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1 Introduction

Background

During the Covid-19 pandemic, DLRCC revised the traffic arrangements in Blackrock Village to facilitate a temporary one-way system and provide mobility and placemaking improvements. An independent evaluation conducted by Technological University of Dublin (TUD) during the summer of 2020, published as part of the Part 8 pack, showed a majority of respondents wanted this made permanent and DLRCC, in conjunction with the NTA, are now reviewing the temporary interventions with the view to making some elements permanent. Barry Transportation (BT) were appointed by DLRCC to provide consulting engineering services as part of this scheme.

Purpose

The purpose of the technical note is to detail the assessments undertaken for a variety of potential bus routing options through Blackrock Village, in consideration of the review of the temporary public realm and vehicle routing measures in the village by DLRCC and NTA, the anticipated implementation of the revised NTA BusConnects bus network and DLCC policy to aim to remove the bus layover space at the Seafront near Blackrock DART Station.

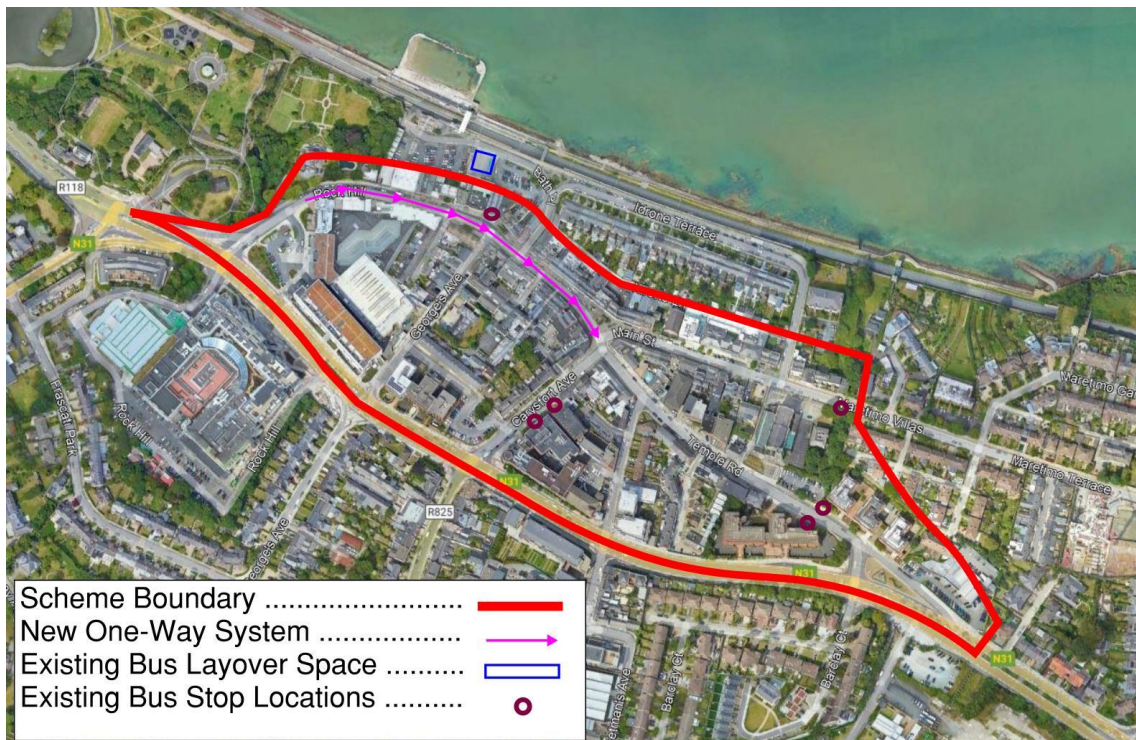


Figure 1 – Scheme Location

The following are key items to be considered as part of this assessment:

- New bus routes will be implemented as part of the NTA's proposed BusConnects network.
- Bus routing will need to be revised if Rock Hill and Main Street maintain a one-way traffic system put in place as part of the temporary public realm and traffic management improvement measures introduced by DLRCC during Covid. This system currently conflicts with the Bus Connects objectives and routing system and will require careful consideration in the design of the final scheme for Blackrock Village.

