

Client:

Dún Laoghaire-Rathdown County Council

Project:

Living Streets: Blackrock

Report:

Options Assessment Report



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INTRODUCTION

Purpose

The purpose of this report is to assess the potential options for the Dún Laoghaire-Rathdown County Council (DLRCC) Living Streets: Blackrock Project. Several options have been developed and each option has been assessed relative to one another with a draft preferred option recommended. This preferred option is presented in the Part 8 proposal.

Background

During 2020 and 2021, Dún Laoghaire-Rathdown County Council (DLRCC) provided a number of mobility and urban realm interventions across the county in response to the Covid-19 pandemic. DLRCC, in conjunction with the NTA, are now working on developing permanent solutions for several of these locations and have employed Barry Transportation (BT) as the consulting engineers for this project. This report focuses on one of these areas, in Blackrock Village.

The study area is shown in the figure below, and has been split into five sections that are lettered A to E.

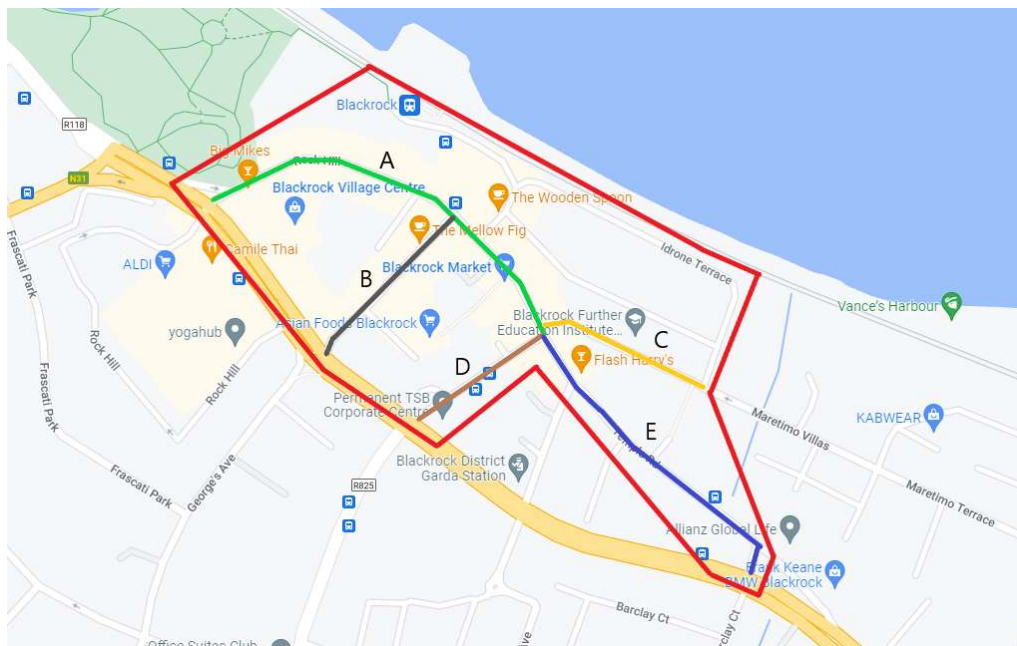


Figure 1 - Extent of work required in Blackrock.

POLICY CONTEXT, PROJECT NEED & OBJECTIVES

Policy Context

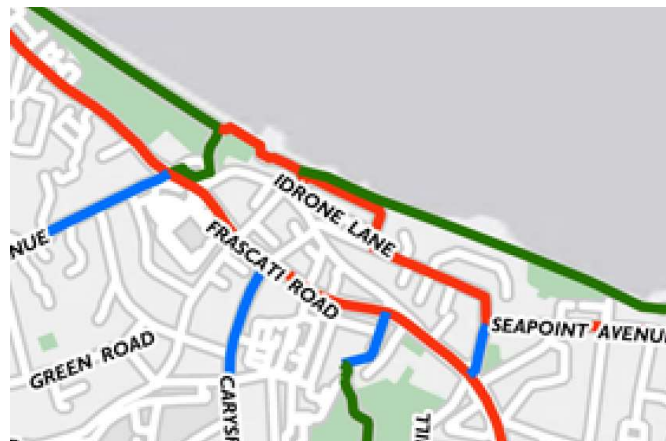
National Policy

This scheme will support the objectives set out in the following national policies:

- Project Ireland - National Development Plan 2021 - 2030;
- National Planning Framework – Project Ireland 2040;
- Climate Action Plan 2023 and Climate Action and Low Carbon Development (Amendment) Bill 2021;
- Strategic Investment Framework for Land Transport (SIFLT) 2015 and National Investment Framework for Transport in Ireland (NIFTI);
- Smarter Travel – A New Transport Policy for Ireland 2009 – 2020;
- Road Safety Authority (RSA), Road Safety Strategy, 2013-2020;

Regional Policy

This scheme will support the objectives of the Greater Dublin Area (GDA) Cycle Network Plan (2013), the new draft GDA Cycle Network Plan (2021), the draft National Cycle Network Plan (2022) and the NTA Draft Transport Strategy for the Greater Dublin Area 2022-2042. Although it is noted that the streets for this project do not form part of the core cycle network, as shown in the figure below.



Legend:

- ✘ Proposed Crossing Points
- Secondary
- Primary Radial
- Primary Orbital
- Greenway - Utility
- Further Study

Strategic Network Only - Lower Classifications not included

Extract from Draft GDA CNP (2021)

Local Policy

The scheme will support the specific objectives of the DLR County Development Plan 2022-2028, which include the following:

- To ensure that all development proposals, whether in established areas or new growth nodes, should contribute positively to an enhanced public realm and should demonstrate that the highest quality of public realm design is achieved,
- To ensure the development of a high quality, fully connected and inclusive walking and cycling network across the County and the integration of walking, cycling and physical activity with placemaking including public realm permeability improvements,
- To ensure the provision of quality public transport interchanges at strategic rail, Luas stations and Core Bus Corridors within the County in order to facilitate focussed access to multiple public transport modes and to maximize the movement of people via sustainable modes,
- To ensure regulation and control of on-street parking by discouraging commuter parking; and
- To cooperate with the NTA and other relevant transport planning bodies in the delivery of a high quality, integrated transport system in the Greater Dublin Area.

The scheme will support the specific objectives of the Blackrock Local Area Plan 2015-2025, which include the following:

- It is Council Policy to encourage a high standard of public realm upgrade / improvements throughout Blackrock in accordance with the Public Realm Strategy.
- It is Council policy to facilitate the upgrade and enhancement of the public realm adjacent to the seafront and to encourage the reconnection of, and relationship between, Blackrock Village, the Main Street and the seafront.
- It is an objective of the Council to prepare and implement a Village Improvement Scheme in Blackrock, which provides for a high quality, attractive and vibrant public realm and attractive pedestrian environment along Main Street and Rock Hill.
- It is an objective of the Council to facilitate the re-location of the existing Bus Terminus at the DART Station to Carysfort Avenue and Temple Road, subject to the agreement of the National Transport Authority (NTA).
- It is an objective of the Council to encourage the provision of a new pedestrian link from Bath Place through to Main Street / Rock Hill
- It is an objective of the Council to rationalise the existing on-street car-parking and unloading facilities along Main Street to facilitate improvements to the public realm

Project Need

The mobility and public realm measures introduced by DLRCC in Blackrock in summer 2020 have proven to be highly effective, with 84% of the residents surveyed saying that the Blackrock Main Street redesign is good for the village and 72% wanting the changes to be made permanent. Given the temporary measures' success and further improving and formalising them will be of benefit to the area. Further to this, there are significant opportunities to provide an improved environment for pedestrians and cyclists and to improve the urban realm throughout Blackrock Village that would support objectives in the national, regional and local policy documents outlined above.

Project Objectives

This scheme aims to provide safer and more attractive infrastructure for active travel and enhance the public realm to provide for better quality of life in public spaces in Blackrock Village. This will be achieved by providing high quality and safe cycle facilities and improving existing facilities for cyclists, as well as increasing outdoor space for pedestrians in villages and rendering these spaces comfortable, accessible and safe. Modern design standards will be applied to sections of car dominated urban carriageways along with upgraded junction designs and measures to reduce vehicle speeds. This will play a role in decreasing reliance on private vehicles for short journeys while increasing the use of walking and cycling for a wide range of users, as well as supporting economic development in villages and urban centres. This will create an appealing environment promoting a modal shift to more sustainable modes of transport.

To achieve these objectives the existing road layout and cross section has been reviewed to determine the optimum arrangement to improve pedestrian and cycle facilities, and the urban realm, while recognising the importance of vehicle accessibility and pedestrian and cyclist safety. Blackrock Village is a busy urban centre and it is an aim of this scheme to help support local businesses. Loading/access requirements will be considered to ensure that the scheme is functional.

In accordance with the Blackrock LAP it is an objective of the scheme to facilitate the re-location of the existing Bus Terminus at the DART Station, subject to the agreement of the National Transport Authority (NTA).

DESIGN GUIDANCE

The design and assessment of options has been done in accordance with guidance set-out in the Design Manual for Urban Roads (DMURS), National Investment Framework for Transport in Ireland (NIFTII), the National Cycle Manual, the Traffic Signs Manual and Traffic Management Guidelines. It prioritises the user hierarchy set out in DMURS and NIFTI which promote sustainable forms of transport.



