Figure 2.6 overleaf, illustrates the trip length distribution by mode for all work related trips generated within the study area. The results[3] indicate the following

- The majority of trips (88%) are less than 10km in length with the highest level of demand travelling between 5-10 km (nearly 14,000 trips). This is reflective of the location of Dundrum which is approximately 6km from Dublin city centre.
- 14% of trips originating within the study are less than 2km in length (25 minute walk at 4.8 km/hr). However, the car mode share for these journeys is still relatively high at 49% and measures should be introduced to encourage more walking and cycling for these shorter distance commutes.
- Car is the dominant mode of transport for medium to longer distance trips of between 2-10km. For the short/medium distance journeys of 2-5km, it can be difficult for public transport to compete with journey times by car due to wait times, walking to stops etc. Also, as outlined in the trip distribution analysis, the employment trips tend to be quite dispersed outside of the main destinations.
- Almost all trips of greater than 10km are undertaken by car (>90% mode share). Approx. 12% of all employment trips originating within the study area are more than 10km in length. The dominance of the private car for these journeys is likely due to the dispersed pattern of these longer distance trips along with the lack of public transport alternatives.

[3] It should be noted that the number of walk trips of greater than 40km is overestimated in the analysis due to errors in filling out the Census form and the anonymising of records to mask low values. This represents an extremely small proportion of overall demand (<1%) and should be ignored as part of the TLD analysis.



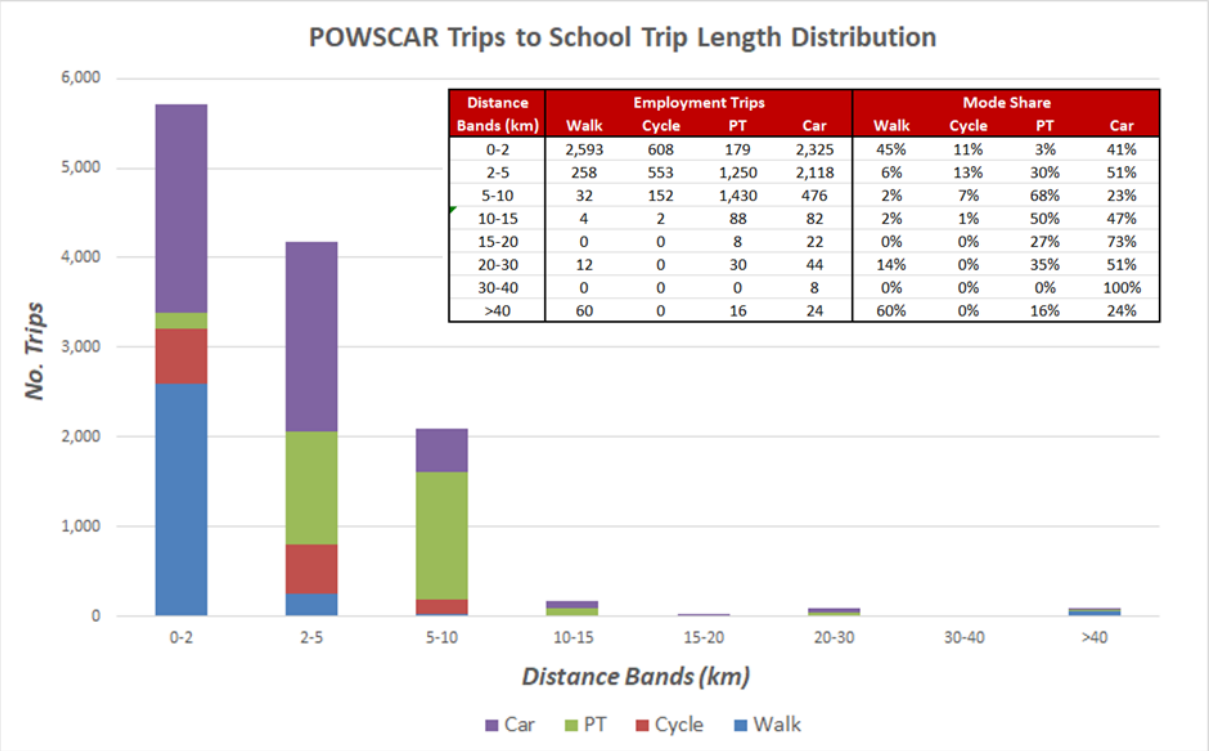
Distance Bands (km)	Employment Trips				Mode Share			
	Walk	Cycle	PT	Car	Walk	Cycle	PT	Car
0-2	1,648	374	239	2,210	37%	8%	5%	49%
2-5	610	1,308	2,139	5,724	6%	13%	22%	59%
5-10	194	1,468	5,268	7,062	1%	10%	38%	50%
10-15	6	46	138	1,902	0%	2%	7%	91%
15-20	6	18	62	770	1%	2%	7%	90%
20-30	4	2	14	454	1%	0%	3%	96%
30-40	0	2	4	194	0%	1%	2%	97%
>40	26	2	16	338	7%	1%	4%	88%

Figure 2.6 Employment Trip Length Distribution by Mode

Education

Figure 2.7 illustrates the trip length distribution by mode for all education related trips generated within the study area. The results indicate the following

- Approx. 80% of education trips are less than 5km in length with the majority travelling less than 2km. This indicates that a large proportion of children are within walking and cycling distance to school.
- Walking and cycling represents around 56% of trips to school of less than 2km. However, the private car is still quite heavily used for these shorter distance journeys representing 41% of demand.
- Car is the dominant mode of transport for education trips of between 2-5km. This distance range is likely to be too long for walking, particularly for younger children. In general, cycling represents a relatively small proportion of all education trips of less than 5km. This may in part be due to the challenging topography and lack of cycling facilities in certain areas.



Distance Bands (km)	Employment Trips				Mode Share			
	Walk	Cycle	PT	Car	Walk	Cycle	PT	Car
0-2	2,593	608	179	2,325	45%	11%	3%	41%
2-5	258	553	1,250	2,118	6%	13%	30%	51%
5-10	32	152	1,430	476	2%	7%	68%	23%
10-15	4	2	88	82	2%	1%	50%	47%
15-20	0	0	8	22	0%	0%	27%	73%
20-30	12	0	30	44	14%	0%	35%	51%
30-40	0	0	0	8	0%	0%	0%	100%
>40	60	0	16	24	60%	0%	16%	24%

Figure 2.7 Education Trip Length Distribution by Mode

2.3.3 Mode Share

Census data provides information on the typical mode of transport used for travelling to work and education. This data was used to identify the proportion of trips originating within the study which are made by walking, cycling, public transport and car. This provided information on the level of use of each mode in general, whilst also highlighting areas where a specific mode of transport may be particularly dominant or underutilised

Employment

Figure 2.8 illustrates the mode share for trips to work originating within the study area by walk, cycle, public transport and car (including drivers, passengers, motorcycle/scooters, vans and lorries). Walking accounts for 8.7% of trips to work from the study area which is broadly in-line with both the county and national averages. In general, most of the study area has walk mode shares of around 5%-10% with slightly higher proportions in the more suburban centres such as Dundrum, Goatstown and Clonskeagh. The highest mode share for walking is seen in residential areas near the Stillorgan Business Park area, indicating employees living close to their place of work.

The cycling mode share for the study area is similar to that of walking at 8.7%. This is slightly higher than for DLR County, and substantially higher than the national average (3.2%). The highest mode shares for cycling are experienced in the north of the study area in locations such as Clonskeagh, Goatstown and Churchtown. The south of study area has low cycling mode shares typically less than 5% which could indicate a barrier to cycling in these areas that could be addressed through the ABTA process.

Public transport in both Dundrum and the DLR County represent about a quarter of the mode share which is substantially higher than the national average due to the proximity to Dublin city and the availability of high quality public transport links. As expected, the highest public transport mode shares

are visible close to the Luas stops, in particular near Dundrum and Balally stations. Within the study area, approx. 78% of public transport trips are undertaken using the Luas with 22% by bus.

In general, the private car is the most dominant mode of transport for work trips from the study area, however, the 58% mode share is substantially lower than the national average (77%). Car mode shares are generally highest towards the outskirts of the study area, in proximity to the strategic road network, with substantially lower values closer to Dundrum town centre.

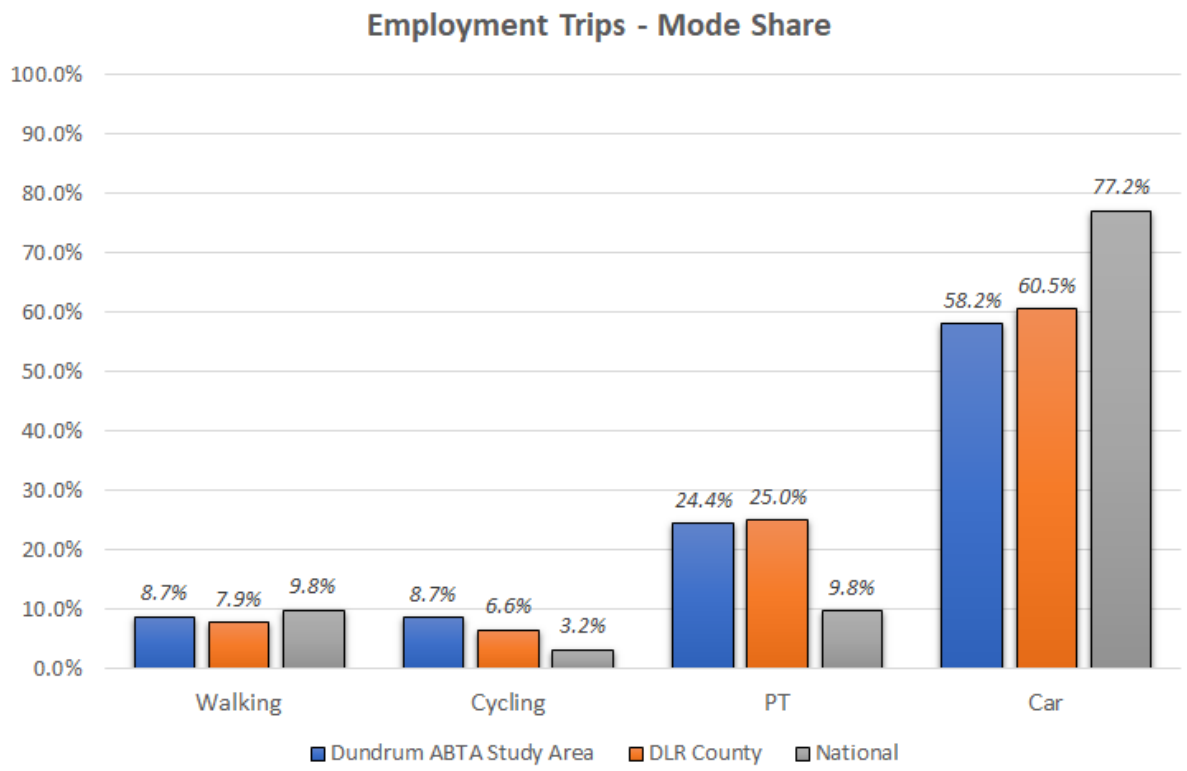


Figure 2.8 Employment Trip Mode Share

Education Trips

Figure 2.9 illustrates the mode share for trips to education originating within the study area by walking, cycling, public transport and car. The overall mode share for active travel (walking and cycling) is close to 40%, higher than the county as a whole (32%) and more than 10% higher than the national average (26.5%). Cycling in particularly is significantly higher than the county average, and represents one in ten trips to education. Public transport mode share is 20% which is in line with the national average, though slightly lower than the county as a whole. Overall, car is still the dominant mode of transport for education-related trips, accounting for approx. 41% of all journeys.

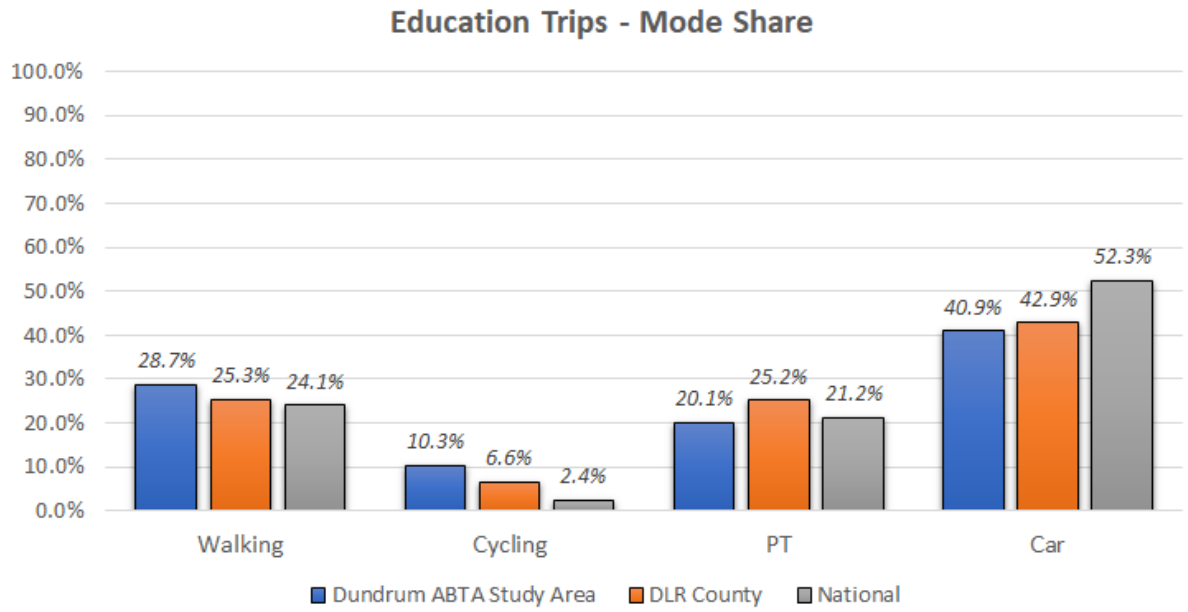


Figure 2.9 Education Trips Mode Share

Walk mode share is highest in residential areas in close proximity to primary and post-primary schools within the study area. As illustrated in Figure 2.7, the majority of education trips are less than 2km and a large proportion of these are undertaken by walking. Cycling mode shares are varied across the study area, however, in general the proportion of trips undertaken by bike are higher in the northern and eastern locations.

The public transport mode shares appear to be highest around Dundrum town centre and the Luas stops. The areas around St. Attracta's and Ballinteer Community School also have a relatively high proportion of public transport use which is probably related to a local school bus service. As per employment trips, the car mode share for education is predominantly higher at the edge of the study area particularly in Churchtown and Goatstown.

2.4 Existing Transport Infrastructure

A detailed review was undertaken of existing transport infrastructure in the Dundrum ABTA study area, including:

- **Walking and Cycling Accessibility**: identifying the accessibility to public transport and key services such as schools, healthcare etc. for residents within the study area by walking and cycling.
- **Walk and Cycle Infrastructure:** provides an overview of facilities for pedestrians and cyclists including elements such as footpath provision, crossing facilities and cycle lanes.
- **Public Transport:** outlines the key public transport services operating throughout the study area with information on destinations served, typical headways, along with boarding and alighting information where available.
- **Road Network Conditions:** identifies the key roads within the study area including information on typical areas of congestion and a review of key junctions.

2.4.1 Walking and Cycling Accessibility

Town Centre Accessibility

Dundrum Main St. and town centre is the main attractor for local employment trips. It is also likely to be the main attractor for shopping, going to restaurants, meeting friends etc. Catchment analysis was undertaken to identify the number of people currently within 15 minute walk of the centre of Dundrum using the existing network. This was then compared to a theoretical crow-fly 15-minute walk boundary. The purpose of this analysis was to highlight areas of the network that in-theory should be able to access the town centre within 15 minutes, but currently cannot do so. This can be used to identify potential permeability issues in the network.

Figure 2.10 illustrates the results of the catchment analysis. An assumed walk speed of 4.8 km/hr was used to identify the distance a person can travel within 5, 10 and 15 minutes. For the purpose of this analysis, the catchment was determined based on accessing anywhere on Main St. and the northern section of Sandyford Road (Pink line in Figure 2.10). Census 2016 population data was then used to determine the number of residents within 15 minute walk of the town centre.

The results indicate that a total of 15,668 people live within the 15-minute walk catchment of Dundrum centre. This represents just under two thirds (63%) of all residents living within the 15-minute theoretical crow-fly boundary (24,737). Therefore, around 9,000 residents are within 15 minutes of the town centre but cannot currently walk there within that timeframe due to the layout of the pedestrian network

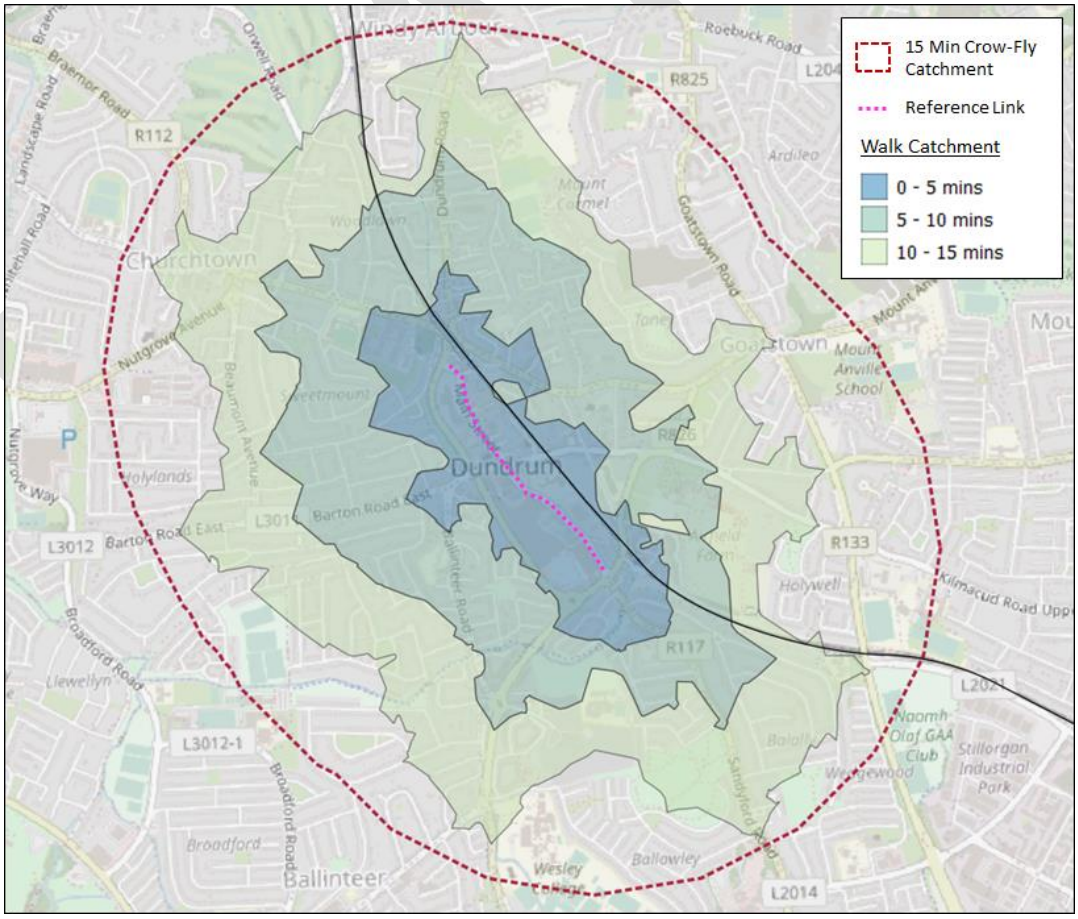


Figure 2.10 Dundrum Main Street Catchment Analysis

ATOS (Accessibility to Opportunities and Services)

ATOS is a measure of how easy it is to access key services and employment by walking and cycling. In developing the ATOS tool, the NTA have followed a methodology used by Transport for London and adapted it to make it more suitable for use outside of large metropolitan areas.

The ATOS tool was run for access to schools, healthcare, food shopping, open spaces and employment locations within the study area, and the full results are included in the Baseline Assessment Report (Appendix A). In summary, the results indicate:

- There is generally good accessibility to schools within the study area.
- All residents are within a 10-minute cycle of their nearest school, and the majority of residents are within a 15-minute walk.
- There are a few areas to the north of St. Tiernan's Community School, south of St. Benildus College and west of Our Lady's Grove Secondary School where accessibility could potentially be improved.
- Residents close to Dundrum town centre and Sandyford Business Park have access to the most employment with approx. 4.5 – 12 thousand jobs within a 15-minute walk.
- The majority of the study area have access to key services within a 15-minute walk from their home (Figure 2.11 overleaf).
- The largest area not satisfying the 15-minute accessibility criteria is around Clonskeagh, however, a number of residents in this area will be able to access the Luas at Windy Arbour or Milltown within a 15-minute walk to connect to a wide range of services.
- All residents within the study area are located within a 10-minute cycle of key local services.

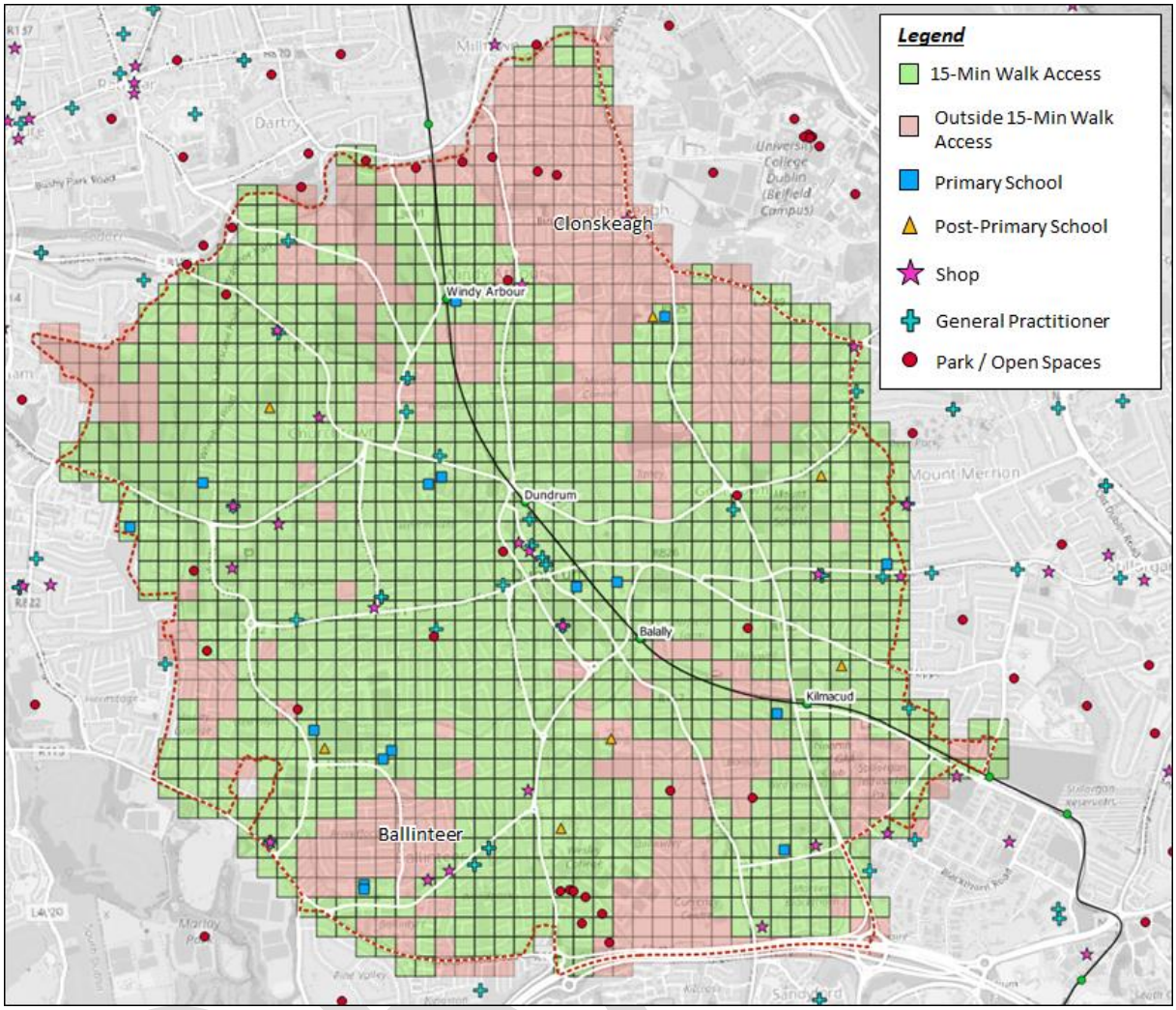


Figure 2.11 ATOS Access to Key Services (Walking)

PTAL (Public Transport Accessibility Level)

PTAL is a tool created by the NTA to measure the accessibility of an area to public transport services. The PTAL tool was run for the Dundrum ABTA study area, and the results indicate the following:

- The area around Dundrum Luas station has the highest accessibility score within the study area due to the availability of high quality Luas services, and bus stops serving the route 14, 17/d, 44/b, 161, 75 and 175.
- In general, nearly all residents within the study area have access to a public transport stop within a 15-minute walk. However, for a number of people their closest service is bus which, depending on the route, can be quite infrequent.

