National Transport Authority

Swords Core Bus Corridor

Feasibility and Options Assessment

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Contents

Appendices

Appendix A

Santry Route Options Assessment

1 Introduction and Background

1.1 Preamble

The National Transport Authority (NTA) appointed Arup to undertake a review of the Swords/Airport to City Centre Swiftway Bus Rapid Transit (BRT) Route Options Assessment in the context of its redefined function as a Core Bus Corridor (CBC).

In 2014 a Route Options Assessment was carried out and published by the NTA for a BRT system connecting Swords to the City Centre via the Airport. This study identified the route illustrated in **Figure 1.1** as being the preferred route for the BRT. Full details of the BRT Scheme developed, including the Route Options Assessment Report and scheme plans, are available in the Public Consultations section of NTA's website at the link below:

https://www.nationaltransport.ie/consultations/public-consultation-on-swiftway-bus-rapid-transit-swordsairport-to-city-centre/

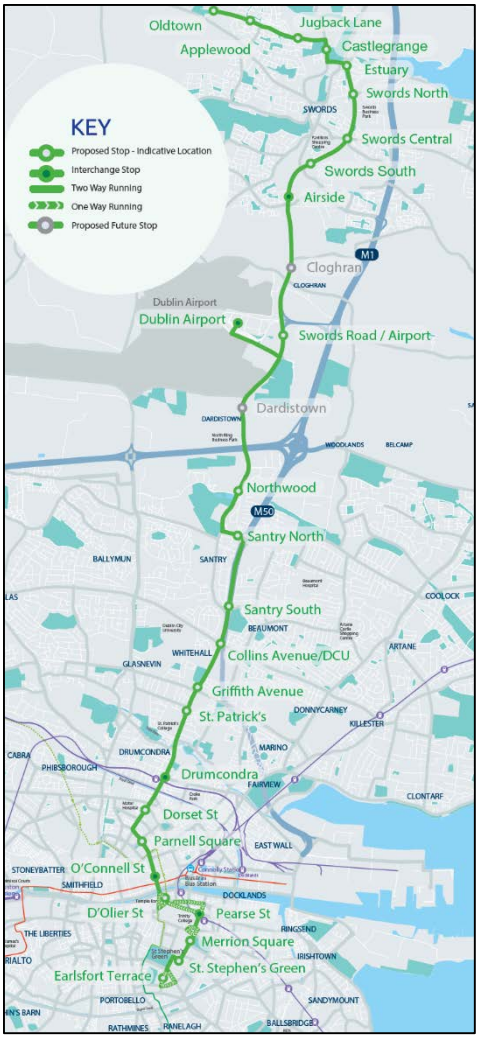

Figure 1.1: Swords / Airport to City Centre Swiftway Scheme Preferred Route

The Transport Strategy for the Greater Dublin Area 2016-2035 (the 'GDA Transport Strategy') retained the Swords/Airport to City Centre corridor as a strategic corridor as part of the overall combined Core Bus Corridor / Bus Rapid Transit Network for Dublin. The GDA Strategy recognised the need *"to provide higher level of public transport capacity than the existing provision, both in advance of new Metro North and also to serve areas south of the M50 subsequent to the implementation of a new Metro North"*.

The GDA Strategy also states that, in terms of the nature and extent of bus based public transport provision on the corridor, the *"exact arrangements to be implemented will be determined in conjunction with the development arrangements for new Metro North, and will be designed to be complementary to the new Metro North proposal"*.

The NTA are currently undertaking a detailed review of the bus network in the Greater Dublin Area, 'BusConnects'. BusConnects is a plan to improve the current bus system, targeting all aspects of the bus system from the road infrastructure to the ticketing technology. Over the course of that review, it was determined that BRT is not compatible with the emerging preferred option for bus-based transport in the city.

The BusConnects review therefore clarifies the nature of the bus service proposed on the route, while maintaining the route designation as a Core Bus Corridor in terms of the level of bus priority infrastructure required.

This report presents the findings of this review of the Swords/Airport to City Centre Route Options Assessment and any additional assessment carried out to determine the emerging preferred route and scheme for the Swords to City Centre Core Bus Corridor (CBC).

The extent of the overall CBC route covered by this report extends from the Pinnock Hill Junction on the R132, south of Swords, as far as Parnell Square. The CBC route in Swords north of Pinnock Hill will be developed as part of the new Metro North scheme, while the route south of Parnell Square will be developed in tandem with wider traffic management measures within the core city centre area.

The report also details the initial concept design developed for the bus priority and cycle infrastructure provision along the CBC. While a bus service is not yet defined for the CBC, it is assumed a number of high frequency bus services will avail of the CBC infrastructure in line with the BusConnects proposals currently being developed for the Greater Dublin Area.

This report is to be read in conjunction with the 2014 Swords/Airport to City Centre Swiftway Bus Rapid Transit (BRT) Route Options Assessment report.

1.2 Report Structure

The structure for the remainder of this report is set out as follows:

- **Section 2** – This section discussed the strategic transport policy context, which has led to the identification of a need for the delivery of a CBC on this corridor. The objectives for the CBC scheme are also set out;

- **Section 3 –** The Study Area for the CBC scheme is presented in this section;
- **Section 4** – A review of the Swords Airport to City Centre BRT is presented in this section and an assessment is made on the suitability of the assessment in the context of a CBC;
- **Sections 5** – This Section presents the updated options assessment undertaken for the Santry area.
- **Section 6** – This section identifies and describes the Emerging Preferred Route for the CBC Scheme. In addition, the concept scheme design, including design options explored where necessary, is described and presented.
- **Section 7** – Finally, the next steps for the project are set out in this section.

2 Transport Planning and Policy Context

Since the publication of the Swords/Airport to City Centre Route Options Assessment Report in 2014, a number of additional relevant transport planning and policy documents have been published. These are summarised in this section of the report in so far as they are relevant to the proposed CBC scheme.

2.1 Transport Strategy for the Greater Dublin Area 2016 – 2035

The GDA Strategy identified a core bus network for the Greater Dublin Area (GDA). This core network represents the most important bus routes in the region, which are generally characterised by a high frequency of bus services, high passenger volumes, and with significant trip attractors located along the route. The identified core network comprises sixteen radial bus corridors, three orbital bus corridors, and six regional bus corridors.

Included in the GDA Transport Strategy are objectives to develop the Core Bus network to achieve, as far as practicable, continuous priority for bus movement on the sections of the Core Bus Network within the Metropolitan Area, with the goal of making the overall bus system more efficient and attractive to users.

The Swords to City Centre CBC is identified as part of the Core Bus Network. The radial and orbital Core Bus Network identified in the GDA Transport Strategy are illustrated in **Figure 2.1** and **Figure 2.2** respectively. For context, the extent of the Swords to City Centre CBC covered by this report is highlighted in orange.

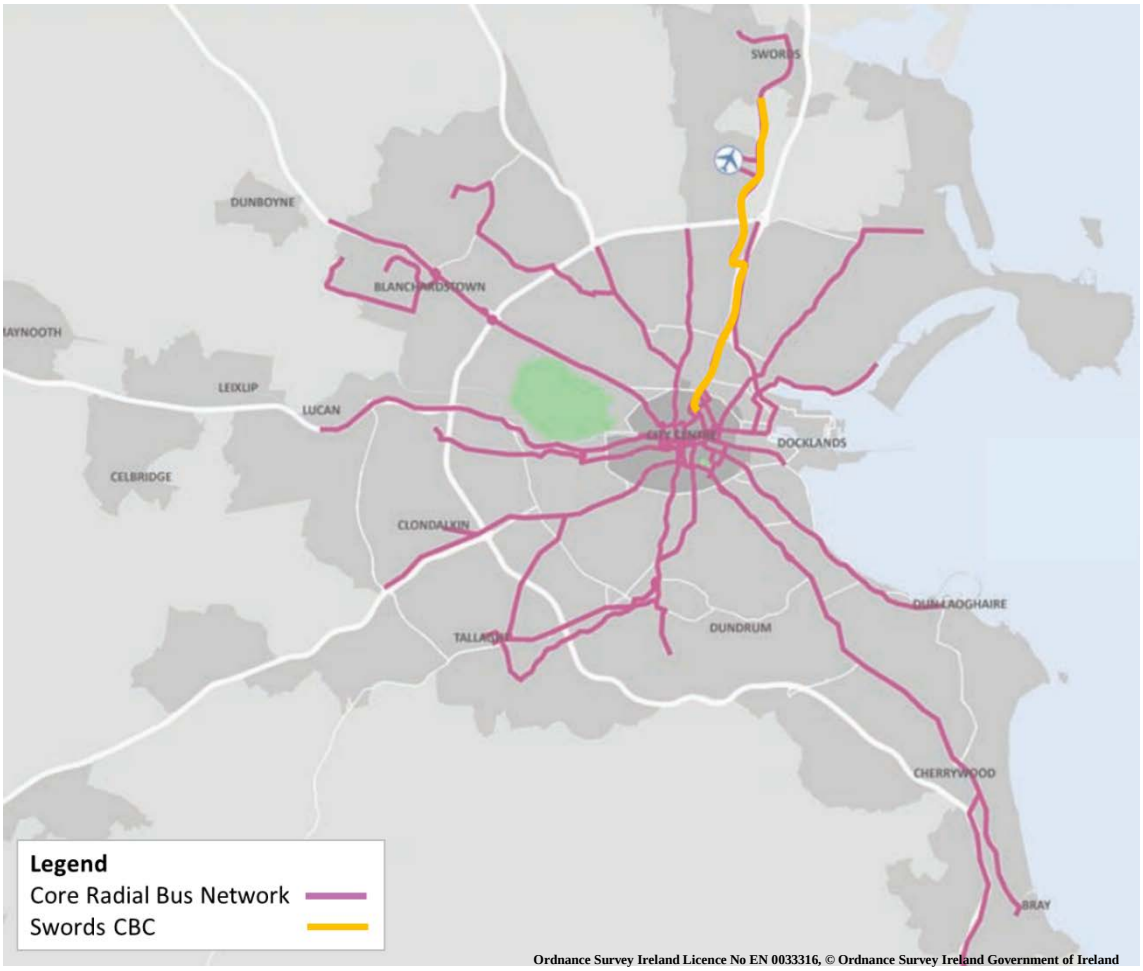

Figure 2.1: 2035 Radial Core Bus Network (Source: Figure 5.5 Transport Strategy 016 – 2035)

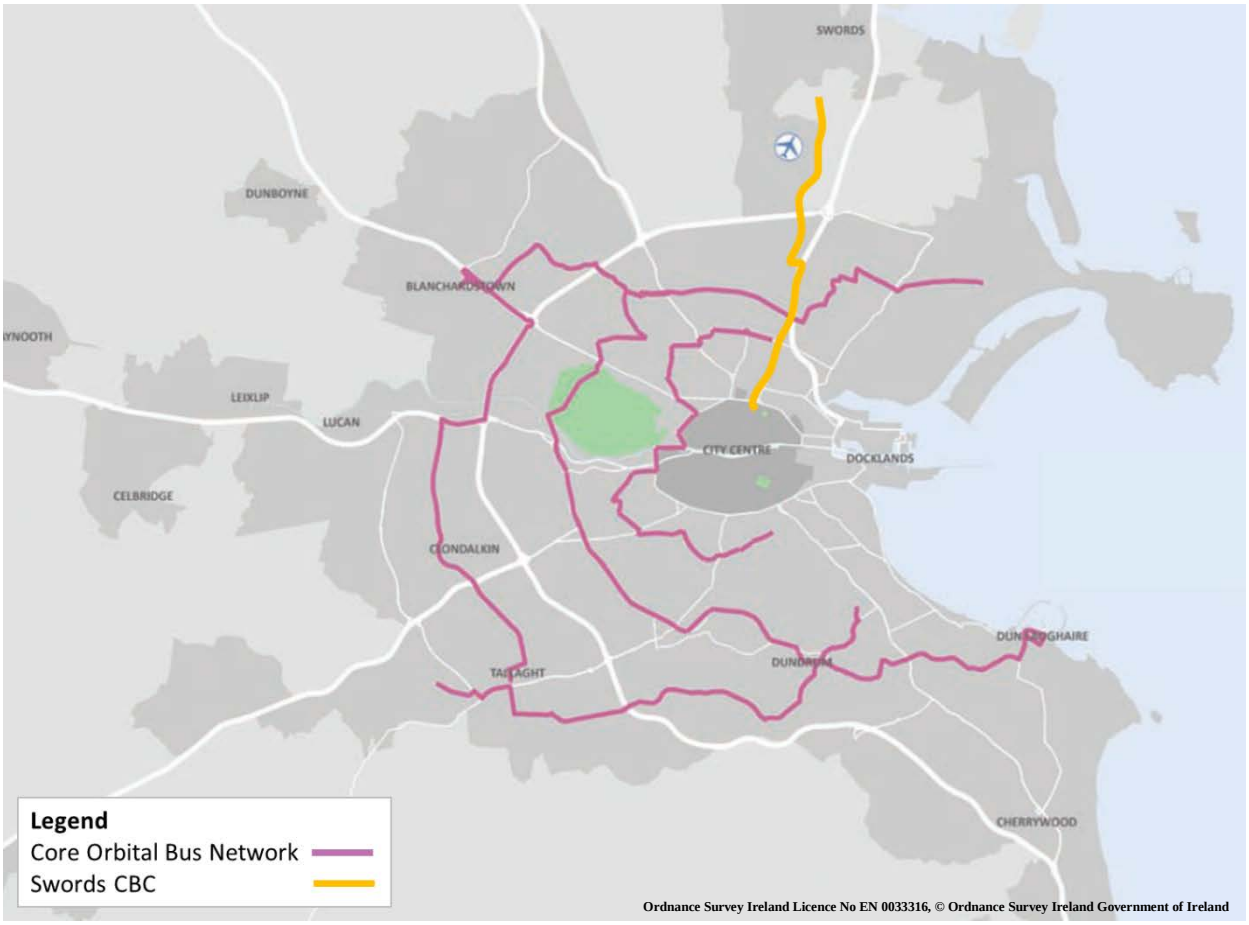

Figure 2.2: 2035 Orbital Core Bus Network (Source: Figure 5.6 Transport Strategy 2016 – 2035)

2.2 Infrastructure and Capital Investment 2016-21: Medium Term Exchequer Framework

The 'Medium Term Exchequer Framework' was published by the Department of Public Expenditure and Reform in September 2015. It presented the findings of a Government-wide review of infrastructure and capital investment policy and outlined the Government's commitment to ensuring that the country's stock of infrastructure is capable of facilitating economic growth.

That report identifies the need to improve public transport facilities noting:

"It is therefore essential that road, rail and public transport networks are developed and maintained to the standard required to ensure the safe and efficient movement of people and freight. In addition, getting people out of cars and onto public transport has a key role to play in reducing Ireland's carbon emissions, by providing a viable, less polluting alternative to car and road transport for many journeys."

The report also provided commitment with regard to funding for a variety of transport related projects including:

"There will be funding for:

- *Further upgrading of Quality Bus Corridors".*

2.3 Integrated Implementation Plan 2013 – 2018

The NTA published the Integrated Implementation Plan 2013 – 2018 in February 2014. That report sets out the short-term infrastructure investment programme for the Greater Dublin Area for a five-year period up to 2018.

That report identified the need to further develop the quality bus network in the Greater Dublin Area to achieve:

> *"….as far as practicable, continuous inbound priority and the maximum possible outbound priority on key bus routes into Dublin City Centre"*

2.4 CBC Scheme Objectives

Having regard to the findings of the transport context for the proposed CBCs in the GDA, the following objectives have been established for the Swords to City Centre CBC Corridor:

- Deliver the on street infrastructure necessary to provide continuous priority for bus movements along the Core Bus Corridor. This will mean enhanced bus lane provision on the corridor, removing current delays in relevant locations and enabling buses to provide a faster alternative to car traffic along the route, making bus transport a more attractive alternative for road users. It will also make the bus system more efficient, as faster bus journeys means that more people can be moved with the same level of vehicle and driver resources; and

- Provide any cycle facilities along the route that are required under the Greater Dublin Area Cycle Network Plan (published by the NTA, 2013) to the target Quality of Service(s) specified therein and to give consideration to further providing cycle facilities along sections of the route where they may be not expressly required under the Cycle Network Plan.

