Greenhills to City Centre

Core Bus Corridor Preferred Route

Public Consultation March 2020









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1. Introduction

1.1 What has happened so far?

Between November 2018 and May 2019 the National Transport Authority (NTA) carried out the first round of public consultation on initial proposals for the Emerging Preferred Routes of sixteen Core Bus Corridors across the Greater Dublin Area (GDA). During this consultation phase thirteen thousand submissions were received in total. A Consultation Submissions Report for each corridor is available to view and download on our website www.busconnects.ie.

All of the submissions were reviewed and considered as part of the design preparation for the Preferred Route for each corridor. We have amended our initial proposals to address some of the issues raised in submissions, including incorporating suggestions and recommendations from local residents, community groups and stakeholders. We are now publishing the Preferred Routes for sixteen Core Bus Corridors and commencing a second round of public consultation.

This document is one of a series of sixteen, each dedicated to a single Core Bus Corridor. The document provides a written description of the Preferred Route from start to finish with supporting maps and includes information on revisions made, if any, from the initial emerging preferred route.

The original brochures detailing each Emerging Preferred Route, published last year, are available to view and download on our website www.busconnects.ie. These brochures contain information on the process for impacted property owners, the project timelines and steps required for statutory planning application.

1.2 What is BusConnects?

BusConnects is the National Transport
Authority's programme to greatly improve bus
services. It is a key part of the Government's
polices to improve public transport and address
climate change in Dublin and other cities. It
is included within the following Government
policy strategies:

- The National Development Plan 2018 2027;
- Transport Strategy for the Greater Dublin Area 2016 - 2035; and
- The Climate Action Plan 2019.







Dublin is growing and needs a bus network that works for a developing city. The aim of BusConnects is to deliver an enhanced bus system that is better for the city, its people and the environment. BusConnects is designed to provide a better, more reliable and more efficient bus service for everyone.

BusConnects: The facts at a glance

230km of bus priority making journeys faster and more reliable



200km of cycle lanes/tracks

















New bus stops and shelters

with better signage and information



Dublin area bus network redesign

creating a more efficient network with high frequency spines, new orbital routes and increased bus services

1.3 What are the benefits of this project?



Journey Time Savings -

This project will deliver journey time savings of up to 40-50% on corridors. Dedicated bus and cycle lanes can significantly increase bus travel speeds and reliability.



Building a sustainable city and addressing climate change -

Tackling the challenges of climate change is a priority for Ireland and moving more people to public transport is a key component of the solution.



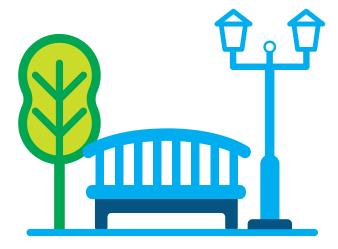
Accessibility for all -

More bus shelters, with seating where possible, new footpaths and better information at bus stops, will make using the fully accessible bus fleet easier for all, including the elderly and mobility impaired.



Better cycling facilities -

This project will see the provision of much needed cycling facilities around the city region with over 200kms of high quality cycle routes provided.



Pedestrians and Urban Realms -

Along each route, improvements and enhancements will be made to footpaths, walkways and pedestrian crossings. Funding and investment for local urban realms with additional landscaping and outdoor amenities will be provided.

1.4 Understanding the terminology

1. Core Bus Corridor (CBC):

Part of the overall BusConnects Programme is to create 16 radial Core Bus Corridors (CBC). A CBC is an existing road with bus priority so that buses can operate efficiently, reliably and punctually. This generally means full length dedicated bus lanes on both sides of the road from start to finish of each corridor or other measures to ensure that buses are not delayed in general traffic congestion. The bus lanes will be alongside general traffic and segregated cycle lanes/tracks where feasible.

2. Segregated Cycle Tracks:

A segregated cycle track is a separate section of the road dedicated for cycling only. This space will generally be isolated from other vehicular traffic by a physical kerb. Where it is not physically possible to have segregated cycle tracks there will be the option of quiet roads and shared cycling on reduced speed roads for cyclists.

3. Emerging Preferred Route (EPR):

The NTA published outline plans for each of the 16 CBCs in a non-statutory public consultation process in 2018/2019. The options were called Emerging Preferred Routes (EPR), in some cases with multiple sub-options, to inform the public of the likely layout of the roadway with the necessary CBC infrastructure in place. They included possible impacts on front gardens, and likely changes to how traffic will operate to facilitate bus priority.

4. Preferred Route Option (PRO):

Following consideration of the public submissions about the 16 EPR's, the Core Bus Corridor proposals have been reviewed and amended. They are now being presented as the Preferred Route Option (PRO) and are subject to a second round of non-statutory public consultation.

They are not final proposals as they are subject to further consideration from the second round of public consultation and also subsequent examination in the context of Environmental Impact Assessment.

5. Bus Gate



A Bus Gate is a sign-posted short length of stand-alone bus lane. This short length of road is restricted exclusively to buses, taxis and cyclists plus emergency vehicles. It facilitates bus priority by removing general through traffic along the overall road where the bus gate is located. General traffic will be directed by signage to divert away to other roads before they arrive at the Bus Gate.

6. Signal Controlled Priority:

Signal Control Priority uses traffic signals to enable buses to get priority ahead of other traffic on single lane road sections, but it is only effective for short distances. This typically arises where the bus lane cannot continue due to obstructions on the roadway. An example might be where a road has pinch-points where it narrows due to existing buildings or structures that cannot be demolished to widen the road to make space for a bus lane. It works through the use of traffic signal controls (typically at junctions) where the bus lane and general traffic lane must merge ahead and share the road space for a short distance until the bus lane recommences downstream. The general traffic will be stopped at the signal to allow the bus pass through the narrow section first and

when the bus has passed the general traffic will then be allowed through the lights.