2.4.2 Walk and Cycle Infrastructure

A detailed review of walking and cycling facilities along key links within the study area was undertaken. For walking facilities, the assessment focuses on footpath provision and pedestrian crossings. The Design Manual for Urban Roads and Streets[4] (DMURS) sets out that a minimum footpath width of 1.8m is considered adequate for areas of low pedestrian activity, whilst the desirable width is 2.5m. A minimum width of 3.0m is considered adequate for areas of moderate to high pedestrian activity. A minimum width of 4.0m is considered adequate in areas of high pedestrian activity. Pedestrian crossings are described in terms of their frequency, type and provision of dropped kerbs, tactile paving, road markings and pedestrian guard rails.

A description of existing cycle facilities along each link is also provided with reference to availability, cycle facility type (i.e. segregated cycle track, on-road cycle lane, contra flow cycle lane, etc), approximate width and length. Further details on the walk and cycle infrastructure review, along with maps and photos, are provided in the full Baseline Assessment Report.

In summary, pedestrian infrastructure is quite varied throughout the study area. Recent mobility enhancement works on main street have significantly improved the urban realm and provided a better environment for walking and cycling. However, other parts of the network have quite narrow footpaths and limited crossing facilities. Dundrum Road for example, which is the main link to the north from main street, has narrow footpaths in places. This, combined with relatively high traffic volumes mean that it is not a very attractive route for pedestrians or cyclists. There is also limited accessibility to Main Street from the east and west. To the east, the Luas line acts as a barrier with access via Overend Avenue, Kilamacud Road Upper, Dundrum Luas station and Taney Road only. To the west, the steep gradients and limited crossing facilities on the bypass act as a barrier for pedestrian movements.

Figure 2.12 provides an overview of existing cycle infrastructure on roads across the study area. The Wyckham Way, R112 (Churchtown Rd), Brehon Field Rd and sections of the Drummartin Link Road have segregated cycle facilities. Other key access routes to Dundrum such as the Sandyford Road, Dundrum Bypass, Barton Road East and Overend Ave have advisory cycle lanes in place. A number of the junctions on access to Dundrum such as the Taney Cross Junction, Wyckham Roundabout and Sandyford Rd/Wyckham Way junction are more vehicular focused and not very pedestrian/cycle friendly. These junctions all have large cross-sections with high traffic volumes and conflicting movements which can make them unattractive for walking and cycling.

There is also currently no cycling infrastructure along Ballinteer Road and Kilmacud Road Upper on the east-west route, or on Dundrum Road to the north, which may in part be due to the width of these roads. Dundrum Road is a key link towards the city centre, and is likely to become more important in the future in creating a sustainable link to Dundrum town centre with the development at the Central Mental Hospital site. However, delivering cycle network improvements in line with National Cycle Manual guidance is challenging on this corridor given existing street characteristics.

[4] Source: https://www.gov.ie/en/publication/3360b1-design-manual-for-urban-roads-and-streets/

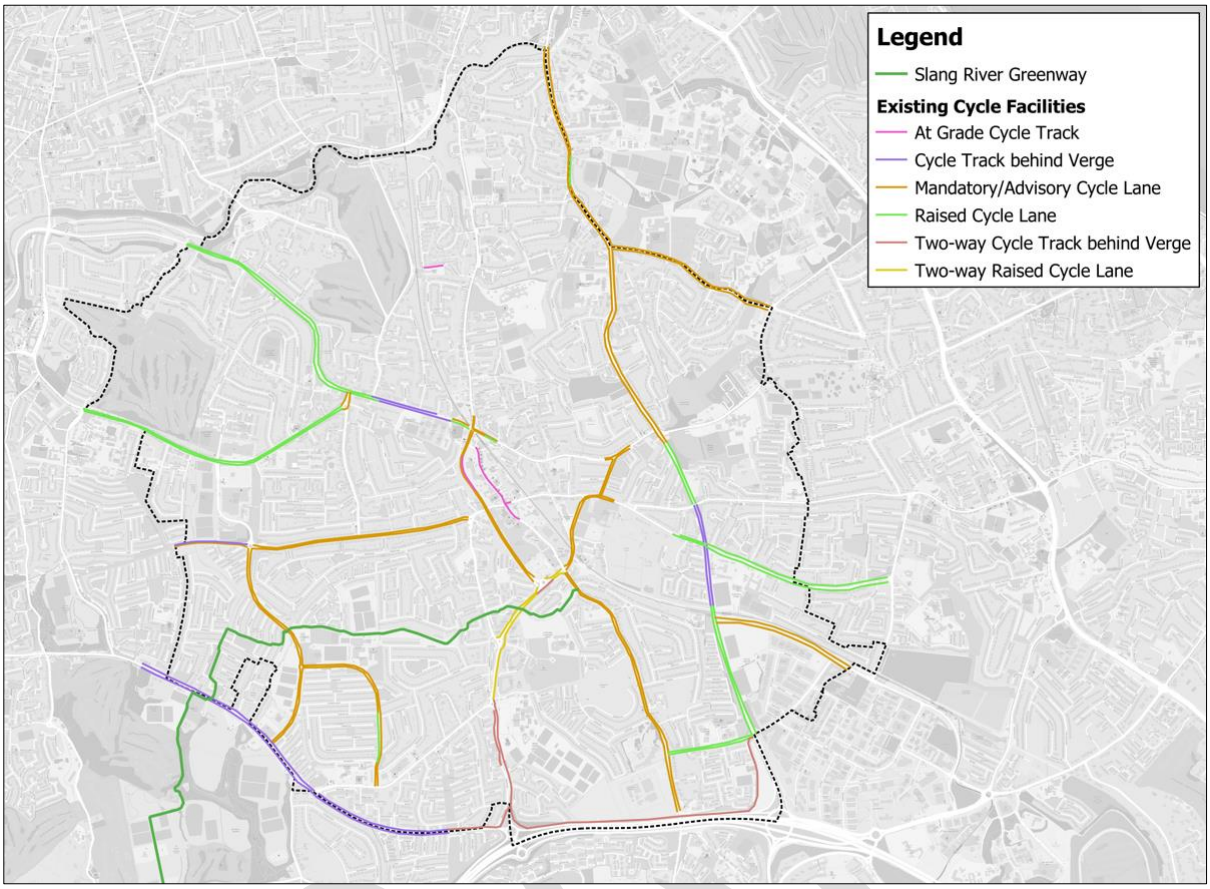


Figure 2.12 Existing Cycle Infrastructure

Cycle Parking

A review was undertaken of locations of existing bicycle parking facilities within the Dundrum ABTA study area. Outside of Dundrum village, the availability of cycle parking is very limited with a small number of stands scattered around areas such as St. Attracta's school in Ballinteer, Churchtown, Windy Arbour Luas stop, Dundrum Business Park and Kilmacud Road Lower.

Within Dundrum village centre, there are approx. 87 stands shared between the Balally and Dundrum Luas stops. In total, there are around 217 bike stands located along Main Street and North Sandyford Road. The majority of bicycle parking (165 stands) are located on North Sandyford Road at the shopping centre and the DLRCC car park. Cycle parking locations are detailed in full in Appendix A.

2.4.3 Public Transport

The Dundrum ABTA study area is served by the Luas light rail network along with a number of Dublin City Bus services operated by Dublin Bus and Go Ahead Ireland.

Luas

The Luas Green Line operates from Bride's Glen to Dublin city centre every 3-5 minutes during the peak periods with four stops within the study area at Windy Arbour, Dundrum, Balally and Kilmacud. Analysis of observed boarding and alighting data indicate Balally and Dundrum stations are the busiest in the AM peak with 1,458 boardings. Similarly, in the outbound direction in the PM peak, Dundrum experiences the largest number of alightings. In total, the four stations within the study area

experience 2,076 boardings in the AM peak and 1,271 passengers alighting in the PM. A review of 2019 Luas Census data suggest that at Dundrum station the Luas is starting to operate over capacity, particularly during peak commuter travel times for arriving in Dublin before 09:00.

Bus

Table 2.2 outlines the bus routes currently serving the study area including their regular morning peak frequency. In total, the census data suggests that only approx. 5% of work trips generated within the study area are undertaken by bus, with Luas representing the vast majority of public transport demand (78%).

Table 2.2 Study Area Bus Services

Route No.	Route Description	AM Peak Frequency
14	From Dundrum Luas Station to Beaumont (Ardlea Rd.)	Every 10-15 minutes
17	From Rialto to Blackrock (via Dundrum)	Every ~30 minutes
75/a	From Dun Laoghaire Stn to Tallaght (Via. Dundrum/ Sandyford Ind Est)	Every ~30 minutes
175	From UCD – Kingswood Avenue	Every ~30 minutes
44	From DCU Towards Enniskerry	Every 30-60 mins
61	From Eden Quay to Whitechurch (via Dundrum)	Every 30-60 mins
44B	From Dundrum Luas Station To Glencullen	Every ~60 mins at morning peak
161	From Dundrum Luas Station to Rockbrook/Tibradden	Every ~90 minutes
116	From Parnell Sq. to Whitechurch	1 per day

There is limited bus priority infrastructure across the study area with bus lanes present on sections of the Sandyford Road and Churchtown Road. The bus lanes on the Wyckham Way are not currently in use and are open to all traffic.

BusConnects

The bus network in Dublin is set for a major overhaul over the next couple of years with the implementation of the BusConnects network redesign. The Dundrum area will be served by the A2 and A4 branch routes (12 minute headways) connecting Dundrum with local residential areas, the city centre and Dublin Airport. The S6 orbital route will connect Dundrum with Tallaght, UCD and Blackrock (15 minute headway) while the L25 will connect Dundrum with Stillorgan and Dun Laoghaire (15 minute headway). There will also be a new bus interchange zone within Dundrum connecting services to the Green Luas Line.

2.4.4 Road Network Conditions

Traffic Congestion

As part of the Baseline Assessment Report, a review was undertaken of existing road network conditions. In order to determine the most significant areas of congestion, DLRCC provided information from their Tom Tom database of average speeds on the network around Dundrum. The database reads information from satellite navigation systems and smart phones which have location services turned on to identify travel times and speeds on the network.

A review was undertaken of average speeds during the peak versus off peak period and the results indicated that:

- The existing road network around Dundrum reaches capacity during peak commuter and shopping periods, with a combination of both local and strategic traffic contributing to congestion.
- Wyckham Way, Dundrum Bypass/Taney Road junction, Sandyford Road and Dundrum Road towards the city centre experience the largest congestion with speed reductions of between 60%-80% during the AM peak (08:00-09:00).

Traffic Routing

The Tom Tom database was also used to investigate traffic routeing through Dundrum Main Street. A Select Link Analysis was undertaken to the west of Dundrum Cross on Ballinteer Road to understand where traffic currently using this link are travelling to and from.

The results are illustrated in Figure 2.13, and indicate the following:

- Approx. 64% of trips travelling eastbound on Ballinteer Road do not have a destination on Main Street and travel through here to access the wider network. This equates to approximately 778 vehicles throughout the day (7am – 7pm).
- A high proportion of traffic entering Dundrum Cross from Ballinteer Road originates from longer distance routes (e.g. Wyckham Way) from where alternative options are available for accessing the wider network.

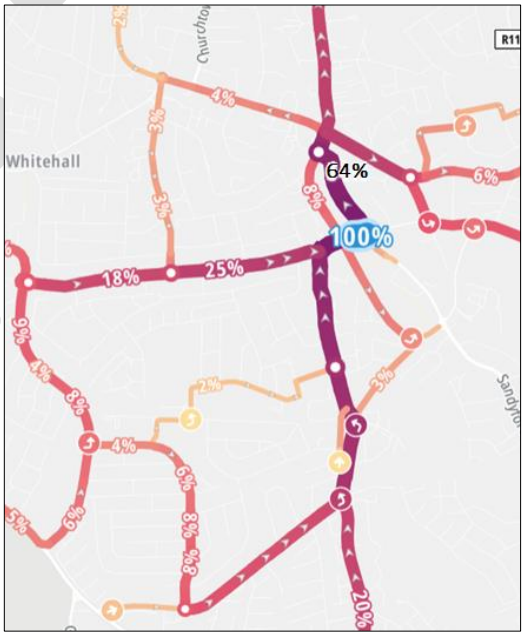


Figure 2.13 Dundrum Cross Tom Tom Analysis

Similar analysis was undertaken for traffic entering Dundrum Cross from Kilmacud Road Upper and the results are illustrated in Figure 2.14. Traffic count data indicates that the vast majority of traffic entering Dundrum Cross from Kilmacud Road Upper is travelling to Ballinteer Road and not Main Street. Just over 2,000 vehicles were recorded travelling from Kilmacud Road Upper to Ballinteer Road throughout the day (7am – 7pm).

The Tom Tom analysis suggests that a high proportion of these trips (approx. 66%) are travelling from longer distances on Taney Road, Kilmacud Road Upper and Overend Way and have opportunities to re-route earlier in the network to avoid Dundrum Cross.

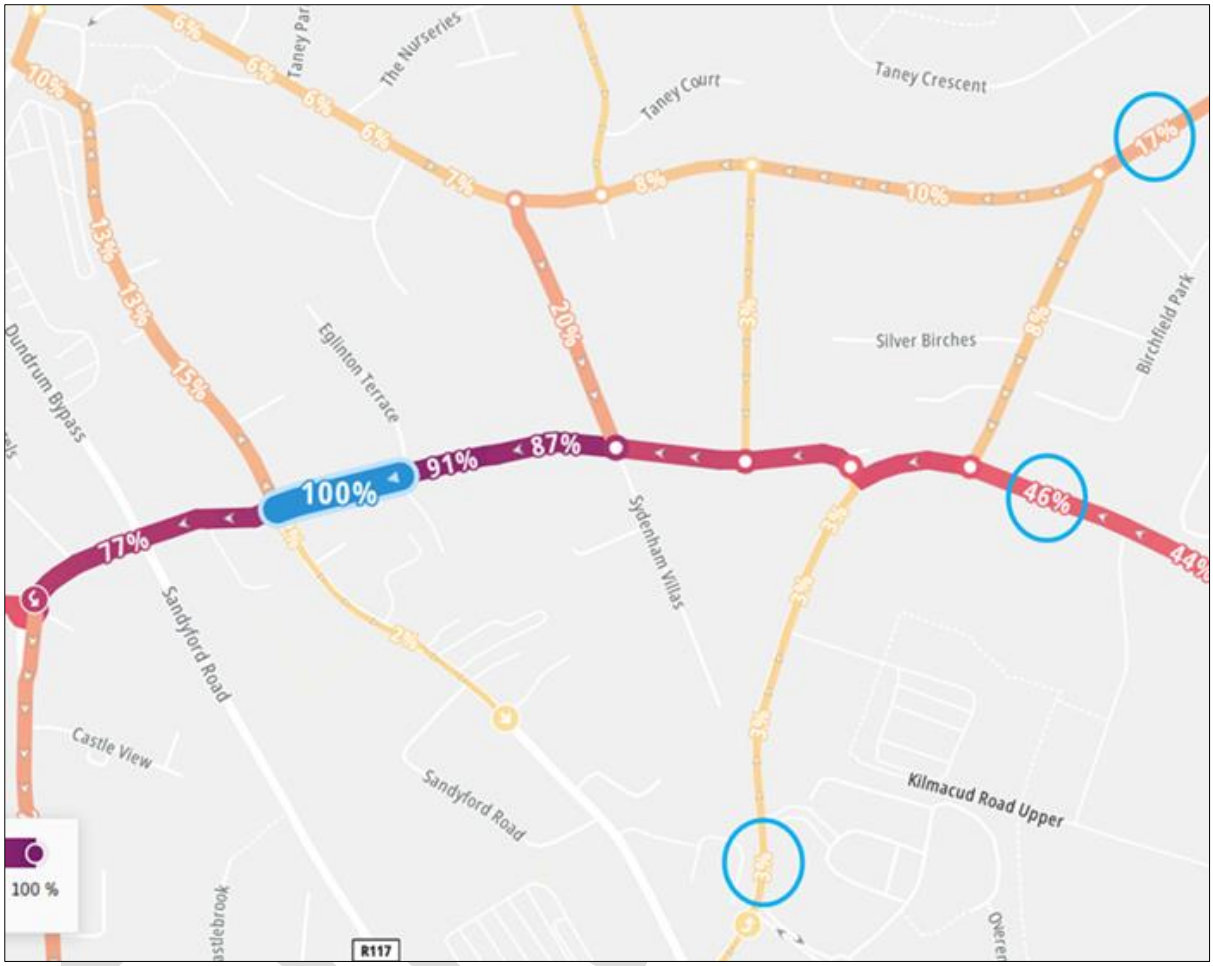


Figure 2.14 Kilmacud Road Upper Tom Tom Analysis

Junctions

A detailed review was undertaken on some of the key junctions around Dundrum town centre illustrated in Figure 2.15. This focused on junction arrangements, facilities for pedestrians/cyclists and highlighting any potential issues noted. The full junction review is provided within the Baseline Report, however in summary, a number of the key junctions on access to Dundrum have wide cross-sections, high traffic volumes and a number of conflicting turning movements which can make them unattractive for walking and cycling.

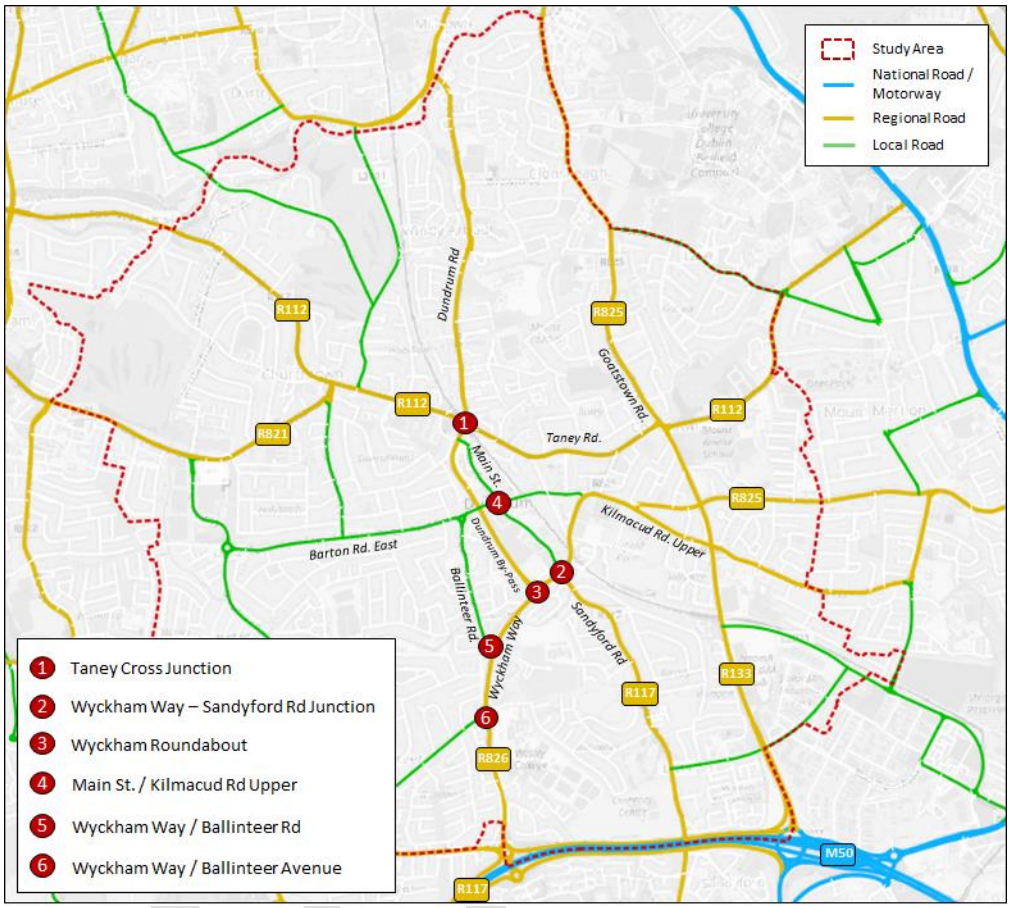


Figure 2.15 Junctions for Detailed Review

2.5 Environmental Conditions

A review of the environmental, heritage and archaeological considerations for the ABTA was undertaken, identifying the baseline environment and any potential sensitive receptors. The review focused on designated sites, ecological receptors, hydrology, cultural heritage and archaeology. In summary:

- A number of protected species have been identified, as well as invasive species listed on the Third Schedule of the Birds and Natural Habitats Regulations (S.I. No. 477).
- There are a number of historic flooding events in the Dundrum Local Area, predominantly along the River Slang, Little Dargle Stream and River Dodder.
- The section of the River Dodder/ River Slang within the study area is listed as a Nutrient Sensitive Area and the Dodder Area for Action is located here also.
- There are some features of archaeological, architectural and cultural heritage interest in the Dundrum Local Area which need to be considered when developing options as part of the ABTA.

- It is considered that the identified sensitive receptors herein do not pose a significant constraint at this time. However, further assessments, site inspections, and targeted surveys may be required in the future to determine the potential impacts of development in the Dundrum Local Area.

2.6 Summary & SWOT Analysis

The previous sections provide an overview of the key points identified during the Baseline Assessment. These findings have been used to inform a Strengths, Weaknesses, Opportunities and Threats/Constraints (SWOT) analysis for the study area, and the results are outlined in Table 2.3 overleaf. This was used to inform subsequent stages of the ABTA, in particular the objective setting and options development.

Table 2.3 Dundrum ABTA SWOT Analysis

Strengths	Weaknesses
Key Points: • Designated a "Metropolitan Consolidation Town" in the DLRCC County Development Plan 2022 - 2028. • High frequency Luas operating within the study area providing fast, reliable services to Dublin city centre, and other employment centres such as Sandyford and Cherrywood. • Location of Dundrum Town Centre within the study area providing a mix of uses including retail, restaurants, theatre and a cinema. • Car mode share (58%) for trips to employment is well below the national average. • The mode share for walking and cycling to education is close to 40% which is higher than the county (32%), and more than 10% higher than the national average. • Recent mobility and public space enhancement works have significantly improved the public realm on Main Street and the northern end of Sandyford Rd, and made it a more attractive environment for walking and cycling. • There is good accessibility for children travelling to education with 16 primary schools and 8 post-primary schools located across the study area. UCD, one of the largest universities in the country, is also located in close proximity to the study area.	**Key Points:** • Car remains the dominant mode of transport, even for shorter distance commute trips. • A number of key junctions on access to Dundrum are unattractive to pedestrians and cyclists due to large cross-sections, high traffic volumes and conflicting turning movements. • There are accessibility issues for pedestrians accessing Dundrum village from the east and west. The Luas line causes some severance to the east, and steep gradients and the Dundrum Bypass act as a barrier to the west. • There is no cycle infrastructure on key local routes accessing the town centre such as Kilmacud Road Upper, Ballinteer Road and Dundrum Road. • The Luas is operating at capacity when it reaches Dundrum and Balally stops, leading to overcrowding on services. • The existing road network around Dundrum reaches capacity during peak commuter and shopping periods leading to congestion and delay. • 2016 Census data suggests that a significant proportion of commute trips to and from the study area are quite dispersed in nature which can be difficult to serve via public transport. • Orbital bus services are currently quite limited with infrequent headways to key destinations such as Dún Laoghaire, Sandyford Business Park and Tallaght. Overall the level of bus use for commuting is quite low at around 5%.