It is an objective of the DLRCC Development Plan and Blackrock Local Area Plan to relocate the existing bus terminus/layover area near the Dart Station to facilitate public realm and accessibility improvement works along the seafront. The final design of the project should include for the potential future relocation of the existing terminus to a suitable location in Blackrock or elsewhere, cognisant of bus operations, accessibility, and quality of service. Progression of the project design without consideration of the future bus services and routing could undermine the progression of any seafront improvement scheme.

Existing and Proposed BusConnects Bus Routes

The below figures show the existing bus routing in and around Blackrock Village, and the proposed routing after the implementation of the new BusConnects Network. Details of the proposed BusConnects project can be found at the following link. <https://busconnects.ie/initiatives/new-dublin-area-bus-network/>

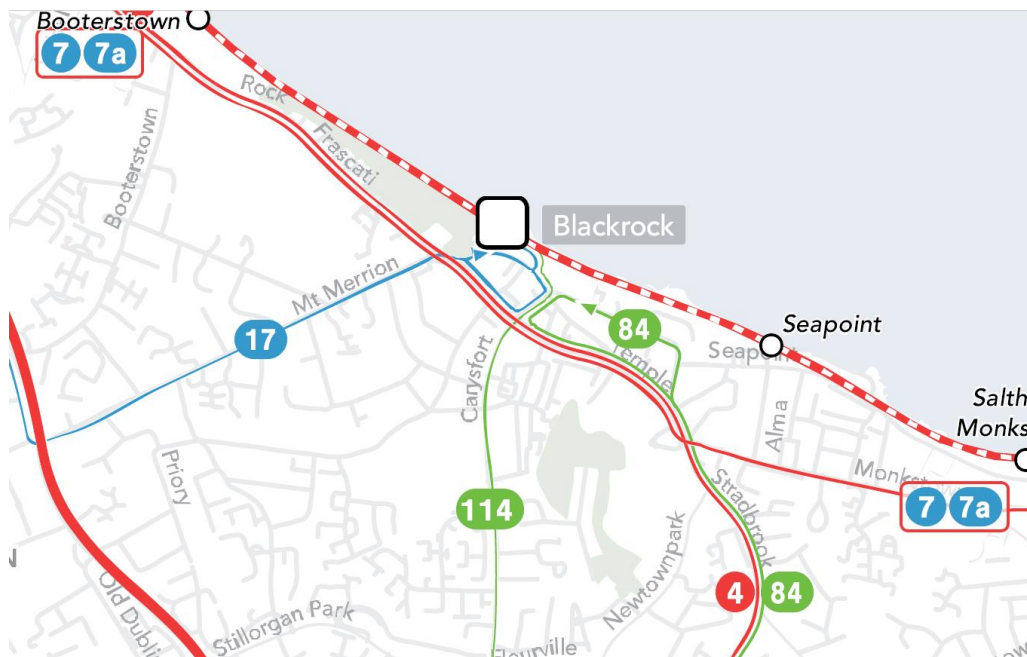
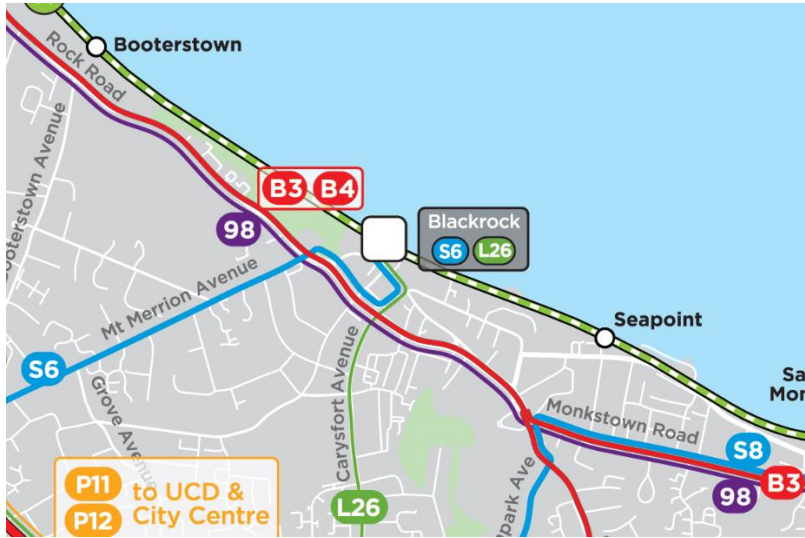