DMURS Road User Hierarchy

EXISTING CONDITIONS, CONSTRAINTS AND OPPORTUNITIES

Rock Hill and Main Street - Section A

In the existing scenario this section of Rock Hill and Main Street consists of a one-way street allowing traffic to travel in a southerly direction, linking Rock Road to Blackrock Village. The current layout has a footpath on either side of the road, a single traffic lane, a contra flow cycle lane and intermittent parking on both sides of the road. The space between the southern footpath and the cycle path is used by restaurants and cafes as outdoor seating areas. This arrangement has been installed using temporary materials such as rubber bolt down kerbs, in places there is a level difference between the old footpath level and the new pedestrian/outdoor dining areas.



Figure 2: Typical Layout of Section A

There are several constraints linked to this section which include the following:

- The available width along this section varies between 13 and 25 meters.
- There are existing trees located along the northern and southern footpaths of this section of the scheme.
- The presence of underground and overhead utilities may limit work proposals.
- The existing levels of the site must be considered on this section of the scheme regarding building levels and drainage.
- There is on-street parking along the street.
- Several businesses along the street have requirement for loading and there is a loading bay currently provided.
- The design of the junction on Frascati Road must take into account future BusConnects plans.

In addition to the above constraints, designers have identified the following opportunities in this section of the study area:

- This section of the scheme provides an opportunity to enhance public realm space along the street and outside several cafes and restaurants.
- There is an opportunity to improve accessibility. There is currently a level difference between some pedestrian areas, and the bolt down rubber kerbs present a trip hazard and barrier to movement.
- There is an opportunity to create more parking on the northern side of the road at the top of Rock Hill.
- There is opportunity to improve pedestrian and cycle facilities at crossings and junctions.
- There is an opportunity to include new landscaping and sustainable urban drainage features.

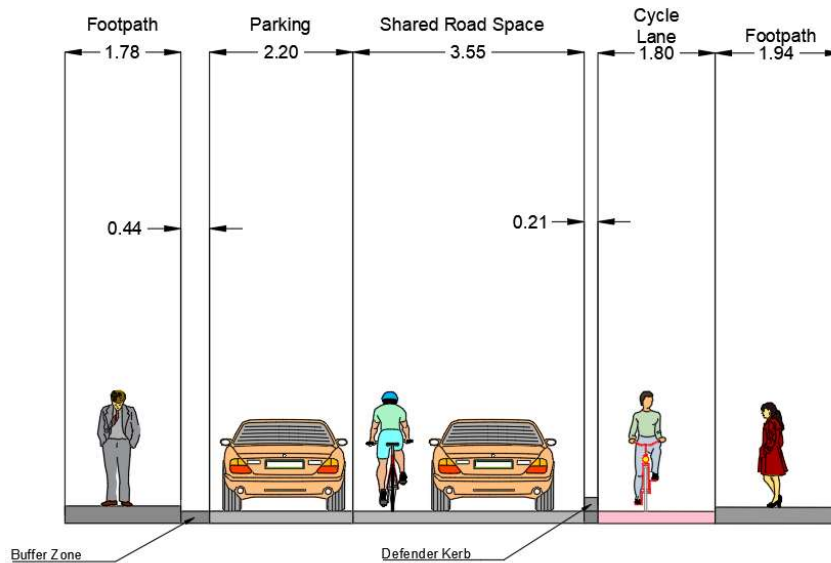


Figure 3: Typical Existing Cross Section for Section A

Georges Avenue - Section B

In the existing scenario this section of Georges Street consists of a one-way street allowing traffic to travel in a southerly direction, linking Blackrock Village to Frascati Road. The current layout has a footpath on either side of the road, a single traffic lane and a contra flow cycle path. There is some on-street parking including a disabled space and two loading bays on the southern side of the road. A section of the northern footpath has been extended area in front of a restaurant as an outdoor dining area.



Figure 4: Typical Layout of Section B

There are several constraints linked to this section that include the following:

- The available width along this section varies between 6 and 13 meters.
- The presence of underground and overhead utilities may limit work proposals.
- The existing delivery service access point on Georges Avenue for SuperValu must be considered as well as the access to private parking and disabled parking spaces.
- The design of the junction on Frascati Road must take into account future BusConnects plans.

In addition to the above constraint's designers have identified the following opportunities in this section of the study area:

- This section of the scheme provides an opportunity to enhance public realm space.
- There is opportunity to improve pedestrian and cycle facilities at crossings and junctions.
- There is an opportunity to include new landscaping and sustainable urban drainage features.

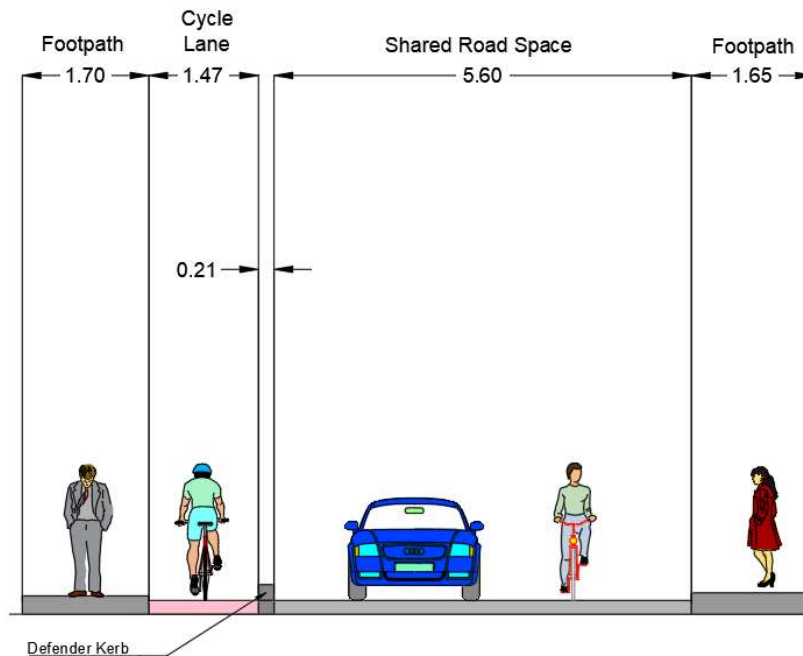


Figure 5: Typical Existing Cross Section for Section B

Main Street - Section C

In the existing scenario this section of Main Street consists of a one-way street allowing traffic to travel in a northerly direction, linking Newtown Avenue to Main Street. The current layout has a footpath on either side of the road, a single traffic lane and on-street parking on both sides of the road. In addition to parking bays there is a loading bay, taxi rank and two disabled parking spaces. There are several trees on the northern side, and the southern footpath has been extended outside a restaurant creating outdoor seating.



Figure 6: Typical Layout of Section C

There are several constraints linked to this section that include the following

- The available width along this section varies between 12 and 15 meters.
- There is an existing row of trees located along the northern footpath of this section of the scheme.
- The presence of underground and overhead utilities may limit work proposals.
- There are parking spaces on both sides of the road, including disabled spaces, loading bays and a taxi rank.

In addition to the above constraint's designers have identified the following opportunities in this section of the study area:

- This section of the scheme provides a significant opportunity to provide a cycle link from Blackrock Main Street to the existing contraflow cycle lane along Newtown Avenue which links in with the Coastal Mobility Route. Completing this missing link will help provide uninterrupted cycle facilities from Blackrock all the way to Sandycove.
- This section of the scheme provides an opportunity to enhance public realm space on the street, including outside Blackrock Library and a number of cafes and restaurants.
- There is an opportunity to include new landscaping and sustainable urban drainage features.
- There is opportunity to improve pedestrian and cycle facilities at crossings and junctions.
- Following the introduction of the new BusConnects bus network there may be a redundant bus stop along this section. There is an opportunity to reallocate this space.

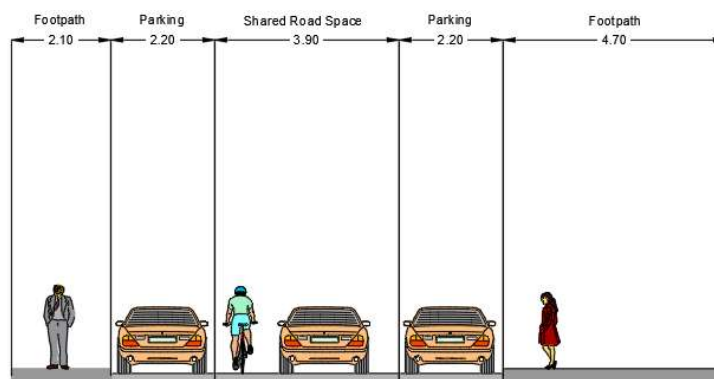


Figure 7: Typical Existing Cross Section for Section C

Carysfort Avenue - Section D

In the existing scenario this section of Carysfort Avenue consists of a two-way street linking Blackrock Village to Frascati Road. The current layout has a footpath on either side of the road, two traffic lanes and parking on the southern and northern side of the road. In addition to parking bays there is a loading bay and one disabled parking space. There are two bus stops on the southern footpath, and one to the north.



Figure 8: Typical Layout of Section D

There are several constraints linked to this section that include the following:

- The available width along this section is on average 14 meters.
- The presence of underground and overhead utilities may limit work proposals.
- The existing parking, loading bay for the commercial units on Carysfort Avenue and disabled parking space.