Opportunities	Threats / Constraints
Key Points: • Significant improvements to public transport planned for the area including the Luas capacity enhancement, Metro South and the BusConnects network redesign. • A number of different services within the study area including education, healthcare, retail, high frequency public transport and employment which support the creation of a 10/15-minute neighbourhood. • A significant proportion (11%) of work trips remain within the study area with opportunities to serve this shorter distance travel by walking and cycling. • The majority of trips to school are less than 2km in length which should be serviceable by walking and cycling. • A relatively large proportion of work and education trips of less than 2km are undertaken by car. There is an opportunity to attract some of this demand onto sustainable modes through improvements for walking and cycling in the study area. • Dundrum could be classed as a 'highly accessible area' with parking restrictions feasible for new developments.	**Key Points:** • Car ownership is quite high within the study area with 86% of households owning at least one car, and 42% owning 2 or more. If this pattern continues for new developments it will likely lead to additional vehicular traffic on the road network. • Narrow street widths on key local routes such as the Kilmacud Road Upper and Dundrum Road (R117) makes delivery of cycle infrastructure a challenge, difficult choices include fully or partially displacing vehicular traffic or costly land-take. • The Dundrum road network is already operating at or near capacity and there is no scope for additional road capacity to be provided. • The Wyckham Way, Dundrum Bypass and the Dundrum Road acts as a strategic vehicular traffic corridor between the M50 and the city centre. As such, there is likely to be a significant amount of vehicular traffic passing through the study area. • One of the largest development sites within the study area is at the Central Mental Hospital site. This opens onto the Dundrum road (R117) which is already congested in the peak periods. If strong sustainable links are not provided to public transport and Dundrum centre, there is a risk that development at this site will generate a significant amount of additional car demand. • In general, the topography in the study area can be challenging for cyclists, particularly for children cycling to school.

3. CONTEXT FOR THE ABTA

3.1 Introduction

Part 2 of the ABTA process focuses on applying the information gathered from the baseline assessment (including the SWOT analysis) to determine the principles and objectives that guide the development of the Local Transport Strategy. The following sections provide an overview of the methodology used to derive the objectives for the Dundrum ABTA.

3.2 Developing the Principles and Objectives

The development of the principles and objectives for the Dundrum ABTA were informed by:

- The opportunities and constraints identified in the Part 1 Baseline Assessment SWOT Analysis;
- The outcomes of relevant consultations which have been undertaken;
- Existing local policies and objectives; and
- National level policy guiding the delivery of sustainable development.

In order to ensure a robust assessment of transport options, the objectives were broadly aligned with the key categories outlined in the Department of Transport's Common Appraisal Framework (CAF) with common themes identified:

- **Accessibility & Social Inclusion**: supporting local accessibility by walking and cycling within Dundrum for all users;
- **Environmental**: supporting climate change initiatives and a general switch to more sustainable modes of travel;
- **Economic**: supporting the vibrancy and connectivity to Dundrum Major Town Centre enhancing its economic competitiveness;
- **Integration:** supporting the integration of land use and transport planning in a manner that can affect significant modal shift to walking, cycling, and public transport; and
- **Safety & Physical Activity:** promote walking and cycling, and provide a safe environment for vulnerable users.

A detailed review was then undertaken of Local and National Policy to identify existing objectives under each of CAF headings and themes outlined above. In particular, strategic outcomes and policies from the draft DLR County Development Plan were identified which could inform the principles and objectives for the Dundrum ABTA.

The SWOT analysis from the Baseline Assessment was reviewed to identify specific constraints and issues currently within the study area which should be addressed by the Dundrum ABTA objectives. Table 3.1 overleaf, provides a summary of the key County Development Plan policies and SWOT constraints identified under each of the CAF criteria.

Table 3.1 Linking Existing Policy Objectives and SWOT Outcomes to CAF Headings

CAF	Theme	Draft CDP - Strategic Outcomes & Policies	Dundrum ABTA SWOT Analysis
Accessibility and Social Inclusion	*- Local Accessibility* *- Walking & Cycling* *- Accessibility for All*	**The Creation of a Compact & Connected County** - 10 min neighbourhood concept - To improve permeability for the pedestrian and cyclist - Policy Objective T1: Integration of Land Use and Transport Policies - Policy Objective T10: Walking and Cycling - Policy Objective T11: Footways and Pedestrian Routes - Policy Objective T30: Accessibility - support suitable access for people with disabilities, including improvements to transport, streets and public spaces	- Permeability - Access to the village and Town Centre is constrained by severance - bypass & Luas and topography - Permeability - From estates to village & services - constrained in some instances by poor linkages - Topographical challenges for cyclists - 80% education trips within 5km with 46% less than 2km within easy walking/cycling distance to school - 14 % of commute trips originating within the study area are less than 2km in length but have high car mode share - 49% - A number of key junctions on access to Dundrum are unattractive to pedestrians and cyclists - There is no cycle infrastructure on key local routes accessing the town centre such as Kilmacud Road Upper, Ballinteer Road and Dundrum Road - Poor accessibility at Dundrum Luas Station - stepped access and stepped link from Taney Drive to Main St
Environmental	*- Public Transport* *- Climate Change* *- Support switch to sustainable modes*	**The Creation of a Climate Resilient County** - Policy Objective T5 : Quality Bus Network/Bus Connects - Policy Objective T7: Green Line Capacity Enhancement (GLCE) Project - Policy Objective T6: Public Transport Interchanges - Policy Objective T8: Luas Extension and MetroLink - Policy Objective CA4: transition to a climate resilient low carbon County - To support the demand management approach which focuses on moving people from the private car to more sustainable modes - Policy Objective T15: Travel Demand Management	- Luas capacity issues during peak periods - Just 5% of commuting trips by bus (2016 Census) - Poor interchange facilities & limited/no RTPI - Infrequent headways on orbital bus services - 42% of households own a 2nd car / overall car ownership rates are high at 86% with at least 1 car - Car is dominant mode - 54% for 2 - 10km commutes - 41% of education trips <2km undertaken by car - The private car is the most dominant mode of transport for work trips from the study area (58%). Smarter Travel target = 45%

CAF	Theme	Draft CDP - Strategic Outcomes & Policies	Dundrum ABTA SWOT Analysis
Economic	*- Vitality & Function* *- Economic Competitiveness* *- Support the vibrancy and connectivity to Dundrum Major Town Centre*	**The Creation of a Vibrant Economic County** - Policy Objective RET4: Major Town Centres. Support the evolving multi-functional role of Dundrum Major Town Centre - Encourage more activity on Main Street and diversify the range and extent of uses within the Dundrum Major Town Centre area - The comprehensive redevelopment of the environs of the William Dargan Bridge undercroft, Usher House and Waldemar Terrace. - The development of a comprehensive pedestrian walkway network connecting and linking key destinations - including the Dundrum Town Centre (Shopping Centre), the Dundrum and Balally Luas stops, Main Street/ Sandyford Road, Sweetmount Park and a series of internal Town Squares	- Dundrum Town Centre - Regional Draw - Strategic & Local Economic Asset - Main Street - less retail / commercial activity - Permeability - Access to the village and Town Centre is constrained by severance – bypass, Luas and topography - Traffic congestion during peak commuter and shopping periods - Issue with traffic bound for the shopping centre causing congestion on Main St/Sandyford Road
Integration	*- Integrate land use and transport* *- Align with wider policy* *- creation of sustainable neighbourhoods*	**The Creation of a Network of Liveable Towns & Villages** - Policy Objective T1: Integration of Land Use and Transport Policies - Policy Objective PHP4: Promote and facilitate the provision of '10-minute' neighbourhoods - Providing a mix of appropriate land uses to minimise transport demand	- National, Regional and Local policy all include objectives to support compact growth and shift demand away from the private car onto more sustainable modes - A number of different services within the study area including education, healthcare, retail, high frequency public transport and employment which support the creation of a 10/15-minute neighbourhood - Strong sustainable links are required from new proposed developments such as the Central Mental Hospital site to local services and public transport to reduce reliance on the private car.
Safety & Physical Activity	*- Safe access to schools* *- traffic management in sensitive areas* *- promote walking and cycling*	**The Creation of an Inclusive & Healthy County** -Policy Objective T27: Road Safety - Policy Objective T28: Traffic Management - to reduce vehicle speeds to an acceptable level and to reduce the potential for traffic congestion and associated vehicular emissions in urban areas - Policy Objective T14: Bike Rental Schemes - Policy Objective T12: County Cycle Network - Policy Objective T11: Footways and Pedestrian Routes - provide for accessible, safe pedestrian routes within the County in accordance with best accessibility practice - Policy Objective T10: Walking and Cycling. Promoting and facilitating safe walking and cycling connectivity to schools, third-level education and places of work - Introducing a residential safe and quiet streets initiative and installation of cycling infrastructure, as well as junction re-design	- A number of key junctions on access to Dundrum are unattractive to pedestrians and cyclists - large cross-sections, high traffic volumes, conflicting movements etc. - High traffic volumes during peak periods which can impact on safety for vulnerable road users - 41% of education trips <2km undertaken by car - In general, the majority of residents within the study area are within a 15-minute walk and 10-minute cycle of their nearest school - There is currently no cycling infrastructure on access to Dundrum from the east or west along Ballinteer Road and Kilmacud Road Upper - access to Holy Cross and Taney schools

Building on the analysis in Table 3.1, a series of workshops were undertaken with the wider project team including DLRCC and the NTA to define the objectives that would underpin the Dundrum ABTA. The overall principles and study objectives are outlined in Table 3.2 overleaf, and have been developed to address opportunities and constraints identified in the baseline SWOT analysis whilst aligning with other Local, Regional and National policy objectives.

Table 3.2 Dundrum ABTA Principles & Objectives

CAF	Principle	Objective
Accessibility and Social Inclusion	- To link Dundrum Major Town Centre with surrounding communities through a permeable network of integrated streets, open spaces and dedicated pedestrian and cycle routes.	- To provide attractive high-quality inclusive and connected walking and cycling networks with direct routes to local destinations and public transport hubs
	- To promote increased residential densities within walking distance of public transport nodes and urban centres. -To develop a network where a range of facilities and services are accessible in a short walking and cycling timeframe from homes, or are accessible by high quality public transport located within a short walk from home.	- Promote the '10-minute' settlement concept in Dumdum with reduced walking times to essential daily services
Environmental	- To develop a transport network that maximises route choice and access to residential, education, retail, service, community and leisure uses by means of walking, cycling and public transport.	- Provide an environment which supports moving people from the private car to more sustainable modes
	- To promote sustainable transport options and reduce carbon emissions from transport, thus assisting Dun Laoghaire-Rathdown in delivering a low carbon and climate resilient county.	- Seek to improve the air quality and pedestrian environment along the streets through Dundrum village including, Main St, Sandyford Road, Kilmacud Rd Upper and Ballinteer Road as well as at school zones and along the main pedestrian access routes immediately adjacent to the schools

CAF	Principle	Objective
Economic	- To create an efficient transport network that improves access to Dundrum Major Town Centre. - To protect accessibility to Dundrum Town Centre (Shopping Centre) and support its role as a leading comparison retail destination with a regional catchment.	- Support improved economic competitiveness of Dundrum Major Town Centre by improving access for all
	- To create a more attractive environment for pedestrians and cyclists on Main Street increasing footfall and supporting local businesses.	- Encourage more activity on Main Street to enhance its social and economic vibrancy
Integration	- To co-ordinate residential, educational, employment and community uses and integrate such with transportation infrastructure in a manner that maximises accessibility for residents to key local services.	- Reducing the need for vehicular travel within Dundrum by enhancing the integration of land-use and transport
	- To ensure any proposed options align with planning policy, and objectives from other studies/plans covering the area.	- Integration with National, Regional and Local planning policy
Safety & Physical Activity	- To support the Safe Routes to School Programme by creating safer walking and cycling routes within communities, alleviate congestion at the school gates and increase the number of students who walk or cycle to school by providing walking and cycling facilities.	- Provide safe access to schools via walking/cycling, safe front of school environment
	- To design streets using a more integrated approach to pedestrian, cyclist and vehicular movement and ensure that the movement function of each street is reflected by an appropriate design response and design speed.	- Reduce the adverse impact of transport on local communities in Dundrum

4. OPTIONS DEVELOPMENT

4.1 Introduction

The following chapter outlines the process for developing the long-list of options to overcome some of the weaknesses and constraints identified in the baseline assessment, and achieve the defined objectives for the ABTA. The options list was developed in collaboration with the wider project working group including members from DLRCC and the NTA, through the following:

- **Data review** to identify proposals from wider policy/strategies for the study area e.g. Draft GDA Transport Strategy, Draft DLRCC County Development Plan etc. This included a review of existing and projected future land-use within the study area to determine potential desire lines of travel;
- **Site visits** to review issues identified in the baseline assessment and opportunities for improvement;
- **Workshops** between the project working group to discuss and agree potential options; and
- **Collaborate option refinement** through the use of an online whiteboard platform (MIRO). All members of the project team were given access to the MIRO tool which hosted mapping of proposed options with functionality for drawing new suggestion, providing comments and feedback.

The options development process followed the Department of Transport's National Investment Framework for Transport in Ireland (NIFTI) modal and intervention hierarchies (Figure 4.1). As such, options for applicable measures were first considered in relation to active modes (walking and cycling), followed by public transport and finally general vehicular traffic. The options were also initially focused on maintaining, optimising and improving existing facilities before considering the construction of new infrastructure.

Figure 4.1 NIFTI Modal and Intervention Hierarchy

The following section provides an overview of proposed developments which were considered when identifying options to serve future desire lines by sustainable modes. A brief overview of the rationale for the option development across active modes, public transport, roads and supporting measures is provided with further details on the full long-list of options provided in Appendix B.

4.2 Projected Future Land-Use

The baseline assessment provided an overview of the existing land-use within the study area i.e. residential densities, schools, retail, key employment locations etc. However, it's important to also consider future development proposals to ensure that the transport strategy can cater for growth in

Dundrum and support future desire lines. Figure 4.2 indicates some of the main developments being proposed within the Dundrum ABTA Study Area.

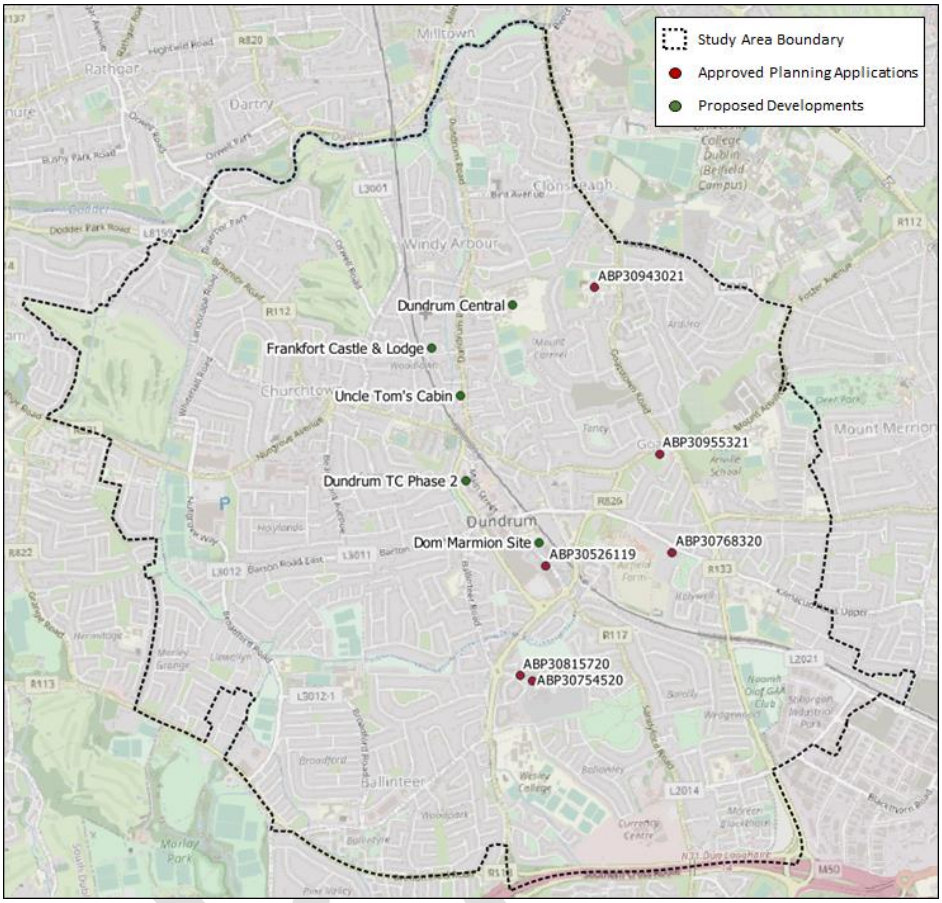


Figure 4.2 Study Area Development Proposals

Two of the most significant proposals within the ABTA study area include the redevelopment of the Dundrum Central Mental Hospital Site and the second phase of the Dundrum Town Centre - the Old Dundrum Shopping Centre site.

Dundrum Central Mental Hospital Site

The Land Development Agency (LDA) have applied for planning permission for a Strategic Housing Development on lands at the Central Mental Hospital in Dundrum[5]. The development is seeking permission for just under 1,000 residential units and will also include public open space, cycle and pedestrian routes, internal roads and vehicular access off the Dundrum Road.

Old Dundrum Shopping Centre Site

The Dundrum Retail GP DAC have applied for planning permission for a Strategic Housing Development on the site of the Old Dundrum Shopping Centre, Main Street, Dundrum. The development is seeking permission for just under 900 residential units and will also include just under 4,500sqm of non-residential uses, public open space areas, a cycle and pedestrian link bridge from Sweetmount Park and vehicular access off the Dundrum Bypass.

[5] Further information available at: http://www.dundrumcentralresidential.ie/

4.3 Walking and Cycling Options

The baseline SWOT analysis identified a number of opportunities for walking and cycling within Dundrum, such as:

- The majority of trips to school are less than 2km in length;
- There are a number of key services within the study area supporting the 10-minute neighbourhood concept; and
- The mode share for active modes within Dundrum is higher than the county average.

However, there are also many factors inhibiting walking and cycle use including severance due to the Luas line, steep gradients, poor permeability through residential areas and limited cycle infrastructure, particularly through junctions.

One of the key objectives of the ABTA is to provide an integrated walk and cycle network for Dundrum, with an emphasis on improving safety and increasing the use of active modes. Options which have been developed to achieve this objective have been grouped into the following categories:

- **Strategic Walk and Cycle Options** which include the upgrade and construction of new infrastructure on key links within the study area; and
- **Permeability Improvement Options** supporting increased accessibility and connectivity to the wider walk and cycle network.

Full details on all walking and cycling options, including a rationale for inclusion is provided in Appendix B.

4.4 Public Transport Options

The baseline assessment highlighted some deficiencies in the public transport offering in Dundrum. Whilst it is served by a high frequency Luas service, trams are often operating close to, or over, capacity during the key peak periods. There are also a number of orbital bus routes in operation, however, these tend to be relatively infrequent and overall bus use for commuting is low.

Public transport options developed for the Dundrum ABTA area to overcome some of these deficiencies are outlined in Appendix B. The options have been informed by local and regional policies and strategies, as well as findings from the baseline assessment. At a more strategic level, the key interventions are derived from the GDA Transport Strategy. These include aspects such as capacity enhancements for the Luas Green Line, rollout of the BusConnects network upgrades (Figure 4.3) and the development of a bus/Luas interchange in Dundrum.

At a local level, options are focused on increasing accessibility to public transport stops, upgrades to stop infrastructure (shelters, RTPI etc.) along with improving priority for buses across the network where possible.

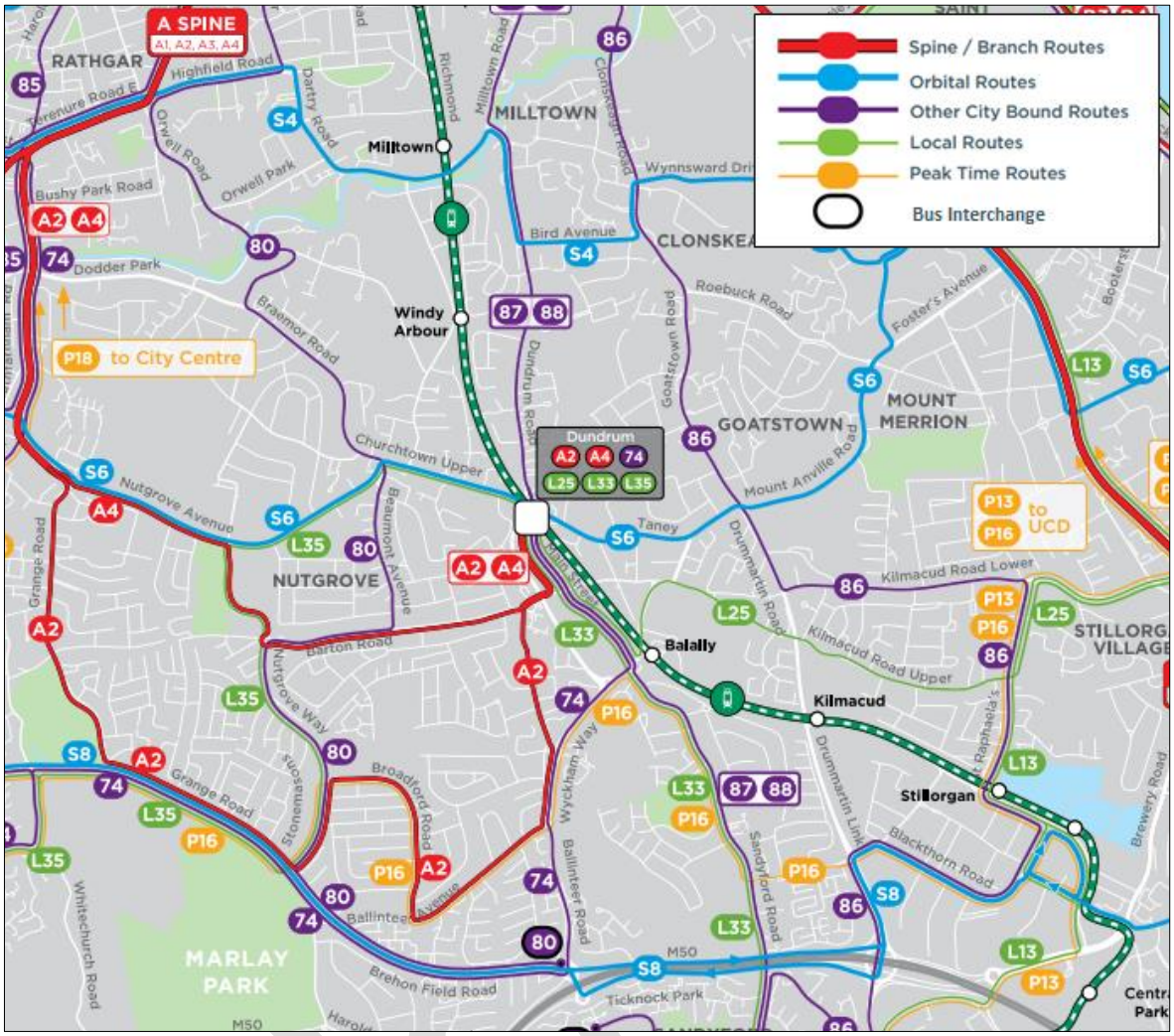


Figure 4.3 Dundrum BusConnects Network

4.5 Road Network Options

The baseline assessment identified a number key road network issues within the Dundrum ABTA Study Area, in particular:

- A number of key strategic junctions on access to Dundrum are unattractive for pedestrians and cyclists – large carriageway widths, high traffic volumes, slip lanes etc.;
- The road network in Dundrum is operating close to capacity during the peak hours and there is no scope for additional road capacity to be provided;
- Significant levels of 'strategic traffic' (through traffic) passes through Dundrum Cross, when reasonable alternative routes are available.
- Significant levels of 'rat-running' occur in local residential areas as vehicles try to avoid more congested locations.

The long-list of options identified to address these issues are presented in Appendix B. In-line with NIFTI guidance, the options are focused on optimising and improving existing infrastructure to help achieve the ABTA objectives. A number of junction upgrades are proposed to improve safety and accessibility for active mode users. Other options reflect supporting measures required to deliver on the walking and cycling proposals outlined previously e.g. modal filters, one-way streets and bus gates.