Figure 2 – Existing Bus Routes



	Phase	Date	Major Services
In	1	Jun-21	H-spine
In	2	Nov-21	C-spine
In	3	May-22	Northside Orbitals N4 & N6
In	4	Oct-22	G-Spine & Route 60
In	5	Dec-22	Southside Orbitals
In	5a	Mar-23	Western Orbitals
In	6	Apr-23	F-spine & Inner Orbital
In	7	Jun-23	E-spine
In	8	Oct-23	D-spine
In	9	Apr-24	A-spine
In	10	Aug-24	B-spine
In	11	Dec-24	Remaining Routes

Dates are indicative and subject to change

Figure 3 – Proposed Bus Routes and Approximate Implementation Timeline

Orbital Routes		Weekday																		
Route no.	To and From	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11
S6	Tallaght - Dundrum - UCD - Blackrock	30	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	30
L26	Kiltarnan - Cabinteely - Deansgrange - Blackrock		30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	60

Figure 4 - Frequency Tables for the New Network

The following are key points to note:

- The implementation of the new BusConnects network will see the S6 and L26 bus routes replace the 17, 84 and 114.
- The new network will see a slight increase in the total number of busses directly serving Blackrock Village, up from 82 to 90 busses per weekday. There will be 6 busses per hour throughout the day. Bus frequency tables are shown in Figure 4 above.
- The 4 and the 7 which use Rock Road and Frascati Road will be replaced by the B3 and B4. There will be 8 busses per hour and 188 per weekday. This is similar to the frequency of the existing routes they are replacing.
- The proposed BusConnects routes in Blackrock Village do not account for the one-way traffic system on Rock Hill/ Main St, as can be seen in Figure 3 above.
- The proposed routes retain the existing layover/terminus by Blackrock DART Station.
- Under the revised routing some bus stops currently in use along Main Street and Temple Road will become redundant and can be replaced with parking, loading or public realm space.

2 Options Considered

Several routing options were considered in order to find the optimum location for the terminus stop(s) (the stop or stops where the bus starts and finishes its journey) on the S6 and L26 bus routes, and where the bus would layover. The layover space is required so that busses can park and wait for a short time in between dropping passengers at the last stop and picking up the first passengers on the return leg. This facilitates comfort breaks for drivers.

The following locations were considered for layover space in the village, as shown on Figure 5 below:

- 1) Rock Hill:
- 2) Carysford Avenue:
- 3) Temple Road:
- 4) Carysford Avenue Carpark:
- 5) Booterstown Carpark:



Figure 5 – Layover Location Options

The following are key considerations:

- The NTA are the national authority responsible for public bus services in Ireland and have specific requirements relating to suitability and size of bus layover space. If the layover area is moved to a new location, the NTA have requested layover space for 3 busses, which requires 36m of road space.
- The current layover space is adjacent to the Dart station which is an ideal location in terms of public transport interchange. Relocation of the current layover/bus terminus adjacent to the Dart Station must ensure that there is appropriate accessibility and connectivity between these public transport modes, minimising any potential for a reduction in the quality of bus services. This is an important point in the context of what the NTA will accept in terms of alterations.
- If moving the bus terminus stops to new location(s), the shortest and most direct pedestrian connection to the DART Station is required to offset the loss of accessibility.
- Layover spaces should have access to welfare facilities so that drivers can take a break and use the toilet.