As the type of bus service proposed, including vehicle type, has changed on the now defined CBC, coupled with the scheme objectives as defined here, this gave rise to the need to revisit the previously identified EPR for Swiftway on the corridor at a number of specific locations within corridor.

3 Study Area and Route Options

3.1 Introduction

The study area previously identified for the Swords/Airport to City Centre Swiftway scheme extended from the Applewood residential neighbourhood to the north-west of Swords, to the south city centre. However, for the purposes of this study, and as set out in Section 1.1, the study area has been reduced for the following reasons:

- Areas north of Pinnock Hill will possibly overlap with the emerging preferred route and concept scheme design for New Metro North. As a result, it is considered more appropriate that bus service and route priority planning for the CBC north of Pinnock Hill Roundabout be undertaken as part of the New metro North project; and
- South of Parnell Square, the Core Bus Network will be developed in tandem with wider traffic management measures within the core city centre area.

The revised study area for this section of the Swords to City Centre CBC is presented in **Figure 3.1,** and described in the following sections.

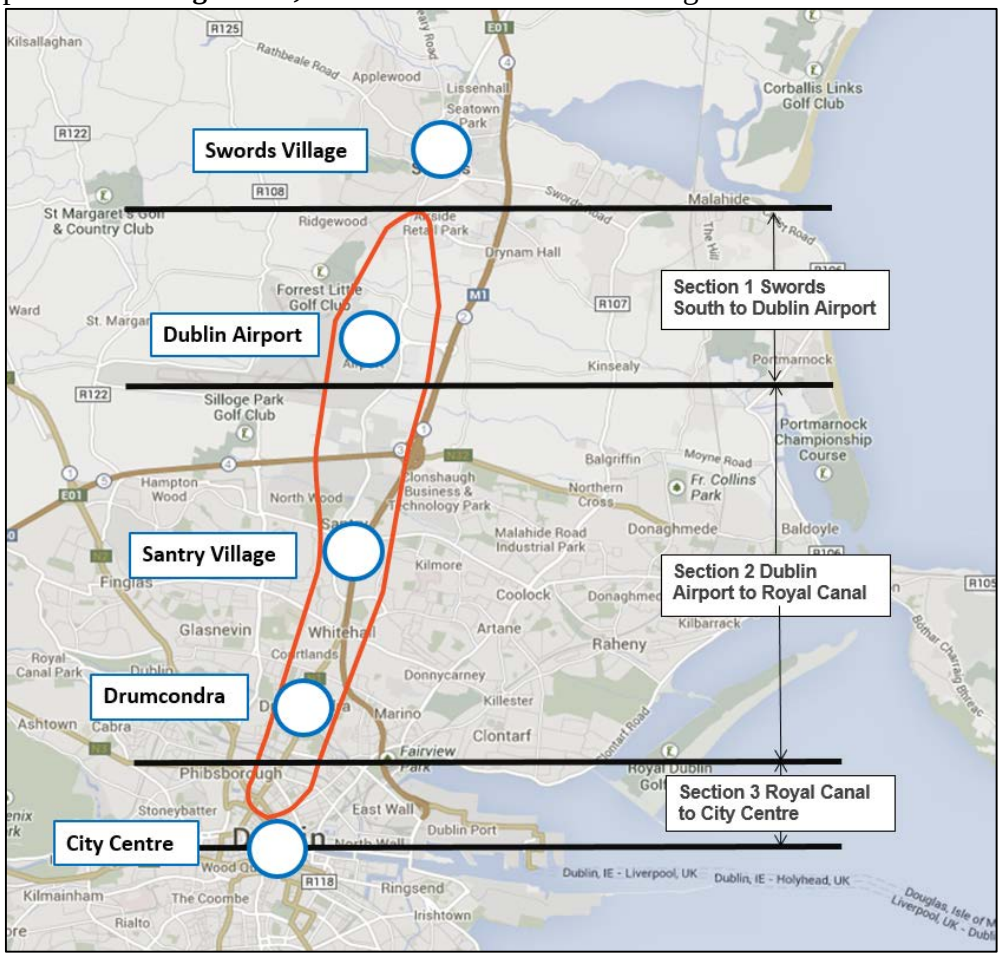

Figure 3.1: Study Area Sections

4 Review of Swiftway Route Options Assessment

4.1 Introduction

This section presents a review of the Swiftway Route Options Assessment and its applicability in the context of a CBC.

4.2 Section 1: Swords South to Dublin Airport (Corballis Road South)

Within Study Area Section 1, the Swiftway Options Assessment considered route options in the following areas:

- Applewood / Pine Grove neighbourhoods to the North West of Swords; and
- Swords Village.

However, as the study area for the assessment of this section of the CBC now starts at Pinnock Hill Roundabout (see Section 3 for further details), both of these areas will be reconsidered as part of the integrated public transport service planning for Swords taking into account the proposed new Metro North scheme.

From the Pinnock Hill Roundabout to Dublin Airport only one route option was considered feasible, being along the R132, in the Swords/Airport to City Centre Route Options Assessment Report. These findings are still applicable in the context of the change to a CBC.

However, within the Dublin Airport campus, route options for the Swiftway service were identified. While bus services will continue to enter and serve the Airport terminals directly, it is not considered necessary at this stage to extend any specific CBC priority infrastructure into the Airport Campus. As such, no route options assessment is necessary for the Airport Campus for the CBC.

In summary, the assessment and emerging preferred CBC route for Study Area Section 1 will be along the R132 from Pinnock Hill Roundabout and Dublin Airport, as presented in **Figure 4.1**.

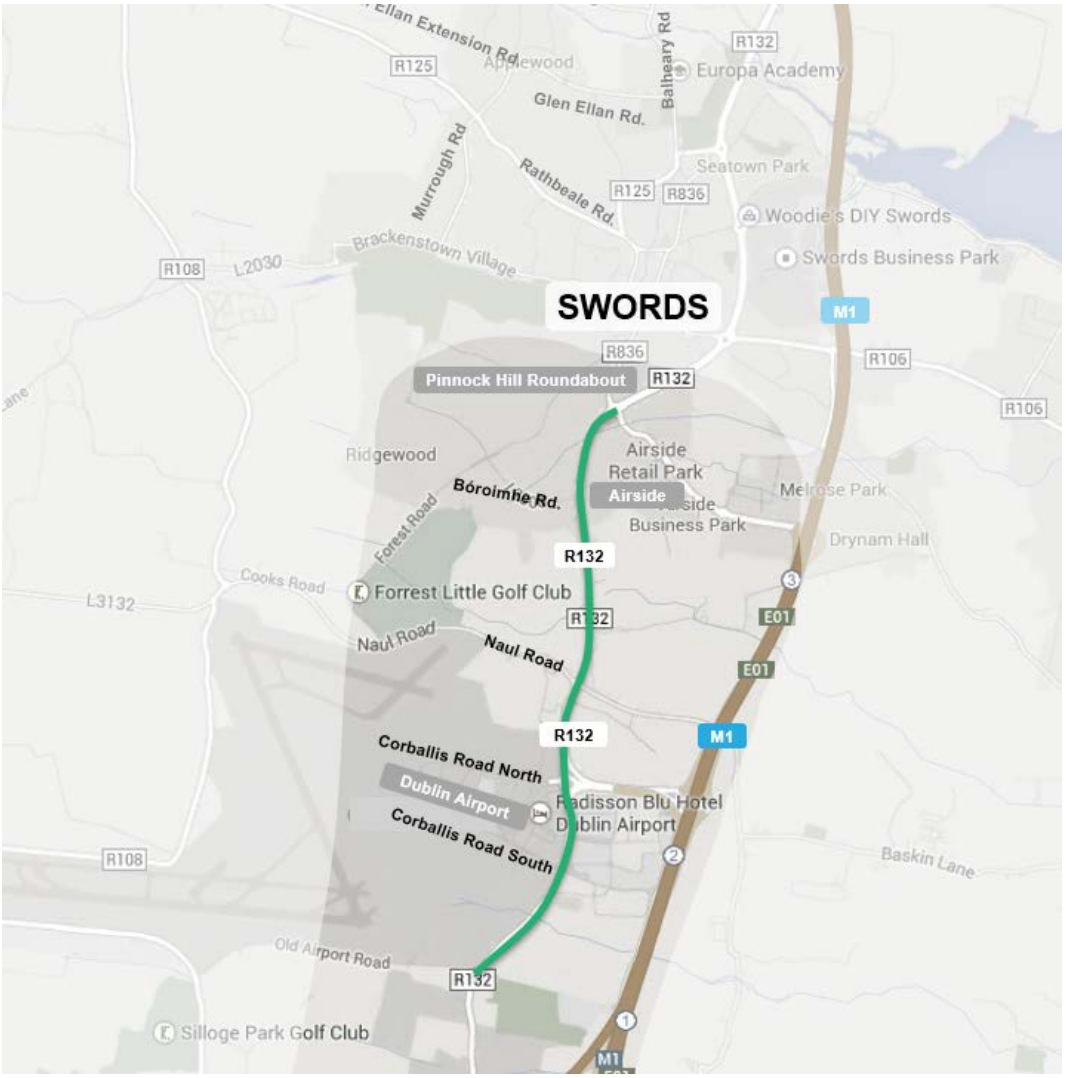

Figure 4.1 Study Area Section 1 Emerging Preferred Route

4.3 Section 2: Dublin Airport (Corballis Road South) to Royal Canal

Within Study Area Section 2, the Swiftway Options Assessment considered route options in the vicinity of Santry only. Two route options were considered:

- A route option via the centre of Santry village (SY1); and
- A route option via the N50 (formerly the N1) bypassing Santry village (SY2).

The study found that for the BRT, Option SY2 along the N50 (formerly the N1) best met the needs of the Swiftway scheme. However, one of the primary differences between the BRT and regular bus services is the desirable distance between stops, which is considerably greater for BRT as it is considered that passengers are willing to walk longer distances to a high quality service such as BRT.

Specifically, option SY2 proposed BRT stops which were located approximately 1.4km apart.

This is considered to be significantly in excess of what is acceptable for a bus service running along a CBC, where 400m is the desirable maximum walking distance between stops. However, it is not considered practical to include additional stops along SY2 as there are no properties fronting onto this section of road and a continuous row of houses along the western side of the N50 which removes the possibility of providing a pedestrian connection to the residential neighbourhoods in this area without the demolition of properties. To the west of the N50 it may be possible to provide a stop between Lorcan Park and the proposed development lands north of this which would serve these areas. However, without a matching stop on the opposite side of the road and pedestrian access from the east of the N50, this option is not considered to be feasible in the context of a CBC.

For the reasons outlined above, Options SY2 is not considered any further.

The more appropriate route, and therefore the only route option which is considered to be feasible to route bus services along the CBC in Santry is along the route of SY1 through Santry Village. The Swiftway Options Assessment considered one scheme option along this route (the full cross-section consisting of bus, traffic and cycle lanes in each direction). A number of alternative options exist however which would not require such significant impacts but would still achieve the objectives of the CBC. These options are presented and assessed in further detail in Section 5 to identify the emerging preferred scheme option on the CBC EPR through Santry Village.

In summary, the CBC EPR for Study Area Section 2 is along the R132 from Dublin Airport to the Royal Canal, as presented in **Figure 4.2**.

An assessment of options and a recommendation on a proposed scheme for the CBC through Santry Village is presented in Section 5 of this report.

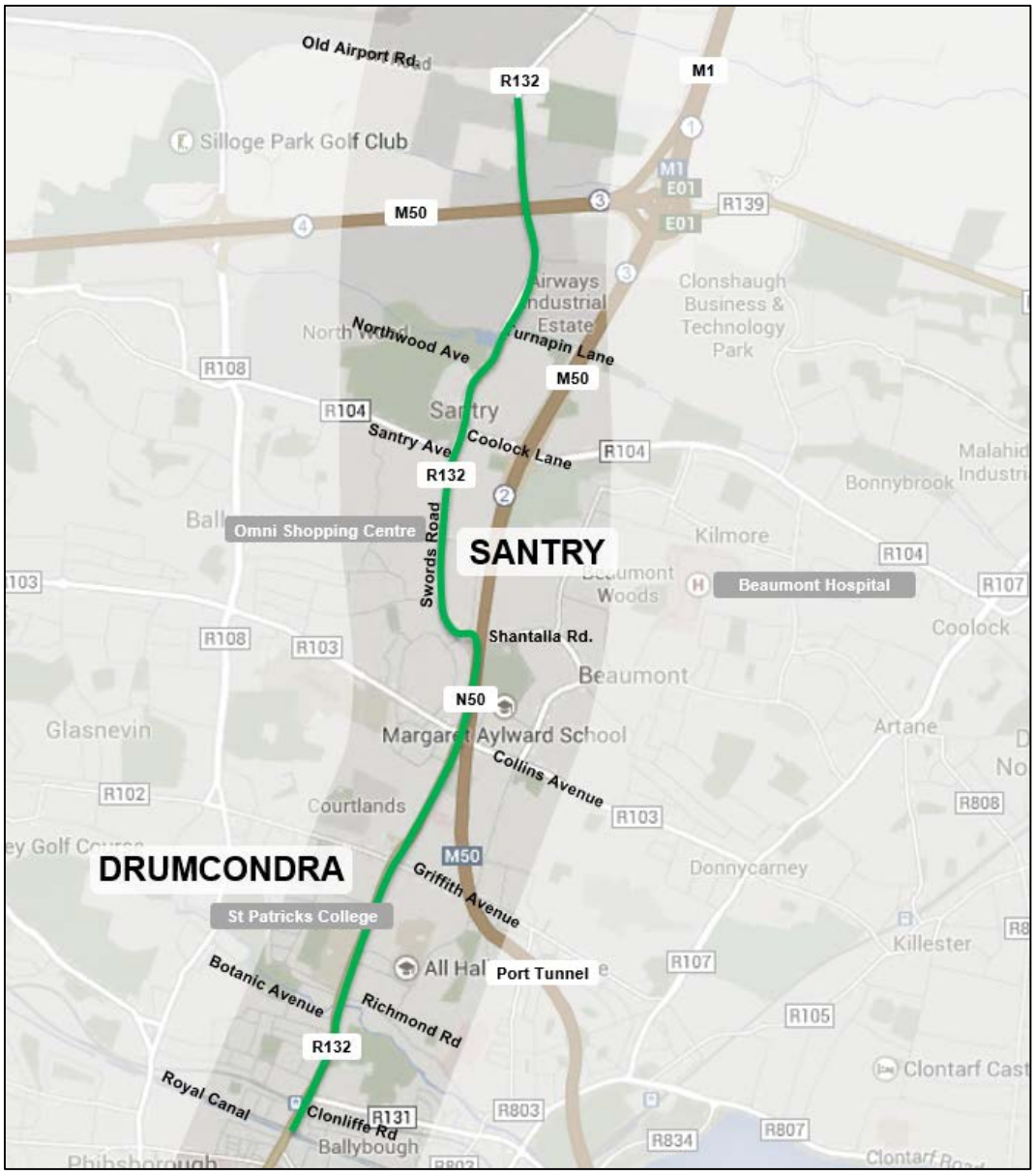

Figure 4.2 Study Area Section 2 Emerging Preferred Route

4.4 Section 3: Royal Canal to O'Connell Street

Within Study Area Section 3, the Swiftway Options Assessment considered route options in the following areas:

- North City Centre (Royal Canal to the River Liffey); and
- South City Centre (River Liffey to Grand Canal).

Study Area Section 3 has been shortened for the reasons outlined in Section 3 and now finishes at the northern end of O'Connell Street. As such, the previous study south of this point is no longer applicable.

However, north of O'Connell Street, the Swiftway Options Assessment remains relevant to this study.

For this section of the study area, route option N3 was identified as the preferred option. This option would run along Dorset Street from the Royal Canal before turning onto North Frederick Street and onto Parnell Street to the top of O'Connell Street. The following reasons were the basis for this preference:

- The lower capital cost compared to other route options;
- It is a direct route with low and reliable journey times;
- It better integrates with the existing and planned transportation network for the city;
- It is consistent with, and would deliver part of the GDA network;
- It serves a higher number of key trip attractors and greater population and employment catchments; and
- While it ranks lower than some other route options with respect to potential for environmental impact, these impacts can be mitigated through design.

All of these reasons remain equally valid and applicable for the CBC scheme.

In summary therefore, the assessment and emerging preferred route for Study Area Section 3 will be along Dorset Street from the Royal Canal, before turning onto North Frederick Street and onwards to Parnell Street, as presented in **Figure 4.3**.