In addition to the above constraint's designers have identified the following opportunities in this section of the study area:

- This section of the scheme provides an opportunity to enhance public realm space.
- The traffic lane widths are inconsistent along the road, there is an opportunity to narrow the lane widths and to reallocate this space.
- There is an opportunity to include new landscaping and sustainable urban drainage features.
- This section has the potential to create more parking on-street parking spaces.
- There is opportunity to improve pedestrian and cycle facilities at crossings and junctions.
- The design of the junction on Frascati Road must take into account future BusConnects plans.

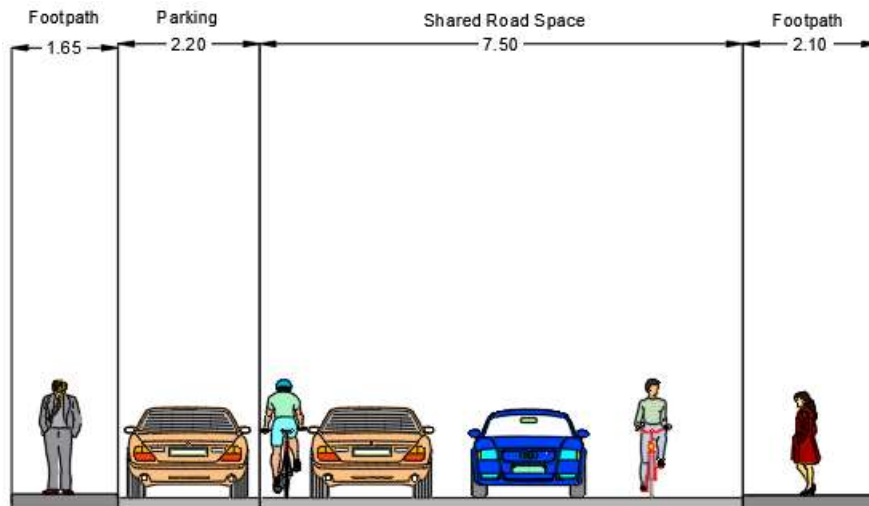


Figure 9: Typical Existing Cross Section for Section D

Temple Road - Section E

In the existing scenario this section of Temple Road consists of a two-way street linking Blackrock Village to Frascati Road. The current layout has a footpath on either side of the road, two traffic lanes and parking on both sides of the road. In addition to parking bays there is loading bays and disabled parking spaces. There is a bus stop on either side of the road outside the public car park.



Figure 10: Typical Layout of Section E

There are several constraints linked to this section that include the following:

- The available width along this section is on average 15 meters.
- The presence of underground and overhead utilities may limit work proposals.
- The existing parking spaces, loading bays and disabled parking bays.
- Entrances to public and private off-street parking
- The design of the junction on Frascati Road must take into account future BusConnects plans.

In addition to the above constraint's designers have identified the following opportunities in this section of the study area:

- This section of the scheme provides an opportunity to enhance public realm space.

- The traffic lane widths are inconsistent along the road, there is an opportunity to narrow the lane widths and to reallocate this space.
- There is an opportunity to include new landscaping and sustainable urban drainage features.
- This section offers the opportunity to create more parking spaces.
- There is opportunity to improve pedestrian and cycle facilities at crossings and junctions.
- Following the introduction of the new BusConnects bus network there may be redundant bus stops along this section. There is an opportunity to reallocate this space.

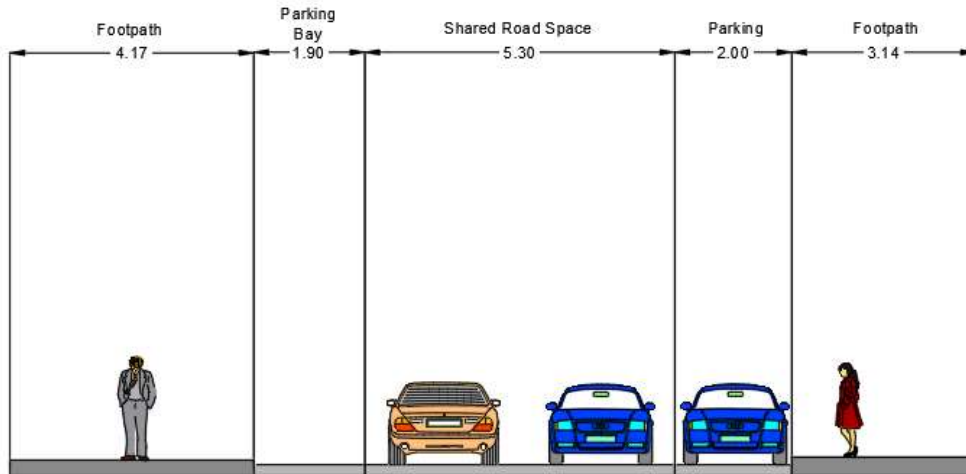


Figure 11: Typical Existing Cross Section for Section E

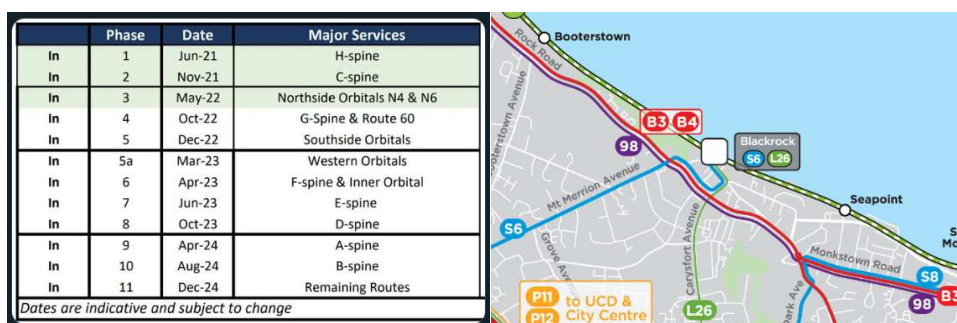
Adjacent Schemes

BusConnects Network Redesign

The National Transport Authority published the new Dublin Area bus network in September 2020. The overall objective of the improved network is a significant increase in capacity and frequency for customers, as well as more evening and weekend services for all spines.

The implementation of the New Network will take place on a phased basis over a number of years, the first phase of the new BusConnects network for Dublin was launched in June 2021 and it is expected to be fully implemented by the end of 2024.

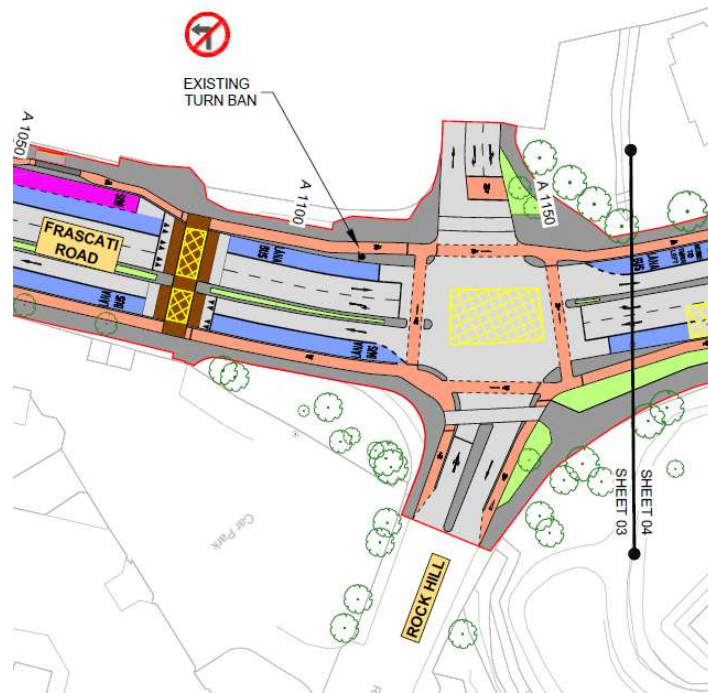
The new network is expected to be in place by the time this project has finished construction and so the scheme is being designed with the future network in mind, rather than the existing one.



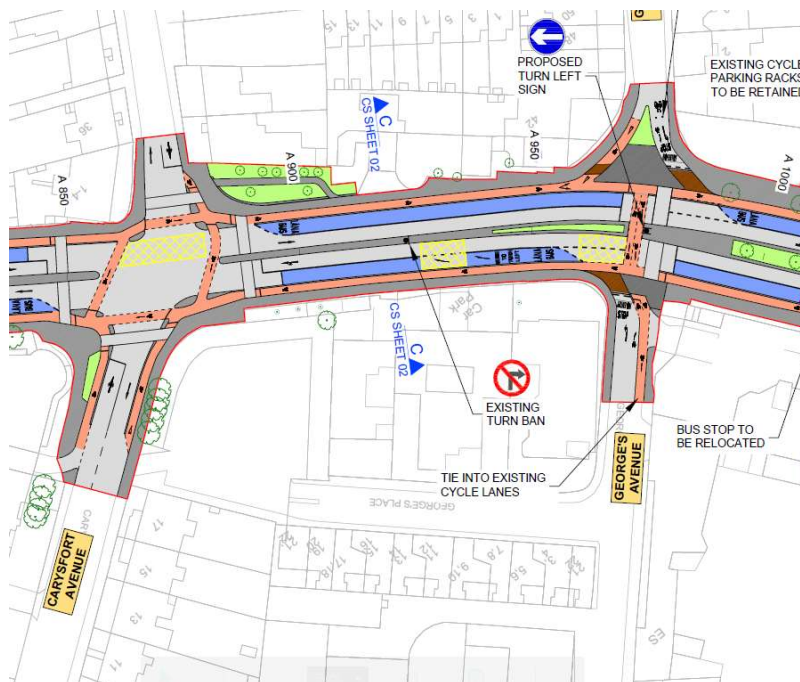
BusConnects New Network in Blackrock & Proposed Implementation Schedule (Aug 22)