- Layover spaces should be considered in the context of the overall public realm design for the permanent scheme subject of this Part 8 application.

Option 0 – Do minimum:

For this option the existing layover area at the seafront would be retained and the bus routing would be revised to take account of the existing one-way system on Rock Hill and Main St.

Pros	Cons
<ul style="list-style-type: none"> • The existing terminus/layout area is located adjoining the Dart Station, minimising travel distances for pedestrians between public transport modes. 	<ul style="list-style-type: none"> • Bus layover space is still required at the seafront which hinders its development in the future. • Busses still use Bath Place and so the road geometry needs to be wide enough to cater for their movement. This means less space available for public realm improvements.

Option 1: Layover and last stop on Rock Hill, first stop outside the post office. Layover space opposite the entrance to Blackrock Shopping Centre Carpark (Figure 6).



Figure 6 – Option 1 Bus Routing Sketch

Pros	Cons
<ul style="list-style-type: none"> • The NTA have advised this would be a suitable solution. • Relatively straight forward bus route from both the services users and operations perspective. • Most sustainable bus route without the need for looping through the village. Less impact on traffic, noise and air pollution as busses only travel down Rock Hill/Main St once. 	<ul style="list-style-type: none"> • Less space available for parking, planting, footpath, and cycle path facilities. • On street bus layover would have a negative aesthetic impact. • Layover may impact on existing vehicular access on the Northern side of Rock Hill to an existing dwelling.

<ul style="list-style-type: none"> Enables development of existing bus layover space at the seafront. 	
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Option 2: Layover and last stop on Carysfort Ave, first stop outside the post office.