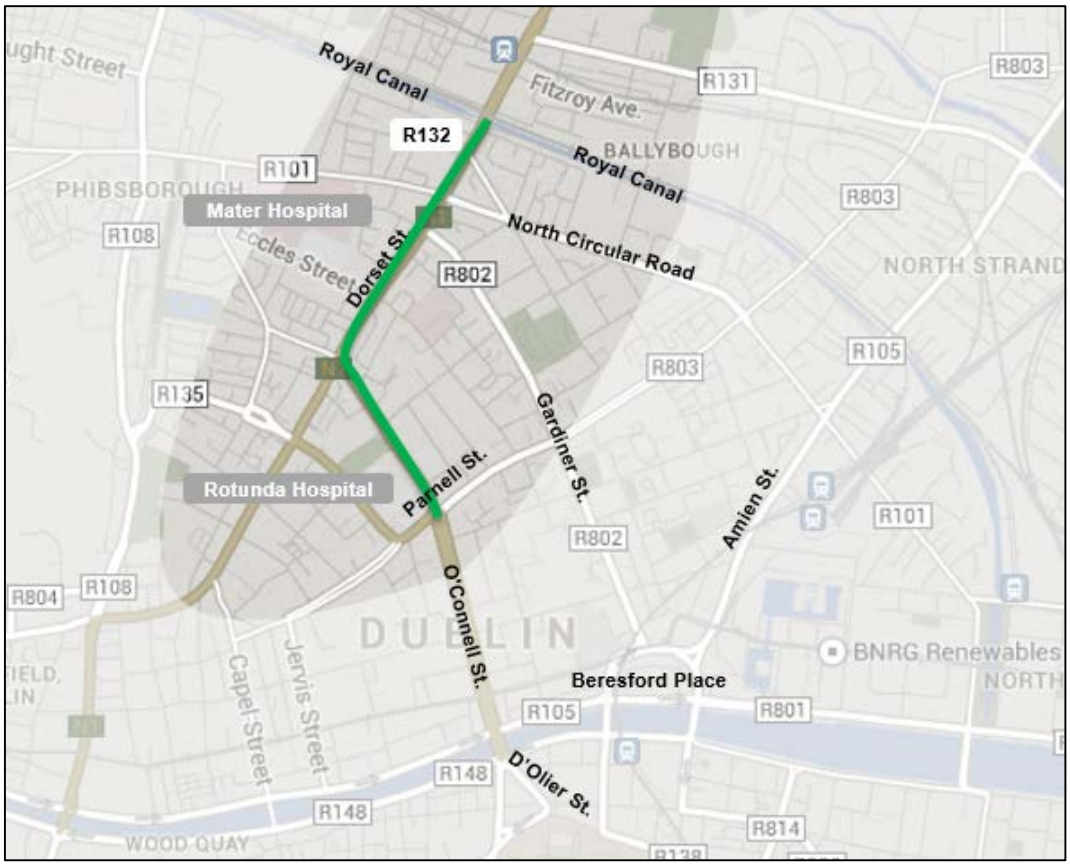

Figure 4.3 Study Area Section 3 Emerging Preferred Route

5 Santry Options Assessment

5.1 Introduction

As set out in Section 4.3, the options assessment for the Santry area has been updated to include additional scheme options along the R132 through Santry Village, which is considered to be the most appropriate for bus service provision on a CBC in this area. All options considered in Santry are presented in the following sections and assessed to determine the preferred route and scheme option for the CBC.

5.2 Methodology

The methodology for the assessment of options in Santry is generally the same as outlined in the Swords/Airport to City Centre Route Options Assessment Report. However, a number of changes have been made to be consistent with the methodology applied by the NTA for the assessment of all other CBC routes in the city. The changes made are summarised as follows:

- Operation and Maintenance cost is not considered to be applicable in the assessment of CBC infrastructure options (i.e. the bus service plan is not being designed);
- The employment catchment analysis for the Swiftway Options Assessment considered a 15 minute walk catchment. While this may have been applicable to a BRT type service, it is considered that a 10 minute walk catchment is more appropriate in terms capturing most of the demand for a Core Bus Corridor. This assessment has therefore been updated;
- The Swiftway Options Assessment only considered RAPID (Revitalising Areas by Planning, Investment and Development) areas in determining how Deprived Geographic Areas would be served. However, while also considered in the assessment of options for other CBC routes, the 'Pobal HP Deprivation Index' was also investigated. Data extracted from this Index is a method of measuring the relative affluence or disadvantage of a particular geographical area using various datasets from the 2016 census. For the purpose of this assessment, the HP Deprivation Index was examined by 'small area' (CSO defined clusters with 80-100 households) to determine which routes served deprived areas;
- Pedestrian safety was considered in the Swiftway Options Assessment in terms of proximity of pedestrian crossings to stops and the provision of footpaths in the vicinity of stops. However, this assessment determined that all options considered in all study area sections were neutral as all options had been designed to provide safe facilities for pedestrians. For this reason, pedestrian safety has been scoped out of this assessment.

5.3 Santry Route Option SY1

The EPR for the CBC through Santry Village is presented in **Figure 5.1** and described in the following text.

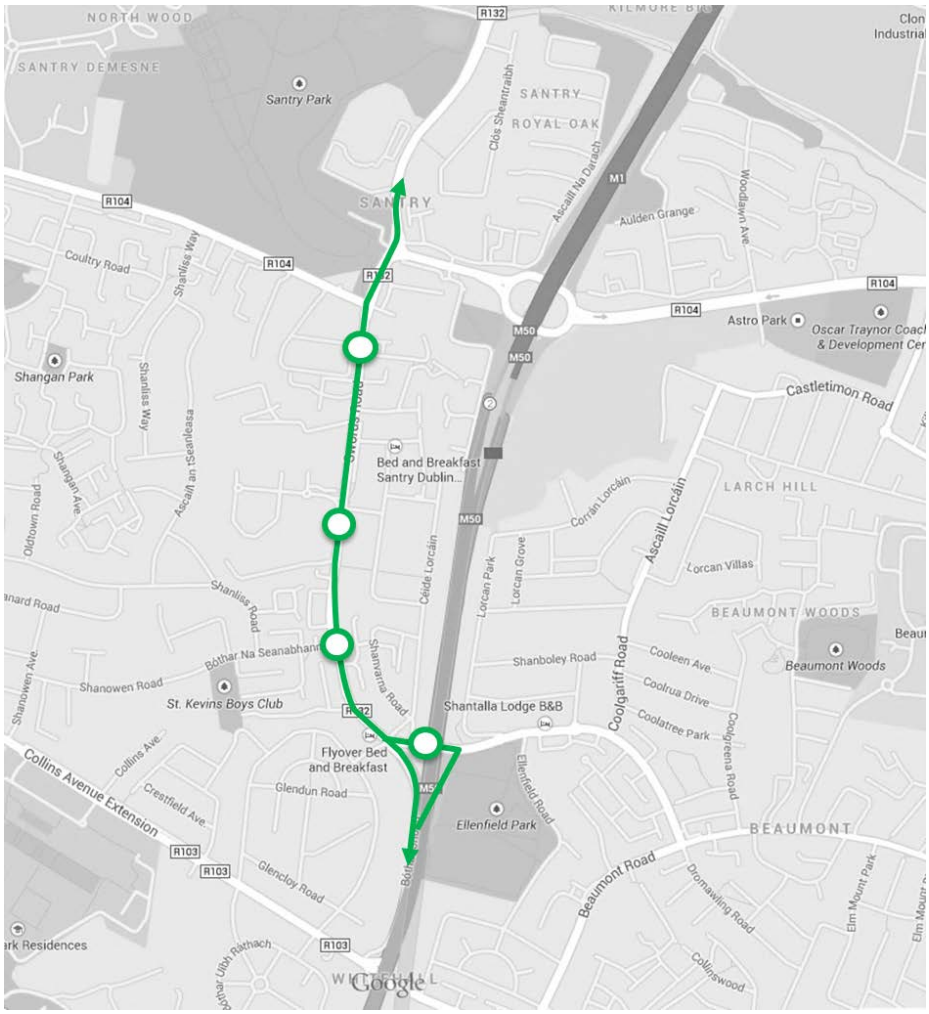

Figure 5.1: Santry Emerging CBC Preferred Route

Inbound (i.e. towards the City Centre): The route would commence on the R132 Swords Road at the junction with Coolock Lane to the north of the village. From this point the route follows the R132 Swords Road as far as the Shantalla Overpass where it continues as the R132 (old N1).

Outbound: The outbound routing would follow the same route as the inbound routing.

Stops: A total of 4 stops would likely be provided in each direction along the route, similar to the locations of the current stops.

A number of scheme options were considered along this route, with each presented in the following sections.

5.4 Option SY1a

***Overview** – Bus lanes, cycle lanes, and traffic lanes in each direction.*

Route Sections:

Figure 5.2 illustrates the indicative scheme design for this option. The location of the cross sections and junctions subsequently referenced in describing this option are also presented in this figure.

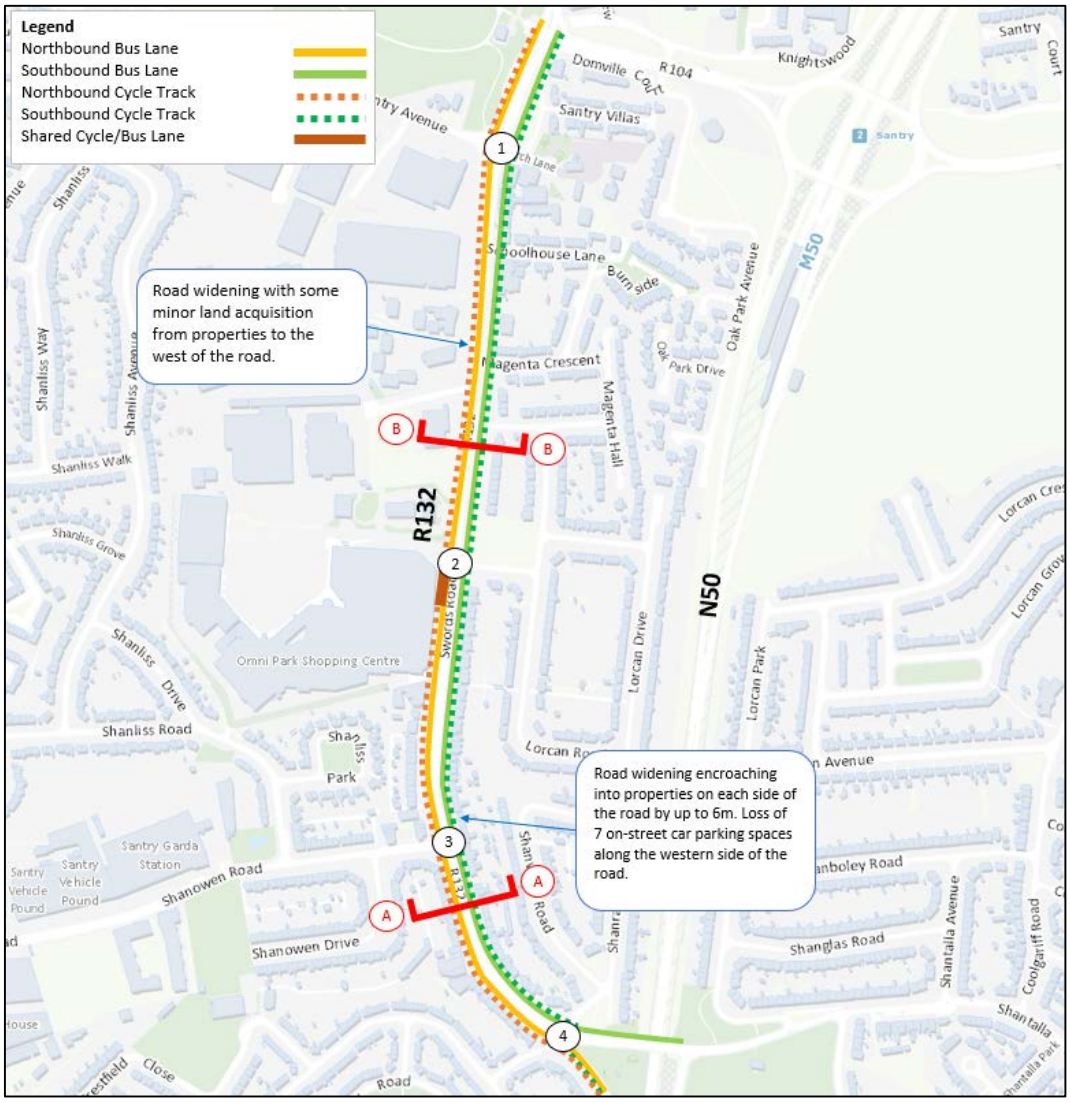

Figure 5.2: Option SY1a Indicative Scheme Design

This option would provide for continuous bus and cycle lanes along the entire length of the route.

Between Santry Avenue and the Omni Shopping Centre, some road widening would be required to facilitate the proposed cross-section, facilitating bus lanes and cycle lanes in each direction.

This is mostly achievable within the road reserve but some land take is required from adjoining lands (mostly to the east) which is primarily open space and commercial in nature.

A cross-section of Swords Road between Santry Avenue and the Omni Shopping Centre for this scheme option is presented in **Figure 5.3**.

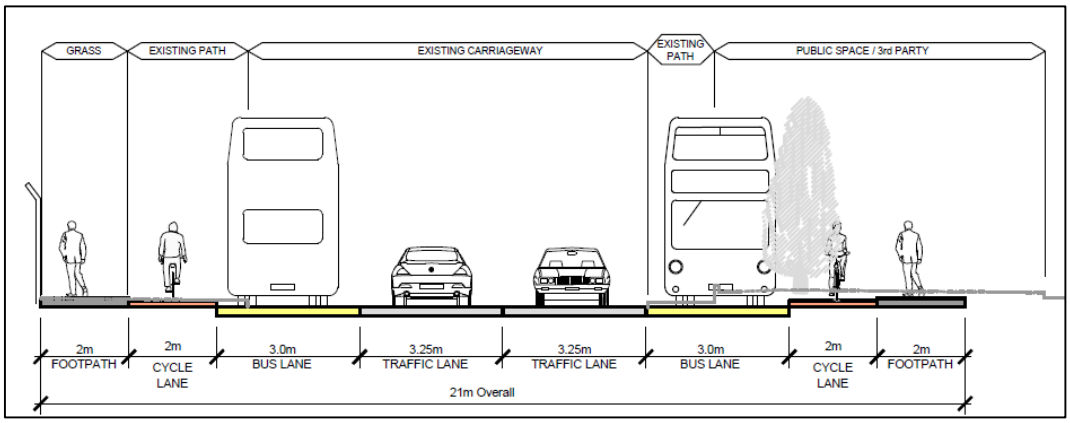

Figure 5.3: SY1a Cross-Section B-B: Swords Road

South of Omni Shopping Centre, road widening would again be required to facilitate bus lanes, cycle lanes and traffic lanes in each direction. This would require land acquisition from adjacent properties on both sides of the road by up to 6-7m. It is worth noting that there is a significant level difference between the road and the properties to the east of the R132 which would make road widening in this area significantly more complex. There would be a loss of seven on-street parking spaces to facilitate this option.

A cross-section of Swords Road between junction Omni Shopping Centre and the Shantalla Road bridge for this scheme option is presented in **Figure 5.4** (note that a wider bus lane is proposed at this location as it is on a bend).