4.5.1 Junction Design Principles

Design principles laid out in The Design Manual for Urban Roads (DMURS) and in the National Cycle Manual (NCM) were at the core of the upgrades proposed in the Dundrum ABTA Study Area. DMURS has been developed by the Department of Transport and is promoted by the NTA to replace existing national design standards used throughout all urban areas in Ireland, when designing roads and streets. At its core DMURS promotes safety in design for urban routes specific to their functionality, as is described in section 3.2 "Movement in Place". The NCM embraces the principles of sustainable safety and offers guidance on integrating the bike in the design of urban areas.

The following is a list of fundamental improvement measures which were investigated for the Dundrum Study Area in accordance with DMURS and the NCM:

- **Reduction in lane widths:** Wide open traffic lanes promote fast and unsafe driving. As an area becomes more densely populated safety should become of paramount importance. Figure 4.4 below shows lane widths most applicable for this Study Area.

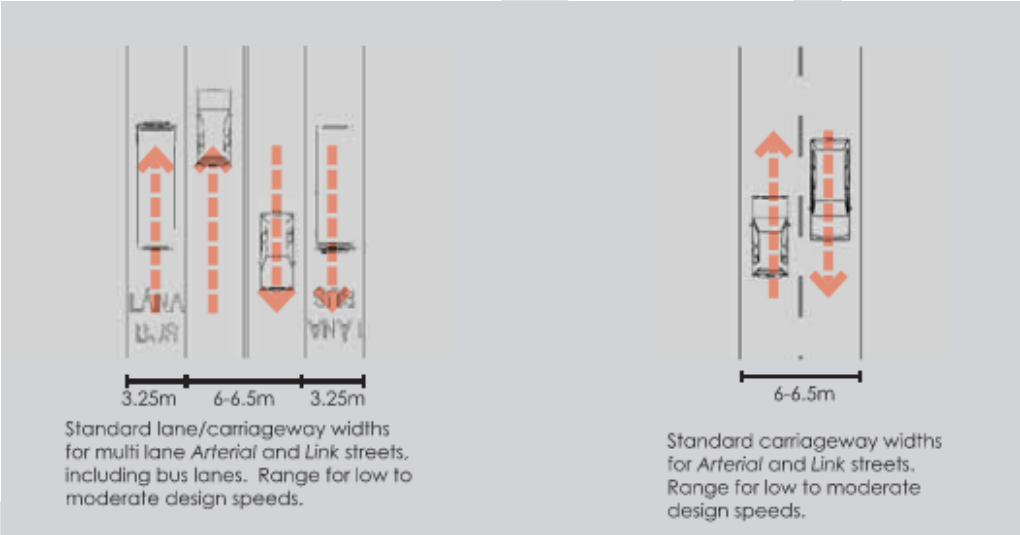


Figure 4.4 Traffic Lane Widths (DMURS Ref - Fig 4.55)

- **Tightening corner radii** at junctions will significantly improve pedestrian and cyclist safety by lowering the speed at which vehicles can turn corners and by increasing the intervisibility of users.

- **Reduced Crossing Distance for pedestrians** at Junctions and the inclusion of toucan crossings where appropriate. Figure 4.5 below is an example where a left slip lane was removed to reduce pedestrian crossing distance and slow traffic making the turn.

Figure 4.5 Shortened Pedestrian Crossing Distance (DMURS Ref - Fig 4.40)

- **Improved segregation for cycle facilities** to provide additional protection for cyclists, in particular vulnerable users.

- **Lengthened bus lanes on approach to junctions** will enable buses to move towards the front of queuing traffic and reduce congestion for the more sustainable mode of transport.

4.5.2 Junction Options

The existing study area is characterised by numerous large roundabouts and car centric junctions which include the following features:

- Wide/Staggered pedestrian crossing points;
- Slips Lanes;
- Large Corner Radii;
- High traffic volumes; and
- Inconsistent cycle infrastructure

Several options were developed for five of the key junctions on access to Dundrum to incorporate the design principles outlined above and improve safety and accessibility for pedestrians and cyclists. The following sections provide a brief overview of the key junction types tested[6].

Protected Signalised Junction

Due to the inherently complex nature of mixed mode movements at junctions, the provision for cyclists at junctions is a critical factor in managing conflict and providing safe junctions for all road users. The primary conflict for cyclists is with left-turning traffic. On the basis of international best practice, the preferred layout for signalised junctions is the "Protected junction", which provides physical kerb buildouts to protect cyclists through the junction. This is a new innovation in addition to the range of junction options in the National Cycle Manual. It is most applicable at larger junctions where there are numerous traffic lanes and extended crossing widths.

[6] Further detailed information on the junction options tested is provided in Appendix D

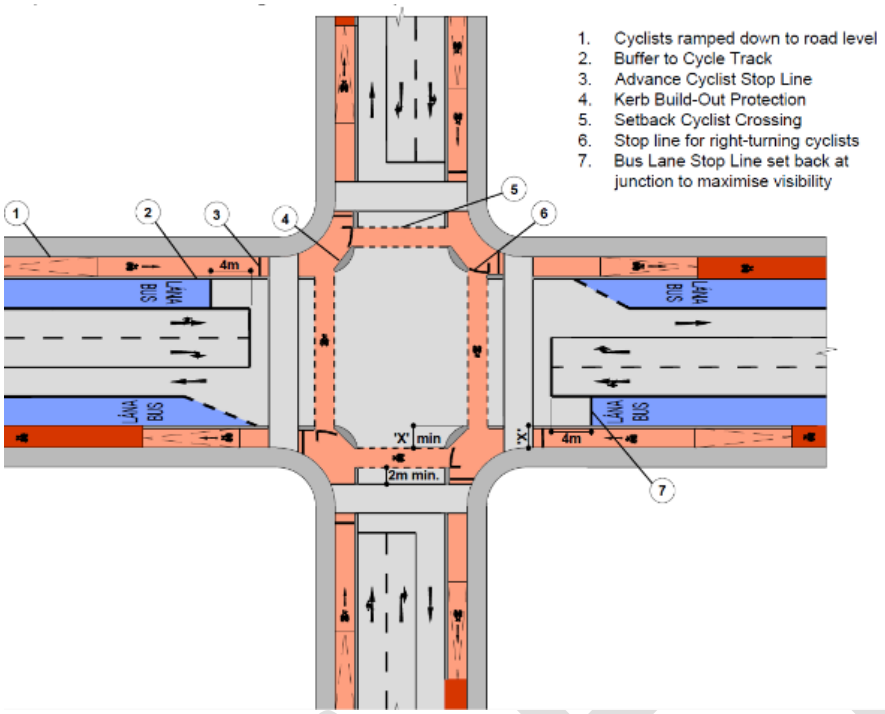


Figure 4.6 Protected Signalised Junction

The key design features and considerations relating to this junction type are listed below:

- Cycle tracks are extended all the way to the stop line without the filtering of left-turn traffic across the cycle track in advance of the junction.
- Cycle tracks that are protected behind parking or loading bays, should return to run along the edge of carriageway approaching a junction (removal of localised parking / loading immediately upstream of a junction will be necessary to achieve sufficient visibility).
- The cycle track should be ramped down to carriageway level on approach to the junction and proceed to a forward stop line ahead of the vehicular stop line, placing them within view of traffic waiting at the junction. A raised kerb buffer should be provided between the bus lane and the cycle lane on approach to the junction.
- Kerbed corner islands should be provided to force turning vehicles into a wide turn and remove the risk of vehicles cutting into the cycle route at the corner which has been the cause of serious accidents in various places.
- A secondary stop line and stacking room behind the kerb buildouts should also be provided for right-turning cyclists making a hook-turn manoeuvre. Cycle signals will control the second stage of movement of these cyclists.
- Cyclist and Pedestrian crossings should be kept as close as possible to the mainline desire line, however, cyclist and pedestrian crossings should be separate, with between 2-3m space between them. This is to ensure that motorists infer a clear differentiation between the cycle lane crossing through the junction (which will be green with general traffic in the same direction) and the pedestrian crossing across the same arm (which will be red with general traffic).
- This arrangement requires cyclists and pedestrians to deviate slightly from the direct lines through the junction, but it improves the angle of conflict between straight-ahead cyclists and

left-turning vehicles at the point where their paths cross, and this should reduce the "blind spot" effect for drivers using their wing mirror to check for a cyclist. This visibility improves further if the left-turning vehicle turns from the general traffic line outside the bus lane, in which case the deflection of the cycle lane can be minimised. Designers should consider the cycle track deflection requirements for each approach on a case-by-case basis.

On Road Cycle Lane Junction

The preferred 'Protected' junction configuration above may not be implementable in all locations. Where spatial constraints do not allow for the preferred junction arrangement to be implemented, designers should consider a junction arrangement whereby cyclists are brought through the junction on-road without physical kerb/island protection, with box-turns provided for right turning cyclists.

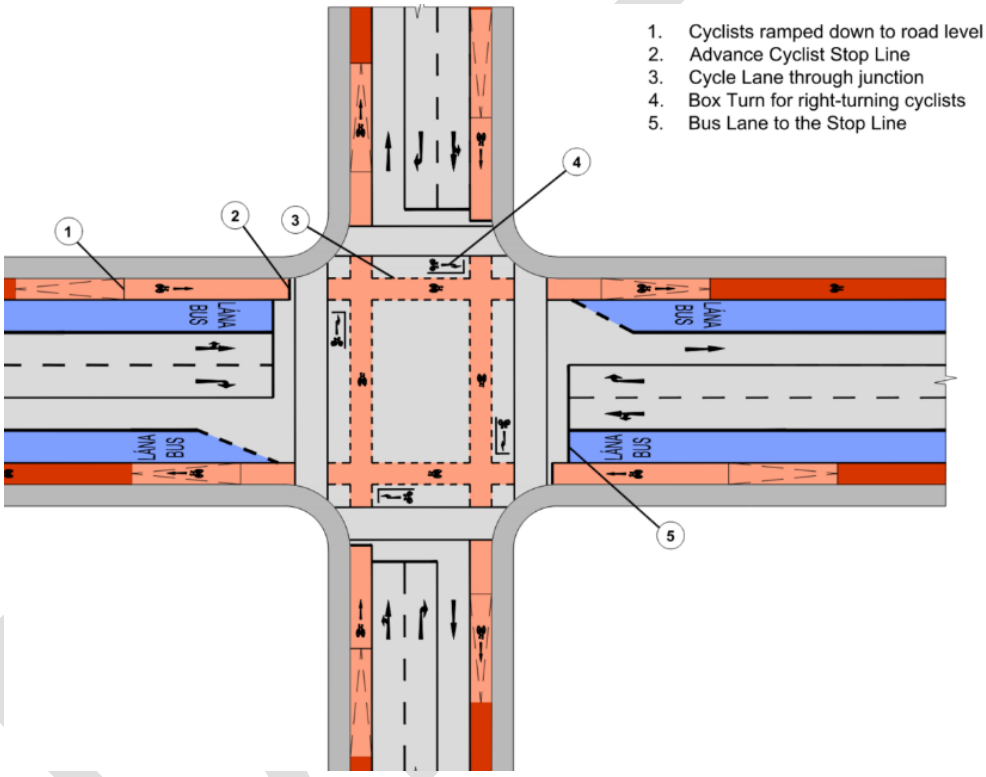


Figure 4.7 On Road Cycle Lane Junction

The key design details relating to this junction type are listed below:

- The cycle tracks are ramped down to carriageway level and proceeds to a forward stop line ahead of the vehicular stop line, placing cyclists within view of traffic waiting at the junction.
- Box-turns should be provided for right-turning cyclists.
- This arrangement requires slightly less land take than the protected junction alternative to construct.

Cyclops Junction

An alternative junction option which may be considered by designers in specific circumstances is the CYCLOPS junction layout. CYCLOPS stands for Cycle Optimised Protected Signals, and the principal

feature of this junction type is an external orbital cycle track, separating cyclists from vehicular traffic at the junction.

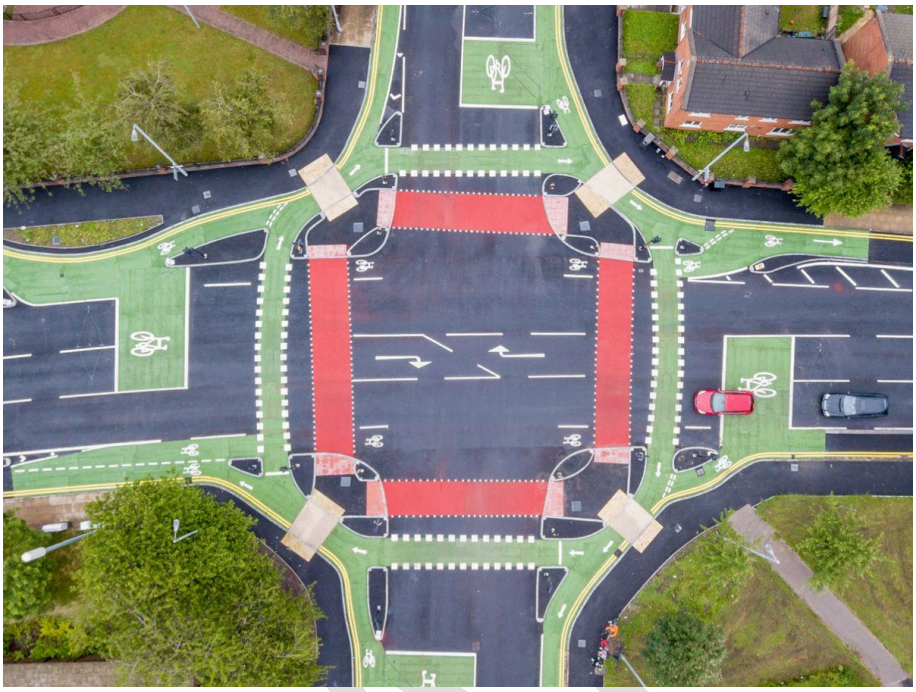


Figure 4.8 Cyclops Junction

The key design features relating to this junction type are listed below:

- An orbital cycle track is provided, with controlled crossing points to allow pedestrians to cross to large islands within a central signal-controlled area.
- Left-turning cyclists can effectively bypass the junction, while giving way to pedestrians crossing as well as cyclists already on the orbital cycle track.
- Signal controlled pedestrian crossing distances are reduced when compared to traditional junction layouts, due to the fact that pedestrians cross the cycle track in a separate unsignalized movement. Pedestrian crossings are also close to the pedestrian desire line. However, the number of crossings for pedestrians is increased as pedestrians must cross the cycle track to access the central signal-controlled area.
- This junction arrangement typically requires a larger footprint to construct than the protected junction discussed, due to the large pedestrian islands.

4.6 Complimentary Measures

In addition to the options outlined above, a series of complimentary measures have also been developed to assist in achieving the overarching objectives for the Dundrum ABTA. The following measures are primarily aimed at reducing reliance on the private car and supporting a shift to more sustainable modes of travel.

Table 4.1 Complimentary Measures

Option	Description
CM1	**Car Parking in future developments to be in accordance with CDP requirements** - Parking requirements in-line with CDP Parking Zone standards

CM2	**Re-allocation of spaces for council/ public car park and on-street parking**
	- Reallocation of spaces for
	  - Dedicated Senior Citizen Parking at appropriate locations
	  - Dedicated Disabled Parking
	  - Car Share
	  - eCar charging points
	  - cycle parking including outsized - cargo bikes & trailers
	  - eMobility rental stands & Mobility Points – for interchange with bus/car share etc

CM3	**Bike Rental Scheme** - Introduction of a bike rental scheme in Dundrum – e.g. Bleeper bikes are currently in operation in some areas of DLR
CM4	**Community Car Scheme** - Develop a Community Car Share Scheme In-line with the pilot scheme currently in operation in the Howth and Skerries areas
CM5	**Active Travel Plans for Schools/workplaces** - Plans to promote behavioural change and encourage people to travel to work and school by walking and cycling

5. OPTIONS ASSESSMENT

5.1 Introduction

The following chapter provides an overview of the options assessment process used to determine the Emerging Preferred Strategy for the Dundrum ABTA. It includes an initial screening process followed by more detailed Multi-Criteria Analysis to determine the optimal package of measures to meet the identified study objectives.

5.2 Options Assessment Methodology

To determine the Emerging Preferred Strategy to form the transport strategy, the long-list of options were passed through a four-stage assessment process as outlined in Figure 5.1, including:

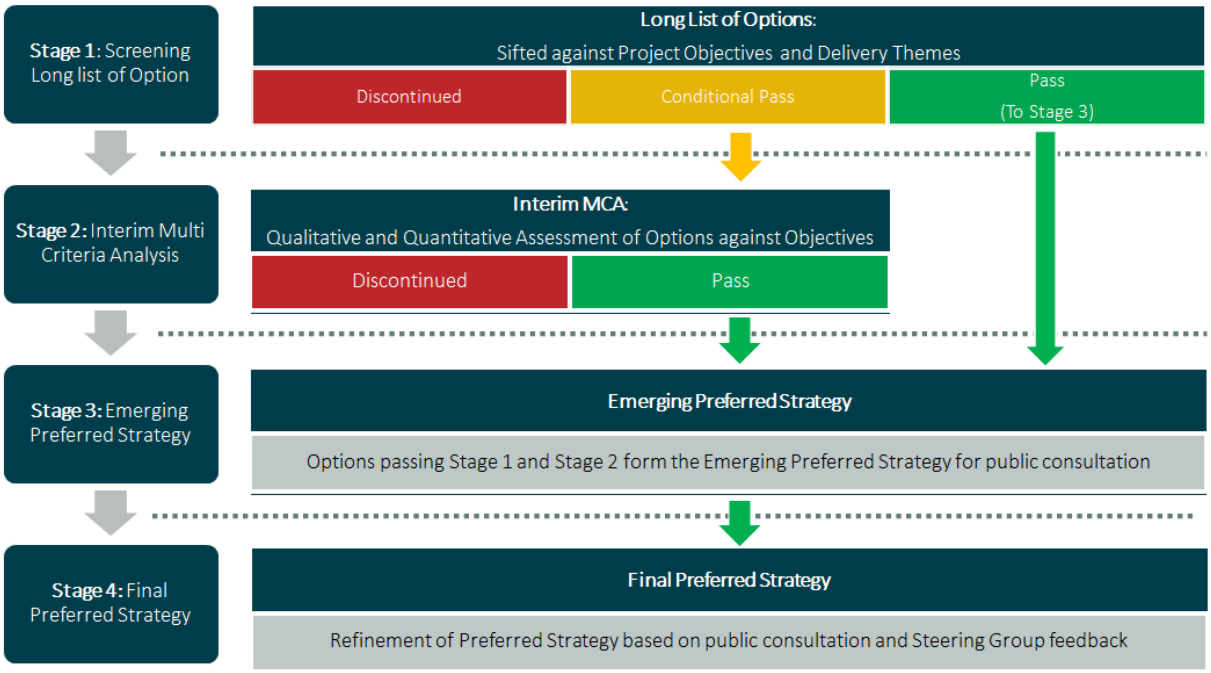


Figure 5.1 Options Assessment Methodology

- **Stage 1 Options Screening:** The long-list of options were screened against the overall project objectives and core delivery themes to identify which ones should be discontinued, which could pass directly to the final strategy, and which required further assessment;
- **Stage 2 Interim Multi-Criteria Analysis (MCA):** Options requiring further analysis were passed through a MCA with qualitative and quantitative indicators used to score each option against the study objectives;
- **Stage 3 Emerging Preferred Strategy:** Options passing Stage 1 and Stage 2 form the initial draft Emerging Preferred Strategy for for public consultation in conjunction with the Draft Local Area Plan.

- **Stage 4 Final Preferred Strategy:** Feedback from the project steering group and public consultation as part of the Dundrum LAP process will be used to refine the preferred transport strategy for the area.

The following sections provide a more detailed description of each of the stages outlined above.

5.3 Stage 1: Options Screening

Stage 1 of the Options Assessment examined each of the long-list of measures to see whether they helped to achieve the ABTA objectives. The options were also assessed against the following core delivery themes:

- Engineering feasibility;
- Acceptability;
- Funding potential; and
- Value for money

Based on this initial screening, options were classed as follows:

- **Discontinued**: the option did not align with the ABTA objectives, and as such, it was not included in the Emerging Preferred Strategy;
- **Pass:** the option satisfied the project objectives and the core delivery themes, and no alternative proposals were identified in the options development process. These options passed directly into the Emerging Preferred Strategy without the need for an interim assessment.
- **Conditional Pass:** the option aligned with the ABTA objectives, however, either didn't fully meet all of the core delivery themes or had a number of alternative proposals identified. In these instances, the options were assessed in further detail as part of the interim MCA described in Section 5.4

5.4 Stage 2: Interim MCA – Multi Criteria Analysis

The Interim MCA was used to evaluate alternatives based on their performance in achieving the overarching study objectives outlined in Table 3.2. This assessment was predominantly qualitative in nature, however where possible, quantitative information was used to supplement the scoring e.g. survey data, GIS analysis etc.

A five point scoring system, outlined in Table 5.1, was used to assess the options across the various objectives. This produced a performance matrix which was reviewed to rank the scenarios and identify which ones performed best in terms of achieving the defined objectives of the study, and therefore, passed into the Emerging Preferred Strategy. **Further details on the Interim MCA, including all options assessed and associated scoring is provided in Appendix B – Options Assessment Report.**

Table 5.1 Interim MCA Scoring System

Scoring	
Major Benefit: The proposal is expected to have a clear and considerable benefit or positive impact when compared to existing conditions.	
Minor Benefit: The proposal is expected to have a minor benefit or positive impact when compared to existing conditions.	
Neutral: Overall, the proposal is expected to have neither a positive or negative impact when compared to existing conditions.	
Minor Disbenefit: The proposal is only expected to result in a minor negative impact when compared to existing conditions.	
Major Disbenefit: The proposal is expected to have a clear and considerable negative impact when compared to existing conditions.	

Junction Options Assessment

A detailed microsimulation traffic modelling exercise was undertaken to understand the operational impact of the proposed junction changes. This information was used to further refine the emerging preferred solution for each junction assessed, and to inform the concept design drawings. **Further details on the junction options assessment, including the traffic modelling analysis, is provided in Appendix D – Junction Assessment Report.**

5.5 Stage 3: Emerging Preferred Strategy Assessment

The options that passed from Stage 1 and Stage 2 of the assessment process formed the draft Emerging Preferred Transport Strategy for the Dundrum ABTA. This included a wide range of proposals across walking, cycling, public transport, road network changes, junction upgrades and wider supporting measures. **Further details on all elements of the Emerging Preferred Transport Strategy are provided in Section 6 below – Dundrum ABTA Recommendations Report.**

6. DUNDRUM ABTA RECOMMENDATIONS REPORT

6.1 Introduction

The purpose of this section is to set out all the recommendations for transport and mobility related interventions arising from the Dundrum Area Based Transport Assessment (ABTA). The recommendations are set out in the context of the ABTA's focus areas:

- Dundrum Major Town Centre & Environs
- South Dundrum - Wyckham Way, Sandyford Road & Environs
- North Dundrum - Dundrum Road & Environs
- Surrounding Areas

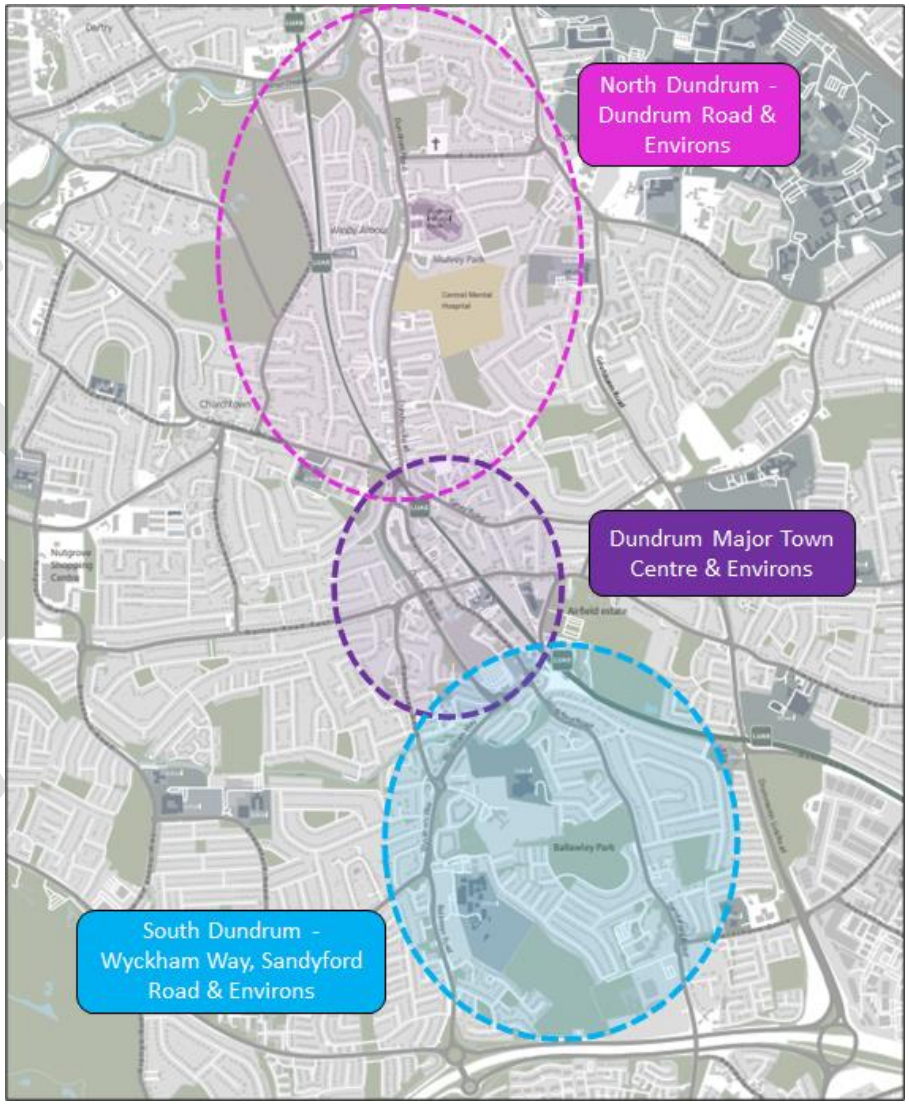


Figure 6.1 Dundrum ABTA Focus Areas

6.2 Dundrum Major Town Centre (MTC) & Environs

Dundrum Major Town Centre has developed significantly over the last two decades and further substantial developments are envisaged in the years ahead. Dundrum Shopping Centre, located on the southern side of the town, has become a major retail destination and a significant generator of travel to the area, while at the northern end of the town, the site of the Old Dundrum Shopping Centre, presents a major mixed use redevelopment opportunity.