BusConnects Belfield/Blackrock to City Centre Core Bus Corridor

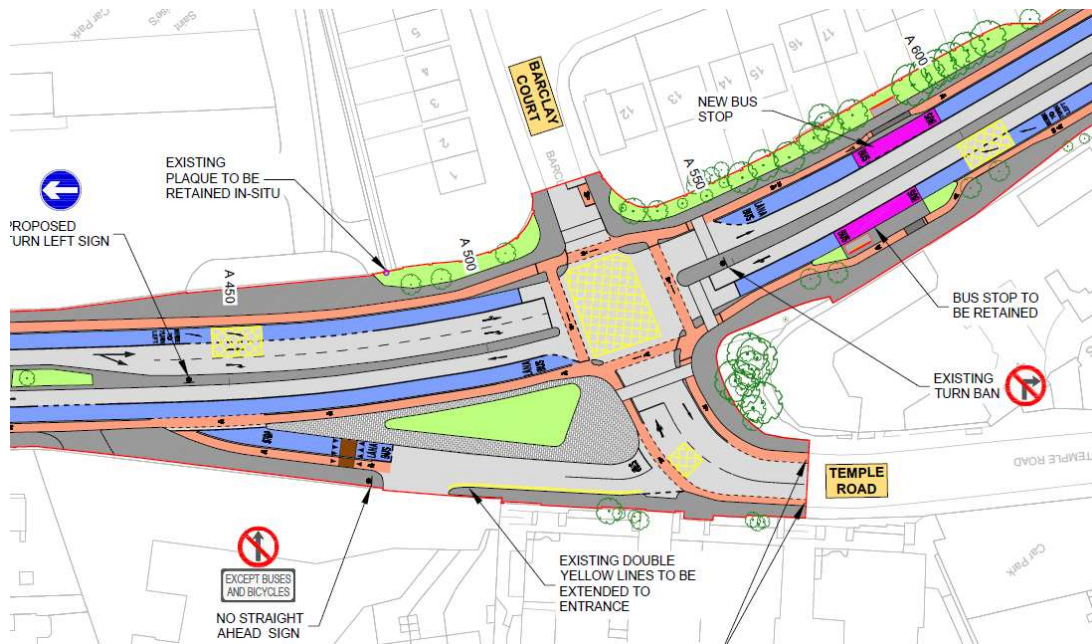
The NTA have progressed the design of this CBC and the planning application was lodged in May 2022. The route travels down Frascati Road will interact with this scheme at the junctions of Rock Hill, George's Avenue, Carysfort Avenue and Temple Road. The development will be designed to integrate with existing junction designs and work appropriately with the potential future junction designs. Screenshots of the proposed designs for these four junctions are shown below.



BusConnects – Proposed Rock Hill Junction



BusConnects – Proposed George's and Carysfort Avenue Junctions



BusConnects – Proposed Temple Road Junction

OPTIONS ASSESSMENT METHODOLOGY

To gain an appreciation of the specific constraints and opportunities within the study area Barry Transportation conducted a comprehensive data collection process consisting of desktop analysis and a site visit. Potential options were then developed bearing in mind the information gathered during the data collection stage. Engineering judgement was used to determine which options were feasible and could be progressed to the options assessment stage. These options were developed using design guidance from the National Cycle Manual and DMURS.

The options were then compared against one another using Multi-Criteria Analysis (MCA) in accordance with the Department of Transport "Guidelines on a Common Appraisal Framework for Transport Projects published by the Department of Transport (DTTAS), March 2016 (Updated October 2021).

Each of the proposed options has been assessed against the various Options Assessment criteria and assigned a colour grade, based on a 5-colour palette shown in Figure 3-1 below.

Colour	Description
	Significant advantages over the other options
	Some advantages over the other options
	Neutral compared to other options
	Some disadvantages compared to the other options
	Significant disadvantages compared to the other options

Figure 3-1 Five-Point Grading Scale

The criteria and sub-criteria considered as part of this assessment are outlined in the paragraphs below.

1. Capital Cost

The cost estimate determines the likely capital infrastructure cost of a particular scheme, taking into account the extent of works required in order to construct that scheme. The infrastructure costs include the following:

- Pedestrian and Cycle route infrastructure
- Road re-alignment / new road construction
- Junction upgrades
- Drainage
- Services and utilities protection and relocation work
- Lighting
- Landscaping street furniture and urban realm improvements
- Signs & Lines
- Construction traffic management

2. Integration

2.a. Land Use Integration

This criterion assesses how a scheme would integrate with any future planned developments in the catchment area and how a scheme fits into local area plans or any other objectives in area / county policies.

2.b. Pedestrian Integration

The level of service provided to pedestrians is assessed under this criterion. Footpath widths, pedestrian desire lines and the suitability and convenience of crossing points are considered.

2.c. Cyclist Integration

The level of service provided to cyclists is assessed under this criterion. Cycle lane widths, segregation type, gradient, directness, comfort and the suitability and convenience of crossing points are considered.

2.d. Public Transport Integration

Under this criterion, integration with the wider transport network is assessed and compared for each scheme. This includes transport modes such as railway, coaches, public bike schemes, and public and private bus operators. The potential for interchange facilities such as cycle parking areas, etc. are also assessed under this criterion.

2.e. Traffic Network Integration

The anticipated traffic impact expected to be incurred by motorists using private vehicles as a result of the different route options will also be factored in. The disadvantages experienced by motorists in respect of reduced junction capacity and restricted movements will be considered.

3. Accessibility and Social Inclusion

3.a. Mobility & Vision Impaired Road Users

This criterion assesses the quality of the facilities provided for mobility and vision impaired road users as part of each option.

4. Safety

4.a. Road Safety

This criterion looks at road safety risks present for all road users in each the options.

5. Environment

5.a. Archaeological, Architectural and Cultural Heritage

Effects on archaeological heritage can be considered in terms of impacts on below ground archaeological remains, historic buildings (individual and areas), and historic landscapes and parks. The construction, presence and operation of transport infrastructure can impact directly on such cultural heritage resources through physical impacts resulting from direct loss or damage, or indirectly through changes in setting, noise and vibration levels, air quality, and water levels.

Potential impacts of each scheme on Recorded Monuments and Protected Structures (RMPs) on each option are assessed and compared. Potential impacts on Sites of Archaeological or Cultural Heritage, Architectural Conservation Areas and on buildings listed on the National Inventory of Architectural Heritage are also assessed and compared under this criterion.

5.b. Biodiversity

This criterion looks at the impacts on biodiversity, for example, through removal of trees/hedges, or creation of new pollinator friendly planting. These impacts are compared for each scheme under this criterion.

5.c. Soils and Geology

Construction of infrastructure has the potential to negatively impact on soils and geology. For example, through land acquisition and ground excavation. There is also the potential to encounter ground contamination from historical industries. These considerations are compared for each scheme under this criterion.

5.d. Water Resources

The provision of infrastructure may include aspects (eg: increased run off, or new sustainable urban drainage measures) with the potential to impact on hydrology or water resources. Any such impacts are considered for each scheme under this criterion.

5.e. Landscape and Visual

Schemes have the potential to impact on the landscape and visual aspects of the area, for example, by the removal of front gardens or green spaces or the altering of streetscapes, character and features. Different schemes are compared, and any effects considered under this criterion.

5.f. Noise, Vibration and Air

Provision of infrastructure has the potential to negatively impact on noise, vibration and air quality. These effects are compared for each scheme option under this criterion. The impact is quantified on whether the source of noise, vibration or air pollution (road) is moving closer to sensitive receptors, for example through road widening or a new road alignment.

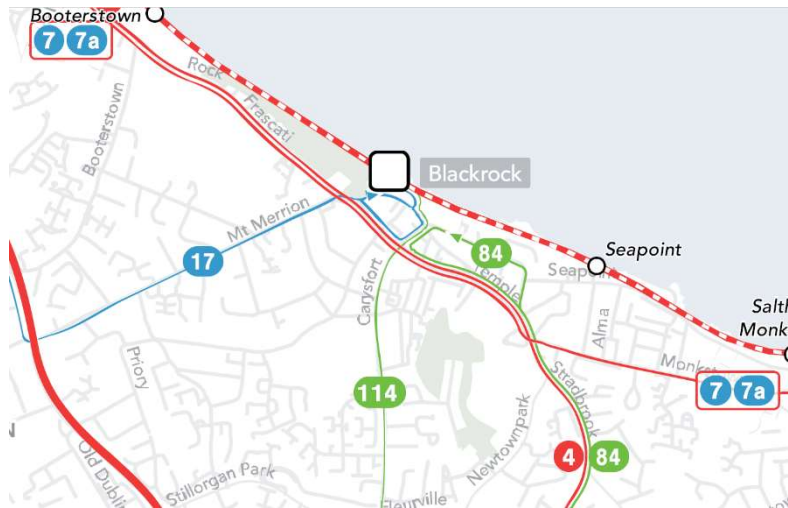
5.g. Land Use and the Built Environment

This criterion assesses the impact of each scheme option on land use character, and measures impacts which affect land from achieving its intended use, for example through land acquisition, reallocation of road space, creation of new urban realm areas, removal of parking or loading spaces, or changes to access arrangements.