7. Toucan Crossing:

A Toucan Crossing is a roadway crossing designed to enable both pedestrians and cyclists to cross the road with purposefully designed signal controls.

8. Quiet Street Treatment:

Where CBC roadway widths cannot facilitate cyclists without significant impact on bus priority, alternative cycle routes are explored for short distances away from the CBC bus route. Such offline options may include directing cyclists along streets with minimal general traffic other than car users who live on the street.

They are called Quiet Streets due to the low amount of general traffic and are deemed suitable for cyclists sharing the roadway with the general traffic without the need to construct segregated cycle tracks or painted cycle lanes. The Quiet Street Treatment would involve appropriate advisory signage for both the general road users and cyclists.

9. Urban Realm:

Urban Realm refers to the everyday street spaces that are used by people to cross, shop, socialise, play, and use for activities such as walking, exercise or commute to/from work. The Urban Realm encompasses all streets, squares, junctions, and other rights-of-way, whether in residential, commercial or civic use. When well-designed and laid out with care in a community setting, it enhances the every-day lives of residents and those passing through. It typically relates to all open-air parts of the built environment where the public has free access. It would include seating, trees, planting and other aspects to enhance the experience for all.

Signal Controlled Priority (SCP)



1. Traffic proceeds as normal.



2. As the bus approaches, the light signal changes to halt general traffic.



3. The bus has priority to proceed.

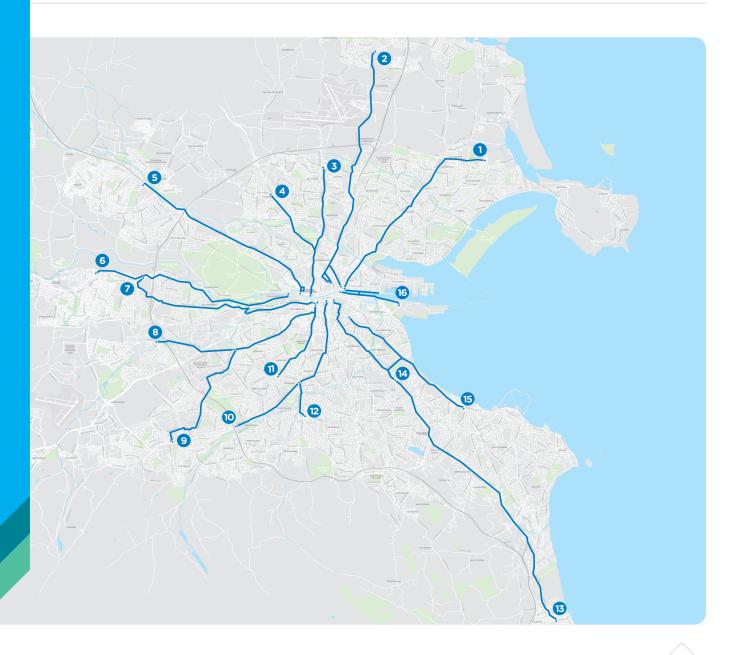


4. When the bus has cleared the junction, general traffic proceeds.

1.5 Map of all 16 core bus corridors

Preferred Routes

- 1. Clongriffin to City Centre
- 2. Swords to City Centre
- 3. Ballymun to City Centre
- 4. Finglas to Phibsborough
- 5. Blanchardstown to City Centre
- 6. Lucan to City Centre
- 7. Liffey Valley to City Centre
- 8. Clondalkin to Drimnagh
- 9. Greenhills to City Centre
- 10. Tallaght to Terenure
- 11. Kimmage to City Centre
- 12. Rathfarnham to City Centre
- 13. Bray to City Centre
- 14. UCD Ballsbridge to City Centre
- 15. Blackrock to Merrion
- 16. Ringsend to City Centre



2. Preferred Route Description

2.1 Overview

The Greenhills Core Bus Corridor (CBC) commences on Belgard Square West at the junction with Cookstown Way. A bus interchange will be located in this area and will be a focus for all of the bus routes in the Tallaght area, providing seamless interchange between bus services, Luas and the Town Centre. From here, the CBC is routed along Belgard Square West and Belgard Square North as far as the junction with Belgard Square East.

The CBC route is proposed south along Belgard Square East towards Blessington Road and Main Street via the existing singalised Bus Gate at the Technological University Dublin (TUD) entrance. It continues along Main Street to Greenhills Road, continuing along Ballymount Avenue, Calmount Road, and Walkinstown Road as far as the junction with the Long Mile Road. It is proposed to realign the existing Greenhills Road along an existing road reservation area between Parkview and Treepark Road, and through Ballymount Industrial Estate by way of extending both Ballymount Avenue and Calmount Avenue to connect to Greenhills Road at new signalised

junctions. From the junction of the Long Mile Road and Walkinstown Road the CBC is routed along Drimnagh Road, Crumlin Road, Dolphin's Barn, Cork Street, St. Luke's Avenue, The Coombe, and Dean Street to the junction with Patrick Street. The CBC is then routed along Patrick Street and Nicholas Street to the junction with Christchurch Place where it will join the existing traffic management regime in the City Centre.