These existing and anticipated developments require robust transport and mobility solutions within Dundrum and its environs in order to meet the anticipated travel demand in a sustainable manner. In addition to these challenges, the Dundrum ABTA has identified significant volumes of strategic traffic (often referred to as through traffic), currently using Dundrum Cross and Main St, rather than using the surrounding road network. The ABTA has also identified severance caused by Dundrum Bypass to the west, the Luas line to the east and major traffic junctions to the north and south, as obstacles to achieving strong pedestrian and cyclist permeability from surrounding areas.

The Dundrum ABTA recommendations are aimed at responding to these issues, improving connectivity to Dundrum by sustainable modes and creating an attractive, liveable, and vibrant Major Town Centre. For ease of reference, the recommendations for Dundrum MTC & Environs are set out under the following sub areas:

- **Area 1: Dundrum Cross** (Junction of Main St, Ballinteer Rd, Sandyford Rd & Kilmacud Rd Upper)
- **Area 2: Taney Cross & Environs**
- **Area 3: Sandyford Road** (North of Junction with Wyckham Way/Overend Avenue)
- **Area 4: Sydenham Road**
- **Area 5: Dundrum Bypass**

6.2.1 Area 1: Dundrum Cross (Junction of Main St, Ballinteer Rd, Sandyford Rd & Kilmacud Rd Upper)

As a response to the Covid-19 pandemic, DLRCC introduced a series of measures on Dundrum Main Street, Sandyford Road and at Dundrum Cross, to facilitate safe physical distancing and active mobility. Public realm improvements and mobility interventions were introduced, including a one-way northbound traffic layout on sections of Main St & Sandyford Rd and a one-way westbound traffic layout on a short section of Kilmacud Rd Upper adjacent to Dundrum Cross. These measures also provided for the reallocation of road space to allow improved facilities for pedestrians and cyclists, including a southbound segregated cycle lane along sections of Main St and Sandyford Rd. These measures have helped to reduce traffic volumes and calm traffic through the area, while at the same time providing improved conditions for pedestrians and cyclists and an enhanced public realm within the town.

The Dundrum ABTA has now examined these interventions afresh and in the context of both the wider transport network and the objectives set out for the ABTA in Section 3.2 of this report. The ABTA has considered:

- The need to improve walking and cycling facilities for access to and through the area,
- The need to facilitate access to public transport and bus movements through the area,
- The need to improve the public realm and support the vibrancy and liveability of the area,

- The need to safeguard the strategic function of Dundrum Major Town Centre by maintaining access to car parking while also reducing the volume of strategic traffic through the town.

Figure 6.2 Dundrum Main Street COVID Mobility Measures

The ABTA has concluded that the Covid 19 mobility interventions described above, taken together with the wider suite of ABTA recommendations for this area, would support the objectives set out in Section 3.2 of the ABTA report and would be appropriate in the context of the wider transport network. The ABTA has found that they would enhance connectivity to Dundrum via sustainable modes (walking, cycling and public transport) while also supporting the creation of an attractive, liveable, and vibrant Major Town Centre. The ABTA therefore recommends the retention of the Covid 19 mobility interventions described above. In addition to retaining these interventions, the ABTA also recommends extending the one-way traffic layout on Main St. out to its junction with Dundrum bypass (see also Section 6.2.2). This allows for a traffic calmed area and enhanced public realm at the north end of Main St, which is critical for promoting safe pedestrian movement across the street for access to the Luas and Bus Interchange as well as the potential site for the proposed new civic centre and plaza.

DAR 1 Retention & Extension of existing One – Way Traffic Layout

It is a recommendation of the Dundrum ABTA, to:

- Retain the existing one-way northbound traffic layout on Main St/Sandyford Rd and to extend it out to the junction of Main St with Dundrum bypass. (See Figure 6.4 for Traffic Layout)
- Retain the existing one-way westbound traffic layout on Kilmacud Rd Upper adjacent to Dundrum Cross. (See Figure 6.4 for Traffic Layout)

It is recommended that these layouts be transitioned to a permanent scheme with associated public realm improvements.

DAR 2 Retention of the Southbound Cycle Lane

It is a recommendation of the Dundrum ABTA, to retain the existing southbound cycle lane on Main St/Sandyford Rd. It is recommended that the layout be transitioned to a permanent scheme with associated public realm improvements.

DLR Connector

DLRCC's Active Travel Section is progressing a new cross county segregated cycle scheme known as the "DLR Connector". The envisaged route commences from the Barton Road East/Nutgrove Way roundabout and will pass through both Dundrum and Stillorgan enroute to Dun Laoghaire. Within the Dundrum ABTA study area, the route travels along Barton Road East and Ballinteer Road, through Dundrum Cross and on to Kilmacud Road Upper and Eden Park Road. Full proposed route illustrated in Figure 6.3 and scheme details available at [DLR Connector | Dún Laoghaire-Rathdown County Council (dlrcoco.ie)]

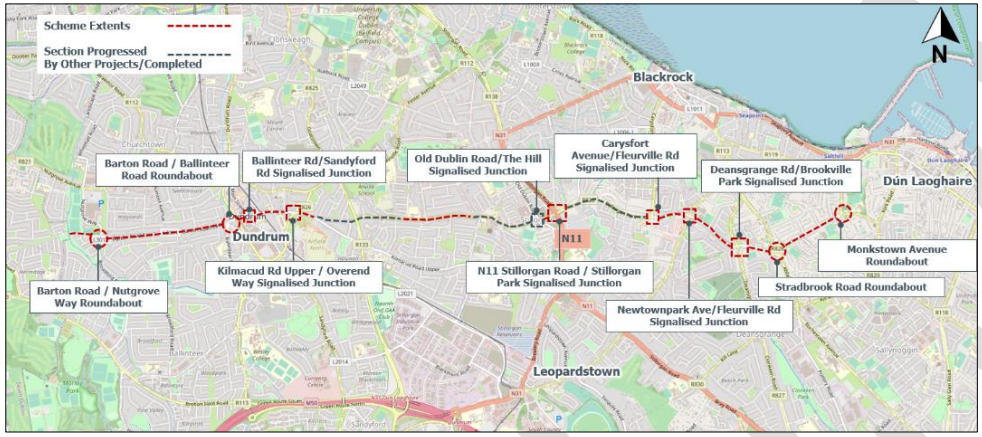


Figure 6.3 'DLR Connector' Proposed Route

Within Dundrum MTC & Environs, there are two pinch points where restricted carriageway widths make the delivery of segregated cycle infrastructure, along with pedestrian footpath improvements difficult. These locations are at:

- Ballinteer Road – section immediately adjacent to Dundrum Cross.
- Kilmacud Road Upper – section between its junctions with Sydenham Road and Overend Avenue.

Resolving these pinch points will be critical to achieving safe cycling facilities for both those accessing Dundrum and those travelling further afield along the proposed cross county cycle route. To overcome these challenges, the following interventions have been identified:

- A Bus Gate on Ballinteer Road immediately to the west of Dundrum cross. This would facilitate bus & cycle movements only (as well as emergency vehicles) to and from Ballinteer Road and would allow the reallocation of road space to provide segregated cycle facilities and improved conditions for pedestrians (see Section 6.2.8 for further information on bus gates)
- A one-way eastbound traffic layout on Kilmacud Road Upper from its junction with Sydenham Road to its junction with Overend Avenue. This allows the reallocation of road space to provide a two-way segregated cycle facility.

The DLR Connector scheme also envisages the following measures:

- At the junction of Barton Road East and Ballinteer Road, it is proposed to upgrade the existing roundabout to a 'Dutch Style' roundabout with improved facilities for pedestrians and cyclists.
- A new signalised pedestrian crossing on Ballinteer Road, to the west of Dundrum cross to connect Pembroke Square and Dundrum Shopping Centre to the south with Holy Cross Church and envisaged town centre developments on the site of the Old Dundrum Shopping Centre to the north.

Safe Routes to School Scheme

Also of relevance within this area is the Safe Routes to Schools (SRTS) scheme being progressed by DLRCC's Active Travel Section at Holy Cross Primary School on Kilmacud Road Upper. This scheme will include traffic calming on the street to the front of the school and improvements within the Dom Marmion car park on Sandyford Road, with the aim of creating a safer environment for children travelling to school on foot or by bicycle / scooter.

The Dundrum ABTA has taken the proposed and planned interventions outlined above, as part of the DLR Connector and SRTS schemes, into consideration in its assessment of the transport and mobility needs of the area. The ABTA has concluded that these measures, taken together with the wider suite of ABTA recommendations for this area, would support the objectives set out in Section 3.2 of the ABTA report and would be appropriate in the context of the wider transport network. The ABTA has concluded that these measures would enhance connectivity to Dundrum via sustainable modes (walking, cycling and public transport) while also supporting the creation of an attractive, liveable, and vibrant Major Town Centre. It is therefore a recommendation of the ABTA to support the delivery of both the DLR Connector and the Safe Route to School schemes, in accordance with DAR 3 and DAR 4.

DAR 3 DLR Connector

It is a recommendation of the Dundrum ABTA, to support the delivery of the DLR Connector scheme, which will provide safe and attractive cycling facilities connecting surrounding residential areas to Dundrum as well as to both Holy Cross and Taney Parish Primary Schools while also facilitating the safe passage of cyclists travelling on the wider cycle network.

DAR 4 Safe Routes to School

It is a recommendation of the Dundrum ABTA, to support the delivery of the Safe Routes to School scheme at Holy Cross Primary School on Kilmacud Road Upper, which will provide a safer environment for children travelling to school on foot or by bicycle / scooter.

Figure 6.4 Recommendations for Dundrum Cross, including options being considered as part of the 'DLR Connector' & 'Safe Routes to School' Schemes

6.2.2 Area 2: Taney Cross and Environs

Taney Cross and Environs is the gateway to Dundrum Major Town Centre from the north and the west. The area is largely defined by Taney Cross itself, which is a large signalised junction with left-turn filter lanes for traffic on each of its entry arms. In general, a junction layout of this size, with slip lanes of this nature is not favourable for pedestrians or cyclists due to:

- Longer crossing distances and requirement to make crossings in two-stages;
- Interaction between pedestrians and vehicles at the filter lights; and
- Generally higher vehicle speeds through the left-turn slip lanes.

The existing layout is therefore not conducive to safe and efficient pedestrian and cycle movements. The Design Manual for Urban Roads and Streets (DMURS) states the following:

> *"Left turning slips (left) generally offer little benefit in terms of junction capacity and increase the number of crossings pedestrians must navigate. They also allow vehicles to take corners at higher speeds, exposing pedestrians and cyclists to greater danger. Where a large number of turning movements occur, left turning lanes (right) with tighter corner radii should be used[7]."*

In line with latest junction design guidance, it is therefore recommended that Taney Cross junction is upgraded to remove the left-turn slip lanes on all approach arms. Other proposed upgrades include:

- Continuation of cycle facilities through the junction providing priority for cyclists and removing the conflict that currently exists particularly with left-turning vehicles.
- Reducing carriageway widths in so far as possible to reduce crossing distances for pedestrians.
- Reallocation of road space to provide improved public realm and a more comfortable environment for pedestrians and cyclists at the junction.

  (See Figure 6.5 below)

Taney Cross and Environs also has a key role to play in facilitating and promoting public transport and in particular, interchange between bus and Luas services. Under the NTA's BusConnects programme, a significant number of new bus services are planned to serve Dundrum and the surrounding areas. To facilitate this, improvements are required to bus interchange facilities and include:

- The provision of additional bus stops and bus standing bays.
- The provision of a bus gate between Dundrum Bypass and Churchtown Rd Upper.
- The reallocation of road space to provide bus priority measures, including bus lanes.

[7] https://www.gov.ie/en/publication/c808c-design-manual-for-urban-roads-and-streets-2019-low-res/

- The development of a Mobility Hub* at the Bus Interchange.
- Luas Station accessibility improvements including provision for direct access to the platform from the Mobility Hub area.

The upgrade of Taney Cross and the surrounding areas, as set out in Figure 6.5 below, will allow the creation of a safe, efficient and attractive environment for pedestrians, cyclists and public transport users. This is important for encouraging active travel and the promotion of public transport at this key entry point to Dundrum Major Town Centre.

DAR 5 Taney Cross & Bus – Luas Interchange Upgrade

It is a recommendation of the Dundrum ABTA, to upgrade Taney Cross junction and the Bus – Luas Interchange, in accordance with Figure 6.5, to provide a safe, efficient and attractive environment for pedestrians, cyclists and public transport users.

DAR 6 Mobility Hub* and Luas Access Improvements

It is a recommendation of the Dundrum ABTA, to develop a Mobility Hub, at the Dundrum Bus – Luas Interchange and to also improve accessibility to Dundrum Luas Station, including provision for direct access to the platform from the Mobility Hub area

**Mobility Hubs generally develop around existing transport nodes and bring together a suite of complementary transport services such as bus, rail, bicycle, eMobility (eBikes & eScooters) & eCar hire, allowing people to switch easily between modes and complete their journeys. Mobility Hubs can also be strengthened by the availability of certain community and retail related services.*

Cycle Facilities

DLRCC's Active Travel Section is progressing a new segregated cycle route from Dundrum via Taney Rd to the N11. The envisaged route commences from Taney Cross and passes along Taney Rd, Mount Anville Rd and Fosters Avenue to the N11. Scheme details are available at Taney Road to N11 Active Travel Route | Dún Laoghaire-Rathdown County Council (dlrcoco.ie) To facilitate safe and efficient cycling to and through the area, it is a recommendation of the ABTA to support the delivery of the Taney Rd to N11 cycle scheme and to also progress a network of segregated cycle facilities for Taney Cross and Environs in accordance with Figure 6.5.

DAR 7 Taney Cross & Environs Cycle Facilities

It is a recommendation of the Dundrum ABTA, to support the delivery of the Taney Rd to N11 cycle scheme and to progress a network of segregated cycle facilities for Taney Cross and Environs in accordance with Figure 6.5, to provide safe and efficient facilities for cyclists.

Figure 6.5 Taney Cross & Environs Proposed Measures

6.2.3 Area 3: Sandyford Road (North of Junction with Wyckham Way/Overend Avenue)

The northern section of Sandyford Road (north of the junction with Overend Ave) is an important link in the Dundrum network covering a number of functions including:

- Access from the south to Dundrum Major Town Centre;
- Access to Dundrum Town Centre Shopping Centre;
- Access to residential apartments such as Herbert Hill and Riversdale; and
- Access to Holy Cross National School.

This route is quite heavily trafficked, particularly during peak shopping periods, and has wide carriageways with no cycle infrastructure and narrow footpaths in places. In order to create a more attractive environment for pedestrians and cyclists, and encourage more sustainable travel to Dundrum Major Town Centre, the ABTA recommends the following measures:

- A two-way segregated cycle track from the junction with Overend Avenue to the entrance to the Riversdale Apartments/Dundrum Town Centre. This will significantly improve safety for cyclists providing protection from vehicles turning in/out of the Dundrum Town Centre Red Car Park and connecting to segregated facilities through the junction with Overend Avenue.

- North of the Riversdale Apartments entrance, there is insufficient space to continue the segregated cycle facilities whilst

Figure 6.6 North Sandyford Road Proposed Measures

maintaining access for vehicular traffic along with appropriate footpath widths. For this section, narrowing of the road carriageway, widening of footpaths and roadside planting is proposed to improve public realm and encourage slower vehicle speeds. This would include road surface material treatments (stamped tar/asphalt) at various points to reinforce its place as a town centre street and inform drivers of the upcoming school zone and Main Street.

- The inclusion of a raised crossing and school zone outside the Dom Marmion Car Park to integrate with the proposed Holy Cross National School Safe Routes to School scheme. This will provide priority for vulnerable pedestrian and cyclists which is important at this location given the potential conflict with vehicles turning in/out of the car park.

DAR 8 North Sandyford Road

It is a recommendation of the Dundrum ABTA, to:

- Provide a two-way segregated cycle track on Sandyford Road from the junction with Overend Avenue to the entrance to the Riversdale Apartments.
- Reduce carriageway width, widen footpaths and provide public realm improvements to reinforce North Sandyford Road's place as a town centre street and encourage slower vehicle speeds.
- Creation of a school zone and safe access route for pedestrians and cyclists to Holy Cross National School via the Dom Marmion car park.

6.2.4 Area 4: Sydenham Road

Sydenham Road connects Taney Road to Kilmacud Road Upper and is a key link between two proposed strategic cycle routes – the Taney Road to N11/UCD route and the DLR Connector (described above). It is also a key route for local schoolchildren travelling to nearby schools – Taney Parish on Sydenham Villas and Holy Cross on Kilmacud Road Upper. The road also accommodates bus services in a southbound direction.

Presently there are no cycle facilities on Sydenham Road while footpath widths, especially at its junction with Kilmacud Road Upper, are quite restricted. In the context of the existing strong desire line for schoolchildren on Sydenham Road, this poor provision for pedestrians and cyclists is a deficit.

To address this, it is a recommendation of the Dundrum ABTA to create a safer environment for pedestrians and cyclists along Sydenham Road by implementing a one-way southbound traffic layout with the reallocation of road space to facilitate a two-way segregated cycle track along with general footpath improvements. The proposed carriageway layout is illustrated in Figure 6.7. The provision of a segregated two-way cycle track with footpath improvements, will provide a much safer environment for cyclists in general and for children, travelling to nearby schools.

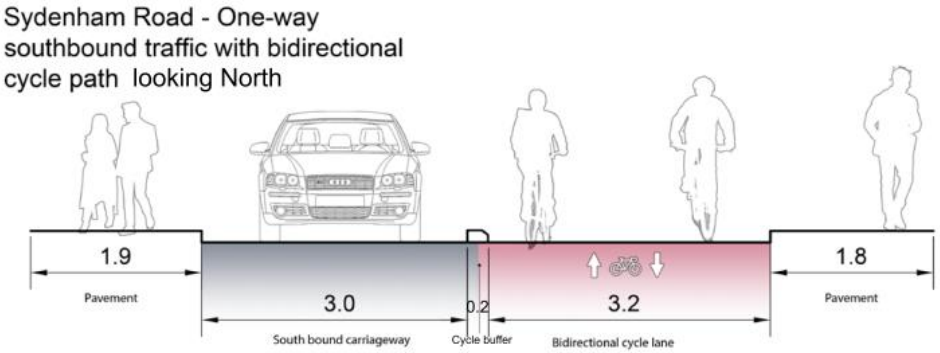


Figure 6.7 Sydenham Road Proposed Cross-Section

The provision of cycle infrastructure on Sydenham Road will also tie in with the proposed segregated cycle facilities on Taney Road and Kilmacud Road Upper and integrate with the wider cycle network. This will provide access to Dundrum and further afield via safe, segregated cycle facilities and encourage a shift towards active modes.

DAR 9 Sydenham Road Cycle & Pedestrian Facilities

It is a recommendation of the Dundrum ABTA, to implement a one-way southbound traffic layout on Sydenham Road with the reallocation of road space to facilitate a two-way segregated cycle track along with general footpath improvements, creating a safer environment for pedestrians and cyclists and for children travelling to school.

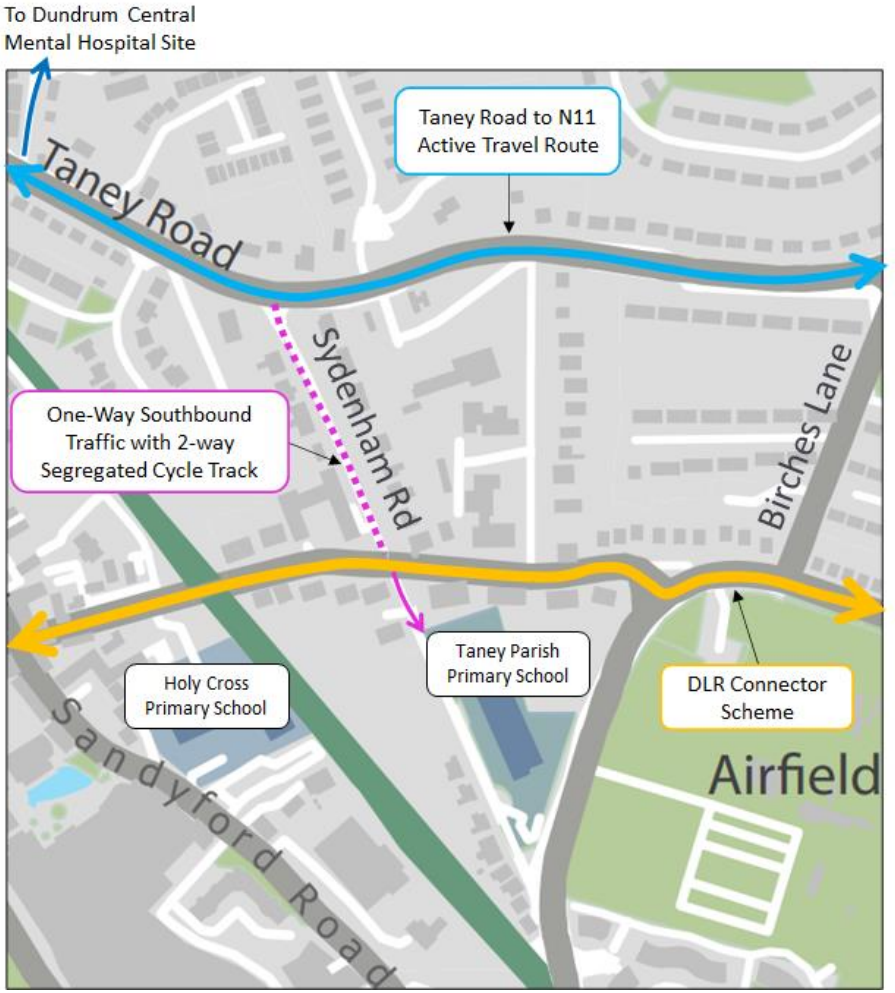


Figure 6.8 Sydenham Road Recommended Measures

6.2.5 Area 5: Dundrum Bypass

Dundrum Bypass is a key link in the strategic road network surrounding Dundrum Major Town Centre. It facilitates strategic traffic moving through the area without having to pass through the town and allows direct access to the car parks serving both Dundrum Shopping Centre and the Old Dundrum Shopping Centre/Main St area. While the Bypass allows significant opportunity to remove traffic from the centre of the town with resulting environmental benefits, it also presents challenges, including:

- Poor pedestrian and cyclist permeability from residential areas to the west because of the severance caused by the Bypass and the lack of crossing opportunities and connectivity.