BUS ROUTING OPTIONS

Existing Scenario

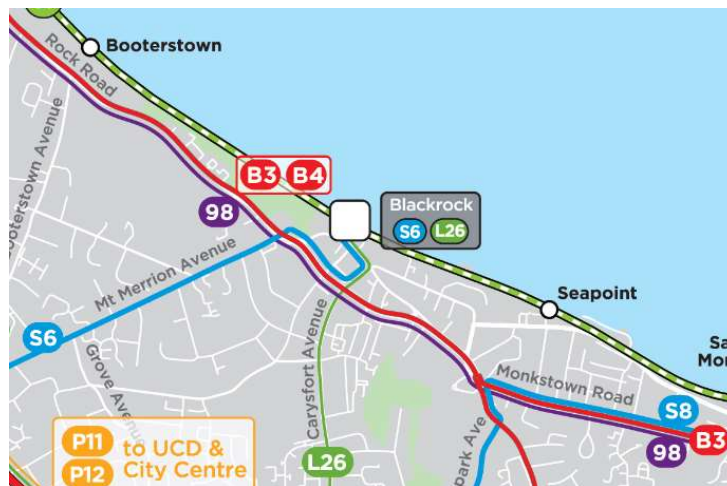
In the existing scenario, Blackrock is serviced by the 17, 114 and 84 Dublin Bus Services. Buses travel down Bath Place from Blackrock Main Street and layover/terminate directly opposite Blackrock Dart Station, the figure below shows the existing bus route. Bus routes have been amended to account for the one-way traffic system implemented as part of the Covid-19 Public Realm Improvements project in 2020.



Existing Bus Network

Future Scenario

As is shown in the Figure below, in the future scenario Blackrock will be served by the S6 orbital route and L26 Local Routes.



BusConnects New Network

Assessment Process

Given the revised bus services and new traffic arrangements proposed both as part of this scheme and the BusConnects scheme, there is a need to amend the existing bus routing through Blackrock Village. In addition, it is an objective of this scheme to facilitate a layout that does not use the existing bus layover area near the DART Station due to the anticipated future public realm project to amend this area. If busses use an alternative layover area this frees up the valuable public space near the seafront that could be used as an amenity area for the public, this is in accordance with objectives from the Blackrock LAP and DLRC Development Plan. Several options for the potential routing of busses options have been developed, and a technical note regarding the bus routing was also prepared.

Option 1

This option relocates the bus layover space and the last stop to Rock Hill, opposite the entrance to the private carpark. The first stop would be located outside the post office.



Option 1: S6 Bus Route (Left) & L26 Bus Route (Right)

Option2

This option relocates the bus layover space and the last stop to Carysfort Avenue, where there is currently a bus stop. The first stop would be located outside the post office.



Option 2: S6 Bus Route (Left) & L26 Bus Route (Right)

Option 3

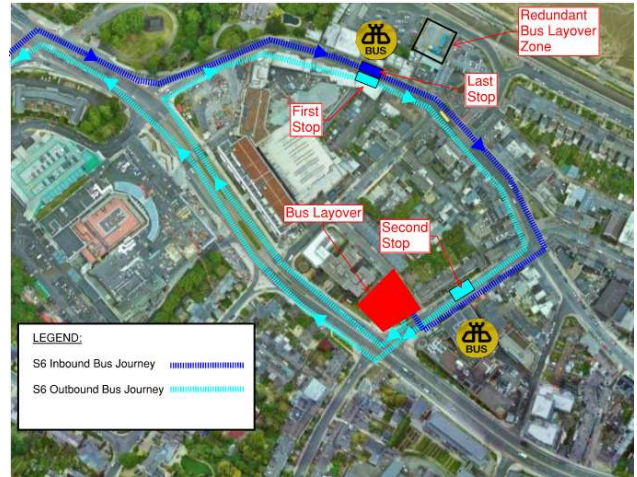
This option relocates the bus layover space and the last stop to Temple Road, outside the Blackrock public carpark. The first stop would be located outside the post office.



Option 3: S6 Bus Route (Left) & L26 Bus Route (Right)

Option 4

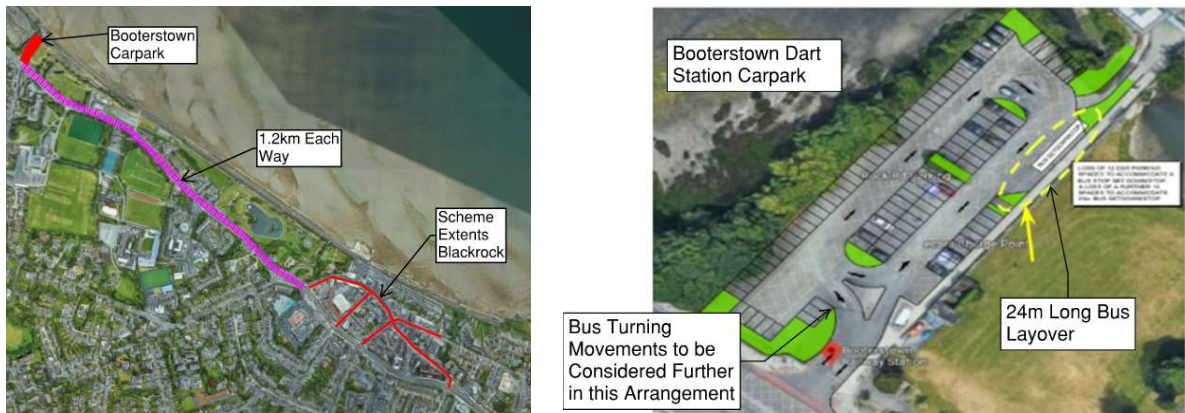
This option relocates the bus layover space and the last stop to the Carysfort Avenue carpark. The first stop would be located outside the post office.



Option 4: S6 Bus Route (Left) & L26 Bus Route (Right)

Option 5

This option relocates the bus layover space and the last stop to the Booterstown public carpark. The first stop would be located outside the Booterstown DART station.



Option 5: Bus Routing Sketch

Options Assessment

Bus Routing							
Assessment Criteria	Sub-Criteria	Do Nothing	Option 1	Option 2	Option 3	Option 4	Option 5
Economy	Capital Cost						
Integration	Land Use Integration						
	Pedestrian Intergration						
	Cyclist Integration						
	Public Transport Integration						
	Traffic Network Integration						
Accessibility and Social Inclusion	Mobility & Vision Impaired Road Users						
Safety	Road Safety						
Environment	Archaeological, Architectural and Cultural Heritage						
	Biodiversity						
	Soils and Geology						
	Water Resources						
	Landscape and visual						
	Noise, vibration and air quality						
	Land Use and Built Environment						

From a bus operations point of view Option 1 has a significant advantage over the other options as the overall length of the bus route is the shortest, and it is not required to loop through the village twice. Option 2 has a slight advantage over the other options as the overall length of the journey is slightly shorter despite the loop it takes. Options 3 & 4 need to use a slightly longer loop via Temple Road to travel from the layover area to the first stop and Option 0 adds 1.2km each way.

In regard to Land Use Integration, all do-something options have significant advantages as they relocate the bus layover space away from the seafront in accordance with objectives from the Blackrock LAP.

In terms of Traffic Network Integration, Option 1 and do nothing have slight advantages as they do not require busses to loop through the village twice.

Regarding Land Use and Built Environment, Options 0, 3, 4 & 5 present slight advantages as they allow for more public realm space throughout Blackrock Village as they suggested layover areas are in less valuable public space. Options 1 & 2 present slight disadvantages as the suggested bus layover spaces are in more valuable public space.

Recommendation

Based on the MCA table above and the Bus Routing Technical Note found in Appendix A, Option 1 is recommended as the preferred option. It presents the shortest bus journey and is the best from a bus operations point of view, it also avoids looping through the village twice and so would have less impact on traffic congestion, noise, and air pollution. To mitigate the negative impacts of this option only two layover spaces are proposed on Rock Hill, the third layover space which busses will use (infrequently) if the first two are full is proposed to be provided on Carysford Avenue as per Option 2, which is the next preferred option.

Other implications of the New BusConnects Network

Redundant Bus Stops

The following bus stops will no longer be in use following the implementation of the new network. There is an opportunity to use this space to provide replacement parking to compensate for on-street parking lost as part of the wider scheme or for landscaping/tree planting.



Redundant bus stops

ROCK HILL AND MAIN STREET (SECTION A)

Options Development

Several options have been developed for this section, these are described and assessed below.

Option 1

This option retains the one-way system that is currently in place along with the contra-flow cycle lane. The street would be reconstructed with high quality materials and landscaping, creating more room in front of cafes and restaurants for extra outdoor seating. It would build all pedestrian areas to the same level to eliminate trip hazards. Finally, it creates additional parking spaces at the top of Rock Hill and compensates for some of the lost parking on Main Street.

Option 2

Option 2 is similar to Option 1 but reverses the direction. The cycle path runs along the northern side of the road and the parking along the south.

Option 3

Option 3 re-introduces a two-way traffic system on Rock Hill and Main Street, it removes the contra-flow cycling lane and loses some public realm space.

Option 4

This option would pedestrianise the section of Main Street between Bath Place and Carysfort Ave. Traffic would need to use alternative routes to reach their destinations, although access would still be permitted to the laneway beside Jack O'Rourke's pub.