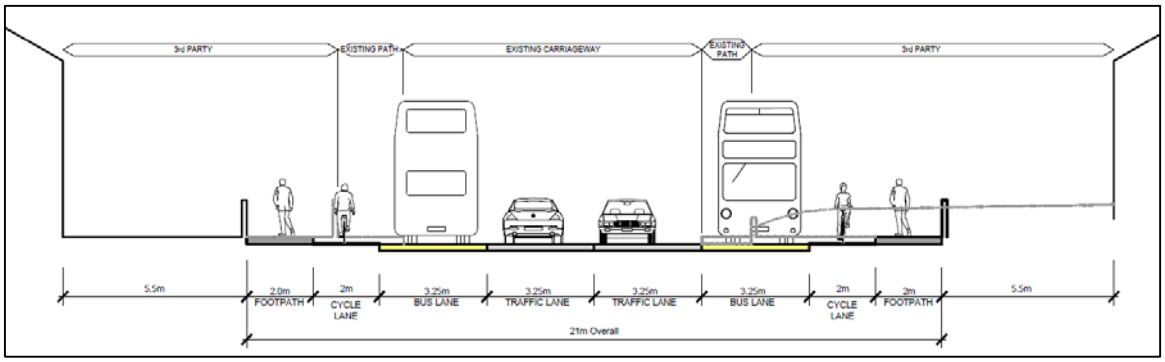

Figure 5.4: SY1a Cross-Section A-A: Swords Road

Junctions:

There are 4 signalised junctions along this option, some of which would require upgrading to facilitate bus priority. The location of these junctions are presented in **Figure 5.2** and discussed here:

1. **Swords Road/Santry Avenue:** The junction layout would require adjustments to facilitate bus lanes on approach to the junction. There would also be a possible requirement to relocate/provide new signal equipment. No adjustments would be needed to the Church Lane and Santry Avenue approaches.
2. **Swords Road/Omni Shopping Centre entrance:** No adjustments would needed on either the Omni Shopping Centre entrance approach or the Lorcan Road approach. Adjustments on the other approaches would however be needed to facilitate bus lanes up to the junction stop lines. The right turn lane on the northern approach arm as a result would have to be shortened. There would also be a possible requirement to relocate/provide new signal equipment.
3. **Swords Road/Shanowen Road:** The junction layout would require adjustments to facilitate bus lanes on approach to the junction. To accommodate this, on the northern approach arm the right turn lane would be removed. The left turn lane on the southern approach arm would be shortened to provide bus priority closer to the stop line. The Shanowen Road approach would however remain in its current form. There is a possible requirement to relocate/replace traffic signal equipment.
4. **Swords Road/Shanrath Road:** Adjustments to the junction layout would be required to facilitate bus lanes on approach to the junction. There would also be a possible requirement to relocate/replace traffic signal equipment.

5.5 Option SY1b

Overview – *Bus lanes and traffic lanes in each direction, off-road cycle track adjacent N50.*

Route Sections:

Figure 5.5 illustrates the indicative scheme design for this option. The location of the cross sections and junctions subsequently referenced in describing this option are also presented in this figure.

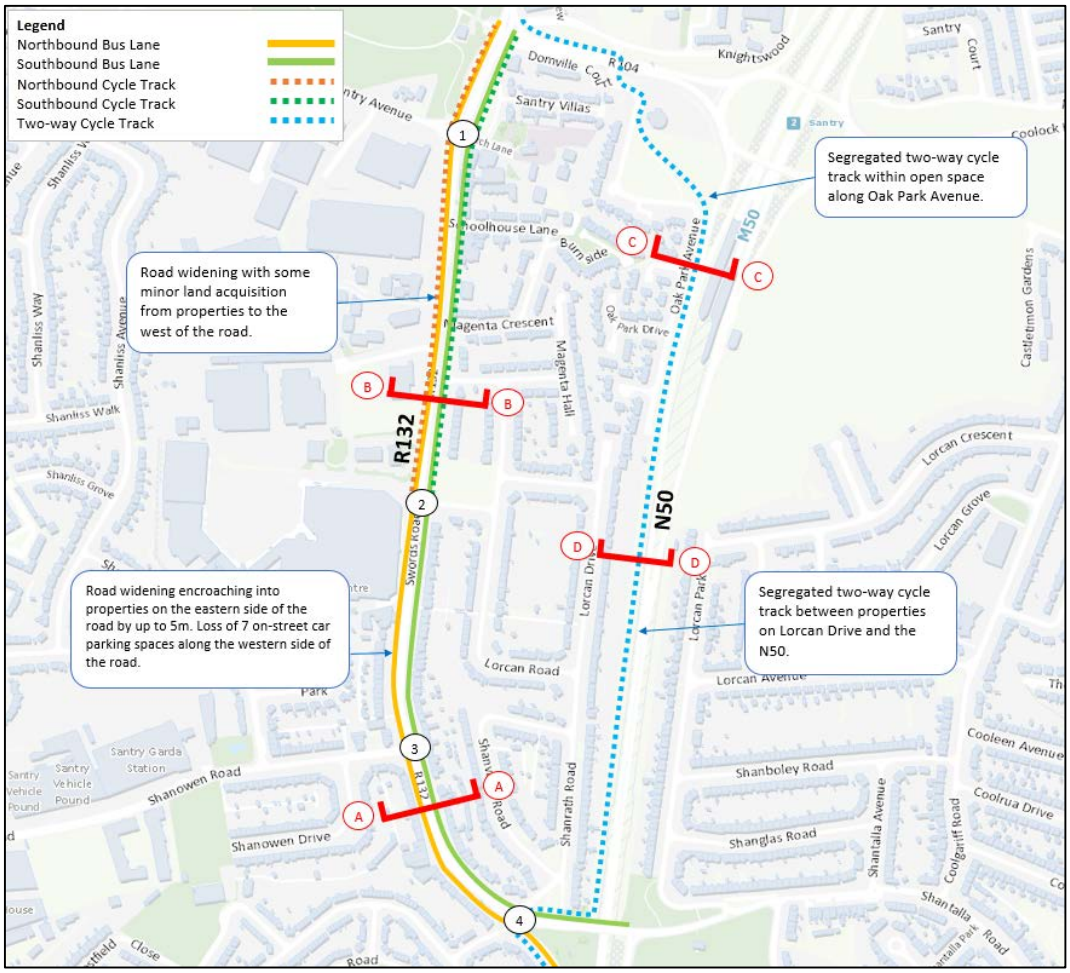

Figure 5.5: Option SY1b Indicative Scheme Design

The northern part of this option, up to the junction with the Omni Shopping Centre entrance, is the same as described for option SY1a on the Swords Road. In addition to the cycle facilities provided along the Swords Road for this section, a parallel two-way cycle track would be provided along Coolock Lane, Oak Park Avenue and the N50. This proposal effectively reroutes Primary Cycle Route 2A away from Santry Village and would primarily cater for cyclists who do not have an origin or destination in Santry. The cycle lanes provided along the Swords Road in this section are therefore intended to serve cyclists in the local area only.

A cross-section of the proposed cycle track adjacent Oak Park Avenue for this scheme option is presented in **Figure 5.6**.

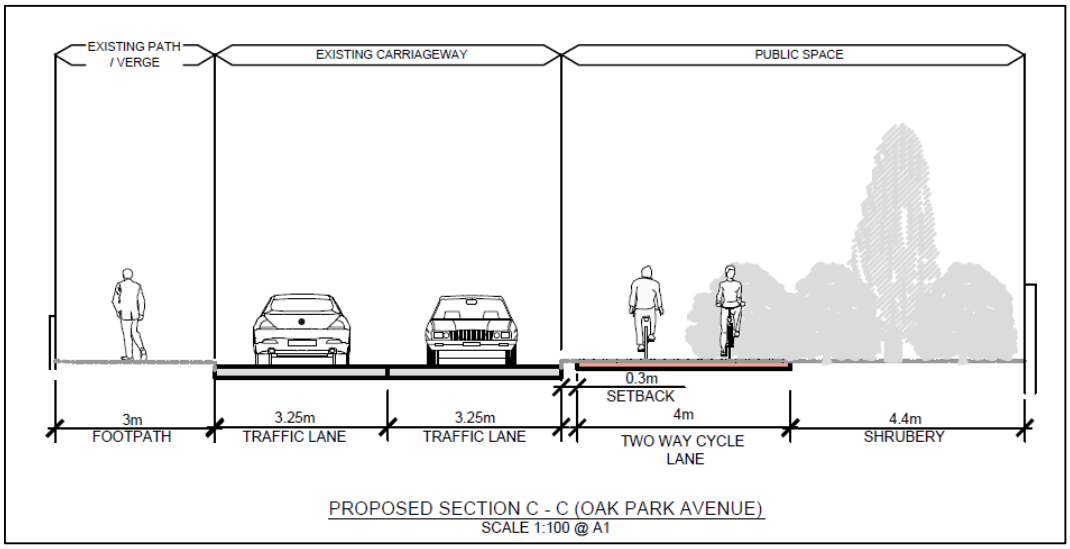

Figure 5.6: SY1b Cross-Section C-C: Oak Park Avenue

Oak Park Avenue is a cul-du-sac with a wall at the end. An opening in the wall would need to be provided to continue the cycle track southbound. From that point it would continue on the embankment next to the N50 between the existing screening vegetation and the road. At the southern end of the route, the cycle track would turn right beyond the Shantalla Bridge over the N50. The cycle track ties in with the proposed infrastructure at the junction Swords Road/Shanrath Road. A cross-section of the cycle track on the embankment adjacent the N50 for this scheme option is presented in **Figure 5.7**.

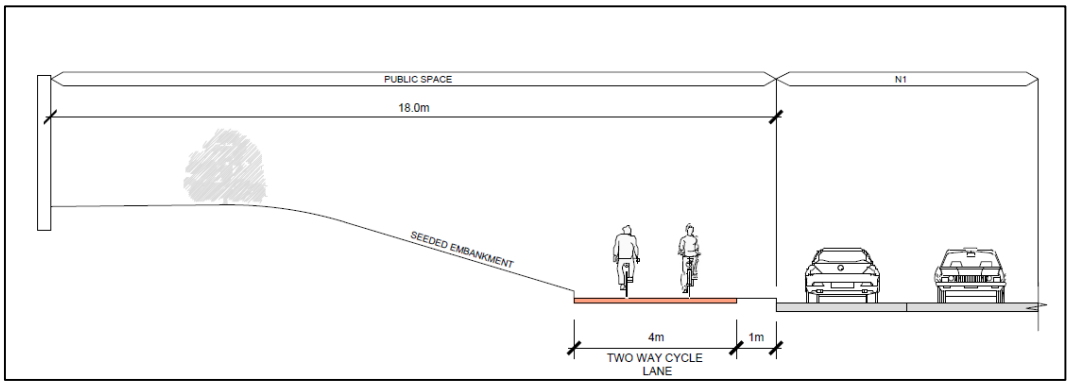

Figure 5.7: SY1b Cross-Section D-D: N50

On the Swords Road, south of the Omni Shopping entrance, road widening would be required to facilitate a bus lane and traffic lane in each direction. This would require land acquisition from adjacent properties on the eastern side of the road by up to 5m. There would be a loss of seven on-street parking spaces to facilitate this option.

As no dedicated cycle facilities are provided with this option, any cyclists originating in the local area and wishing to travel south (or vice versa) would share with the bus lane. A cross-section on Swords Road for this scheme option is illustrated in **Figure 5.8.**

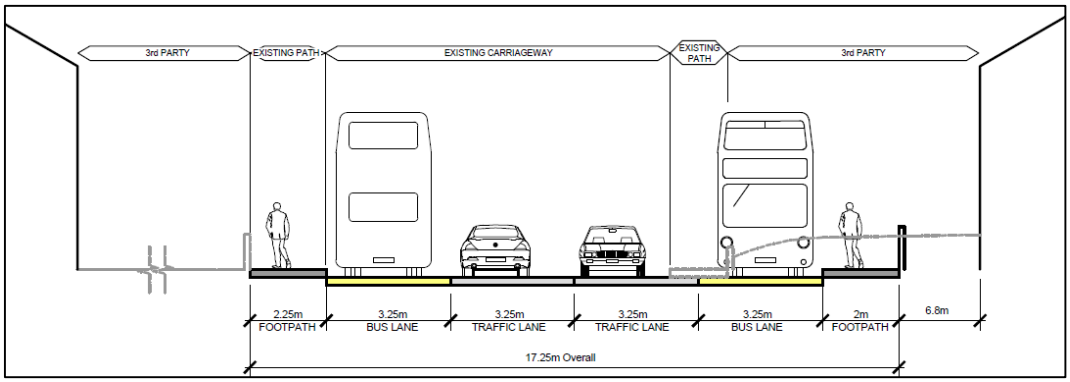

Figure 5.8: SY1b Cross-Section A-A: Swords Road

Junctions:

There are 4 signalised junctions along this option, some of which would require upgrading to facilitate bus priority. The location of these junctions are presented in **Figure 5.5** and discussed below.

1. **Swords Road/Santry Avenue:** The junction layout would require adjustments to facilitate bus lanes on approach to the junction. There would also be a possible requirement to relocate/provide new signal equipment. No adjustments would be needed to the Church Lane and Santry Avenue approaches.
2. **Swords Road/Omni Shopping Centre entrance:** No adjustments would needed on either the Omni Shopping Centre entrance approach or the Lorcan Road approach. Adjustments on the other approaches would however be needed to facilitate bus lanes up to the junction stop lines. The right turn lane on the northern approach arm as a result would have to be shortened. There would also be a possible requirement to relocate/provide new signal equipment.
3. **Swords Road/Shanowen Road:** The junction layout would require adjustments to facilitate bus lanes on approach to the junction. To accommodate this, on the northern approach arm the right turn lane would be removed. The left turn lane on the southern approach arm would be shortened to provide bus priority closer to the stop line. The Shanowen Road approach would however remain in its current form. There is a possible requirement to relocate/replace traffic signal equipment.
4. **Swords Road/Shanrath Road:** Adjustments to the junction layout would be required to facilitate bus lanes on approach to the junction. There would also be a possible requirement to relocate/replace traffic signal equipment.

5.6 Option SY1c

***Overview** – Bus lanes in each direction, traffic lane northbound between Shantalla and Omni Shopping Centre, off-road cycle track along N50.*

Route Sections:

Figure 5.9 illustrates the indicative scheme design for this option. The location of the cross sections and junctions subsequently referenced in describing this option are also presented in this figure.

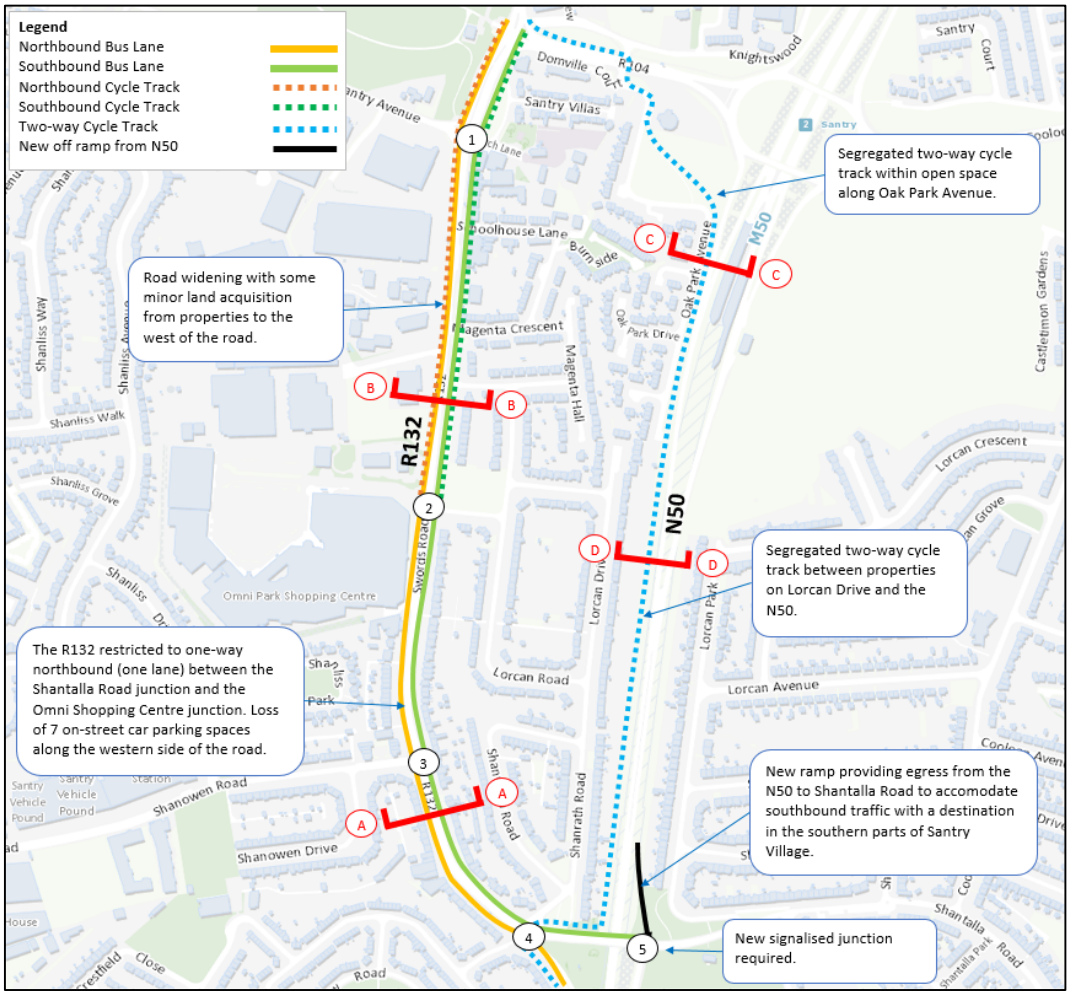

Figure 5.9: Option SY1c Indicative Scheme Design

This option is similar to option SY1b from Coolock Lane to Omni Shopping Centre. This option would also reroute the Primary Route 2A to the segregated two-way cycle track parallel to the N50.