Priority for buses is provided along the entire route, consisting primarily of dedicated bus lanes in each direction, with alternative measures proposed at particularly constrained locations. Cycle facilities are provided along the length of the corridor where practicable to do so. Where this could not be achieved a parallel alternative cycle route is provided offline to the CBC route. Offline cycle facilities are proposed along Bunting Road, Kildare Road and Clogher Road to link into the Grand Canal cycle route at Parnell Road.

Opportunities for new soft landscaping and Urban Realm improvements will be reviewed with design development throughout the length of the CBC.

The following paragraphs will describe each CBC section in more detail, identifying the key design revisions which have been incorporated into the design since the publication of the Emerging Preferred Route (EPR) in January 2019.

2.2 Belgard Square South to Greenhills Road - Belgard Square West, Belgard Square North, Belgard Square East, Old Blessington Road, Main Street

The Greenhills CBC commences at the existing roundabout junction on Belgard Square South. It is proposed to change the roundabout to a fully signalised junction with improved pedestrian facilities. Belgard Square West is intended to be a bus only route not accessible to general traffic. The revised proposal now indicates an interchange that will act as the focus for all bus routes in the area. Between Belgard Square South and Tallaght Cross West/Broadfield Hall access to and from these buildings and neighbouring developments will still be permitted from Belgard Square

West. Bus traffic across Old Blessington Road will be controlled by Signal Controlled Priority. Access to and from the Old Blessington Road to Belgard Square West will be permitted.

It is proposed to change the roundabout junction on Belgard Square North at the Tallaght Hospital Entrance and Cookstown Way to a fully signalised junction to accommodate new bus lane and pedestrian facilities. The roundabout junctions at Belgard Square East will also be replaced with new signalised junction arrangements. However, the revised proposal no longer includes the change of the Belgard Road roundabout to signals as the corridor now follows Belgard Square East. It is proposed to upgrade the existing cycle facilities and associated junctions on Belgard Square North to provide segregated cycle tracks to and from Tallaght Hospital. This proposed amendment may impact on the existing trees and shrubs along Belgard Square North and require localised land acquisition on a currently undeveloped site.

From Belgard Square East it is proposed to provide an alternative CBC route from the EPR which diverts around TUD Tallaght via Blessington Road and Main Street to Greenhills Road. This route largely aligns with the existing bus route for the area and minimises impacts on the existing TUD campus infrastructure and operational procedures. It is proposed to create a new junction with Signal Controlled Priority on Old Greenhills Road at the location of the existing cul de sac, to facilitate bus only turn movements to the Greenhills Road.

2.3 Greenhills Road to Walkinstown Roundabout – Greenhills Road, Ballymount Avenue, Calmount Road, back to re-join Greenhills Road

Between the Old Greenhills Road and the junction with Mayberry Road along the Greenhills Road it is intended to provide one bus lane, one traffic lane and a cycle track in both directions. To accommodate the road cross section, it is proposed to utilise land take along this section on both the west and east side of the existing Greenhills Road. This proposed realignment has been altered from the EPR to minimise impacts to the existing mature trees and the stone wall on the western

verge north of the TUD entrance on Greenhills Road. This will require additional land to be acquired to the east of the road. At the Airton Road junction the road alignment has also been altered to improve facilities for cyclists and to make use of space that has already been setback for future road widening.

To improve the operation of the existing junction and minimise land take, it is proposed to introduce a right turn ban from Greenhills Road to the entrance to Harvey Norman and a right turn ban from the Greenhills Road to the Hibernian Industrial Estate. Access from Harvey Norman to Greenhills Road will be maintained at the junction. Right turning vehicles for Harvey Norman will be directed to the Airton Road junction. At this junction, vehicles will be able to turn right and access the Harvey Norman store from this road. Right turning vehicles for the Hibernian Industrial estate will be directed to the next junction (at Agnelli Motor Park) where full access will be maintained.

Between Mayberry Road and Tymon Lane it is proposed to undertake major changes to the local road network. South Dublin County Council has identified this section of Greenhills Road for upgrade under their current County Development Plan. It is intended to implement some of these road construction works as part of this scheme. A new Greenhills Road will be constructed on the green space south of Birchview Avenue and Treepark Road. The previously proposed arrangements in the EPR have been modified to provide improved traffic management for inbound and outbound buses. A bus only arrangement is proposed on the southbound bus route that will allow busses to use the existing Greenhills Road alignment and reduce the width of a proposed new link road. Tallaght bound through traffic and Castletymon Road traffic will be routed through this new link road. The previously proposed Castletymon Road extension and junction will also be maintained.

The existing M50 bridge crossing will be retained, however it will present a width restriction. Having reviewed the expected operation of the corridor, it has been concluded that an additional new bridge is required to maintain priority for buses and to provide high quality cycle facilities over the M50 in both directions. Additional land take

on both sides of the M50 will be required to facilitate the construction of this bridge.

The existing Ballymount Road Upper/Greenhills Road junction adjacent to the existing petrol station is proposed to be closed in line with the South Dublin County Council development plan proposals for the area. Traffic heading for the M50 will be able to do so via the new junction and link road at Keadeen Park.

At Keadeen Park it is proposed to close Greenhills Road to traffic. Traffic will be directed on to a new road link connecting the road to Ballymount Avenue. The new road will tie back into the existing road networks at Calmount Road. The junction between Ballymount Avenue and Calmount Road will be upgraded from a roundabout to a signalised junction with improved pedestrian facilities. The bus route will be directed down Calmount Road. The existing road is intended to be widened to incorporate bus and cycle lanes. It is proposed to connect Calmount Road to Greenhills Road with a new link road. It also is proposed to connect the existing Greenhills Road to Calmount Road with a new link road through Calmount Avenue. Some limited land take will be required to

construct a new roundabout at this proposed junction.