Options Assessment

Rock Hill & Main Street (Section A)						
Assessment Criteria	Sub-Criteria	Option 1	Option 2	Option 3	Option 4	Do Nothing
Economy	Capital Cost	Green	Orange	Green	Red	Green
Integration	Land Use Integration	Green	Green	Red	Red	Green
	Pedestrian Intergration	Green	Green	Red	Green	Orange
	Cyclist Integration	Green	Orange	Red	Orange	Green
	Public Transport Integration	Green	Orange	Orange	Red	Green
	Traffic Network Integration	Green	Green	Green	Orange	Green
Accessibility and Social Inclusion	Mobility & Vision Impaired Road Users	Green	Green	Orange	Green	Orange
Safety	Road Safety	Green	Green	Orange	Green	Green
Environment	Archaeological, Architectural and Cultural Heritage	Yellow	Yellow	Yellow	Yellow	Yellow
	Biodiversity	Green	Green	Orange	Green	Orange
	Soils and Geology	Yellow	Yellow	Yellow	Yellow	Yellow
	Water Resources	Green	Green	Orange	Green	Orange
	Landscape and visual	Green	Green	Orange	Green	Orange
	Noise, vibration and air quality	Green	Green	Orange	Green	Green
	Land Use and Built Environment	Green	Green	Orange	Green	Orange

In regard to cost, Pedestrianising a part of this section of the scheme as Option 4 suggests would be the most expensive option. Option 2 would be slightly more expensive than retaining the current set up on Option 1 or reintroducing 2-way traffic on Option 3. Finally, doing nothing would be the least expensive option.

Regarding Land Use Integration, Options 1 and 2 as well as the Do-Nothing option provide some advantages over Options 3 and 4 as they provide additional public realm space, supporting objectives in the Blackrock Local Area Plan. Option 4 would restrict access and deliveries and would see additional traffic diverted via the seafront, hindering objectives in the Blackrock LAP, and so scores poorly.

Option 4 is the preferred option when it comes to Pedestrian Integration as it pedestrianises a portion of the street. Options 1 and 2 offer slightly better pedestrian infrastructure such as level footpaths and reducing trip hazards, than the Do-Nothing option. Option 3 takes space away from pedestrians and is therefore the worst option.

Options 1 and Do Nothing offer slightly better Cyclist Integration than Option 2, as cyclists sharing a lane with traffic would be travelling uphill on Option 2. There would likely be slight barriers to cycle movement through the pedestrianised area on Option 4 and so it scores a minor negative. Option 3 scores the worst

as it would force cyclists and vehicles to share the same a lane in both directions and would introduce more movements for traffic.

Option 4 is the most disadvantageous for Public Transport Integration as it would prevent the road being used as a bus route. Options 2 and 3 have slight disadvantages as the existing bus routes would have to be reworked. Options 1 and Do Nothing present the greatest advantages as they require no changes.

Option 3 presents the most advantages regarding Traffic Network Integration as it creates a two-way road through Blackrock Village. Options 1, 2 and Do Nothing still cater for traffic needs in one direction, whereas Option 4 eliminates the possibility for any vehicles on a part of the section.

For Mobility and Vision Impaired Road Users Options 1, 2 and 4 present slight advantages when compared to the Do-Nothing option as they offer improved tapping lines and tactile paving and would eliminate trip hazards. Option 3 brings back some traffic hazards given that there would be 2-way traffic, and so scores a minor negative.

Options 1, 2, 4 and Do Nothing present slight advantages when compared to Option 3 regarding Road Safety as they have one traffic lane, and not two.

In regard to Biodiversity, Water Resources and Landscape and Visual, Options 1, 2 and 4 are slightly more advantageous than Options 3 and Do-Nothing, because of their increased landscaping, planting, and SUDS opportunities.

Option 4 eliminates traffic on a portion of the street, making it the best option in regard to Noise, Vibration, and Air Quality. Option 3 is less preferable than Options 1, 2 and Do-Nothing as it reintroduces an extra traffic lane.

Regarding Land Use and Built Environment, Option 1 would maintain the arrangement of the existing well used outdoor seating areas and would improve them further by eliminating level differences and so scores best under this criterion. Many of these areas have been occupied by local business. Options 2 & 4 would also provide high quality seating areas, but their arrangement would need to be altered from the existing and so are slightly less favourable than Option 1. Options 3 and Do Nothing present minor disadvantages as Do Nothing does not improve the situation, and Option 3 would require additional space to reintroduce the two-way road, taking space away from the public realm.

Recommendation

There are significant advantages to Option 1 when compared with Options 2, 3 & 4 in terms of Land Use, Pedestrian, Cyclist and Public Transport Integration. For these reasons Option 1 is recommended as the preferred option for this section.

Under Option 1 the proposed layout would be made permanent in nature and the new layout will look for opportunities to tweak the alignment to further improve the use of space on Main Street. A screenshot of the preferred layout is shown below.



Preferred layout for Section A

GEORGES AVENUE (SECTION B)

Options Development

Option 1

This option maintains the existing one-way street southbound and the contra-flow cycle-path connecting Frascati Road to Rock Hill. This option would repave the road and footpath between Main Street and the entrance to Blackrock market, improving the visual aspect and indicating that pedestrians have priority on Georges Avenue.

Option 2

This option removes the contra-flow cycle-path and maintains the southbound one-way road, creating additional public realm and footpath space.

Option 3

This option would reverse the direction of the existing road, making it northbound, with a contra-flow cycle lane. This option would also repave the road and footpath improving the visual aspect of Georges Avenue.

Option 4

This option would pedestrianise the narrow section of Georges Avenue, just off Main Street, and make the rest of the street two-way with a left in left out arrangement at the junction with Frascati Road. The paving of the central section of the road would be upgraded to have the look and feel of a pedestrianised area as the only traffic using it would be local access.

Option Assessment

Georges Avenue (Section B)						
Assessment Criteria	Sub-Criteria	Option 1	Option 2	Option 3	Option 4	Do Nothing
Economy	Capital Cost	Orange	Orange	Orange	Red	Green
Integration	Land Use Integration	Light Green	Orange	Light Green	Green	Orange
	Pedestrian Intergration	Light Green	Light Green	Light Green	Green	Orange
	Cyclist Integration	Light Green	Red	Light Green	Red	Light Green
	Public Transport Integration	Yellow	Yellow	Yellow	Yellow	Yellow
	Traffic Network Integration	Light Green	Light Green	Orange	Red	Light Green
Accessibility and Social Inclusion	Mobility & Vision Impaired Road Users	Light Green	Light Green	Light Green	Green	Orange
Safety	Road Safety	Green	Red	Light Green	Orange	Green
Environment	Archaeological, Architectural and Cultural Heritage	Yellow	Yellow	Yellow	Yellow	Yellow
	Biodiversity	Yellow	Yellow	Yellow	Yellow	Yellow
	Soils and Geology	Yellow	Yellow	Yellow	Yellow	Yellow
	Water Resources	Orange	Orange	Orange	Light Green	Orange
	Landscape and visual	Light Green	Light Green	Light Green	Green	Orange
	Noise, vibration and air quality	Orange	Orange	Orange	Light Green	Orange
	Land Use and Built Environment	Green	Light Green	Orange	Orange	Light Green

In terms of Cost, pedestrianising a part of this section of the scheme as Option 4 suggests would be the most expensive option. Maintaining the current situation on Option 1, removing the contra flow cycle lane on Option 2, and reversing the one-way road on Option 3 would all be less expensive. Finally, doing nothing would be the least expensive option.

Regarding Land Use Integration Options 1 and 3 provide some advantages over Options 2 and Do-Nothing as they provide additional public realm space as well as improving connectivity to Blackrock Village by bike, supporting objectives in the Blackrock Local Area Plan. Option 4 would present the most advantages as pedestrianising a section of the scheme would support these objectives more than Options 1 and 3.

In terms of Pedestrian Integration Option 4 is the preferred option as it pedestrianises a portion of the street. Options 1, 2 and 3 offer slightly better pedestrian infrastructure such as level footpaths, reducing trip hazards, than the Do-Nothing option.

Options 1, 3 and Do Nothing offer a slight advantage regarding Cyclist Integration as they all provide a contra-flow cycle lane. Options 2 and 4 remove the cycle-lane, putting cyclists at more risk than in the other options.

In terms of Traffic Network Integration Option 4 closes the road to through traffic so is the least preferable. Option 3 reverses the direction of traffic on the street and makes access to George’s Ave slightly more difficult. All other options are equal in that they maintain the existing layout for traffic.

Regarding Mobility and Vision Impaired Road Users Options 1, 2 and 3 present slight advantages when compared to the Do-Nothing option as they offer more space for pedestrians and would have improved tactile paving at crossings and eliminate trip hazards. Option 4 eliminates even more hazards as part of the street would be pedestrianised as so scores best.

Options 1 and Do-Nothing present the most advantages regarding Road Safety as they maintain the driver habits and maintain cyclists off the road. Option 3 presents slight advantages as it maintains cyclists off the road but swaps the direction of traffic and cyclists. Option 4 presents slight disadvantages as it would change driver habits as well as cyclist habits, but still maintains more safety than Option 2 as vehicles are not authorised on a section of George's Avenue which explains its poor rating.

Regarding water resources Options 1, 2, 3 and Do-Nothing present disadvantages compared to Option 4 regarding as option 4 is the only one that would allow for significant opportunities to implement new sustainable urbane drainage measures.