To minimise land acquisition on Swords Road, this option would see the removal of southbound traffic between Omni Shopping Centre and Shantalla Road. For this section of the road, a bus lane would be provided in each direction but only one northbound traffic lane would be provided for general traffic. Combined with the proposal to reroute cyclists to the N50 route this option would negate the need for any land acquisition along this section of the route.

To allow access from the north to properties in the south of Santry Village, this option would require the construction of a new slip road off the N50 for southbound traffic at Shantalla Road. The new slip road would join the Shantalla Road via a new signalised junction and would accommodate all movements.

Cross-sections B-B, C-C and D-D remain the same as in option SY1b. The only cross-section that changes is A-A, which is illustrated in **Figure 5.10**.

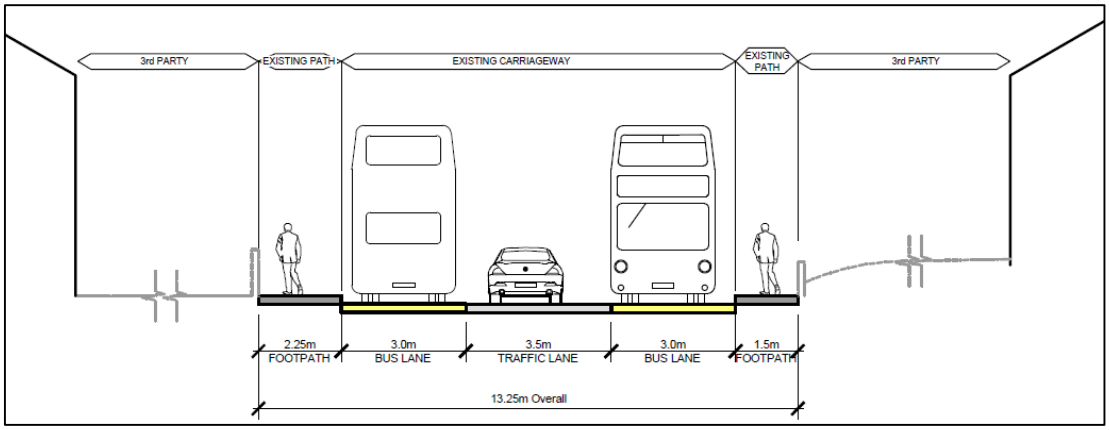

Figure 5.10: SY1c Cross-Section A-A: Swords Road

The proposed traffic management changes will have a direct impact on traffic routes to, from and through the southern part of Santry Village. The following section assesses the impact and considers the alternative routes available to traffic. For traffic originating in the southern portion of Santry Village, two alternative routes are available. These are presented in **Figure 5.11** and discussed in the following section. Also presented in this figure are the distance between a common start point (Shanowen Road/R132 Junction) and end point R132/Collins Avenue Junction) as well as the peak hour journey times which have been taken from Google maps and based on recorded journey times on mobile devices.

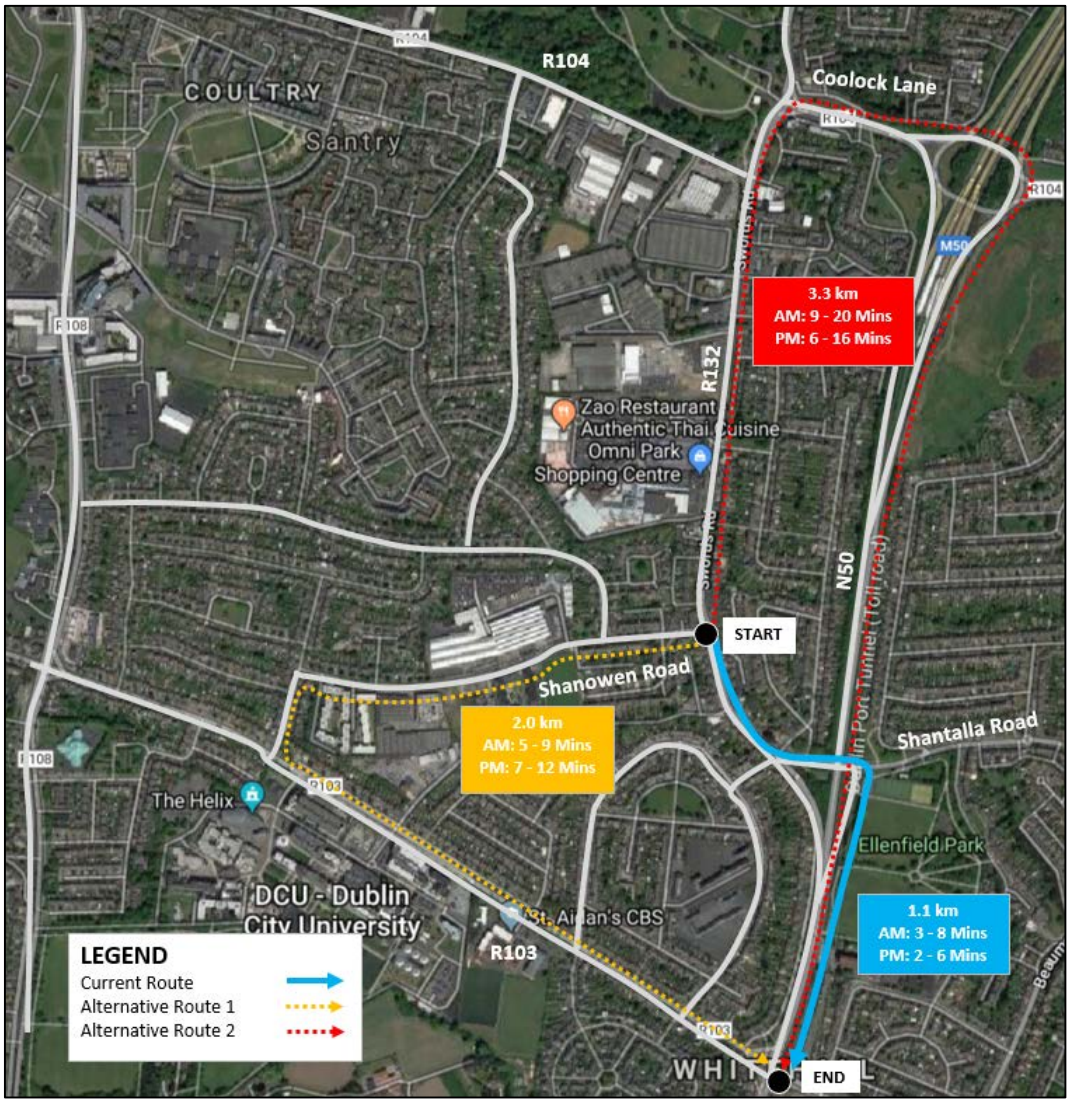

Figure 5.11: Alternative Routes Available for Traffic Originating in Southern Parts of Santry Travelling to City Centre via the R132

As can be seen in **Figure 5.11** the current route from Shanowen Road to the R132 is 1.1km. The shortest available alternative route is via Shanowen Road, Shanowen Avenue and Collins Avenue which is approximately 2.0km. Comparing journey times, this route is only approximately 1 minute longer during the morning peak hour. Based on traffic survey information collected in 2012, there are currently approximately 150 vehicles turning right out of Shanowen Road which would be directly impacted as well as a small number of trips generated from houses along the R132 between Shanowen Road and Shantalla Road. Given the low volumes and minor differences in journey time, the impact in the morning peak is therefore considered to be minor.

In the evening peak hour, the difference is more pronounced with the alternative route taking 5 – 6 minutes longer to complete which equates to double the journey time. There are approximately 170 vehicles turning right out of Shanowen Road which would be directly impacted as well as a small number of trips generated from houses along the R132 between Shanowen Road and Shantalla Road.

While the journey times are increased by 5-6 minutes, the volumes of traffic impacted are low and the impact is therefore considered to be moderate.

In addition to local traffic originating in the southern part of Santry, this traffic management proposal would impact on traffic arriving from the north. As noted earlier, it is proposed to provide a new off-ramp from the N50 to facilitate access to the south of Santry from the north. **Figure 5.12** presents a comparison of the existing and future route lengths and journey times.

Figure 5.12: Alternative Routes Available for Traffic Originating North of Santry with a Destination in the South of Santry

As can be seen in **Figure 5.12**, the future route would require a detour of approximately 1km and resulting in additional journey time of 2-5 minutes in the morning peak hour and up to 3 minutes in the evening peak hour. In the morning peak period there are 290 vehicles turning right into Shanowen Road which would be directly impacted by this. Considering the reasonably high volume of traffic and the additional journey time, this is considered to be a moderate impact.

In the evening peak, journey times are more comparable and the volume of traffic turning right into Shanowen road is less (180 vehicles), and as such the impact is considered to be low during the evening peak.

Given the additional journey times required as a result of the detour, there is a risk that traffic will seek out alternative routes, through neighbouring estates. The only realistic route available through neighbouring estates is via Lorcan Road and Shanrath Road. This route could potentially be used by both through traffic originating from the north of Santry and traffic from Shanowen Road. **Figure 5.13** compares the proposed alternative routes with the potential indirect routes through neighbouring estates to understand if this route represents an attractive route with journey time savings.

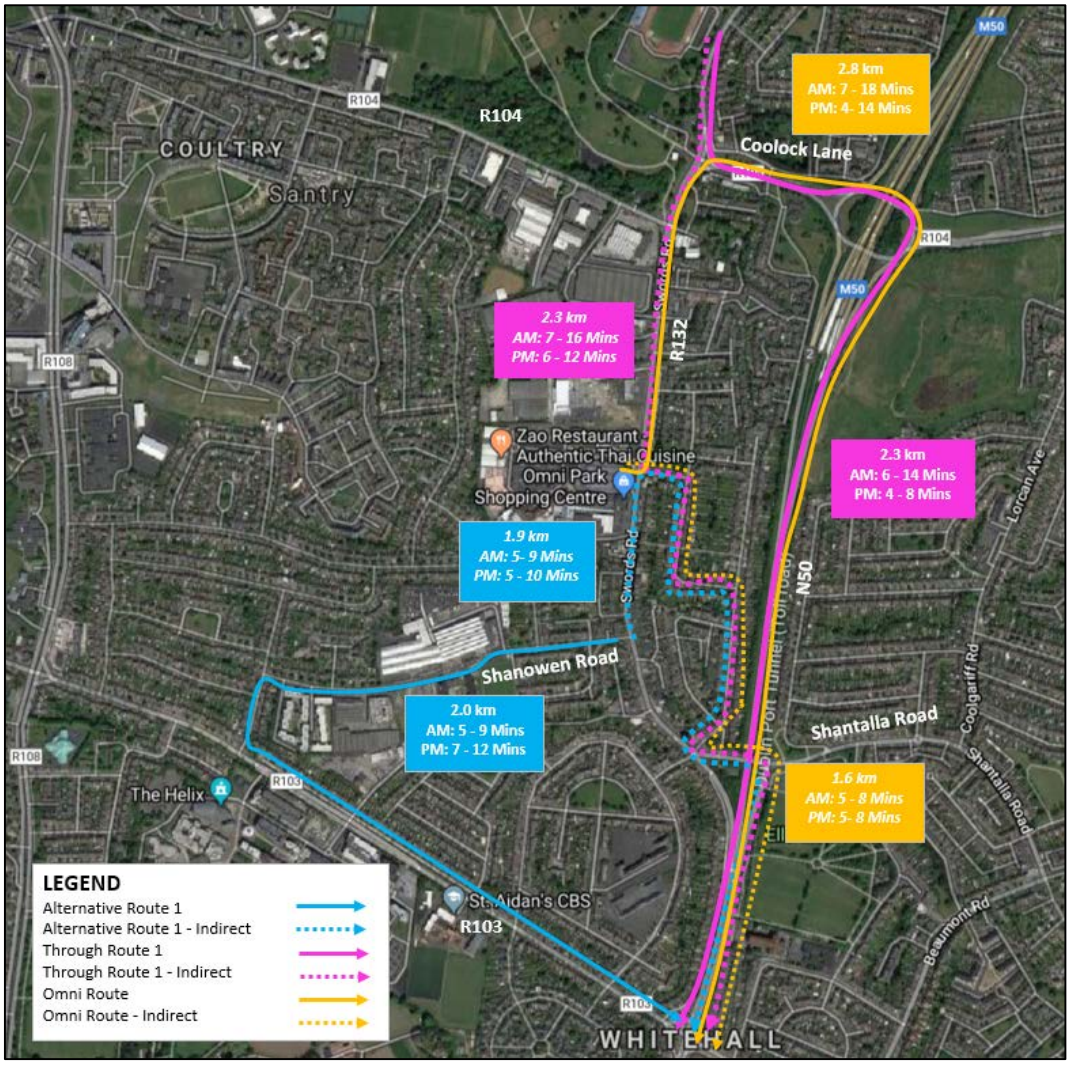

Figure 5.13: Comparison of Alternative Routes with Potential Indirect Routes on Adjacent Residential Roads

As can be seen in **Figure 5.13**, both the alternative route for traffic coming from Shanowen Road and the R132 North of Santry are shorter or comparable to the route through the Lorcan Road/Shanrath Road residential area. As such, the risk of traffic using these routes is low.

However, traffic leaving the Omni Shopping Centre would benefit from travelling through Lorcan Road/Shanrath Road with shorter journey times of 6-10 minutes. Traffic currently turning right out of Omni Shopping Centre (approximately 230 vehicles in the evening peak), would be tempted to use this route and as such it is proposed to ban the straight ahead movement from Omni Shopping Centre to Lorcan Road. This will restrict egress from the Omni Shopping Centre to a left turn out only.

In addition to traffic which has a destination in Santry, existing traffic data indicates that there is a substantial volume of traffic which passes through Santry village and has a destination on Shantalla Road East of the R132 (600-700 vehicles), much of which is thought to be through traffic originating from either the R132 north of Coolock Lane or Santry Avenue. It is also thought that some of this traffic originates from Shanowen Road. **Figure 5.14** presents a comparison of the existing and future route lengths and journey times for traffic bound for Shantalla Road from the North and West of Santry.