Between the Calmount Road and Walkinstown Roundabout, it is proposed to maintain one bus lane, one traffic lane and a cycle track in both directions, which will require some land take primarily along the southside of Greenhills Road. The previous design for Walkinstown Roundabout was reviewed to improve cycle and pedestrian accessibility. A two-way segregated cycle track has been proposed to provide connectivity from Greenhills Road to the proposed cycle route on Bunting Road. Parallel signal-controlled pedestrian/cycle crossings are proposed on all arms of the roundabout.

2.4 Walkinstown Roundabout to Dolphin Road - Walkinstown Road, Drimnagh Road, Crumlin Road

On Walkinstown Road between Walkinstown Roundabout and the Long Mile Road, it is proposed to provide one bus lane and one general traffic lane in both directions. There is insufficient space to accommodate dedicated cycle lanes on this section of road. To accommodate this cross section, it is proposed to utilise land take to west of the Walkinstown Road between Walkinstown Avenue and Kilnamanagh Road. Land take to the east of Walkinstown Road may be required between Kilnamanagh Road and Long Mile Road.

It is proposed to introduce a right turn ban from Walkinstown Road to Kilnamanagh Road. Kilnamanagh Road will remain accessible from Walkinstown Road through Walkinstown Drive. It is also intended to introduce a right turn ban for traffic from Walkinstown Road to the southern entrance of the SuperValu supermarket.

To accommodate cyclists on this section of the route, an alternative cycle route is proposed along Bunting Road and St. Marys Road providing a quiet route linking Walkinstown Roundabout with Kildare Road.

It is proposed to upgrade the junction at Long Mile Road and Walkinstown Road to enhance pedestrian and cycling facilities. To enhance cycle facilities and reduce vehicle speeds the proposed left turn slip lane to Walkinstown Road has been removed to improve pedestrian/ footpath frontage and minimise cycling conflicts with general traffic. Parking impacts adjacent to shop frontage on Longmile Road have been reviewed and the proposed arrangement will cater for safer parallel parking and a segregated cycle track.

On Drimnagh Road it is proposed to maintain one bus lane, one general traffic lane and one cycle track in each direction. To allow this revised cross section some limited land take from property between Balfe Road and Kildare Road will be required. The junction at Kildare Road, Saint Mary's Road and Drimnagh Road has been revised to provide improved cycle facilities. This will provide improved cycle connectivity between Drimnagh Road and the proposed alternative cycle route via Kildare Road.

On Crumlin Road it is proposed to alter the EPR design from four to three lanes and install Signal Controlled Priority to maintain priority for buses through this constrained section. This is required due to the size of the front gardens and limitations as a result of the gradients from the road to the front doors of some of the houses. As a result, significantly

less land take is required on this section of the corridor. The proposed arrangement requires the closure of Clonard Road and Bangor Drive to facilitate traffic management within this portion of Crumlin Road so that bus priority can be maintained. Access to Bangor Drive and Clonard Road can be achieved via Windmill Road and Old Country Road. Due to width restrictions in the area of Crumlin Road there is insufficient space to provide dedicated cycle lanes. Therefore, it is proposed to redirect cyclists through Kildare Road.

In order to improve local road safety on Kildare Road it is intended to introduce a no entry sign at the junction of Kildare Road and Clonard Road for traffic in both directions. This would prevent general through traffic; however, buses, taxis and cyclists movements will remain unrestricted along Kildare Road. Eastbound traffic would be directed along Clonard Road, through Downpatrick Road on to Bangor Road. Westbound traffic would also be directed up Clonard Road onto the Old County Road. A change from the EPR design is that the route will now continue along Clogher Road, rather than returning to Crumlin Road. This will provide improved connectivity to the proposed

Grand Canal cycle route at Parnell Road.

At the junction between Crumlin Road and Herberton Road, it is proposed to modify the existing layout to improve the kerb alignments and provide improved pedestrian crossing facilities. On the Crumlin Road between Herberton Road and Dolphin Road it is proposed to maintain one bus lane and one general traffic lane in both directions. There is insufficient road width on this section to provide dedicated cycle tracks.

2.5 Dolphin Road to Christchurch Place - Dolphins Barn, Cork Street, St Luke's Avenue, Dean Street, Patrick Street, Nicholas Street, Christchurch Place

Between Dolphin Road and South Circular Road it is intended to provide one bus lane, one general traffic lane and one cycle track in each direction. The previously proposed left turn ban at the South Circular Road junction has been reviewed and staggered crossings are now proposed to improve pedestrian facilities and reduce traffic impacts for a single crossing with increased green time. A new soft landscaping area is proposed on the south eastern corner of the junction to improve the urban realm aspects of the junction area whilst also improving safety.

Between South Circular Road and Ardee Street it is proposed to have one bus lane. one general traffic lane and one cycle track in both directions. It is also intended to upgrade the Ardee Street junction with improved pedestrian facilities. It is proposed to modify the Kevin Street/Dean Street junction to facilitate improved cycle way facilities. There is currently insufficient road width on Dean Street to facilitate bus lanes but bus priority from St. Luke's Avenue will be maintained through Signal Controlled Priority. Between Dean Street Junction and Christchurch Place it is proposed to have one bus lane, one general traffic lane and one cycle track in both directions. The cross section has been revised from the EPR to maintain the central median and retain the existing trees. Some on-street loading bays will be maintained between Bride Road and Bull Alley Street.