- Poor cycle facilities on the Bypass. Although advisory cycle lanes are in place with temporary bollards, the southbound cycle lane in particular, presents safety issues for cyclists due to the high number of interactions with car park entrances and bus stops along the eastern side of the Bypass.

To take advantage of the opportunities and address the challenges presented by the Bypass, the Dundrum ABTA recommends the following measures:

- The upgrade of cycle facilities on the Bypass to provide a two-way segregated cycle track on its western side (indicative cross-section illustrated in Figure 6.9). This has the benefit of removing cyclists from the eastern side of the Bypass where car park entrances and bus stops pose conflicts. A two-way cycle track on the western side would also integrate with the existing and proposed cycle network for the wider area.

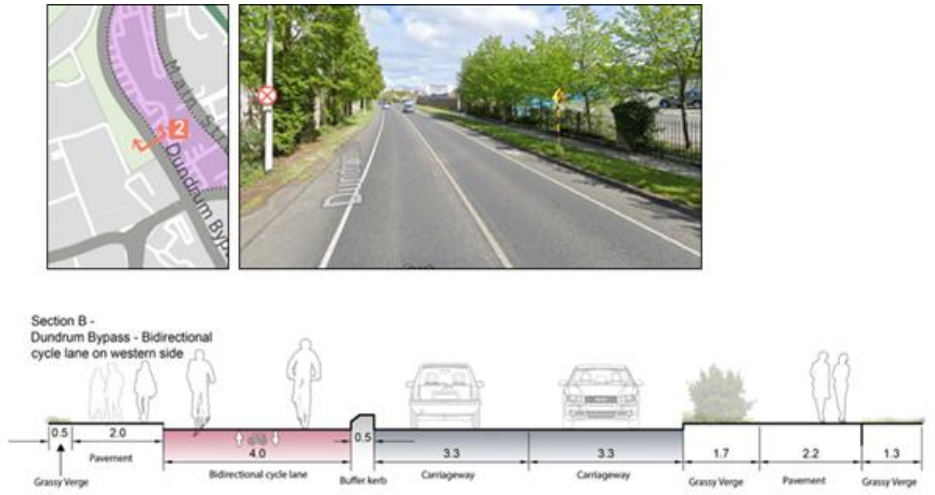


Figure 6.9 Dundrum Bypass Proposed Cross-Section

- The provision of an accessible pedestrian and cycle link bridge across the Bypass between Sweetmount Park and the Old Dundrum Shopping Centre redevelopment site, with a pedestrian crossing also provided on the Bypass at street level in the same general location. This overcomes local topography constraints and provides an accessible link direct to Dundrum Main St and anticipated new town centre developments, while also connecting envisaged street level developments along the bypass with Sweetmount Park.

- The provision of a new pedestrian and cycle crossing at an appropriate location on the southern end of the Bypass to allow access from adjacent residential areas to the west direct to the Dundrum Shopping Centre access routes and bus stops located on the eastern side of the Bypass.

- A requirement for future vehicular access to parking within the Old Dundrum Shopping Centre redevelopment site, to be solely from Dundrum Bypass. This supports a reduction in traffic and associated environmental improvements on Dundrum Main St.

DAR 10 Dundrum Bypass Cycle Infrastructure

It is a recommendation of the Dundrum ABTA, to provide a two-way segregated cycle track along the western side of Dundrum Bypass.

DAR 11 Pedestrian and Cycle Connectivity across Dundrum Bypass

It is a recommendation of the Dundrum ABTA, to provide:

- An accessible pedestrian and cycle link bridge across the Bypass between Sweetmount Park and the Old Dundrum Shopping Centre redevelopment site, with a pedestrian crossing also provided on the Bypass at street level in the same general location.
- A new pedestrian and cycle crossing at an appropriate location on the southern end of the Bypass to allow access from adjacent residential areas direct to the Dundrum Shopping Centre access routes and bus stops located on the eastern side of the Bypass.

DAR 12 Vehicular Access to Parking from Dundrum Bypass

It is a recommendation of the Dundrum ABTA, to require future vehicular access to parking within the Old Dundrum Shopping Centre redevelopment site, to be solely from Dundrum Bypass.

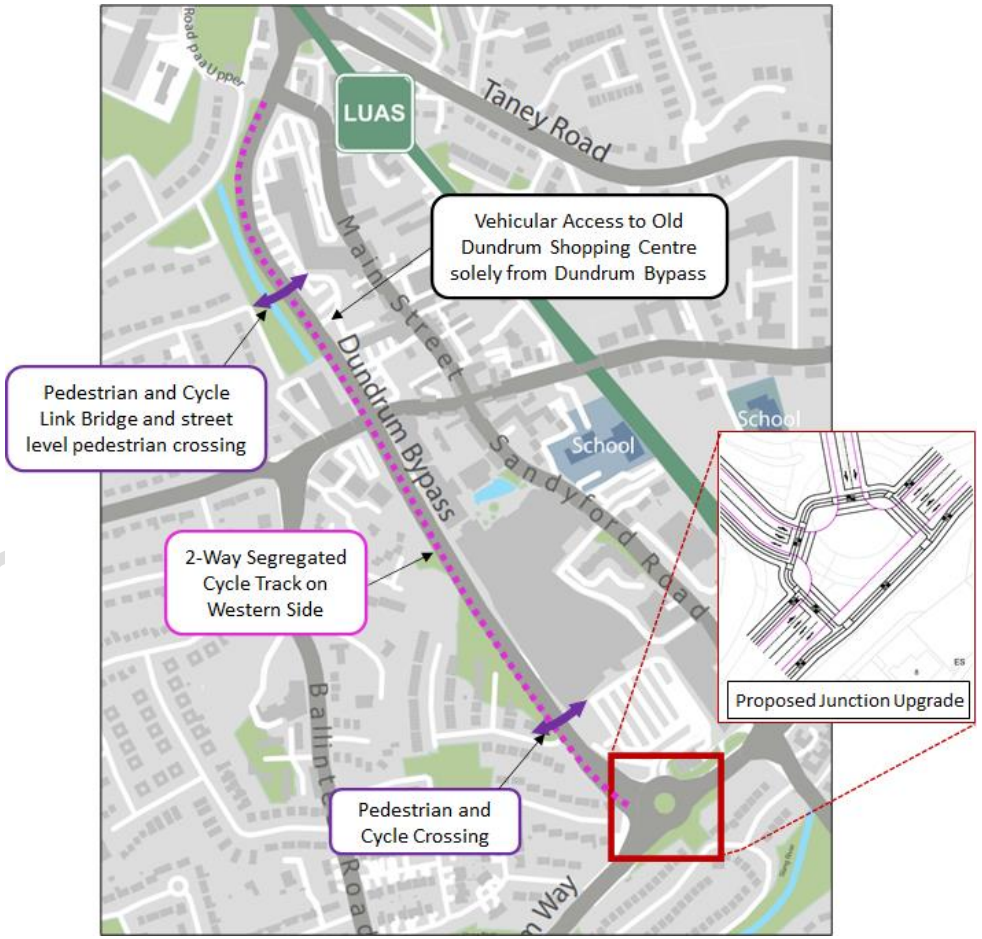


Figure 6.10 Dundrum Bypass Recommended Measures

6.2.6 Dundrum – Disabled & Age Friendly Car Parking

To ensure that services and amenities within Dundrum Major Town Centre, continue to be accessible to all, it is a recommendation of the ABTA, to ensure adequate provision of both Disabled and Age Friendly car parking spaces at appropriate locations within the town.

DAR 13 Disabled & Age Friendly Car Parking

It is a recommendation of the Dundrum ABTA, to ensure adequate provision of both Disabled and Age Friendly car parking spaces at appropriate locations within the town.

6.2.7 Dundrum – Cycle Parking Facilities

With the envisaged increase in safe cycling facilities for accessing Dundrum, there is a need for significant additional cycle parking within the town to meet the anticipated demand. There is limited capacity on street and within the existing public realm of the town to provide the required cycle parking. It is therefore a recommendation of the ABTA, to ensure that secure, off – street, publicly accessible cycle parking facilities, are provided as part of any significant new developments in the town or as part of any significant change of use or redevelopment proposals in the town.

DAR 14 Cycle Parking Facilities

It is a recommendation of the Dundrum ABTA, to ensure that secure, off – street, publicly accessible cycle parking facilities, are provided as part of any significant new developments in Dundrum or as part of any significant change of use or redevelopment proposals in the town.

6.2.8 Bus Gates

A 'Bus Gate' is a short section of road that only buses and authorised vehicles can go through. This can be enforced through appropriate signage, along with traffic signalling where required. It facilitates bus priority by removing general through traffic along the overall road where the bus gate is located.

At junctions, bus gates can provide priority through traffic signal controls. Buses arriving at the junction are given green time in advance of general traffic to ensure they pass through the junction first reducing delay.

The Dundrum ABTA recommends the introduction of bus gates at three locations in the Dundrum MTC & Environs as outlined above, namely:

- **Taney Cross Junction:** advanced signal priority is proposed on the Churchtown Road Upper arm allowing buses to pass through the junction ahead of general traffic;
- **Main Street to Sweetmount Avenue:** facilitate bus only access from Main Street to Sweetmount Avenue connecting to the proposed layover spaces on Churchtown Road Upper; and
- **Dundrum Cross:** allowing bus and cycle access only from Ballinteer Road west of Dundrum Cross. This is an option being considered as part of the 'DLR Connector' scheme reallocating road space to facilitate the introduction of safe, segregated cycle facilities.

Bus gates are a key proposal in the delivery of the NTA's BusConnects programme, and further information on their operation can be found at: https://busconnects.ie/initiatives/core-bus-corridors/background-information/how-traffic-will-flow/.

6.3 South Dundrum

The South Dundrum focus area includes the key corridors providing access to Dundrum Major Town Centre from the south – Wyckham Way and Sandyford Road and from the east – Overend Avenue.

Wyckham Way connects Dundrum to the M50 and has significant existing and planned residential development along the corridor as well as a number of existing and planned schools. Sandyford Road also serves a large population catchment and provides a connection south towards Sandyford Business District and the M50. Strengthening pedestrian and cycle infrastructure along these key corridors is vital for encouraging active travel in the area. As such, the ABTA recommendations are focused on infrastructure upgrades to improve safety, convenience and efficiency for pedestrians and cyclists.

The ABTA recommendations are outlined in Figure 6.11 and include elements such as roundabout & junction upgrades, improvements for pedestrians and the provision of segregated cycle infrastructure. Further details on the proposed interventions are provided in the following sections.

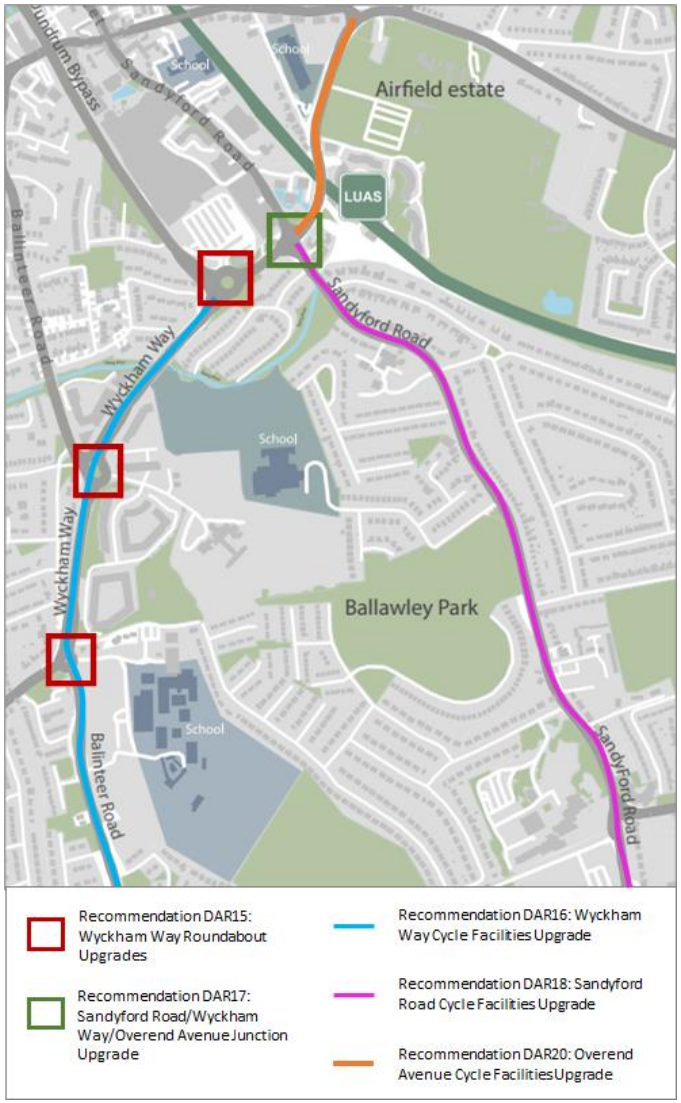


Figure 6.11 South Dundrum Local Transport & Mobility Recommendations

6.3.1 Wyckham Way Roundabout Upgrades

DAR 15 Wyckham Way Roundabout Upgrades

It is a recommendation of the Dundrum ABTA, to upgrade the existing roundabouts along Wyckham Way to signalised junctions providing a safer and more efficient environment for pedestrians and cyclists, while also allowing better control of traffic movements along the corridor, including the potential for bus priority measures to be introduced at a later stage if required.

Wyckham Way is a heavily trafficked dual-carriageway connecting Dundrum Major Town Centre to Ballinteer Road and the M50. There are currently three roundabouts located along the route:

- at the junction with Dundrum Bypass,
- at the junction with Ballinteer Road and
- at the junction with Ballinteer Avenue.

These roundabouts are not pedestrian or cyclist friendly due to:

- Lack of formal, signalised crossing points on all arms;
- Large junction size with substantial crossing distances; and
- High traffic speeds particularly during uncongested times.

Wyckham Way is a key link for pedestrian and cyclists with a large number of residences, existing and planned, on both sides of the road along with access to both existing and planned schools. To provide a safer environment for pedestrians and cyclists, and encourage active travel along the corridor, it is therefore recommended to upgrade the roundabouts to signalised junctions.

The benefits of traffic signals are:

- Dedicated crossings on all arms for pedestrians and cyclists with their own traffic signal phase completely separate from vehicular traffic;
- Significant reduction in the junction footprint when compared to the existing roundabouts leading to reduced crossing distances;
- Generally reduced traffic speeds along the corridor requiring vehicles to stop at the signals even during uncongested periods;
- Overall better control of traffic movements along the corridor, including the potential for bus priority measures at a later stage if required; and
- The signal timings can be altered to respond to heavily congested conditions allowing access from all arms of the junctions and providing more priority for local traffic flows than the present roundabouts can facilitate.

Initial concept designs for the proposed junction upgrades are illustrated in Figure 6.12, with more detailed drawings provided in Appendix C.

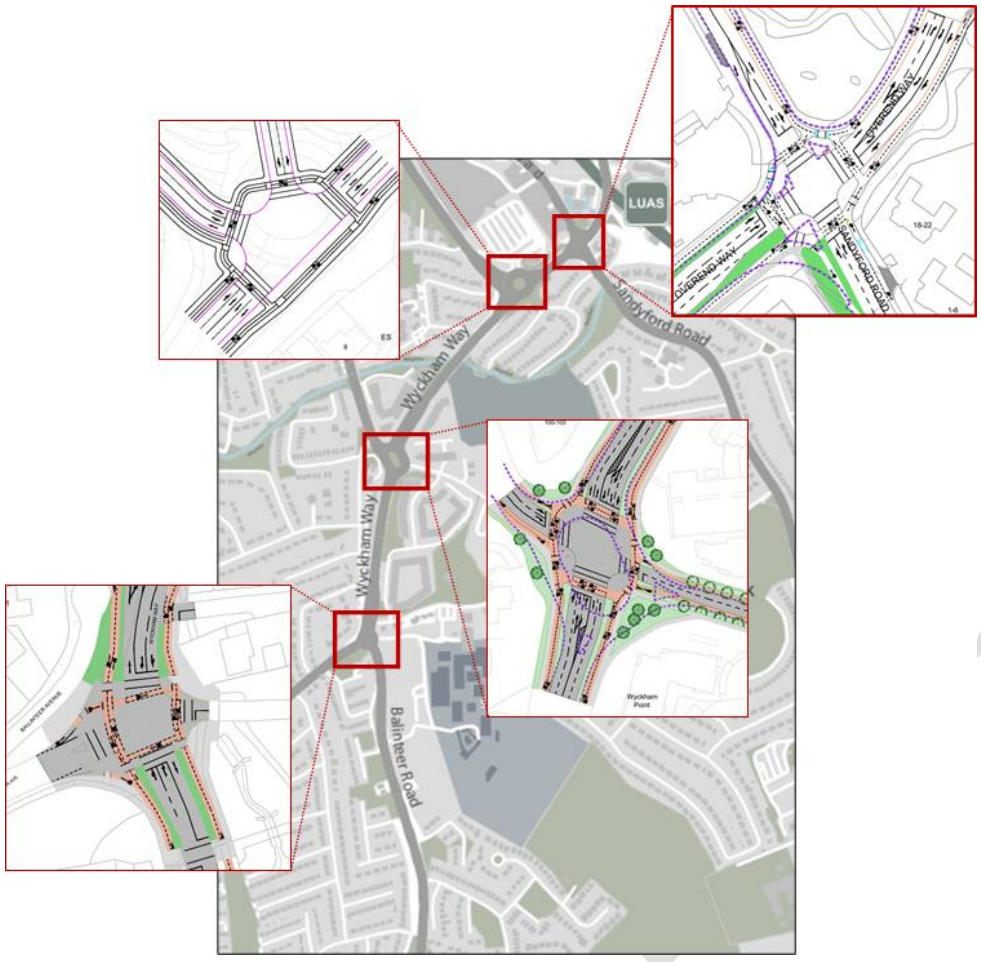


Figure 6.12 Dundrum ABTA Recommended Junction Upgrades

6.3.2 Wyckham Way Cycle Facilities Upgrade

Wyckham Way and Ballinteer Rd (section leading to the M50) currently have two-way segregated cycle tracks along the entire eastern side of the road as well as along large sections of the western side. There is a gap in provision however, along the western side from just to the south the junction with Ballinteer Avenue to just north of the junction with Ballinteer Road. This results in cyclists having to make extra crossings of busy and wide carriageways in order to reach their destination.

Given the strategic importance of the Wyckham Way – Ballinteer Rd corridor, along with the level of traffic volumes, it is proposed that the two-way segregated cycle tracks on the western side of the road are connected. This would provide two-way segregated cycle facilities along both sides of the route facilitating safe and efficient cycling facilities for access to local schools, access to Dundrum MTC and for travel on the wider cycle network.

The ABTA has shown that sufficient space exists to provide this additional cycle infrastructure, and together with the recommended junction upgrades along the route, as described above, would significantly enhance the safety and convenience of cycle facilities in the area. Figure 6.13 provides an indicative cross-section illustrating the proposed cycle tracks on Wyckham Way in both directions. The ABTA also recommends the inclusion of soft landscaping where feasible to provide a buffer between the cycle lanes and the carriageway to further enhance the safety and attractiveness of the facilities.

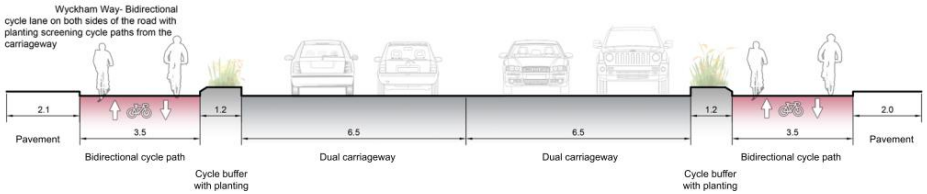


Figure 6.13 Wyckham Way Proposed Cross-Section

DAR 16 Wyckham Way – Cycle Facilities Upgrade

It is a recommendation of the Dundrum ABTA, to upgrade cycle facilities along Wyckham Way to provide two way segregated cycle facilities along both sides of the carriageway for the full length of the route with soft landscaping to be provided between the cycle lanes and the carriageway where feasible, to provide a safe, convenient, and attractive environment for cyclists.

6.3.3 Sandyford Road/Wyckham Way/Overend Avenue Junction Upgrade

The existing Sandyford Road/Wyckham Way/Overend Avenue junction is a large signalised junction with left-turn filter lanes for traffic on three of the entry arms. As outlined in Section 6.2.2 previously, in general slip lanes of this nature are not favourable for pedestrians and cyclists. Therefore, in-line with latest junction design guidance, it is recommended that the Sandyford Road/Wyckham Way junction is upgraded to remove the left-turn slip lanes on all approach arms. Other proposed upgrades include:

- Continuation of cycle facilities through the junction providing priority for cyclists and removing the conflict that currently exists particularly with left-turning vehicles.
- Reducing carriageway widths in so far as possible to reduce crossing distances for pedestrians.
- Reallocation of road space to provide improved public realm and a more comfortable environment for pedestrians and cyclists at the junction.

The creation of a safe and attractive environment at this location is important for encouraging active travel as it is a key entry point to Dundrum Major Town Centre from the south.

DAR 17 Sandyford Road/Wyckham Way/Overend Avenue Junction Upgrade

It is a recommendation of the Dundrum ABTA, to upgrade the existing signalised junction to provide a safer environment for pedestrians and cyclists, better catering for all modes of travel.

6.3.4 Sandyford Road Cycle Facilities Upgrade

Sandyford Road is a key link in the wider strategic walk and cycle network providing connections between Dundrum and the Sandyford Business District. In-line with cycle design guidance, it is a recommendation of the Dundrum ABTA to upgrade the existing advisory cycle facilities on Sandyford Road to segregated cycle tracks in each direction. This will provide enhanced protection for cyclists from vehicular traffic and create a safer environment particularly for vulnerable users.

The ABTA also recommends reducing the carriageway width along Sandyford Road where feasible to reallocate space to provide wider footpaths and improved cycle facilities and allow planting opportunities to create a more attractive pedestrian and cycle environment. The proposed cycle track upgrades will connect to the Slang River Greenway for cross county travel towards Marlay Park while also connecting with existing segregated cycle facilities on Blackthorn Drive for access to the Sandyford Business District which is a major employment centre.

The ABTA also recommends the upgrade of the junction between Sandyford Road and Blackthorn Drive in-line with the latest design guidance to include the removal of the left-turn slip lane from Sandyford Road to Blackthorn Drive and reduction of crossing widths to create a safer environment for pedestrians and cyclists.

DAR 18 Sandyford Road Cycle Facilities Upgrade

It is a recommendation of the Dundrum ABTA, to upgrade the existing advisory cycle lanes on Sandyford Road to segregated cycle lanes and to incorporate footpath and public realm enhancements along the route.

DAR 19 Sandyford Road & Blackthorn Drive Junction Upgrade

It is a recommendation of the Dundrum ABTA, to upgrade the junction between Sandyford Road and Blackthorn Drive to include the removal of the left turn slip lane and a reduction of crossing widths to create a safer environment for pedestrians and cyclists.

Figure 6.14 outlines the Dundrum ABTA recommendations for Sandyford Road with an indicative cross-section provided in Figure 6.15 which illustrates the proposed cycle tracks and planting along the route.