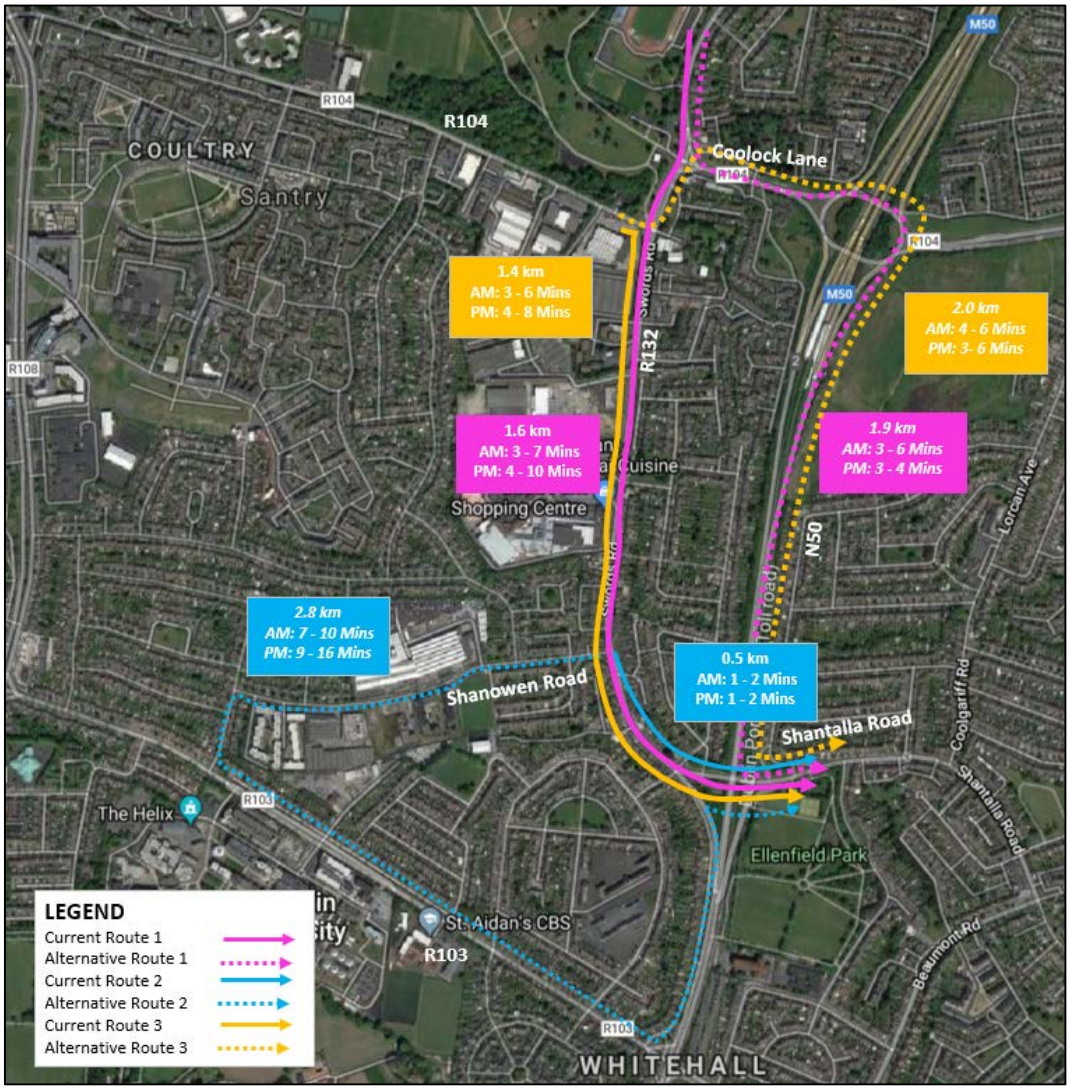

Figure 5.14: Alternative Routes Available for Traffic Originating North or West of Santry with a Destination on Shantalla Road

As can be seen in **Figure 5.14** the journey time of the proposed route for traffic coming from the R132 north or west of Santry (via R132 or Santry Avenue respectively) to Shantalla Road are comparable or better to the existing route.

The proposed alternative route for traffic moving from Shanowen Road to Shantalla Road is considerable compared to the existing route with differences of up to 14 minutes during the evening peak hour. There are approximately 170 vehicles turning right out of Shanowen Road some of which would have a destination on Shantalla Road (approximately 100). While the journey times are increased by up to 14 minutes, the volumes of traffic impacted are low and the impact is therefore considered to be moderate.

It is worth noting that while the proposed traffic management measures will impact on the existing traffic management regime in Santry, the proposed measures will result in an overall positive impact on Santry Village by removing through traffic from the route. This will assist in creating an urban village centre with lower traffic volumes giving more priority to pedestrians, cyclists and public transport.

Junctions:

There are 5 signalised junctions along this option, some of which would require upgrading to facilitate bus priority. The location of these junctions are presented in **Figure 5.9** and discussed below.

1. **Swords Road/Santry Avenue:** The junction layout would require adjustments to facilitate bus lanes on approach to the junction. There would also be a possible requirement to relocate/provide new signal equipment. No adjustments would be needed to the Church Lane and Santry Avenue approaches.
2. **Swords Road/Omni Shopping Centre entrance:** Adjustments needed on the Omni Shopping Centre entrance approach, because this junction will no longer facilitate southbound turning movements. The right turn lanes will be used for traffic turning left and straight. Adjustments on the northern approach are needed to facilitate bus lanes. Only a left and right turn will be facilitated on this arm. On the southern approach arm a rearrangement of lanes will be required. The kerbs will mostly remain in its current positions.
3. **Swords Road/Shanowen Road:** The junction layout requires minimal adjustments to facilitate bus lanes on approach to the junction. There is also a possible requirement to relocate/replace traffic signal equipment. Adjustments mostly limited to rearrangement of the existing traffic lanes. The right turn lane on Shanowen Road would be converted to a bus only lane.
4. **Swords Road/Shanrath Road:** Adjustments to the junction layout would be required to facilitate bus lanes on approach to the junction. There is also a possible requirement to relocate/replace traffic signal equipment. The removal of one car lane on the northern approach provides space to provide for a wider pavement on the eastern side of Swords Roads.

5. **Swords Road/N50:** The new off-slip would require a new signalised junction at the junction with Swords Road. On the off-slip, both a left and right turn lane would be provided.

5.7 Option SY1d

Overview – *Bus lanes and cycle lanes in each direction, traffic lane northbound only between Shantalla and Omni Shopping Centre.*

Route Sections:

Figure 5.15 illustrates the indicative scheme design for this option. The location of the cross sections and junctions subsequently referenced in describing this option are also presented in this figure.

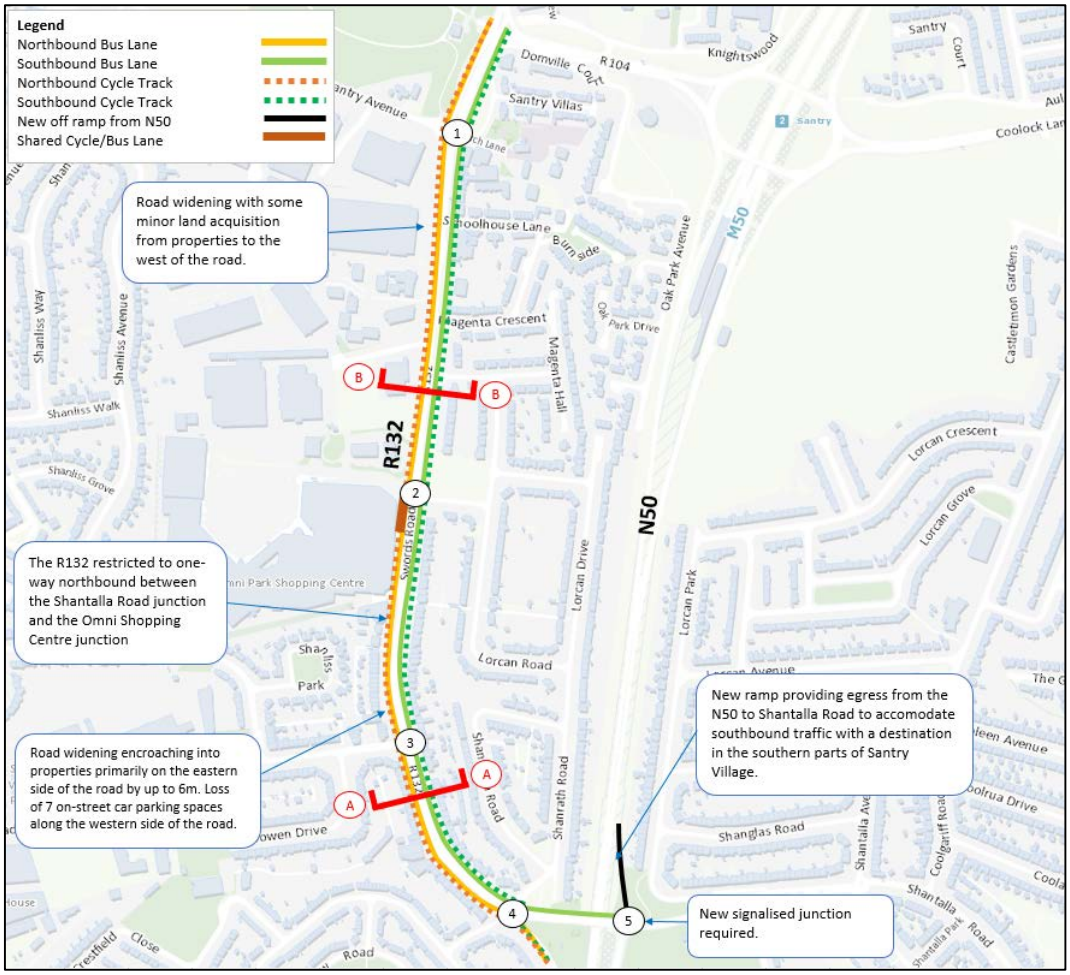

Figure 5.15: Option SY1d Indicative Scheme Design

Option SY1d is similar to option SY1c, with the exception that cycle tracks are provided along the whole length of Swords Road. The segregated two-way cycle track along the N50 is not part of this option. Cross-section B-B is the same as in option SY1a. Cross-section A-A is different in this option as shown in **Figure 5.16**.

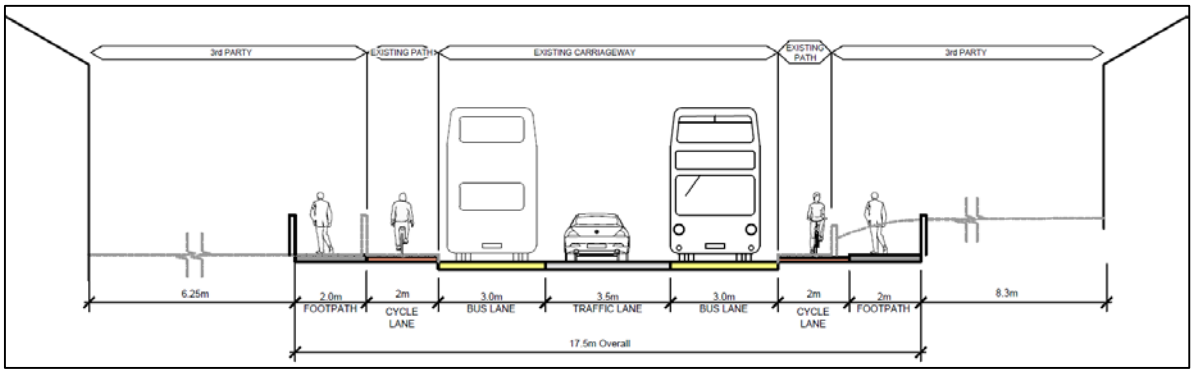

Figure 5.16: SY1d Cross-Section A-A: Swords Road

Junctions:

1. **Swords Road/Santry Avenue:** The junction layout would require adjustments to facilitate bus lanes on approach to the junction. There would also be a possible requirement to relocate/provide new signal equipment. No adjustments would be needed to the Church Lane and Santry Avenue approaches.
2. **Swords Road/Omni Shopping Centre entrance:** Adjustments needed on the Omni Shopping Centre entrance approach, because this junction will no longer facilitate southbound turning movements. The right turn lanes will be used for traffic turning left and straight. Adjustments on the northern approach are needed to facilitate bus lanes. Only a left and right turn will be facilitated on this arm. On the southern approach arm a rearrangement of lanes will be required.
3. **Swords Road/Shanowen Road:** The junction layout requires adjustments to facilitate bus lanes on approach to the junction. There is also a possible requirement to relocate/replace traffic signal equipment. Adjustments mostly limited to rearrangement of the existing traffic lanes. The right turn lane on Shanowen Road would be converted to a bus only lane.
4. **Swords Road/Shanrath Road:** Adjustments to the junction layout would be required to facilitate bus lanes on approach to the junction. There is also a possible requirement to relocate/replace traffic signal equipment. The removal of one car lane on the northern approach provides space to provide for the cycle track on the eastern side of Swords Road.
5. **Swords Road/N50:** The new off-slip requires a new signalised junction at the junction with Swords Road. On the off-slip both a left and right turn lane will be provided.

5.8 Route Options Assessment

Full details of the Stage 2 options assessment undertaken for the proposed CBC scheme along the R132 through Santry are presented in **Appendix A1** and summarised in this section of the report.

The relative ranking of route options against the scheme assessment sub-criteria is summarised in **Table 5.1**.

Table 5.1: Santry Route Options Assessment Summary (Sub-Criteria)

Assessment Criteria	Assessment Sub-Criteria	SY1a	SY1b	SY1c	SY1d
Economy	Capital Cost				
	Transport Reliability and Quality of Service				
Integration	Land Use Integration				
	Residential Population and Employment				
	Transport Network Integration				
	Cycling Integration				
Accessibility & Social Inclusion	Key Trip Attractors				
	Deprived Geographic Areas				
Safety	Road Safety				
Environment	Archaeology and Cultural Heritage				
	Architectural Heritage				
	Flora and Fauna				
	Soils and Geology				
	Hydrology				
	Landscape and Visual				
	Air Quality				
	Noise & Vibration				
	Land Use Character				

In terms of economy, route option SY1c represents the cheapest solution as it requires only minor land-take. Options SY1b and SY1d are the next cheapest with both of these options requiring some land take along the section south of Omni Shopping Centre. Options SY1a would require significant land-take from a large number of properties and as such would be the most expensive option. Transport Reliability is not a differentiator as all options would deliver a similar level of priority for buses.

In terms of 'Integration', only Transport Integration is considered to be a differentiator between options. Options SY1a and SY1b require no changes to the current traffic management regime in Santry and as such perform the best under this criterion. Options SY1c and SY1d would require detours for traffic travelling to and from the north with an origin or destination in the southern parts of Santry and people travelling south from the southern parts of Santry. For this reason, these options perform poorer under this criterion.

Under 'Accessibility and Social Inclusion', there is little to differentiate between route options with each option serving the same key trip attractors and deprived geographic areas.

Similarly, all options are considered to perform the same in terms of 'Safety'.

In terms of 'Environment', generally option SY1a, which would require a large amount of road widening along the R132 south of Omni Shopping Centre, results in greater impact in terms of landscape and Visual, Air and Noise, and Land-use Character. While significant works would be required to facilitate SY1b and SY1d, comparatively these options have less impact on the environment and sensitive receptors. Option SY1c which requires only minimal land-take would perform the best in terms of impact on the environment.

A summary of the assessment and relative ranking of route options against the five main assessment criteria is presented in **Table 5.2**.

Table 5.2: Santry Route Options Assessment Summary (Main Criteria)

Assessment Criteria	SY1a	SY1b	SY1c	SY1d
Economy				
Integration				
Accessibility & Social Inclusion				
Safety				
Environment				

Based on the assessment undertaken, route option SY1c is preferred for the Santry area for the following reasons:

- It is the cheapest to construct and requires the least land acquisition of all options considered;
- It has the least impact on environmental aspects of all options considered;
- It provides a high quality dedicated cycle route away from general traffic. In addition, additional cycle facilities are provided through Santry Village to accommodate local cyclists;

- While this proposal would result in some impact on local traffic movements and require traffic to be rerouted, reduced traffic in Santry would result in an overall improvement to the pedestrian and cyclist environment within the Village.

6 Emerging Preferred Route

6.1 Route Description

The emerging preferred route is presented in **Figure 6.1** and described in this section of the report.