Regarding Landscape and Visual, Options 1, 2 and 3 are preferable to the Do-Nothing option as they would improve the layout and appearance of the current street. Option 4 would be the most advantageous option as it would be pedestrianised and could greatly improving the visual aspect of the street.

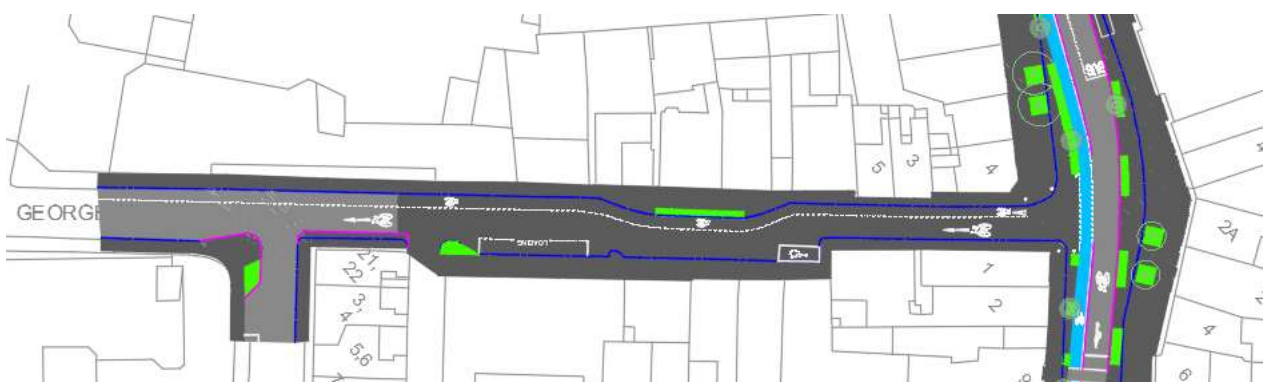
Option 4 eliminates through traffic, making it the best option for Noise, Vibration, and Air Quality. Options 1, 2, 3 and Do-Nothing all maintain through traffic in one direction.

In terms of Land Use & Integration, Option 1 is the most advantageous as George's Avenue will benefit from the public realm improvement and does not cause any disruptions to the deliveries to Supervalu. Options 2 and Do-Nothing present slight advantages as they maintain delivery access to Supervalu. Options 3 and 4 present slight disadvantages as they both make it difficult for delivery trucks to access Supervalu.

Recommendation

Although Option 4 present many advantages, it presents barriers to cycle and vehicle movements and would have a negative safety concerns given that articulated delivery trucks for Supervalu would be required to make U-Turn movements.

Option 1 is recommended as the preferred option for this scheme. This option presents advantageous for pedestrians, cyclists and the urban realm. It also maintains easy access to Supervalu for delivery trucks.



Preferred layout for Section B

MAIN STREET (SECTION C)

Option Development

Option 1

This option adds a contra-flow cycle-lane connecting Main Street with the Coastal Mobility Route. This cycle lane would require the removal of some of the on-street parking on the northern side of the road and would also allow for extended public realm space in front of Blackrock Library.

Option 2

This option maintains and renovates the existing layout as it is, with a westbound one-way street, and no cycle facilities between the Main Street/Temple Road/Carysfort Avenue junction and Idrone Terrace.

Option Assessment

Main Street Section C				
Assessment Criteria	Sub-Criteria	Option 1	Option 2	Do Nothing
Economy	Capital Cost			
Integration	Land Use Integration			
	Pedestrian Intergration			
	Cyclist Integration			
	Public Transport Integration			
	Traffic Network Integration			
Accessibility and Social Inclusion	Mobility & Vision Impaired Road Users			
Safety	Road Safety			
Environment	Archaeological, Architectural and Cultural Heritage			
	Biodiversity			
	Soils and Geology			
	Water Resources			
	Landscape and visual			
	Noise, vibration and air quality			
	Land Use and Built Environment			

Adding a contra flow cycle path to this section of the scheme, as in option 1, will have a higher capital cost than the Option 2, which consists in maintaining and renovating the current layout. Option 2 will have a slightly higher capital cost than the Do-Nothing option.

Option 1 provides some advantages when compared to the Do-Nothing option and Option 2 regarding Land Use Integration as it provides additional public realm space as well as improving active travel facilities, supporting objectives in the Blackrock Local Area Plan.

Option 1 provides significant advantages compared to Option 2 and the Do-Nothing option regarding Cyclist Integration given that it provides connectivity between Blackrock Village and the Coastal Mobility Route.

Option 1 provides slight advantages compared to Option 2 and the Do-Nothing option regarding Road Safety as it provides a designated space for cyclists.

Option 1 provides slight advantages regarding Biodiversity when compared to Option 2 and the Do-Nothing option as it creates additional space for trees and planters.

Option 1 provides slight advantages compared to Option 2 and the Do-Nothing option regarding Water Resources and Landscape and Visual as it will provide an opportunity for landscaping and sustainable urbane drainage measures.

Regarding Landscape and Visual, Option 1 provides significant advantages when compared to the other options as it allows to improve the public realm space outside the library. Option 2 provides slight advantages compared to the Do-Nothing option as it allows for a better visual.

Regarding Land Use and Built Environment, Option 1 provides slight advantages when compared with Option 2 and the Do-Nothing as it allows for better use of the available space.

Recommendation

Option 1 would significantly improve the connectivity for cyclists between Main St and the Coastal Mobility Route and would make improvements to the urban realm, this option is recommended as the preferred option.

Opportunities will be sought to provide additional on street parking on other nearby streets to compensate for the loss of parking spaces here. The disability parking space and loading bay can be relocated nearby on the same street.



Preferred layout for Section C

CARYSFORT AVENUE (SECTION D)

Option Development

Option 1

This option maintains two way traffic movements and slightly narrows the lane widths, allowing for more parking and public realm space. This option also reduces the amount bus stops on Carysfort Avenue to one.

Option 2

This option turns Carysfort Avenue into a westbound one-way street with a contra-flow cycle-lane connecting Frascati Road to Main Street. This allows for more public realm space and reduces the amount bus stops on Carysfort Avenue to one.

Option 3

This option turns Carysfort Avenue into an eastbound one-way street with a contra-flow cycle-path connecting Main Street to Frascati Road also being included. This allows for more public realm space. This option also reduces the amount bus stops on Carysfort Avenue to one.

Option Assessment

Carysfort Avenue (Section D)					
Assessment Criteria	Sub-Criteria	Option 1	Option 2	Option 3	Do Nothing
Economy	Capital Cost	Green	Orange	Orange	Green
Integration	Land Use Integration	Green	Orange	Green	Orange
	Pedestrian Intergration	Green	Green	Green	Orange
	Cyclist Integration	Orange	Green	Green	Orange
	Public Transport Integration	Green	Green	Red	Green
	Traffic Network Integration	Green	Orange	Orange	Green
Accessibility and Social Inclusion	Mobility & Vision Impaired Road Users	Yellow	Yellow	Yellow	Yellow
Safety	Road Safety	Green	Green	Green	Orange
Environment	Archaeological, Architectural and Cultural Heritage	Yellow	Yellow	Yellow	Yellow
	Biodiversity	Yellow	Yellow	Yellow	Yellow
	Soils and Geology	Yellow	Yellow	Yellow	Yellow
	Water Resources	Green	Green	Green	Orange
	Landscape and visual	Green	Green	Green	Orange
	Noise, vibration and air quality	Orange	Green	Green	Orange
	Land Use and Built Environment	Green	Orange	Orange	Green

In terms of Cost, making Carysfort Avenue one-way, whether it be eastbound as in Option 3 or westbound, as in Option 2, would be the most expensive as they would require the most works. Maintaining the current layout and slightly modifying it as proposed in Option 1 would be slightly cheaper, and finally, the Do-Nothing option is the cheapest.

Regarding Land Use Integration Options 1 and 3 provide some advantages over Options 2 and Do-Nothing as they provide additional public realm space as well as improving connectivity to Blackrock Village, supporting objectives in the Blackrock Local Area Plan.

Options 1, 2 and 3 present some advantages compared to the Do-Nothing option regarding Pedestrian Integration as all three options provide improved crossings and more pedestrian space than the current scenario.

Options 2 and 3 offer a slight advantage regarding Cyclist Integration as they provide a cycle lane in one direction. Options 1 and the Do-Nothing option require cyclists and vehicles to share the same space in both directions.

In terms of Public Transport Integration, Option 3 presents major disadvantages as some bus routes will need to be rerouted as they currently run westbound on Carysfort Avenue. Options 1, 2 and the Do-Nothing allow buses to use the road.

Regarding Traffic Network Integration, Options 1 and the Do-Nothing option present slight advantages when compared to Options 2 and 3 as they maintain two-way movements for traffic on the road.

All Do-Something options present slight advantages when compared to the Do-Nothing option regarding Road Safety as they tighten up junctions on the road in accordance with DMURS.

All Do-Something options present slight advantages when compared to the Do-Nothing option regarding Water Resources and Landscape and Visual as they have an opportunity for landscaping and introduction of SUDS measures.