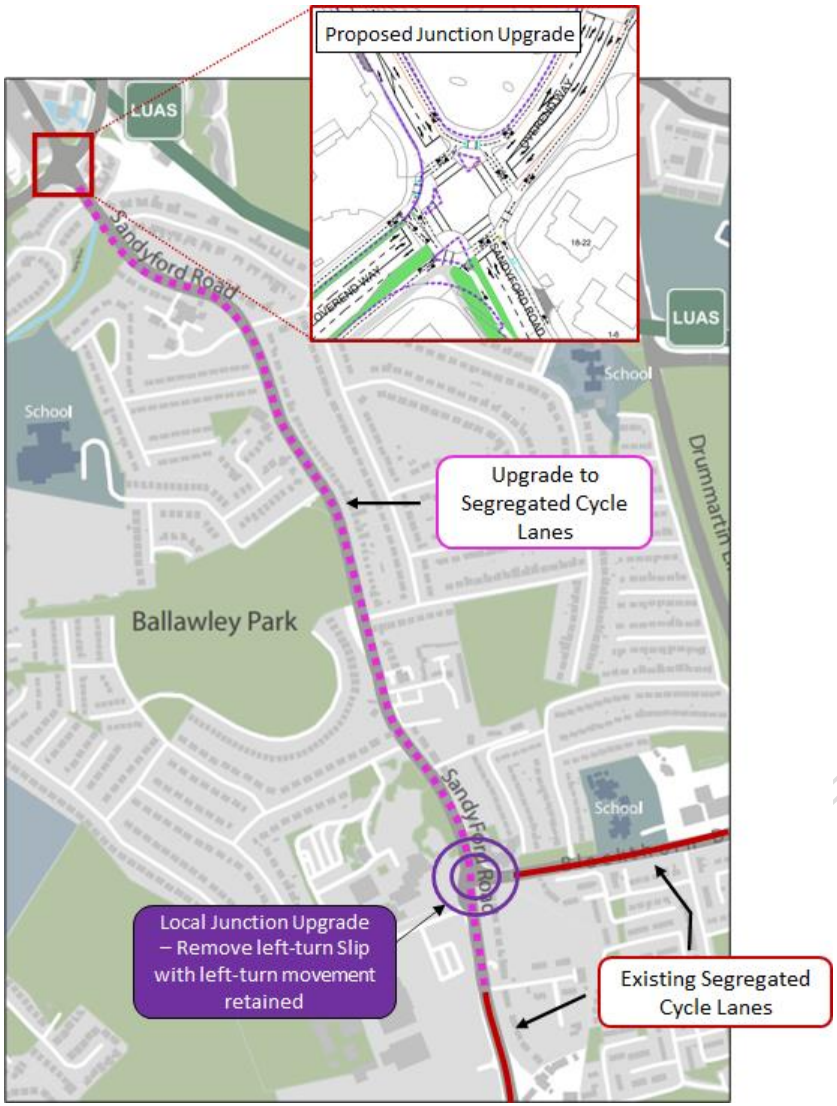


Figure 6.14 Sandyford Road Recommended Measures

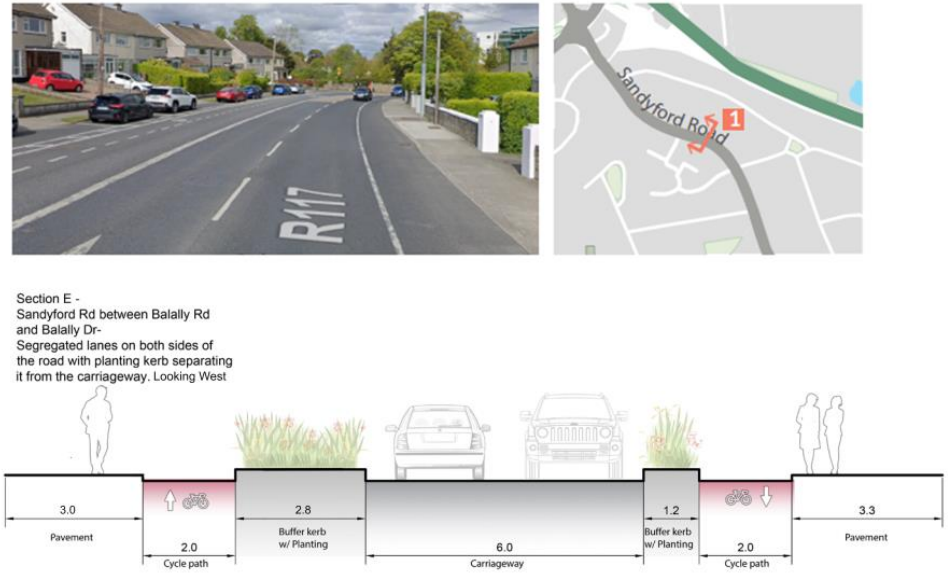


Figure 6.15 Sandyford Road Proposed Cross-Section

6.3.5 Overend Avenue Cycle Facilities Upgrade

Overend Avenue provides connections between Dundrum, Kilmacud Road Upper and Balally Luas stop as well as to Taney Parish National School. The route currently has on-road cycle lanes with protective bollards in both directions of travel.

It is a recommendation of the Dundrum ABTA to upgrade the cycle facilities on Overend Avenue to include permanent segregation along with enhanced cycle connectivity to Taney Parish Primary School and Balally Luas station. This includes:

- A two-way segregated cycle track on the western side of Overend Ave from the junction with Sandyford Road to the Sydenham Villas access point, from where the school entrance is a short distance. This will improve safety for children accessing school from the south by facilitating travel in both directions without having to cross the road. It will also tie-in with two-way segregated facilities on Wyckham Way and Sandyford Road (Section ¢) providing a safe connection to Dundrum and surrounding areas.
- A two-way segregated cycle track connecting the Sandyford Road junction to the Balally Luas station. This will provide a direct connection from Sandyford Road and Wyckham Way to the Luas reducing the requirement to cross the road and improving safety for cyclists.
- North of the Sydenham Villas access point, the existing cycle lane in each direction will be retained with permanent segregation. The existing signalised crossing at the school access will allow cyclists to cross the road safely as required. The existing southbound cycle lane will also be retained on the eastern side of Overend Avenue. Again, it is recommended that this will be upgraded with permanent segregation to improve safety.
- In general, the carriageway widths along Overend Avenue will be reduced with the introduction of upgraded cycle tracks and public realm enhancements. This will help reduce vehicular speeds along the route and create a more attractive environment for pedestrians and cyclists.

DAR 20 Overend Avenue Cycle Facilities Upgrade

It is a recommendation of the Dundrum ABTA, to upgrade the existing cycle infrastructure on Overend Avenue, including:

- A two-way segregated cycle track on the western side from the junction with Sandyford Road to the Sydenham Villas access point;
- A two-way segregated cycle track connecting the Sandyford Road junction to Balally Luas station; and
- Upgrade of remaining cycle lanes on Overend Avenue to permanent segregated facilities.

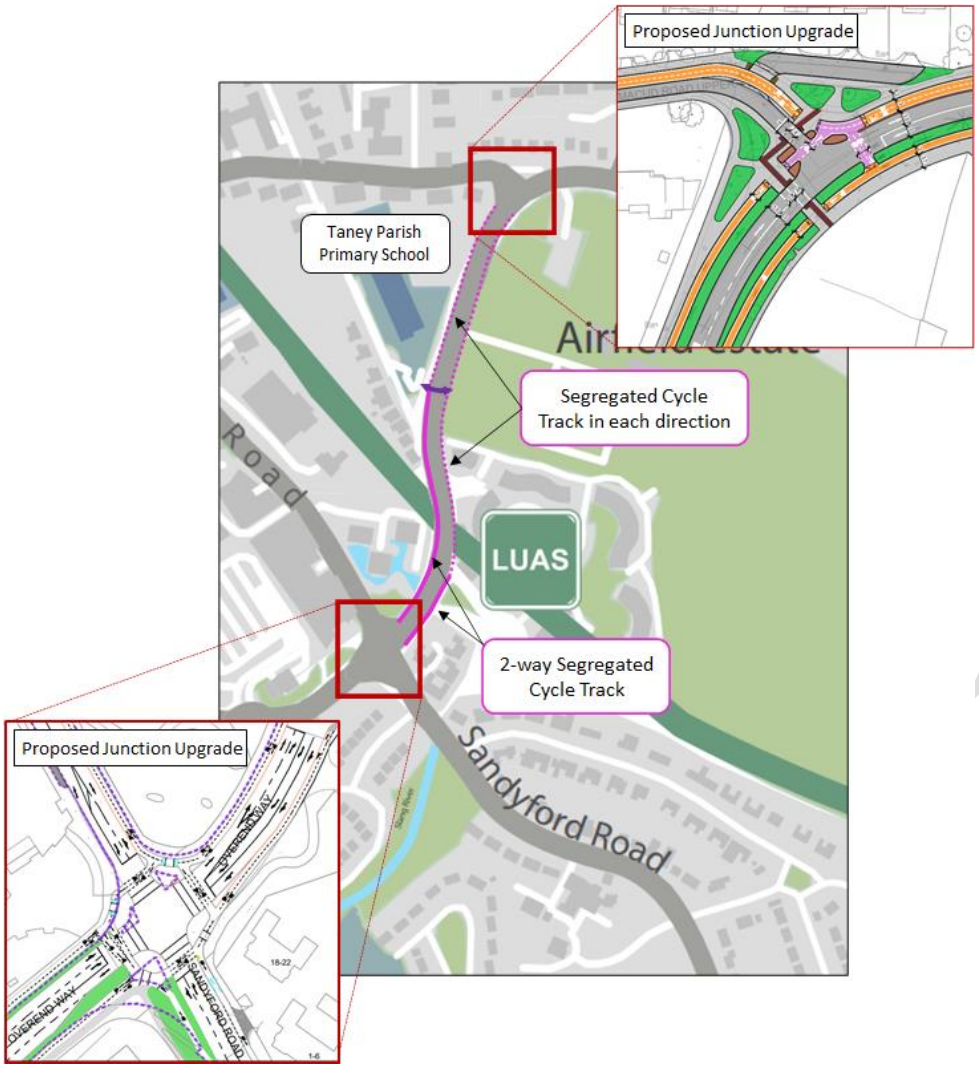


Figure 6.16 Overend Avenue Recommended Measures

6.3.6 Balally Luas Station Mobility Hub*

Balally Luas station is located on Overend Avenue, close to the southern end of Dundrum Major Town Centre. Under the NTA's BusConnects' programme, new bus services and bus stops are planned for Overend Avenue in close proximity to the Luas station. This will facilitate interchange between modes and together with existing and planned cycle infrastructure, will promote the development of a mobility hub at the Luas station

DAR 21 Balally Luas Mobility Hub

It is a recommendation of the Dundrum ABTA, to develop a Mobility Hub, at Balally Luas station in order to promote interchange between modes including cycling and eMobility.

** Mobility Hubs generally develop around existing transport nodes and bring together a suite of complementary transport services such as bus, rail, bicycle, eMobility (eBikes & eScooters) & eCar hire, allowing people to switch easily between modes and complete their journeys. Mobility Hubs can also be strengthened by the availability of certain community and retail related services.*

6.4 Dundrum Road Corridor

The Dundrum Road Corridor focuses on the area north of Dundrum Major Town Centre. Dundrum Road itself, is a heavily trafficked route with a poor pedestrian environment in places and no cycling facilities. The areas adjoining Dundrum Road are coming under increasing pressure for new residential developments, including the Strategic Housing Development proposed on the site of the former Central Mental Hospital. Improving the pedestrian and cycling environment and encouraging increased levels of active travel for local accessibility is therefore vital to supporting the sustainable development of the area and helping achieve wider carbon reduction and climate action targets.

The proposed measures for the Dundrum Road Corridor are illustrated in Figure 6.17, and in general are aimed at:

- Improving linkages for sustainable modes connecting Dundrum Major Town Centre to existing and future residential communities situated along Dundrum Road and further to the north;
- Reducing traffic volumes and speeds along sensitive routes and thereby improving safety for pedestrians and cyclists and encouraging sustainable travel; and
- Improving local accessibility to key services including schools, public transport and shops, and supporting the vibrancy of local neighbourhood centres on Dundrum Road.

The following sections provide further information on the each of the proposed measures illustrated in Figure 6.17.

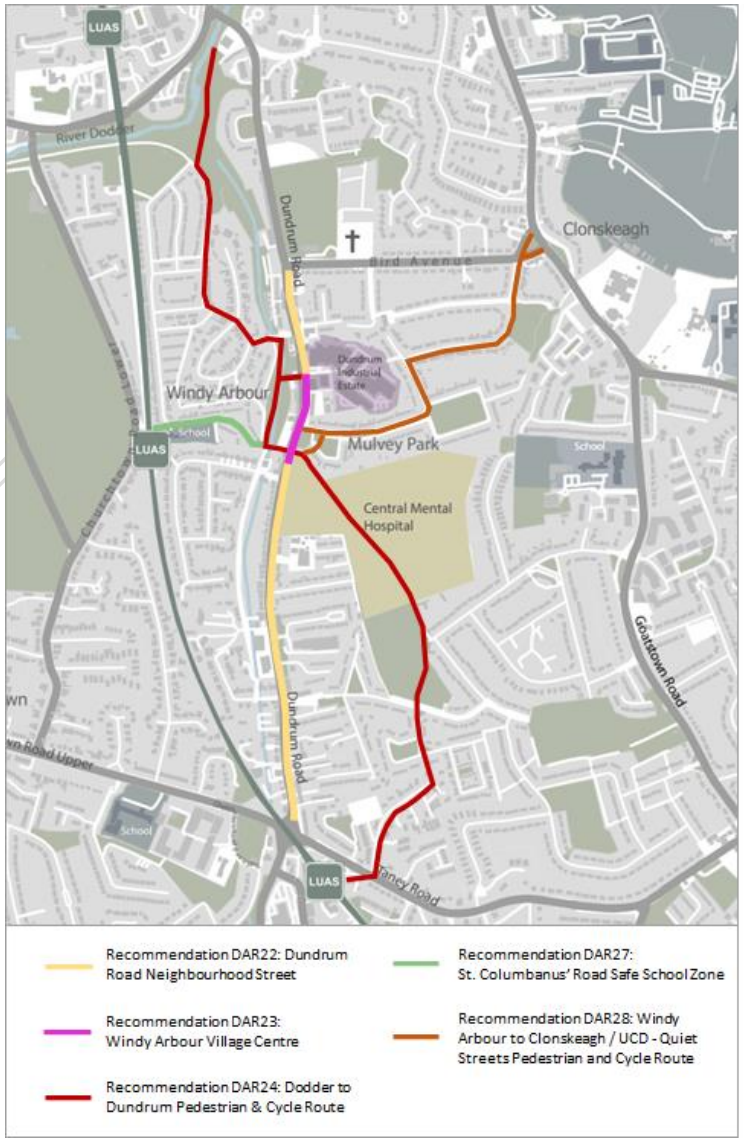


Figure 6.17 Dundrum Road Local Transport & Mobility Recommendations

6.4.1 Dundrum Road Traffic Calming & Public Realm Improvements

DAR 22 Dundrum Road – Neighbourhood Street

It is a Recommendation of the Dundrum ABTA, to transition Dundrum Road to a neighbourhood street, using traffic calming and public realm improvements to create a safer, more accessible and attractive environment for local residents.

Dundrum Road is a heavily trafficked route with no cycling facilities, narrow footpaths in places and poor crossing facilities, making it an unattractive environment for pedestrians and cyclists. There are over 4,000 residents living along Dundrum Road (CSO 2016), and this will increase significantly in the future with major housing developments such as at the former Central Mental Hospital site, due to come on stream. The provision of safe pedestrian and cycle infrastructure to improve accessibility to local shops and services on Dundrum Road as well as to Dundrum Major Town Centre, will therefore be critical in supporting the take-up of sustainable mobility and reducing car dependency, especially for local trips.

It is therefore a recommendation of the Dundrum ABTA, to transition Dundrum Road from a car dominated through route, to a more locally focused neighbourhood area, seeking to achieve a better balance between the transport and neighbourhood functions of the street. To do this, the road has been broken down into key intervention areas, illustrated in Figure 6.18, aimed at reducing vehicular speeds, giving more priority to pedestrians and cyclists, and creating a sense of place for local residents.

Figure 6.18 Dundrum Road Intervention Areas

The interventions will vary depending on the location along Dundrum Road. Three distinct areas have been identified including:

Transition Zones (Yellow)

In the Transition Zones, measures are introduced to give strong visual cues, which influence driver behaviour to reduce speed and take account of the increased likelihood of pedestrian and cycle activity. Examples of typical measures include:

- Narrowing of the traffic lanes to minimum recommended widths;
- Addressing deficiencies with existing pedestrian facilities;
- Raised pedestrian crossings to provide priority for pedestrians;
- Tightening of corner radii at residential estates to reduce crossing distances and improve safety;
- Reduced speed limits;
- Traffic calming measures such as surface treatments and landscaping to calm traffic and mark transition to village core or town centre.

Village Centre (Pink)

DAR 23 Windy Arbour – Village Centre

It is a Recommendation of the Dundrum ABTA, to enhance the existing Neighbourhood Centre on Dundrum Road at Windy Arbour (located immediately north and south of Mulvey Park) and to strengthen the area, as a village centre and focal point for the local community, through the delivery of an enhanced public realm, traffic calming measures and improved pedestrian and cycle accessibility.

The development of a highly accessible village centre will create a focal point for the local community and help promote local sustainable trip making to access local services. The key proposed measures are illustrated in Figure 6.19, overleaf, and include:

- The creation of "gateways" to the north and south of the village area, slowing traffic down and marking the transition to the village core.
- Raised crossings at a number of key areas improving safety for pedestrians and cyclists.
- Segregated cycle facilities where feasible to improve safety and accessibility.
- Pavement treatments to distinguish the village centre as a high quality, pedestrian friendly and traffic calmed environment.
- Public realm improvements including the creation of an outdoor space in front of the commercial properties with opportunities for planting, outdoor seating etc.
- The incorporation of adequate car parking into any future public realm scheme.
- Local road re-alignment to provide additional space for footpath improvements to the western side of the Dundrum Road.

The proposed interventions will significantly enhance the village environment, reduce traffic speeds through the area and improve safety for pedestrians and cyclists, providing much improved accessibility to local shops and services as well as Our Lady's National School and Windy Arbour Luas stop.

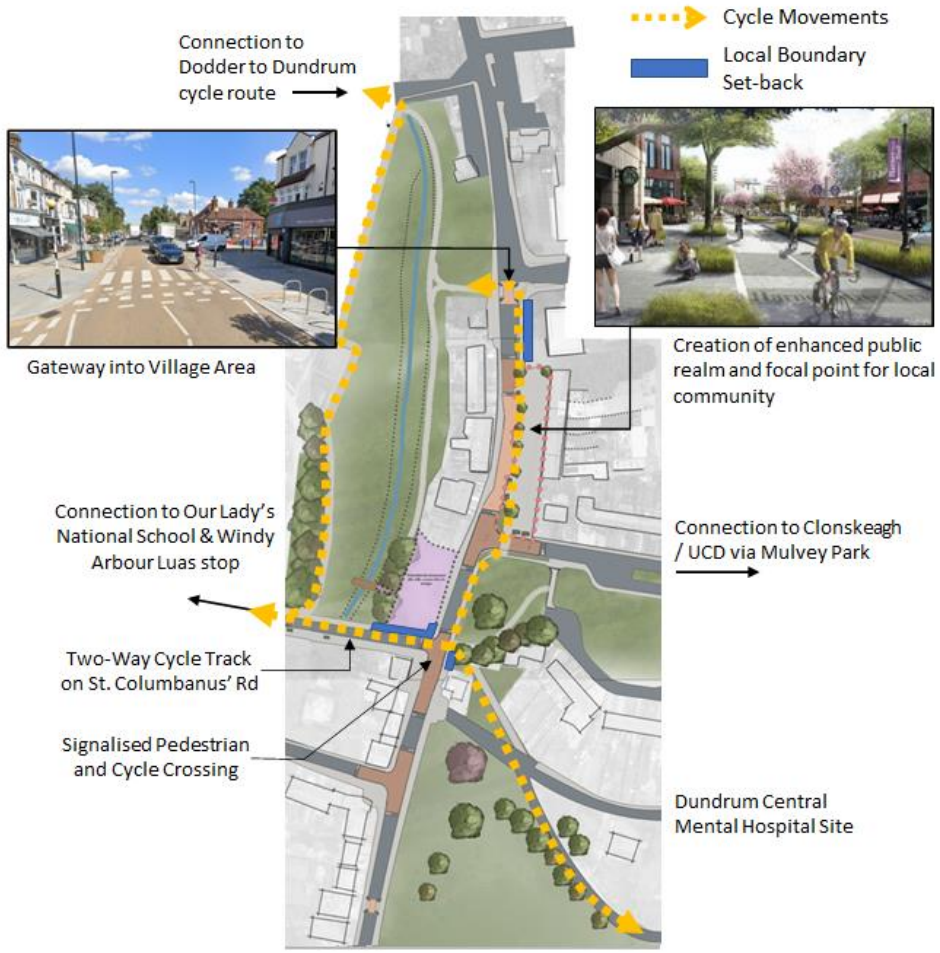


Figure 6.19 Windy Arbour Village Centre

Local Interventions (Light Pink)

In areas outside of the Village Centre and Transition Zones, interventions are proposed locally as required aimed at improving safety for pedestrians and cyclists, and reducing vehicular speeds including:

- Narrowing of the carriageway to minimum recommended widths;
- Addressing deficiencies with existing pedestrian facilities;
- Tightening of corner radii at residential estates to reduce crossing distances and speeds of turning vehicles;
- Raised crossings along key pedestrian desire lines as required for improved safety;
- Reduced speed limits where appropriate;

6.4.2 Dodder to Dundrum Pedestrian & Cycle Route

DAR 24 Dodder to Dundrum Pedestrian & Cycle Route

It is a Recommendation of the Dundrum ABTA, to create a new pedestrian and cycle route connecting the Dodder Greenway to Dundrum Major Town Centre via the site of the former Dundrum Central Mental Hospital.

An analysis of Dundrum Road has shown that its carriageway width is too restricted to facilitate segregated cycle lanes along its full length. To accommodate safe cycling along this north – south corridor, it is proposed instead, to provide a new cycle route, parallel to Dundrum Road, by using a combination of quiet street sections, existing green areas and connecting into a new pedestrian and cycle route through the former Central Mental Hospital site. This will provide a north-south pedestrian and cycle connection, from the Dodder to Dundrum Major Town

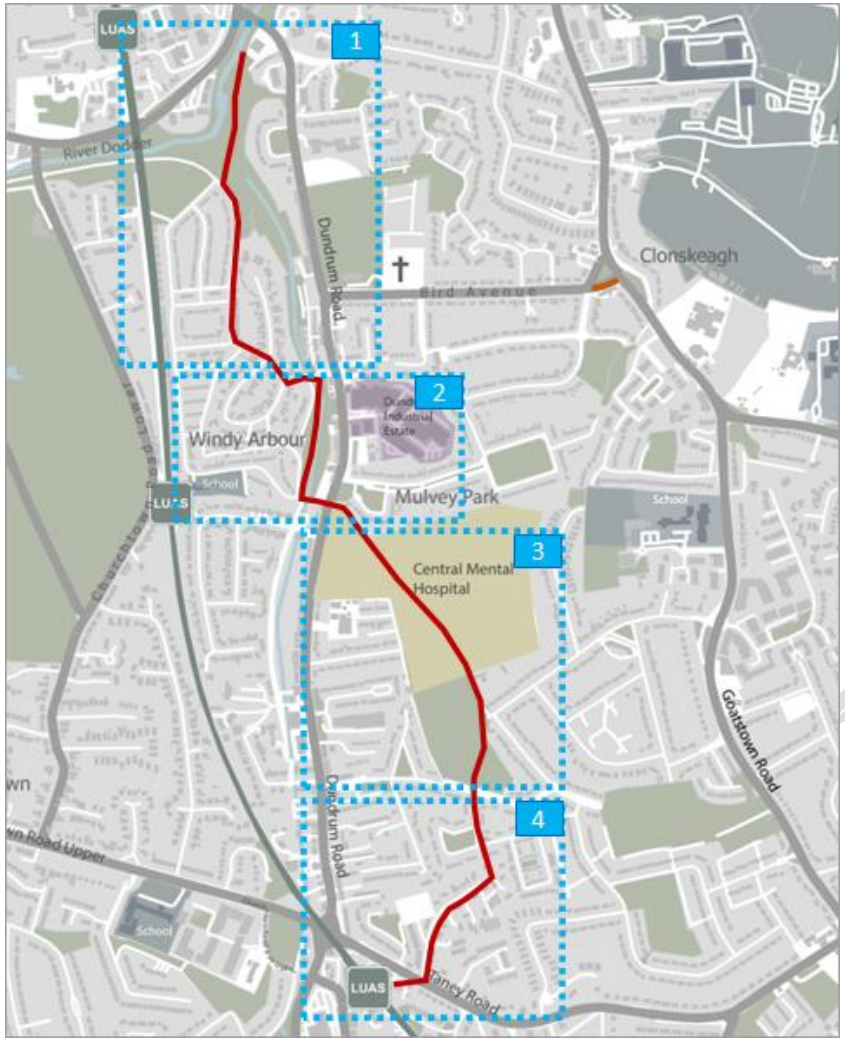


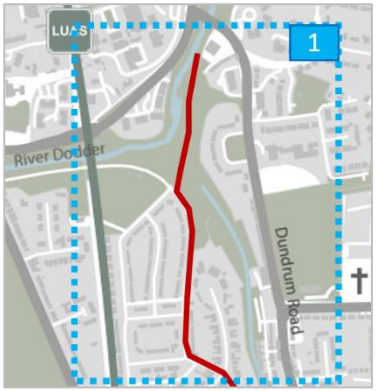
Figure 6.20 Dodder to Dundrum Pedestrian and Cycle Route

Centre, which will be either off-road or through quiet residential streets and will afford safe and attractive facilities for vulnerable or inexperienced cyclists. The route will also:

- Provide a safe cycle connection for residents to local shops and services on Dundrum Road;
- Along with the Safe School Zone proposals for St. Columbanus Road (Section 6.4.3), it will provide a safe pedestrian and cycle route to Our Lady's National School and Windy Arbour Luas stop; and
- Provide a direct pedestrian and cycle connection from the proposed residential development at the former Central Mental Hospital site, to Dundrum Major Town Centre.