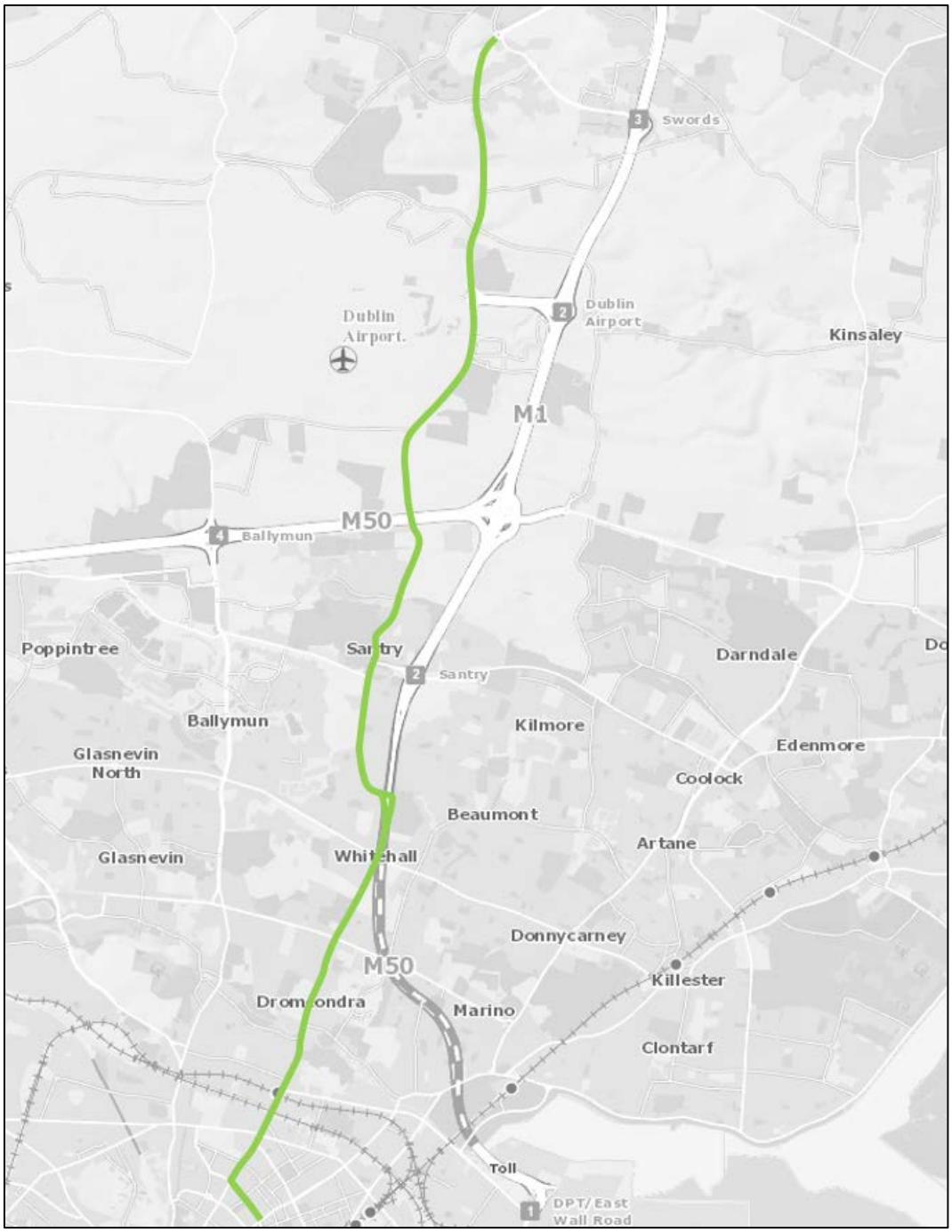

Figure 6.1: Swords to City Centre CBC Emerging Preferred Route

Describing from north to south, the emerging preferred route starts on the R132 at the Pinnock Hill junction and continues along this road passing Airside and onwards to the Airport. At the Airport, the CBC would stay on the R132 past the airport (it is noted that bus services will continue to serve the Airport terminals directly).

From the airport, the preferred route follows the R132 towards Santry where the route passes through Santry Village. To the south of Santry, the route turns off Shantalla Road onto the R132 and onwards to Collins Avenue junction close to Dublin City University.

The route continues along the R132 Swords Road passing Griffith Avenue, DCU St. Patricks College, Drumcondra Village and Drumcondra rail station.

South of the Royal Canal, the preferred route continues southwards along Dorset Street. From Dorset Street, the preferred route turns onto North Frederick Street and continues onto Parnell Square East.

The proposed CBC scheme infrastructure provision will improve existing, and provide new pedestrian and cycle facilities along the route. This includes delivering a significant section of the 'Greater Dublin Area Cycle Network Plan' designated cycle route 2A and 3, which follow the entire emerging preferred route.

6.2 Concept Scheme Design

6.2.1 Overview

A concept scheme design has been prepared for the CBC emerging preferred route. An overview of the main design features provided is described in this section of the report, cross-referenced with to the scheme plans included as Appendix B in Volume 2.

6.2.2 Section 1: Swords South to Dublin Airport (TSK001-01 to TSK001-05)

The emerging preferred route commences at the Pinnock Hill Roundabout, where the existing roundabout would be replaced by a signalised junction to improve bus priority and provide safer movement of pedestrians and cyclists through the junction. The exact arrangement of this junction and interface with Metro North will be determined as the design of both schemes progress.

South of the junction bus lanes will be provided in each direction. The existing footpath will be upgraded and segregated cycle lanes would be provided. Some minor landtake is required to facilitate these proposals.

South of the Airside Junction, it is necessary to widen the road to facilitate the required cross-section and facilities for cyclists and buses.

It is also proposed to convert Cloghran Roundabout to traffic signals to better facilitate bus priority.

The removal of the roundabout will reduce accessibility of adjacent businesses like the Coachman Inn. This will be looked at with the design of the traffic signals (allowing U-turns).

The northern and southern approach arm of the R132 will have one right turn lane, two straight ahead lanes and one left turn lanes. The other two approach arms need to be realigned slightly to tie in with the new junction.

South of the Cloghran Roundabout current provision for cars and buses northbound will remain in place. Southbound a new bus lane is proposed, including a segregated one-way facility for cyclists in both directions. Southbound cyclists cross the R132 at the Coachmans Inn to a two-way cycle path on the western side of the R132.

It is proposed to maintain the Airport Roundabout as a signalised roundabout but with some amendments. To better facilitate bus priority it is proposed to provide a bus lane on the eastern and western sides of the gyratory. On the southern approach to the junction, buses will continue to the stop line and will receive a dedicated bus signal to avoid conflict with left turning movements outside the bus lane. Southbound, the bus lane will stop approximately 35m in advance of the roundabout and share with left turning traffic. However, due to the left turn slip lane, very little left turning traffic is to be expected. Cyclists will be accommodated in a two-way cycle track on the western side of the junction, crossing the Airport access road via a signalised toucan crossing.

South of the Airport Roundabout bus lanes are currently provided in each direction and it is proposed to maintain the existing lane arrangement in this area. It is proposed that the existing northbound shared cycle and pedestrian lane is converted to a dedicated footpath and two-way cycle track as far as the access to the Dublin Airport Green Long-Term Car Park. At this junction, southbound cyclists will cross the R132 to return to the eastern side of the road. South of the Dublin Airport Green Long-Term Car Park access to South Corballis Road, facilities for pedestrians and cyclists are mostly shared except at bus stops where it is proposed to segregate these users.

6.2.3 Section 2: Dublin Airport to Royal Canal (Drawing TSK001-05 to TSK001-16)

South of the South Corballis Road junction, bus lanes are currently provided in each direction and it is proposed to maintain the existing lane arrangement in this area. The existing shared cycle and pedestrian facility will also be maintained in this area.

South of the junction with Old Airport Road, the current lane arrangement of the R132 will remain largely in its current form. There is a pinch point approximately 100m south of the junction caused by the presence of listed structures and as such it is necessary to reduce the width of the cycle facility to 1.5m locally. South of this point full width pedestrian, cycle and bus facilities are proposed with road widening and land acquisition from adjacent properties required.

It is proposed to maintain the existing bus lanes south of the junction with Turnapin Lane. It is also proposed to provide segregated facilities for pedestrians and cyclists resulting in the need for some land-take in this area.

At the junction with Northwood Avenue, minor adjustments to the current layout are proposed. South of the junction existing bus lanes will be extended to provide continuous bus lanes. Additionally, segregated cycle lanes will be provided in each direction. The proposed upgrades will result in a requirement for land take. Specimen trees have been identified within Santry Demesne in this area and as the majority of road widening will take place on the western side of the R132 in this area. While some encroachment into Santry Demesne is proposed, this would not impact on the specimen trees which are set back from the boundary wall. The proposal will also require some landtake to the east of the R132 adjacent Morton Stadium. Close to the entrance of Morton Stadium it is proposed to introduce a new pedestrian crossing.

At the junction with Coolock Lane it is proposed to widen the junction to cater for dedicated bus lanes and cycle lanes. On the northern approach arm the north- and southbound bus lanes will be extended to the stop line. To facilitate these improvements it is necessary to encroach on Santry Demesne and the relocate the existing wall at the entrance to the Demesne. In addition it would be necessary to remove one of the existing mature trees at the entrance.

Owing to space restrictions along the R132 through Santry Village, a parallel two-way cycle track is proposed along Coolock Lane, Oak Park Avenue and the N50. This proposal effectively reroutes Primary Cycle Route 2A away from Santry Village and would primarily cater for cyclists who do not have an origin or destination in Santry.

The two-way cycle track would commence on the northern side of Coolock lane at the R132 junction and cross to the southern side of the road at the Oak Park/Coolock Lane junction before passing through the green area as far as Oak Park Avenue. Along Oak Park Avenue, the two way cycle facility will be provided in the verge adjacent the road and would require the removal of some trees to facilitate this. Oak Park Avenue is a cul-du-sac with a wall at the end. An opening in the wall would need to be provided to continue the cycle track southbound. From that point it continues on the embankment next to the N50 between the existing screening vegetation and the road. At the southern end of the route, the cycle track would turn right beyond the Shantalla Bridge over the N50. The cycle track ties in with the proposed infrastructure at the junction Swords Road/Shanrath Road.

Bus facilities will continue along the R132 through Santry Village. It is proposed to rearrange and widen the existing road south of the junction with Coolock Lane to provide bus lanes in each direction. Parking spaces on the eastern side of the road between Santry Avenue and Schoolhouse Lane will have to be removed. It is also proposed to provide segregated facilities for cyclists and pedestrians in each direction as far as the Omni Shopping Centre. To facilitate this, some minor land take is required from properties to the east and west of the road.

South of Omni Shopping Centre it is proposed to remove the southbound traffic lane as far as Shantalla Road.

For this section of the road a bus lane would be provided in each direction but only one northbound traffic lane would be provided for general traffic. While no land take is required to facilitate this, 7 on-street car parking spaces would need to be removed. No dedicated cycle lanes would be provided along this section of the route.

To allow access from the north to properties in the south of Santry Village, this option would require the construction of a new slip road off the N50 for southbound traffic at Shantalla Road. The new slip road would join the Shantalla Road via a new signalised junction and would accommodate all movements.

At the junction with Shanrath Road it is proposed to accommodate cyclists coming off the new two-way cycle track. It is also proposed to widen the road coming off the R132 northbound, to introduce a bus lane.

Along the R132 south of the Shantalla Road overpass, it is proposed to introduce bus lanes in each direction. Northbound, an existing vehicular lane will be converted to a bus lane. It is also proposed to provide for southbound cyclists on a segregated facility. Road widening is required as a result of both proposals. Northbound cyclists will be directed to use the parallel road to the west of the R132, where it is proposed to convert this road to a shared vehicular and cycle road.

It is proposed to upgrade the Collins Avenue junction to better facilitate bus priority. In both directions, it is proposed to provide a dedicated, physically segregated bus lane to the stop line. Buses will receive a dedicated bus signal to pass through the junction. It is also proposed to provide dedicated facilities for cyclists on all approaches to the junctions. Some land take is required from adjacent properties in order to facilitate the upgraded junction.

South of the junction with Collins Avenue it is proposed to use existing bus lanes but some road widening is required to provide dedicated cycle lanes in each direction.

At the junction with Griffith Avenue it is proposed to extend the bus lanes closer to the stop line and provide dedicated cycle facilities to and through the junction.

South of Griffith Avenue it is proposed to use the existing bus lanes, extending them closer to junctions where possible. Improved, cycle lanes will also be provided in each direction. This would require some road widening but no land take is required.

It is proposed to widen the bridge over the Tolka south of Richmond Road to facilitate the bus and cycle lanes in each direction.

6.2.4 Section 3: Royal Canal to O'Connell Street (Drawing TSK001-16 to TSK001-17)

Between Royal Canal and Belvidere Road, bus lanes are currently provided in each direction.

However to facilitate cycle lanes in each direction it is necessary to remove one of the inbound traffic lanes as well as some local road widening. In addition the landscaped median will be removed to facilitate the required cross-section.

South of Belvidere Road, bus lanes are currently provided but it is proposed to remove a traffic lane in each direction to accommodate cycle lanes. The existing landscaped median will be maintained.

At the junction with North Circular Road it is proposed to ban the left turn movement from the Dorset Street northern approach to improve bus priority and remove the conflict cyclists moving straight ahead. Vehicles currently making this movement will divert to Belvidere Road.

South of North Circular Road, it is proposed to widen the road to accommodate a bus lane, one traffic lane and cycle lane in each direction. To facilitate this, the existing landscape median would be removed.

At the junction with Gardiner Street it is proposed to ban the left turn movement from both the northern and southern approaches to improve bus priority and remove the conflict cyclists moving straight ahead. Vehicles currently making this movement from the northern approach will divert to Belvidere Road while those turning left from the southern approach will turn at Eccles Street.

South of Gardiner Street, some minor kerb realignments are proposed to provide bus, cycle and a single traffic lane in each direction. The landscaped central median will be removed to facilitate this.

At the junction with Eccles Street/Hardwicke Place it is proposed to ban the left turn movement from the Dorset Street northern approach to improve bus priority and remove the conflict cyclists moving straight ahead. Vehicles currently making this movement will divert to Belvidere Road.

South of Eccles Street, some minor kerb realignments are proposed to provide bus, cycle and a single traffic lane in each direction. The painted central median will be removed to facilitate this.

Buses will turn left onto Frederick Street where it is proposed that southbound, Frederick Street is converted to a bus lane. Northbound, the existing traffic lane will be maintained. On street parking currently provided along the western side of the road will be removed and some minor road widening is proposed to facilitate cycle lanes in each direction.

South of Gardiner Row it is similarly proposed to provide a bus lane southbound and maintain the existing southbound traffic lane. On street parking currently provided along the western side of the road will be removed and some minor road widening is proposed to facilitate cycle lanes in each direction. The northbound cycle lane will between O'Connell Street and Parnell Square north will be contra-flow.

Northbound buses will use Parnell Street, Parnell Square West and Granby Road to access Dorset Street Upper. With the exception of Parnell Street, where there is insufficient space, bus lanes will be provided along these roads to facilitate northbound buses.

7 Next Steps

The next project stage (Preliminary Design Stage) will further refine and update the initial concept design developed as part of this Study for the emerging preferred CBC route. This will define the final practically achievable scheme for the CBC, taking account of more detailed studies of constraints, impacts and environmental assessment required at a local level.

Prior to finalisation of the CBC scheme design, a public consultation process will be undertaken, with inputs and feedback received incorporated where practical and appropriate to do so.

Due to the extent of the works required, and in particular the widening of existing roads from two to four lanes between Coolock Lane and Northwood Avenue, an environmental impact statement will likely be required. The preferred scheme will also be the subject of a detailed business case appraisal before progressing through the statutory planning process.