The junction at Christchurch Place/Winetavern

Street/High Street is proposed to be realigned to improve pedestrian accessibility and frontage at the Peace Park to the south, and Christ Church Cathedral to the north. The intention of the proposed realignment is to deflect traffic away from the City Centre towards High Street.



2.7 Key Changes from the Published EPR

- A bus interchange is proposed on Belgard Square West to facilitate interchange between bus, Luas and the Town Centre.
- On Belgard Square North it is proposed to provide a segregated cycle lane in each direction. This will provide improved cycle access to the Hospital from Belgard Road.
- The route of the CBC has been altered and now passes through Tallaght
 Village rather than TUD Tallaght. This will require the reopening of Old
 Greenhills Road to form a new bus only junction with Greenhills Road.

- At Park View the proposed alignment has been altered to allow a northbound, right turn lane to Castletymon Road and also to provide more landscaping space between the proposed road and the adjoining properties. The existing road will continue to be used for southbound buses and cyclists.
- Over the M50 a new bridge is proposed to provide continuous bus lanes and higher quality cycle lanes on Greenhills Road.
- The proposals for Walkinstown
 Roundabout have been altered to
 include a segregated two-way cycle
 track around the junction. This will
 reduce conflicts with pedestrians and
 allow the cyclists to take the shortest
 route around.

- A three-lane option with Signal
 Controlled Priority is proposed along
 Crumlin Road between the Health
 Centre and Clonard Road to reduce the
 impact on properties. To facilitate this
 arrangement, it is proposed to close the
 Crumlin Road junctions with both Clonard
 Road and Bangor Road. Urban Realm
 improvements will be provided along this
 section.
- On Patrick Street the design has been altered to retain the tree-lined median. In addition, the junction of Nicoholas Street and High Street is to be remodelled to provide improved facilities for buses, cyclists and pedestrians.
- The proposed alternative cycle route on Kildare Road is now redirected towards the Grand Canal via Clogher Road along which cycle lanes are to be provided.

2.8 Key Facts

Approximate number of properties that may be impacted120

 Approximate number of designated on-street parking spaces that may

be removed:

25

Approximate number of roadside trees that may be removed:

Approximate route length: 11.6kms

Approximate new cycle route length:11kms

Ourrent bus journey time: up to 80 mins

BusConnects journey time: 30-40 mins

Future Bus journey time withoutBusConnects: 100 mins +



3. How to take part in the public consultation

This brochure provides details of the proposed Preferred Route Option for this core bus corridor. These proposals are subject to a second non-statutory round of public consultation, and subsequent design refinement and environmental impact assessment, before a formal statutory application will be made by the NTA to An Bord Pleanála for approval.

3.1 General queries

The project website www.busconnects.ie has a dedicated section for the Core Bus Corridor project. All previous emerging preferred route brochures are available on the website. Users can access the site to find out more about the project and download copies of the key documents.

General queries can be directed to a dedicated Freephone - 1800 303 653 or by email to cbc@busconnects.ie

3.2 How to engage

We are inviting submissions in relation to the Preferred Route Options set out in this document. The closing date for submissions is stated on the website.

Written submissions and observations may be made by:



cbc@busconnects.ie



Core Bus Corridor Project National Transport Authority, Dún Scéine, Harcourt Lane, Dublin 2 DO2 WT20

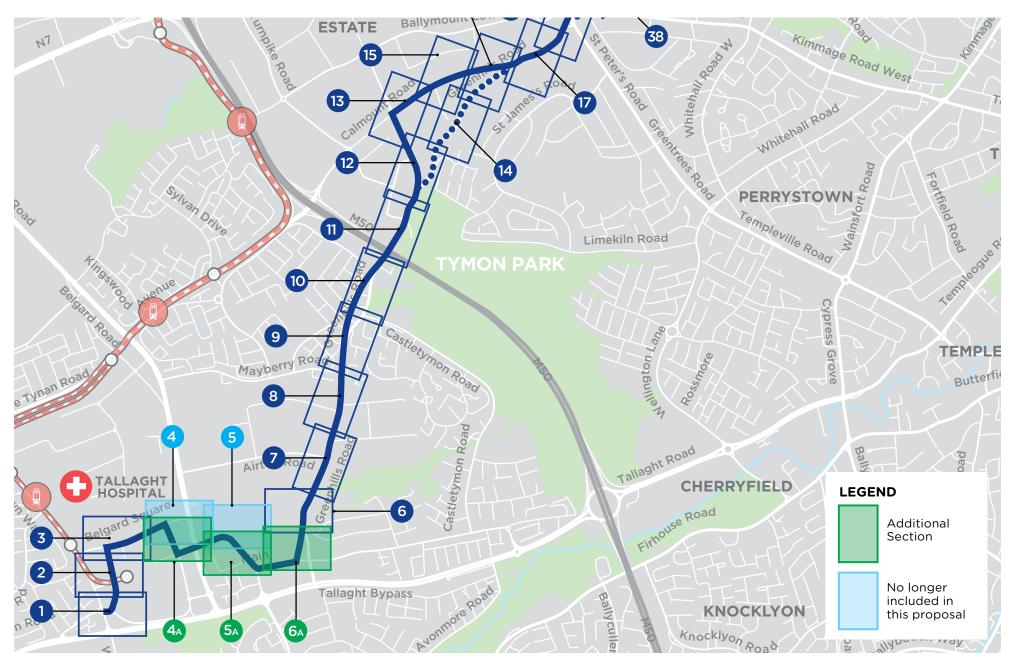
3.3 What happens next?