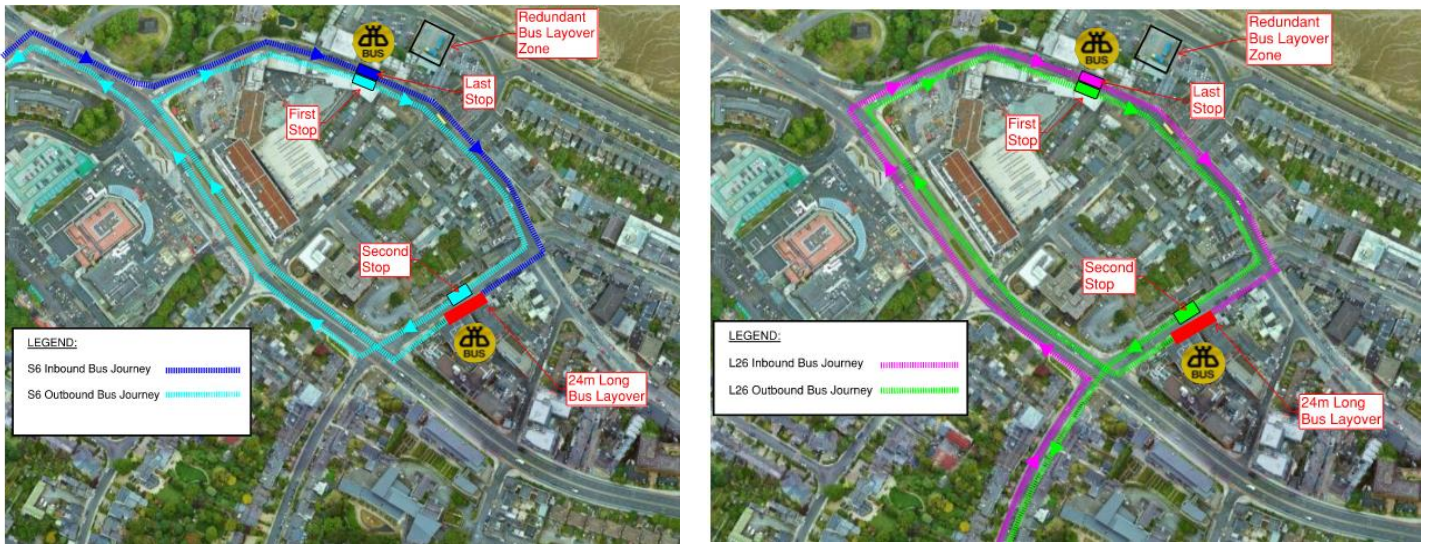


Figure 7 – Option 2 Bus Routing Sketch

Pros	Cons
<ul style="list-style-type: none"> Enables future development of existing bus layover space at the seafront. 	<ul style="list-style-type: none"> Requirement for busses to loop around the village twice so that there is a stop in both directions on Rock Hill to serve the village centre/DART Station. Additional unnecessary route length and journey time would impact on bus operations. Negative impact on traffic, noise, and air pollution as the number of bus journeys on Rock Hill/Main St doubles as busses loop through the village twice. Bus layover takes up space on Carysfort Avenue. This means less space available for parking and planting. On street bus layover would have a negative aesthetic impact.

Option 3: Layover and last stop on Temple Road, first stop outside the post office.



Figure 8 – Option 3 Bus Routing Sketch

Pros	Cons
<ul style="list-style-type: none"> • Enables development of existing bus layover space at the seafront. • Bus layover takes up space on Temple Road, this would be located at a redundant bus stop and alongside a public car park. Less of an aesthetic impact than other on-street layover options. 	<ul style="list-style-type: none"> • Requirement for busses to loop around the village twice so that there is a stop in both directions on Rock Hill to serve the village centre/DART Station. Additional unnecessary route length and journey time would impact on bus operations. • Less space for parking and planting available on Temple Road. • Negative impact on traffic, noise, and air pollution as the number of bus journeys on Rock Hill/Main St doubles as busses loop through the village twice.

Option 4: Layover and last stop within the public carpark off Carysfort Ave, first stop outside the post office.

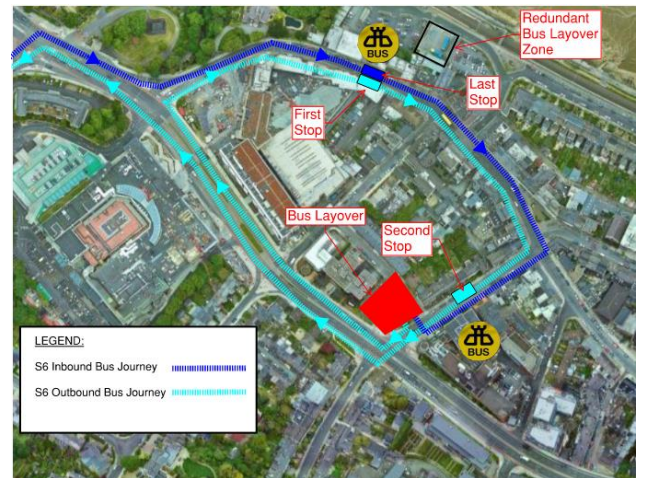
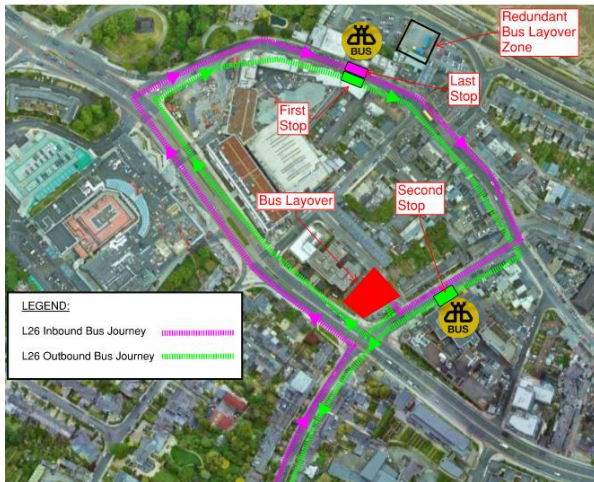