The delivery of the Dodder to Dundrum pedestrian and cycle route will encourage a greater take up of active travel in the area and will help to support a shift away from private car use, particularly for local trips. The following sections provide an overview of the key interventions proposed along the route.

Section 1 – Dodder Greenway to Glasson Court Park



The northern section of the Dodder to Dundrum cycle route will connect the Dodder Greenway to Glasson Court Park. The existing path from the Dodder Greenway to Patrick Doyle Road will be upgraded to a wider shared pedestrian and cycle path (example image in Figure 6.21) similar to recent upgrades to shared pedestrian and cycle facilities at other DLRCC parks.

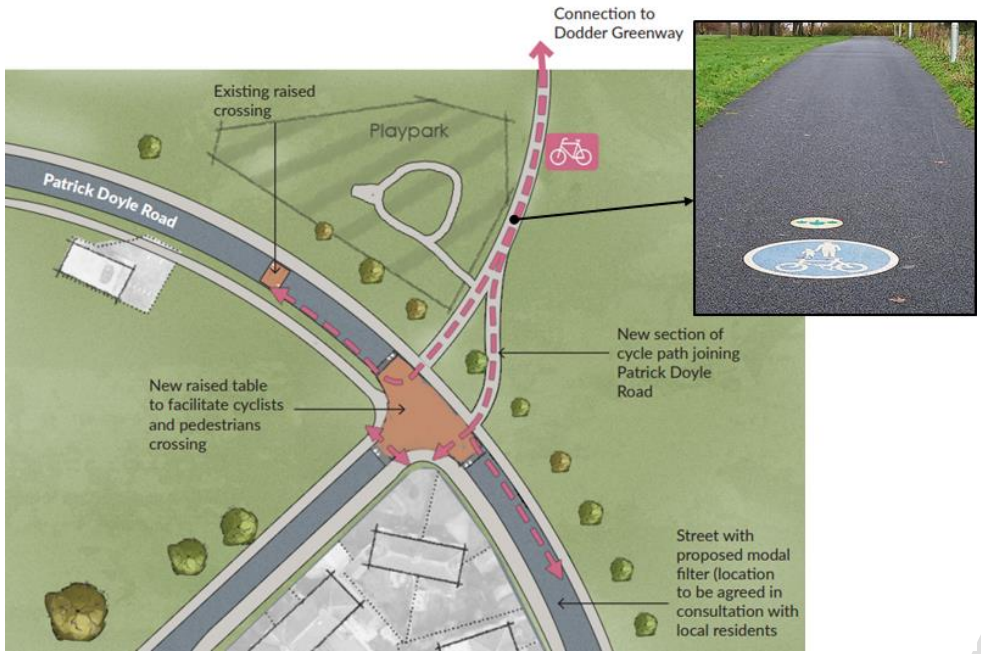
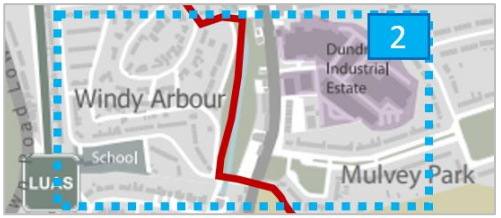


Figure 6.21 Patrick Doyle Road Connection

A new raised crossing will be provided at the connection with Patrick Doyle Road, improving safety for pedestrians and cyclists. The proposed cycle route will then use Patrick Doyle Road and Farrenboley Park. These routes will be strengthened as 'Quiet Streets'[8] with improved way-finding for cyclists and local traffic calming measures such as a modal filter and speed cushions, to be agreed at detailed design stage with the local community. Section 6.4.5 below gives details on the use of a Modal Filters for traffic calming and indicates the circumstances where they may be considered.

Section 2 - Glasson Court Park to Dundrum Road (Windy Arbour proposed Village Centre)



The upgrade of existing and the provision of new shared pedestrian and cycle facilities through Glasson Court Park will create a safe off-road connection from Farrenboley Park to St. Columbanus' Road and Dundrum Road whilst also improving accessibility to this amenity area for local communities.

The route will connect with proposed cycle facilities on St. Columbanus' Road (Section 6.4.3) to provide a safe link to both Our Lady's National School and Windy Arbour Luas stop and will also include two signalised connections across Dundrum Road to Dundrum Business Park and to the former Central Mental Hospital site. These connections across Dundrum Road will significantly improve the safety and attractiveness of pedestrian and cycle access to local shops and services within the village core and together with public realm enhancements, will provide a quality village environment for the local community. To achieve these improvements to the local pedestrian and cycle environment, it will be necessary to seek some localised set-back of roadside boundaries at the pinch points illustrated below in Figure 6.22.

[8] The 'Quiet Street' concept prioritises non-motorised road users with traffic calming and traffic management measures together with signage to create a safer environment for pedestrians and cyclists and a more attractive environment for the local community.

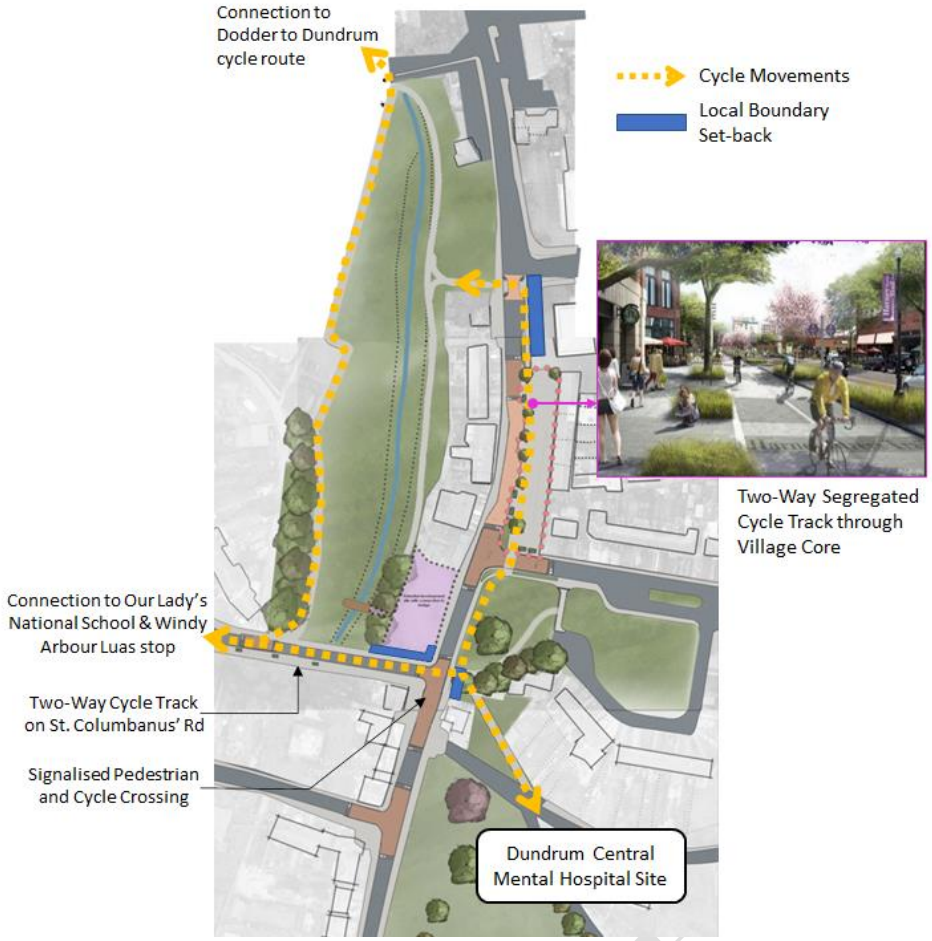


Figure 6.22 Dodder to Dundrum Route through Windy Arbour Village Area

DAR 25 Localised Boundary Set-back

It is a Recommendation of the Dundrum ABTA, to seek the set-back of roadside boundaries at the pinch points illustrated in Figure 6.22, to facilitate the delivery of improved pedestrian and cycle infrastructure.

Section 3 – The Former Dundrum Central Mental Hospital Site & Rosemount Green

Plans for a major residential development of up to 1,000 new homes and associated facilities are being progressed by the Land Development Agency (LDA) at the Former Dundrum Central Mental Hospital site on Dundrum Road. This site is located immediately adjacent to the proposed village centre at Windy Arbour, as illustrated in Figure 6.22. It is envisaged that this development will include a high quality pedestrian & cycle route through the site linking Dundrum Road with Rosemount Green (see Figure 6.23). The upgrade of the existing path through Rosemount Green, to a shared pedestrian and cycle facility will bring the Dodder to Dundrum cycle route south to Rosemount Estate. The existing connection from Rosemount Green onto Larchfield Road will also be strengthened to facilitate continuation by cyclists, along a quiet streets route, to the Schools at Our Lady's Grove and to segregated cycle facilities on Goatstown Road.

DAR 26 Former Central Mental Hospital Site - Pedestrian and Cycle Route

It is a Recommendation of the Dundrum ABTA, to require the development of a high quality pedestrian and cycle facility through the site of the Former Dundrum Central Mental Hospital, to form part of the proposed Dodder to Dundrum cycle route.

Figure 6.23 Pedestrian & Cycle Infrastructure in Dundrum Central (Masterplan Image)

Section 4 – Rosemount Estate to Dundrum Major Town Centre

A new raised crossing will be provided at the connection between Rosemount Green and Rosemount Estate to improve safety for pedestrians and cyclists travelling along the Dodder to Dundrum route (see Figure 6.24).

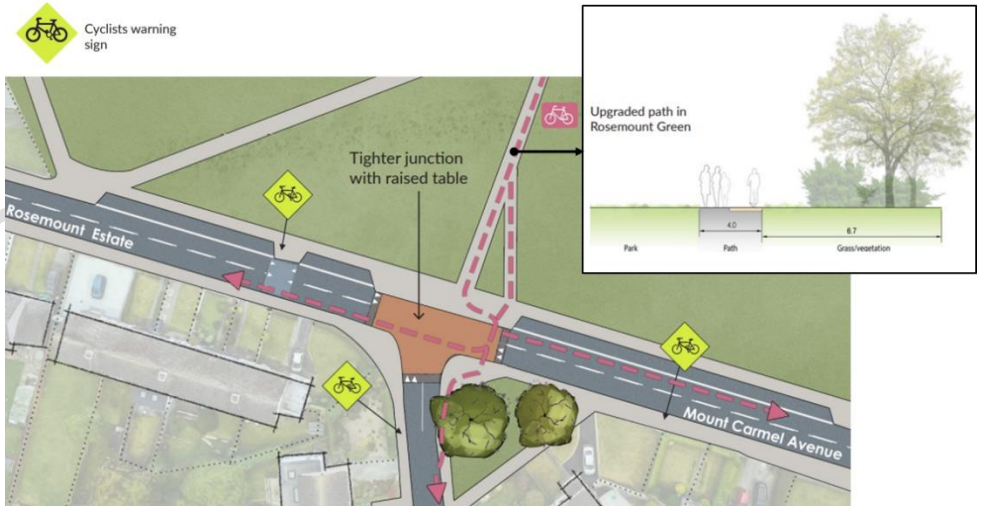


Figure 6.24 Rosemount Estate / Mount Carmel Avenue Junction Upgrade

The route then travels along “Quiet Streets” through Rosemount Estate and Taney Park. These are already relatively low-trafficked residential areas, however, public realm improvements and traffic calming measures where necessary will further improve the safety and attractiveness of this route for pedestrians and cyclists. A

modal filter is also being recommended for this area to further aid traffic calming and provide a quieter and safer environment for local residents (see Section 6.4.5).

The laneway connecting Rosemount Estate to Taney Park will be upgraded with public realm improvements to increase the attractiveness and safety of the route for all year round use[9]. At the junction of Taney Park and Taney Road, a new raised table and signalised crossing for pedestrian and cyclists will be provided. This will allow cyclists on the Dodder to Dundrum route to join a two-way cycle track on the southern side of Taney Road, being progressed as part of DLRCC's Taney Road to N11 Active Travel Route. This will provide a safe connection across to Taney Drive and Dundrum Luas stop, as well as Dundrum Main Street via the existing Luas underpass (stepped access) or via Taney Cross – Waldemar Terrace. Heading east on the proposed Taney Road cycle route links in with proposed cycle facilities on Sydenham Road (see Section 6.2.4), which will provide safe access to local primary schools and an onward connection via Sydenham Villas (quiet street) to Airfield Estate.

Figure 6.25 Southern Section of Dodder to Dundrum Pedestrian & Cycle Route

[9] Examples at: Laneways We Love — The Laneway Project

6.4.3 St. Columbanus' Road – Safe School Zone

St. Columbanus' Road provides an important connection to both Windy Arbour Luas stop and Our Lady's National School and its use will intensify further with the development of the adjacent former Central Mental Hospital site for residential use. Improvements to the pedestrian and cycle environment along St Columbanus Road, as set out below and in Figure 6.26, are therefore recommended to strengthen the street as a safe route for schoolchildren and those accessing the Luas.

DAR 27 St. Columbanus' Road Safe School Zone

It is a recommendation of the Dundrum ABTA, to transition St. Columbanus' Road to a 'Safe School Zone' in-line with NTA Safe Routes to School Design Guidance.

Key interventions are illustrated in Figure 6.26, and include:

- Surface colour/texture change within School Zone;
- Raised pedestrian crossing at junction with Dundrum Road;
- Front of school: raised treatment at both ends and buff colour;
- School Zone Road signs and markings to be provided on both approaches;
- Footpath upgrades with planting, trees and seating where feasible;
- Segregated cycle facilities where feasible

These interventions will create a significantly improved environment for pedestrians and cyclists with enhanced accessibility to the school and the Luas stop at Windy Arbour.

Figure 6.26 St. Columbanus' Road Interventions

6.4.4 Windy Arbour to Clonskeagh / UCD - Quiet Streets Pedestrian and Cycle Route

The proposals outlined above for St. Columbanus' Road and the proposed Windy Arbour Village Centre will significantly improve the environment for pedestrians and cyclists, providing a safe and attractive connection from Windy Arbour Luas to Mulvey Park.

The existing route through Mulvey Park, Beechmount Drive and Gledswood Park will be strengthened for cyclists with improved way-finding, route definition, traffic calming and signage as required. This will help to reduce traffic speeds and create a safer environment for local residents, pedestrians and cyclists.

At the northern end of Gledswood Park, the route will tie in with the delivery of junction and cycle facility upgrades as part of the Roebuck Road Cycle Scheme being progressed by the Council[10]. This will improve access for cyclists onto segregated cycle facilities on both Clonskeagh Road and Roebuck Road.

DAR 28 Windy Arbour to Clonskeagh / UCD - Quiet Streets Pedestrian and Cycle Route

It is a recommendation of the Dundrum ABTA, to strengthen the existing Quiet Streets Pedestrian and Cycle Route from Windy Arbour Luas stop to Clonskeagh / UCD.

[10] Further details available at: https://dlrcoco.citizenspace.com/transportation/traffic-road-safety-roebuck-road-cycle-route-goats/

6.4.5 Modal Filters & Quiet Streets

A modal filter is a measure, introduced on a street with the intention of reducing the flow of through traffic (often referred to as rat – running) through an area, while at the same time maintaining accessibility for local vehicular traffic. The measure would typically involve a physical intervention on the street, which does not allow vehicular traffic through, but which does allow access for pedestrians, cyclists and emobility. The benefits include enhanced local environments with quieter and safer streets, more conducive to community interaction and wellbeing. An example of where a modal filter has been recently introduced close to Dundrum is at Eden Park Rd, shown below in before and after contexts.

Figure 6.27 Eden Park Road – before & after Modal Filter

The ABTA study has identified certain streets within residential areas, close to Dundrum Road, where the introduction of modal filters, would have the potential to significantly reduce through traffic and allow quieter and safer streets for local communities. These streets include Patrick Doyle Road, Rosemount Estate and Woodlawn Park.

As well as the wider environmental and safety benefits, quiet street measures, on Patrick Doyle Road and Rosemount Estate in particular, would also support the proposed Dodder to Dundrum Pedestrian and Cycle Route, outlined in Section 6.4.2 above, by providing a safer traffic calmed environment for both pedestrians and cyclists.

Specific locations for these modal filters have not been decided at this stage and it is envisaged that any such measures would only be brought forward in consultation and agreement with local communities. More details on the proposed use of modal filters within the wider study area, are included in Section 6.5.

6.5 Dundrum – Surrounding Areas

Decisions around which mode of transport to take, can be influenced by the conditions and opportunities available within and close to residential areas. If conditions are favourable for walking, cycling and accessing public transport, there will be a greater uptake of these modes, especially for local trips. The Dundrum ABTA has identified a number of measures within the areas surrounding Dundrum, which would improve opportunities for walking, cycling and public transport. These are set out hereunder:

6.5.1 Sustainable Transport Measures

- The upgrade of existing advisory cycle lanes on Stonemasons Way to fully segregated cycle lanes to provide safe cycling facilities for access to local schools and sports facilities.
- The upgrade of Ballinteer Avenue to provide traffic calming and local accessibility improvements to allow a safer environment for pedestrians and cyclists.
- The Upgrade of the existing segregated cycle lane along the north side of Brehon Field Road to a two way cycle lane to provide a more efficient local cycle network.
- Improved wayfinding and route definition for a quiet streets cycle route connecting Ballinteer with Sandyford Rd via Greenmount Lane, Wesley Lawns, Clonard Park/Rd and Ballawley Park.
- Pedestrian and cycle links to improve permeability between:
  - Wesley Lawn/Heights
  - New residential developments accessed from Wyckham Place
  - St Tiernan's and Ballinteer Educate Together
  - The Slang Greenway & Wyckham Way.
- Provide a pedestrian & cycle link between Lynwood and Castlebrook residential estates to allow access to bus services on Ballinteer Rd and Dundrum Bypass.
- Provide a pedestrian & cycle link from Holywell housing estate direct to Drummartin Link Rd to improve access to Kilmacud Luas Station.
- Keep under review, the need for additional permeability interventions to encourage active mobility and improve accessibility for residents to key services and public transport.

DAR 29 Sustainable Transport Measures

It is a recommendation of the Dundrum ABTA, to implement the Sustainable Transport Measures, listed in Section 6.5 of the ABTA Recommendations Report for Dundrum - Surrounding Areas.

These measures, along with the other ABTA recommendations described previously, and work ongoing by DLRCC, form a comprehensive and integrated cycle network for Dundrum as illustrated in Figure 6.28. This includes safe, segregated cycle tracks on key routes into Dundrum Major Town Centre from the south, east and west.

To the north, carriageway widths are too narrow to introduce segregated cycle facilities on Dundrum Road, however, significant public realm and traffic calming measures are recommended to reduce vehicle speeds and improve safety for cyclists on carriageway (see Section 6.4.1). The ABTA also recommends the delivery of the 'Dodder to Dundrum' pedestrian and cycle route which will provide a safe alternative to Dundrum Road for vulnerable cyclists.

Figure 6.28 Dundrum Wider Proposed Cycle Network

A number of 'Quiet Street' routes have also been identified and recommended for upgrade supporting wider connectivity and permeability across the network in Dundrum.

Combined, the ABTA measures will create a network of safe routes providing connectivity from residential areas to schools, shops and other keys services. This will help encourage greater levels of walking and cycling throughout Dundrum and support a shift away from vehicular travel.

6.5.2 Modal Filters

Modal filters, as described in Section 6.4.5 above, can assist with removing through traffic or rat running, from residential streets and help create more liveable local environments and safer conditions for cycling to local schools and services. In addition to the areas listed in Section 6.4.5 above, the Dundrum ABTA has also identified Sweetmount Avenue, as an area with significant through traffic, which would benefit from a modal filter solution. A specific location has not been decided at this stage and it is envisaged that any measures would only be brought forward in consultation and agreement with local communities. The Dundrum ABTA also recommends that the need for modal filters in the wider ABTA study area be kept under review by the Council on an on-going basis.

6.5.3 Wider Supporting Measures

Additional measures are proposed to support the investment in sustainable mode infrastructure and encourage a modal shift away from the private car, including:

- The delivery of improved bus stop infrastructure including upgraded waiting areas/bus shelters and Real Time Passenger Information.
- Support the delivery of the BusConnects network redesign.

- Support the delivery of measures included in the NTA's GDA Transport Strategy 2022-2042 including additional capacity on the Green Line (Measure LRT8) and the extension of the Luas to Bray (Measure LRT4).
- Development of a parking strategy to reallocate spaces for:
  - Dedicated Age-Friendly Parking at appropriate locations
  - Dedicated Disabled Parking
  - Car Share
  - eCar charging points
  - cycle parking including outsized - cargo bikes & trailers
  - eMobility rental stands & Mobility Points – for interchange with bus/car share etc.
- The promotion of bike rental in Dundrum.
- Develop a Community Car Share Scheme In-line with the pilot scheme currently in operation in the Howth and Skerries areas
- Encourage the roll-out of Active Travel Plans for Schools/workplaces to promote behavioural change and encourage people to travel to work and school by walking and cycling.

DAR 30 Wider Supporting Measures

It is a recommendation of the Dundrum ABTA, to implement the Wider Supporting Measures, listed in Section 6.5.3 of the ABTA Recommendations Report for Dundrum.

7. SUMMARY

7.1 Summary

This report outlines the process undertaken to develop the draft local transport strategy for Dundrum. The key purpose of the strategy is to guide the future transport and mobility needs of Dundrum, taking into account the transport demand arising from existing and projected development both within the study area and the wider area of influence.

In developing the transport strategy, SYSTRA have followed guidelines set out in TII/NTA's 'Area Based Transport Assessment' (ABTA) Guidance Notes. A detailed Baseline Assessment was undertaken to understand existing conditions within Dundrum along with potential opportunities and constraints. Core study objectives were identified for the ABTA grounded in National, Regional and Local policy.

Through site visits, and a review of existing conditions and relevant policies and plans, a long-list of proposed measures were identified to support the future transport needs of Dundrum. These options were passed through a detailed assessment process to determine the package of measures that would form the draft Dundrum local transport strategy for consultation.

Overall, the strategy recommendations perform very positively in meeting the overarching ABTA objectives. The delivery of a safe, integrated walk and cycle network will improve accessibility across Dundrum encouraging an increase in sustainable travel. A number of measures have focused on improving safety for access to local schools, supporting active travel and improving the health and wellbeing of children within the area.

The proposed measures encourage accessibility to Dundrum Major Town Centre by walking and cycling, with junction upgrades and public realm improvements encouraging active travel. This will help create an improved town centre environment, increasing footfall and vibrancy.

In terms of wider accessibility, the strategy recommendations include supporting the roll-out of the BusConnects network redesign and proposed upgrades to the Luas Green line. Recommendations also include the development of Mobility Hubs at both the northern and southern ends of Dundrum Major Town Centre facilitating interchange between bus and Luas, along with other complementary transport services such as bicycle, eMobility (eBikes & eScooters) & eCar hire.

SYSTRA provides advice on transport, to central, regional and local government, agencies, developers, operators and financiers.

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