Following the second round of public consultation the NTA will finalise the Preferred Route Options for all sixteen corridors. The scheme designs will be finalised, transport and environmental impact assessments will be completed. This will culminate in the preparation of an Environmental Impact Assessment Report (EIAR) for the scheme together with details of land to be acquired. This will be submitted to An Bord Pleanála during Q4 2020 for its consideration and determination. A formal statutory consultation process will be undertaken as part of that process.

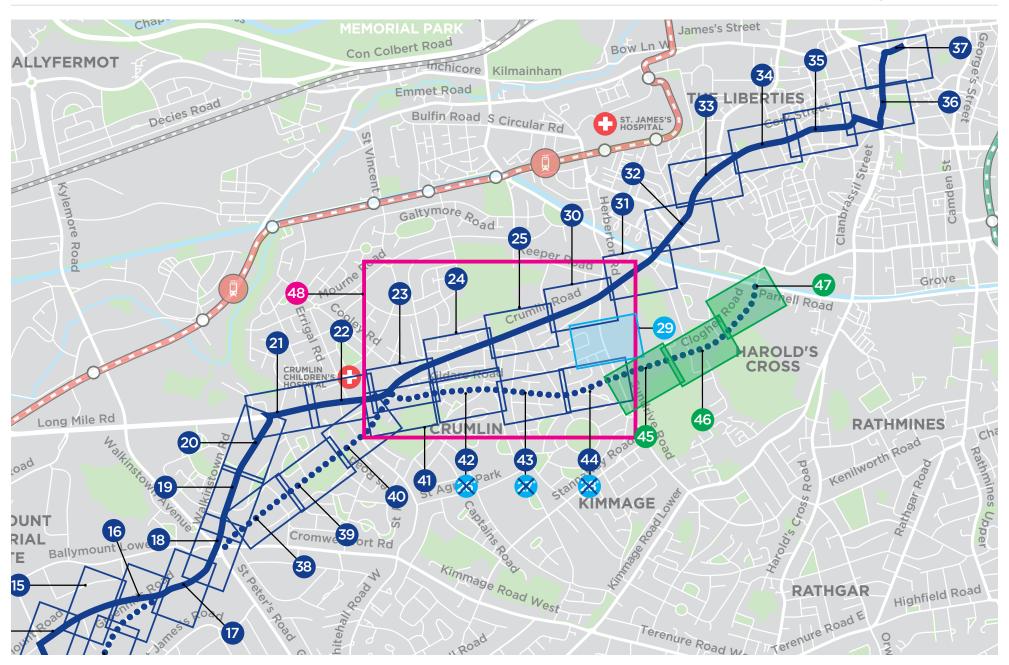


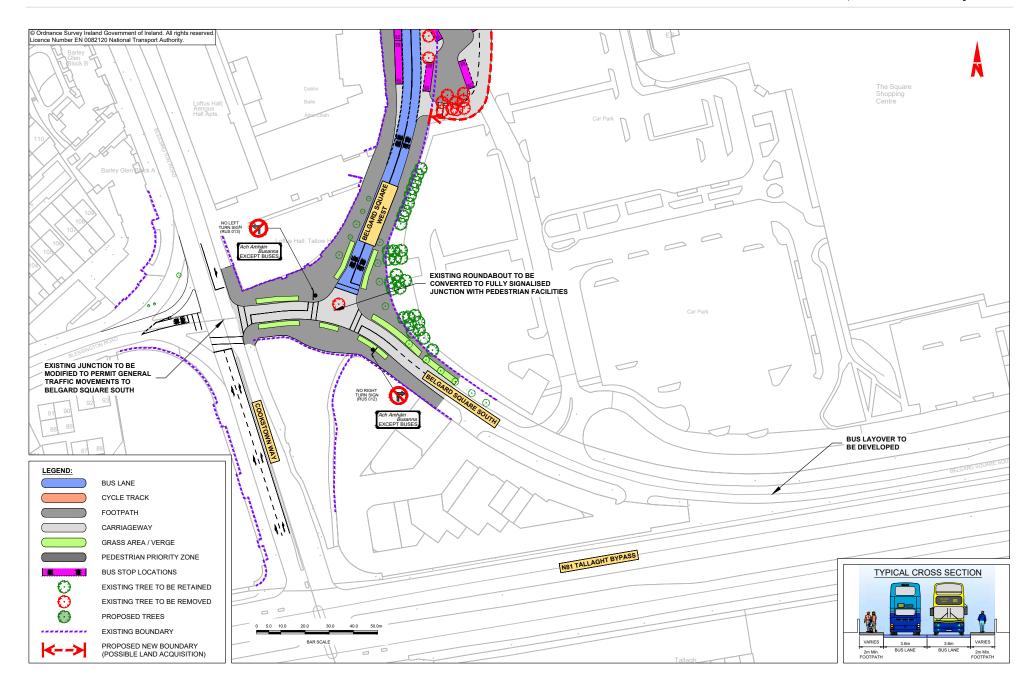
4. Appendices

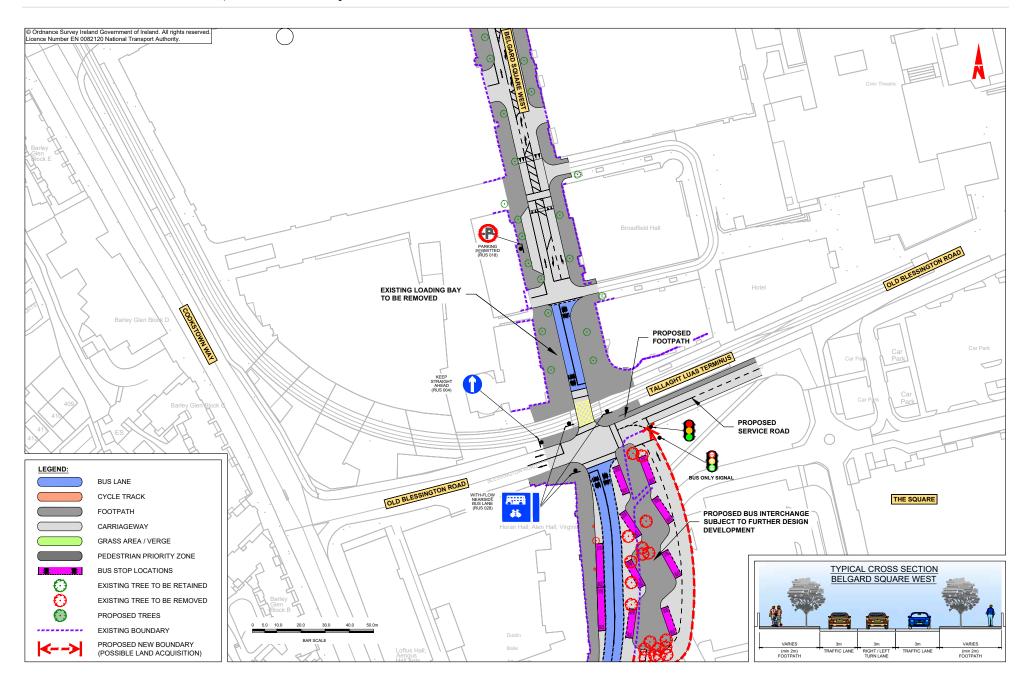
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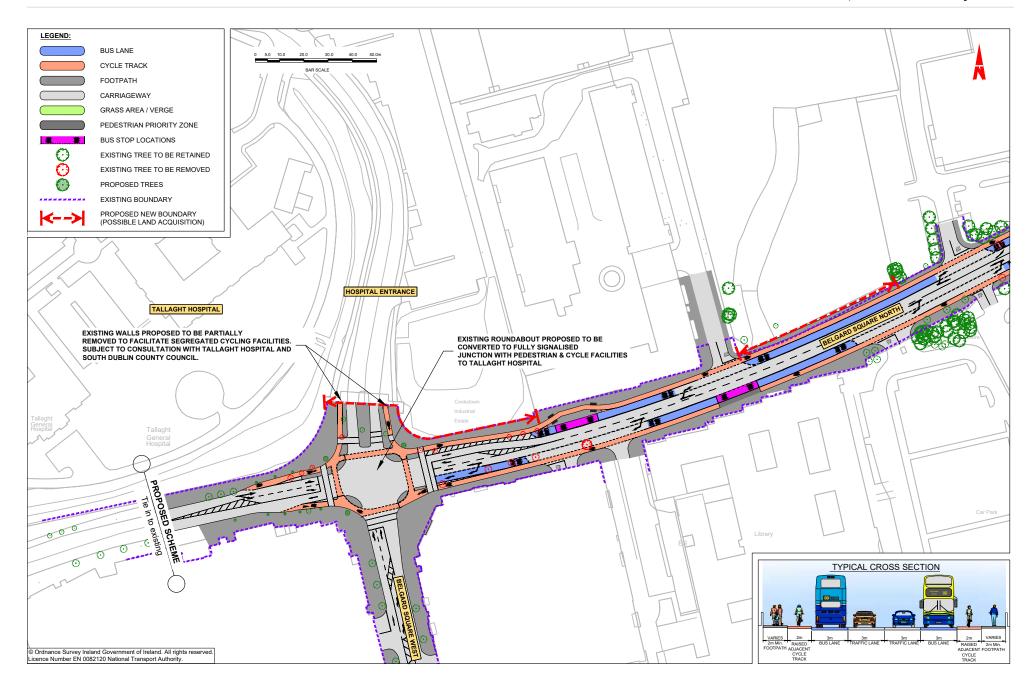


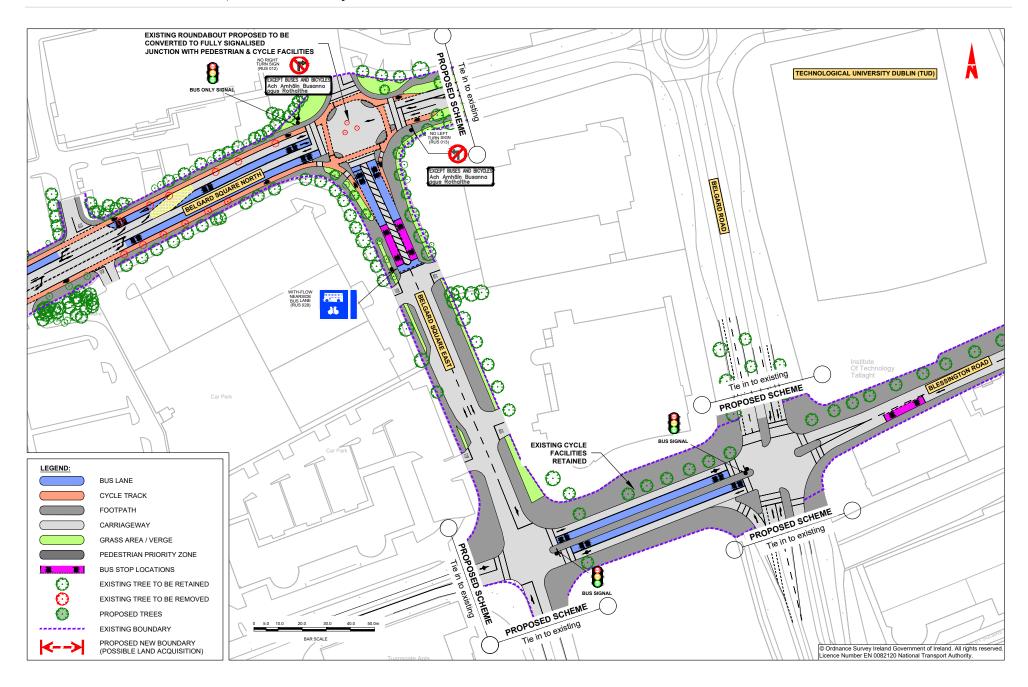
NOTE: The Preferred Route shown on the following drawings is indicative only and is subject to change following consultation and as part of the design development process.