Figure 9 – Option 4 Bus Routing Sketch

Pros	Cons
<ul style="list-style-type: none"> No requirement for busses to layover on street. Enables development of existing bus layover space at the seafront. 	<ul style="list-style-type: none"> Requirement for busses to loop around the village twice so that there is a stop in both directions on Rock Hill to serve the village centre/DART Station. Additional unnecessary route length and journey time would impact on bus operations. Negative impact on traffic, noise, and air pollution as the number of bus journeys on Rock Hill/Main St doubles as busses loop through the village twice. Restricts development of this plot of land in the future. Reduction in parking spaces available in the public car park. Felling of mature trees may be required to facilitate bus movements within the car park. If the Rock Hill bus stop was removed at this area became the first and last stop this would require a c. 400m journey to the Dart Station. This is an unacceptable distance in terms of accessibility.

Option 5: Layover and last stop within the public carpark at Booterstown DART Station, first stop also outside Booterstown DART Station.



Figure 10 – Option 5 Bus Routing Sketch

<u>Pros</u>	<u>Cons</u>
<ul style="list-style-type: none"> • Direct connection to the DART line • Additional catchment for the bus as it travels on Rock Road, picking up residents, businesses and two schools. • No requirement for busses to layover on street. 	<ul style="list-style-type: none"> • Increase in overall journey times for the bus due to longer routes. This significant change to the bus network would impact on its operation. The additional journey time may require additional buses to maintain the proposed frequency. • Loss of some parking spaces within the Booterstown Dart Station car park. • This car park is not owned by DLR and achieving agreement with Irish Rail may not be possible or would require a significant period of time to resolve. • Significant additional cost associated with 2.4km of additional route length on every bus journey. • Negative impact on traffic, noise, and air pollution as the number of bus journeys on Rock Hill/Main St doubles as busses loop through the village twice. • Potentially confusing layout for bus passengers as busses in opposite directions would use the same bus stops on Rock Hill/Carysfort Ave.



3 Options Assessment

Option 0 does not achieve the goal of relocating the bus layover area away from the seafront and for this reason was not selected as the preferred option.

Option 1 avoids the requirement for the busses to loop around the village twice and so it performs the best from a bus operations point of view. The location of the bus layover on street would have a negative aesthetic impact and reduce space available for parking and planting on Rock Hill. The relocation of buses to this point is only required when / if a seafront scheme progresses. The NTA have already accepted this as a solution.

Options 2, 3 & 4 all require busses to loop around and pass through the village twice in order to pick up passengers at the Rock Hill stop. This unnecessary additional route length and journey time would impact on bus operations. It would also lead to additional traffic congestion, noise, and air pollution around the village. The NTA have indicated they would not accept these as alternatives to the current terminus location.

Of these three options, Option 2 allows the permanent scheme to progress. It allows the seafront scheme to progress.

Option 5 presents some benefits compared to other options with a direct connection to the DART line, additional catchment served and negligible impact on the urban realm from the location of the bus layover space. However, implementing this new arrangement would require a significant extension to the lengths of the bus routes (1.2 km in each direction) This would increase the bus journey times and would impact on the bus operations and scheduling. Due to the extent of the changes that would be required to the operation of the bus network the NTA were unwilling to accept this proposal. This option also doubles the number of bus journeys on Rock Hill/Main St.



4 Preferred Option

Option 1 is recommended as the preferred option as it enables the bus layover area to be moved away from the seafront and provides the best solution for bus operations and bus users. Buses are only required to travel down Rock Hill/Main St once and so would have less of an impact on traffic congestion, noise, and air pollution. This option is presented as part of the Part 8 proposal.

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 will be provided on Carysford Avenue as per Option 2, which is the next preferred option. The layover space is proposed to be located on Rock Hill opposite the entrance to the private car park, as shown in Figure 11 below.



Figure 11 – Preferred Option Rock Hill and Carysford Avenue