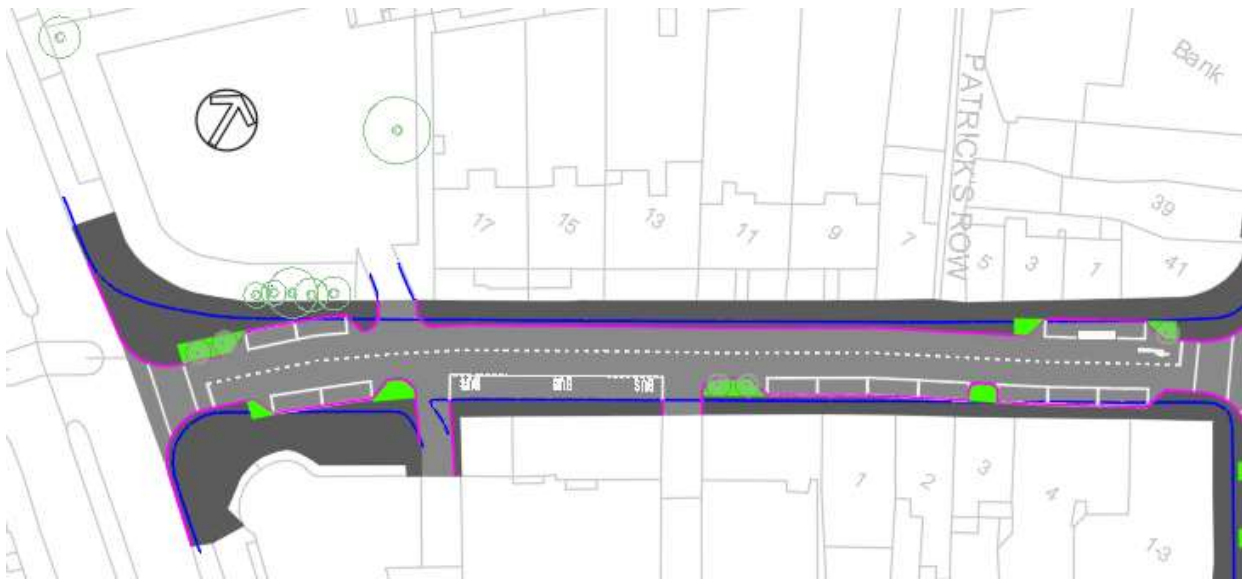
Regarding Noise, Vibration, and Air Quality Options 2 and 3 are slightly more advantageous than Option 1 and the Do-Nothing option as they reduce the number of traffic lanes on the road. The impact is likely to be limited though as additional rerouted traffic will need to use other nearby roads.

Regarding Land Use and Built Environment Option 1 is preferred as it creates extra parking spaces as well as adding some space for pedestrians. Options 2 and 3 are the most disadvantageous due to the loss of parking. The Do-Nothing option has slight advantages as it has more parking spaces than the previous two.

Recommendation

The impacts of providing the cycle lanes on Options 2 & 3 do not seem to be justify the benefits. This cycle route is not on the GDA CNP and there is an adjacent high quality route using George's Ave. Making the road one-way would only provide cycle facilities in only one direction and would reduce the accessibility of the village by car, as well as reducing the number of parking spaces.

Option 1 provides a greater number of on-street parking spaces which could compensate for spaces lost elsewhere in the wider scheme. It also maintains two-way traffic on the road providing better access to Blackrock Village. For these reasons, it is recommended as the preferred option.



Preferred layout for Section D

TEMPLE ROAD (SECTION E) ROAD

Option Development

Option 1

Option 1 maintains two way traffic while slightly narrowing the road and adding additional parking either side of Temple Road.

Option 2

This option changes Temple Road to a northbound one-way street with a contra-flow cycle-lane. The layout of this section would be as follows: 2m footpath, 2m cycle-path, 1m buffer, 2.1m parking space, 4m road, 2.1m parking space and 2m footpath.

Option 3

This option changes Temple Road to a southbound one-way street with a contra-flow cycle-lane. The layout of this section would be as follows: 2m footpath, 2m cycle-path, 1m buffer, 2.1m parking space, 4m road, 2.1m parking space and 2m footpath.

Option Assessment

Temple Road (Section E)					
Assessment Criteria	Sub-Criteria	Option 1	Option 2	Option 3	Do Nothing
Economy	Capital Cost	Orange	Orange	Orange	Green
Integration	Land Use Integration	Green	Green	Orange	Orange
	Pedestrian Intergration	Green	Green	Green	Orange
	Cyclist Integration	Orange	Orange	Green	Orange
	Public Transport Integration	Green	Orange	Orange	Green
	Traffic Network Integration	Green	Orange	Orange	Green
Accessibility and Social Inclusion	Mobility & Vision Impaired Road Users	Yellow	Yellow	Yellow	Yellow
Safety	Road Safety	Green	Orange	Green	Orange
Environment	Archaeological, Architectural and Cultural Heritage	Yellow	Yellow	Yellow	Yellow
	Biodiversity	Yellow	Yellow	Yellow	Yellow
	Soils and Geology	Yellow	Yellow	Yellow	Yellow
	Water Resources	Green	Green	Green	Orange
	Landscape and visual	Green	Green	Green	Orange
	Noise, vibration and air quality	Yellow	Yellow	Yellow	Yellow
	Land Use and Built Environment	Green	Green	Green	Orange

Regarding Cost, all Do-Something options have a slight disadvantage when compared to the Do-Nothing.

Options 1 and 2 provide some advantages over Option 3 and the Do-Nothing option regarding Land Use Integration as they provide additional public realm space, supporting objectives in the Blackrock Local Area Plan. Option 3 would see additional traffic diverted via Rock Hill, hindering objectives in the Blackrock LAP, and so scores poorly.

Regarding Pedestrian Integration Options 1, 2 and 3 present some advantages compared to the Do-Nothing option as all three options provide improved crossings and more pedestrian space than the current scenario.

Option 3 offers a slight advantage regarding Cyclist Integration as it caters for a northbound contra-flow cycle lane. Options 1 and Do-Nothing do not include a segregated cycle lane. Option 2 could cause potential problems between the cyclists on the contra flow cycle lane and the off-street parking on the northern side of the road.

Regarding Public Transport Integration, Options 2 and 3 have disadvantages as Option 2 removes the possibility of buses travelling southbound down Temple Road, forcing them onto Carysfort Avenue, and Option 3 prevents buses from travelling northbound on the road.

Options 1 and the Do-Nothing option present slight advantages when compared to Options 2 and 3 regarding traffic network integration as they maintain two-way traffic movements on the road.

Regarding Road Safety, Options 1 and 3 present slight advantages compared to Option 2 and the Do-Nothing option. All Do-Something Options would tighten junctions in accordance with DMURS and provide safety improvements. On Option 2 there could be a conflict between the contra flow cycle lane and the off-street parking on the northern side of the road which is why this is less favourable.

All Do-Something options present slight advantages when compared to the Do-Nothing option regarding Water Resources and Landscape and Visual as they have an opportunity for landscaping and introduction of SUDS measures.

Regarding Noise, Vibration and Air Quality, Options 2 and 3 would reduce the overall traffic levels on Temple Road, however this traffic would be rerouted using other nearby roads and the overall impact would likely be similar on all options.

Regarding Land Use and Built Environment, Options 1, 2 and 3 provide advantages compared to the Do-Nothing option as they all create significant numbers of additional on-street parking spaces.

EMERGING PREFERRED OPTION

The preferred scheme has been assembled from the preferred options in the various sections above. A drawing of the full preferred scheme has been provided along with this report.

The impacts of the scheme on parking and bus routing are discussed below in more detail.

On-street parking

The impact of the proposed scheme on the numbers of parking, loading and disabled spaces is shown in the table below. There is a reduction in parking available in Section A and C but an increase in Sections D and E. There is no net change in the number of spaces during the interim scheme; 77 spaces are maintained. After the interim scheme, there is a net loss of 7 spaces throughout Blackrock Village with an additional loading bay and disabled parking bay. New bike parking will be provided, with a net gain of 62 parking spaces.

There is an opportunity to review the operating hours of the loading bays to add to the availability of parking in the village, for example all loading bays could operate from 06:00-14:00 Mon-Sat.

SECTION	Parking spaces		Disabled Parking Spaces		Loading Bays	
	Existing	Proposed	Existing	Proposed	Existing	Proposed
Rock Hill and Main Street (Section A)	15	6 (11 before the bus layover moves)	1	1	2 (6AM-4PM Mon-Sat)	2
Georges Avenue (Section B)	0	0	1	1	1 (6AM-4PM Mon-Sat)	1
Main Street (Section C)	31	17	2	2	2 (8AM-7PM Mon-Sat)	2
Carysfort Avenue (Section D)	9	11 (15 before bus layover moves)	0	0	1 (8AM-7PM Mon-Sat)	1
Temple Road (Section E)	22	34	2	3	1 (8AM-7PM Mon-Sat)	1
Total	77	68 (77 before the bus layover moves)	6	7	7 (turns into 14 parking bays outside of loading bay hours)	7 (turns into 15 parking spaces outside of loading bay hours)

Bus Routing

The proposed bus routing for the two future routes using Blackrock is shown in the figures below



Option 1: S6 Bus Route (Left) & L26 Bus Route (Right)

Preliminary Cost Estimates

A preliminary cost estimate has been prepared and the estimated cost for the scheme is approx. €6.3m ex VAT.

A detailed breakdown of this estimate using the NTA cost spreadsheets has been done and is included along with this report. This estimate includes for contingency but is exclusive of VAT.

The full preferred design is presented in the Part 8 proposal.