Appendix A

Santry Route Options Assessment

A1 Santry Route Options Assessment

Assessment Criterion	Assessment Sub-Criterion	Route Option SY1a (Swords Road – Bus lanes, cycle lanes, and traffic lanes in each direction)	Route Option SY1b (Swords Road – Bus lanes and traffic lanes in each direction, off-road cycle track adjacent N50)	Route Option SY1c (Swords Road – Bus lanes in each direction, traffic lane northbound, off-road cycle track)	Route Option SY1d (Swords Road – Bus lanes and cycle lanes in each direction, traffic lane northbound)
Economy (Cost Assessment and Transport Economic Indicators)	Capital Cost	**Total Capital Cost** €8.2m ***Indicative Scheme Infrastructure* Works Cost** (€3.5m) - Road widening on Swords Road and associated works (drainage, services etc.) to facilitate bus lanes and cycle tracks in each direction - Boundary works to impacted properties - Modify Swords Road/Larkhill Road junction to facilitate widened carriageway - Modify Swords Road/Shanowen Road junction to facilitate widened carriageway	**Total Capital Cost** €6.3m ***Indicative Scheme Infrastructure Works Cost*** (€4.6m) - Road widening on eastern side of Swords Road and associated works (drainage, services etc.) to facilitate bus lanes tracks in each direction - Boundary works to impacted properties - Modify Swords Road/Larkhill Road junction to facilitate widened carriageway - Modify Swords Road/Shanowen Road junction to facilitate widened carriageway	**Total Capital Cost** €4.4m ***Indicative Scheme Infrastructure Works Cost*** (€4.3m) - Road widening along Crumlin Road between Lorcan Road and Coolock Lane - Minor local widening / kerb realignment works between Larkhill Road and Lorcan Road - Minor upgrades to Swords Road/Larkhill Road junction - Minor upgrades to Swords Road/Shanowen Road junction - Modify Swords Road Road/Lorcan Road junction	**Total Capital Cost** €6.0m ***Indicative Scheme Infrastructure Works Cost*** (€4.2m) - Road widening on eastern side of Swords Road and associated works (drainage, services etc.) to facilitate bus lanes and cycle tracks in each direction - Boundary works to impacted properties - Modify Swords Road/Larkhill Road junction to facilitate widened carriageway - Modify Swords Road/Shanowen Road junction to facilitate widened carriageway

Assessment Criterion	Assessment Sub-Criterion	Route Option SY1a (Swords Road – Bus lanes, cycle lanes, and traffic lanes in each direction)	Route Option SY1b (Swords Road – Bus lanes and traffic lanes in each direction, off-road cycle track adjacent N50)	Route Option SY1c (Swords Road – Bus lanes in each direction, traffic lane northbound, off-road cycle track)	Route Option SY1d (Swords Road – Bus lanes and cycle lanes in each direction, traffic lane northbound)
		- Modify Swords Road Road/Lorcan Road junction to facilitate widened carriageway - Modify Swords Road/Santry Avenue junction to facilitate widened carriageway - Modify Swords Road/Coolock Avenue junction to facilitate widened carriageway - Provision of cycle tracks and improved pedestrian facilities along route ***Land Acquisition Cost*** (€4.7m) 3,120 sqm Private Land 78 Properties affected	- Modify Swords Road Road/Lorcan Road junction to facilitate widened carriageway - Modify Swords Road/Santry Avenue junction to facilitate widened carriageway - Modify Swords Road/Coolock Avenue junction to facilitate widened carriageway - Provide two-way cycle track along N50 ***Land Acquisition Cost*** (€1.7m) 1,100 sqm Private Land 39 Properties affected	to facilitate widened carriageway - Modify Swords Road/Santry Avenue junction to facilitate widened carriageway - Modify Swords Road/Coolock Avenue junction to facilitate widened carriageway - Provide two-way cycle track along N50 ***Land Acquisition Cost*** (€0.1m) 80 sqm Private Land 1 Property affected	- Modify Swords Road Road/Lorcan Road junction to facilitate widened carriageway - Modify Swords Road/Santry Avenue junction to facilitate widened carriageway - Modify Swords Road/Coolock Avenue junction to facilitate widened carriageway ***Land Acquisition Cost*** (€1.8m) 1,170 sqm Private Land 56 Properties affected
	Rank				
	Transport Reliability and Quality of Service	Journey Time: 4- 5 mins Length: 1.4 km No. of Junctions: 5	Journey Time: 4 – 5 mins Length: 1.4 km No. of Junctions: 5	Journey Time: 4 - 5 mins Length: 1.4 km No. of Junctions: 5	Journey Time: 4 - 5 mins Length: 1.4 km No. of Junctions: 5

Assessment Criterion	Assessment Sub-Criterion	Route Option SY1a (Swords Road – Bus lanes, cycle lanes, and traffic lanes in each direction)	Route Option SY1b (Swords Road – Bus lanes and traffic lanes in each direction, off-road cycle track adjacent N50)	Route Option SY1c (Swords Road – Bus lanes in each direction, traffic lane northbound, off-road cycle track)	Route Option SY1d (Swords Road – Bus lanes and cycle lanes in each direction, traffic lane northbound)
		Bus lanes are provided along approximately 100% of this route option.	Bus lanes are provided along approximately 100% of this route option.	Bus lanes are provided along approximately 100% of this route option. Swords Road southbound between Lorcan Road and Larkhill Road would be restricted to buses only.	Bus lanes are provided along approximately 100% of this route option. Swords Road southbound between Lorcan Road and Larkhill Road would be restricted to buses only.
	Rank				
Integration	Land Use Integration	This route serves an area which is largely developed, with limited scope for further development. As the surrounding area is high density, the route provides good integration with land use.	This route serves an area which is largely developed, with limited scope for further development. As the surrounding area is high density, the route provides good integration with land use.	This route serves an area which is largely developed, with limited scope for further development. As the surrounding area is high density, the route provides good integration with land use.	This route serves an area which is largely developed, with limited scope for further development. As the surrounding area is high density, the route provides good integration with land use.
	Rank				
	Residential Population and Employment Catchments	***Residential population Catchments*** - 5 minute walk catchment of approximately 3,100 - 10 minute walk catchment of approximately 8,300 - 15 minute walk catchment of approximately 17,400	***Residential population catchments*** - 5 minute walk catchment of approximately 3,100 - 10 minute walk catchment of approximately 8,300 - 15 minute walk catchment of approximately 17,400	***Residential population catchments*** - 5 minute walk catchment of approximately 3,100 - 10 minute walk catchment of approximately 8,300 - 15 minute walk catchment of approximately 17,400	***Residential population catchments*** - 5 minute walk catchment of approximately 3,100 - 10 minute walk catchment of approximately 8,300 - 15 minute walk catchment of approximately 17,400

Assessment Criterion	Assessment Sub-Criterion	Route Option SY1a (Swords Road – Bus lanes, cycle lanes, and traffic lanes in each direction)	Route Option SY1b (Swords Road – Bus lanes and traffic lanes in each direction, off-road cycle track adjacent N50)	Route Option SY1c (Swords Road – Bus lanes in each direction, traffic lane northbound, off-road cycle track)	Route Option SY1d (Swords Road – Bus lanes and cycle lanes in each direction, traffic lane northbound)
		Education and employment catchments 10 minute walk catchment of approximately 3,600	***Education and employment catchments*** 10 minute walk catchment of approximately 3,600	***Education and employment catchments*** 10 minute walk catchment of approximately 3,600	***Education and employment catchments*** 10 minute walk catchment of approximately 3,600
	Rank				
	Transport Network Integration	This route coincides with portions of existing bus routes 1, 16, 33, 41, 41b, 41c, and 104. There is no potential for interchange with orbital bus routes or other public transport modes. There would be no impact on general traffic.	This route coincides with portions of existing bus routes 1, 16, 33, 41, 41b, 41c, and 104. There is no potential for interchange with orbital bus routes or other public transport modes. There would be no impact on general traffic.	This route coincides with portions of existing bus routes 1, 16, 33, 41, 41b, 41c, and 104. There is no potential for interchange with orbital bus routes or other public transport modes. As noted in section 5.6, there would be a moderate impact on general traffic moving to and from the southern portion of this route as a result of this option due to the removal of the general traffic lane southbound between Lorcan Road and Larkhill Road.	This route coincides with portions of existing bus routes 1, 16, 33, 41, 41b, 41c, and 104. There is no potential for interchange with orbital bus routes or other public transport modes. There would be a moderate impact on general traffic moving to and from the southern portion of this route as a result of this option due to the removal of the general traffic lane southbound between Lorcan Road and Larkhill Road.
	Rank				

Assessment Criterion	Assessment Sub-Criterion	Route Option SY1a (Swords Road – Bus lanes, cycle lanes, and traffic lanes in each direction)	Route Option SY1b (Swords Road – Bus lanes and traffic lanes in each direction, off-road cycle track adjacent N50)	Route Option SY1c (Swords Road – Bus lanes in each direction, traffic lane northbound, off-road cycle track)	Route Option SY1d (Swords Road – Bus lanes and cycle lanes in each direction, traffic lane northbound)
	Cycling integration	This route option is identified in the GDA Cycle Network Plan as forming part of primary cycle route 2A. This route option proposes dedicated raised adjacent cycle tracks along the length of the route.	This route option is identified in the GDA Cycle Network Plan as forming part of primary cycle route 2A. For this route option, no dedicated cycle facilities would be provided along Swords Road. Primary route 2A would be rerouted to a dedicated two-way cycle track along the western side of the N50 between Coolock Lane and Larkhill Road and delivered as part of this scheme. Raised adjacent cycle facilities would be provided along Swords Road between Coolock Road and Lorcan Road to accommodate local cyclists.	This route option is identified in the GDA Cycle Network Plan as forming part of primary cycle route 2A. For this route option, no dedicated cycle facilities would be provided along Swords Road. Primary route 2A would be rerouted to a dedicated two-way cycle track along the western side of the N50 between Coolock Lane and Larkhill Road and delivered as part of this scheme. Raised adjacent cycle facilities would be provided along Swords Road between Coolock Road and Lorcan Road to accommodate local cyclists.	This route option is identified in the GDA Cycle Network Plan as forming part of primary cycle route 2A. This route option proposes dedicated raised adjacent cycle tracks along the length of the route.
	Rank				
Accessibility and Social Inclusion	Key Trip Attractors (Education/Health/Commercial/Employment)	***Retail*** - Omni Centre - Swords Road, Santry ***Leisure*** - St. Kevin's FC ***Education***	***Retail*** - Omni Centre - Swords Road, Santry ***Leisure*** - St. Kevin's FC ***Education***	***Retail*** - Omni Centre - Swords Road, Santry ***Leisure*** - St. Kevin's FC ***Education***	***Retail*** - Omni Centre - Swords Road, Santry ***Leisure*** - St. Kevin's FC ***Education***

Assessment Criterion	Assessment Sub-Criterion	Route Option SY1a (Swords Road – Bus lanes, cycle lanes, and traffic lanes in each direction)	Route Option SY1b (Swords Road – Bus lanes and traffic lanes in each direction, off-road cycle track adjacent N50)	Route Option SY1c (Swords Road – Bus lanes in each direction, traffic lane northbound, off-road cycle track)	Route Option SY1d (Swords Road – Bus lanes and cycle lanes in each direction, traffic lane northbound)
		- Margaret Aylward Community College	- Margaret Aylward Community College	- Margaret Aylward Community College	Margaret Aylward Community College
	Rank				
	Deprived Geographic Areas	The route serves a number of areas in the Ballymun RAPID area. In terms of the HP Deprivation Index, the route serves areas ranging from disadvantaged to affluent.	The route serves a number of areas in the Ballymun RAPID area. In terms of the HP Deprivation Index, the route serves areas ranging from disadvantaged to affluent.	The route serves a number of areas in the Ballymun RAPID area. In terms of the HP Deprivation Index, the route serves areas ranging from disadvantaged to affluent.	The route serves a number of areas in the Ballymun RAPID area. In terms of the HP Deprivation Index, the route serves areas ranging from disadvantaged to affluent.
	Rank				
Safety	Road Safety	No. of Junction: 5 No turn movements required in either direction.	No. of Junction: 5 No turn movements required in either direction.	No. of Junction: 5 No turn movements required in either direction.	No. of Junction: 5 No turn movements required in either direction.
	Rank				
Environment	Archaeology and Cultural Heritage	No Recorded Monuments or sites of archaeological and cultural heritage merit were identified along the route or within the vicinity of the route.	No Recorded Monuments or sites of archaeological and cultural heritage merit were identified along the route or within the vicinity of the route.	No Recorded Monuments or sites of archaeological and cultural heritage merit were identified along the route or within the vicinity of the route.	No Recorded Monuments or sites of archaeological and cultural heritage merit were identified along the route or within the vicinity of the route.
	Rank				

Assessment Criterion	Assessment Sub-Criterion	Route Option SY1a (Swords Road – Bus lanes, cycle lanes, and traffic lanes in each direction)	Route Option SY1b (Swords Road – Bus lanes and traffic lanes in each direction, off-road cycle track adjacent N50)	Route Option SY1c (Swords Road – Bus lanes in each direction, traffic lane northbound, off-road cycle track)	Route Option SY1d (Swords Road – Bus lanes and cycle lanes in each direction, traffic lane northbound)
	Architectural Heritage	There are no Protected Structures or sites recorded on the National Inventory of Architectural Heritage along the route.	There are no Protected Structures or sites recorded on the National Inventory of Architectural Heritage along the route.	There are no Protected Structures or sites recorded on the National Inventory of Architectural Heritage along the route.	There are no Protected Structures or sites recorded on the National Inventory of Architectural Heritage along the route.
	Rank				
	Flora & Fauna	The route does not cross any site of International, European or National conservation value. The route does not traverse any streams or rivers.	The route does not cross any site of International, European or National conservation value. The route does not traverse any streams or rivers. There are intermittent trees and hedgerows along Swords Road that would be impacted by the scheme.	The route does not cross any site of International, European or National conservation value. The route does not traverse any streams or rivers. There are intermittent trees and hedgerows along Swords Road, although these would not be impacted by the scheme.	The route does not cross any site of International, European or National conservation value. The route does not traverse any streams or rivers.
	Rank				
	Soils and Geology	Minimal potential for impacts to soils and geology and no evidence of historic industries or gravel pits that could give rise to potential contamination.	Minimal potential for impacts to soils and geology and no evidence of historic industries or gravel pits that could give rise to potential contamination.	Minimal potential for impacts to soils and geology and no evidence of historic industries or gravel pits that could give rise to potential contamination.	Minimal potential for impacts to soils and geology and no evidence of historic industries or gravel pits that could give rise to potential contamination.
	Rank				
	Hydrology	This route does not cross or run adjacent to any rivers or	This route does not cross or run adjacent to any rivers or	This route does not cross or run adjacent to any rivers or	This route does not cross or run adjacent to any rivers or

Assessment Criterion	Assessment Sub-Criterion	Route Option SY1a (Swords Road – Bus lanes, cycle lanes, and traffic lanes in each direction)	Route Option SY1b (Swords Road – Bus lanes and traffic lanes in each direction, off-road cycle track adjacent N50)	Route Option SY1c (Swords Road – Bus lanes in each direction, traffic lane northbound, off-road cycle track)	Route Option SY1d (Swords Road – Bus lanes and cycle lanes in each direction, traffic lane northbound)
		streams so diversion works or construction of bridges or culverts is not required.	streams so diversion works or construction of bridges or culverts is not required.	streams so diversion works or construction of bridges or culverts is not required.	streams so diversion works or construction of bridges or culverts is not required.
	Rank				
	Landscape and Visual	Makes use of existing road corridors. Increase from 3 to 4 lanes plus cycle lanes. The proposed route would require land-take from some properties (approx. 6m) and as such would have a negative impact on these properties.	Makes use of existing road corridors. Increase from 3 to 4 lanes. The proposed route would require land-take from some properties (approx. 3m) and as such would have a negative impact on these properties.	Makes use of existing road corridors.	Makes use of existing road corridors. Addition of cycle lanes. The proposed route would require land-take from some properties (approx. 4m) and as such would have a negative impact on these properties.
	Rank				
	Air Quality	Traffic would be closer to a number of residential sensitive receptors along Swords Road due to road widening. This may result in an increase in pollutant concentrations at these receptors.	Traffic would be closer to a number of residential sensitive receptors along Swords Road due to road widening. This may result in an increase in pollutant concentrations at these receptors.	The majority of proposed works would remain within the existing road corridor therefore it is not considered that air quality would change.	The majority of vehicular traffic would remain within the existing road corridor after the proposed works, therefore it is not considered that air quality would change.
	Rank				
	Noise & Vibration	Traffic would be closer to a number of residential sensitive	Traffic would be closer to a number of residential sensitive	The majority of proposed works would remain within the	Traffic would be closer to a number of residential sensitive

Assessment Criterion	Assessment Sub-Criterion	Route Option SY1a (Swords Road – Bus lanes, cycle lanes, and traffic lanes in each direction)	Route Option SY1b (Swords Road – Bus lanes and traffic lanes in each direction, off-road cycle track adjacent N50)	Route Option SY1c (Swords Road – Bus lanes in each direction, traffic lane northbound, off-road cycle track)	Route Option SY1d (Swords Road – Bus lanes and cycle lanes in each direction, traffic lane northbound)
		receptors along Swords Road due to road widening. This may result in an increase in pollutant concentrations at these receptors.	receptors along Swords Road due to road widening. This may result in an increase in pollutant concentrations at these receptors.	existing road corridor therefore it is not considered that air quality would change.	receptors along Swords Road due to road widening. This may result in an increase in pollutant concentrations at these receptors.
	Rank				
	Land Use Character	Route has a substantial impact on existing land use. Loss of large part of front gardens for 78 property owners along Swords Road including loss of driveways/car parking.	Route has a substantial impact on existing land use. Loss of part of front gardens for 39 property owners along Swords Road including loss of car parking.	Route has a slight impact on existing land use. Requirement for land take from 1 property along Swords Road.	Route has a substantial impact on existing land use. Loss of part of front gardens for 39 property owners along Swords Road including loss of car parking.
	Rank				