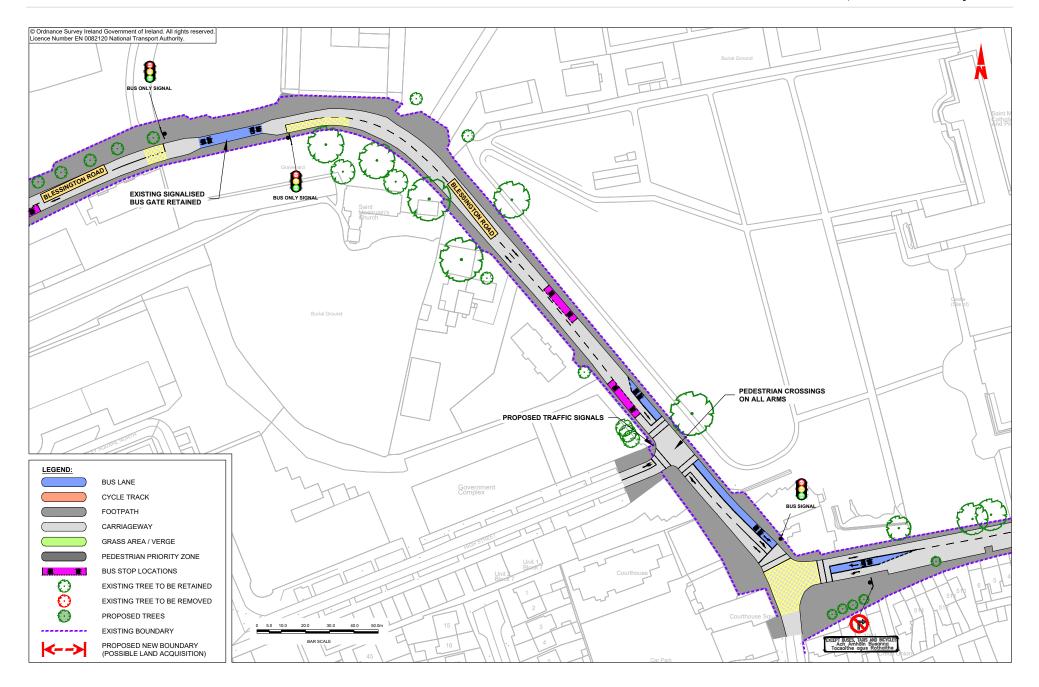


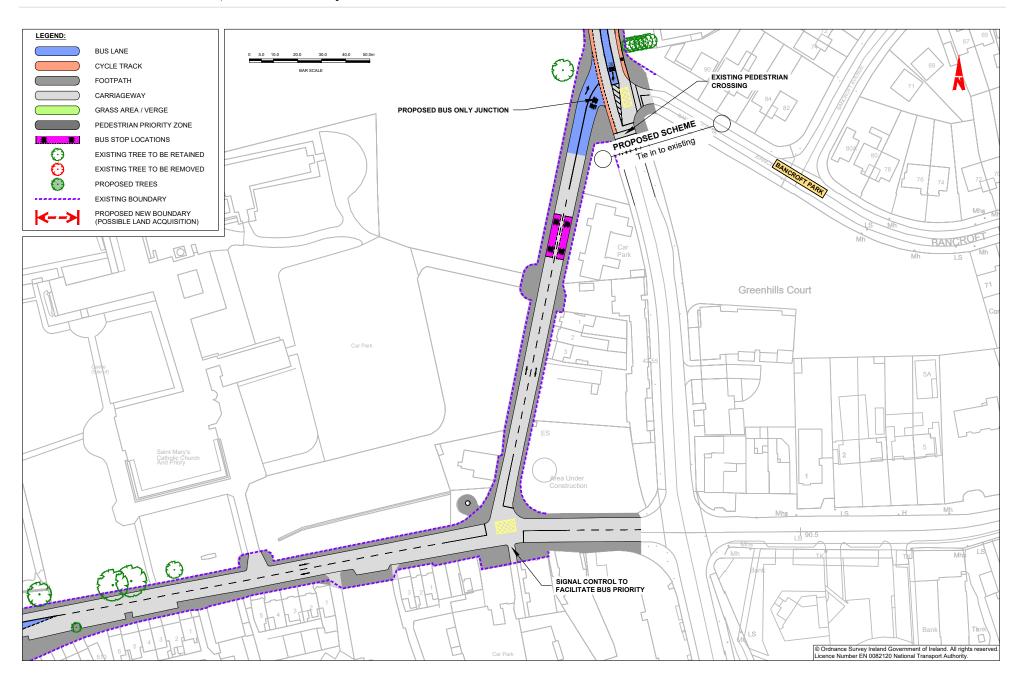


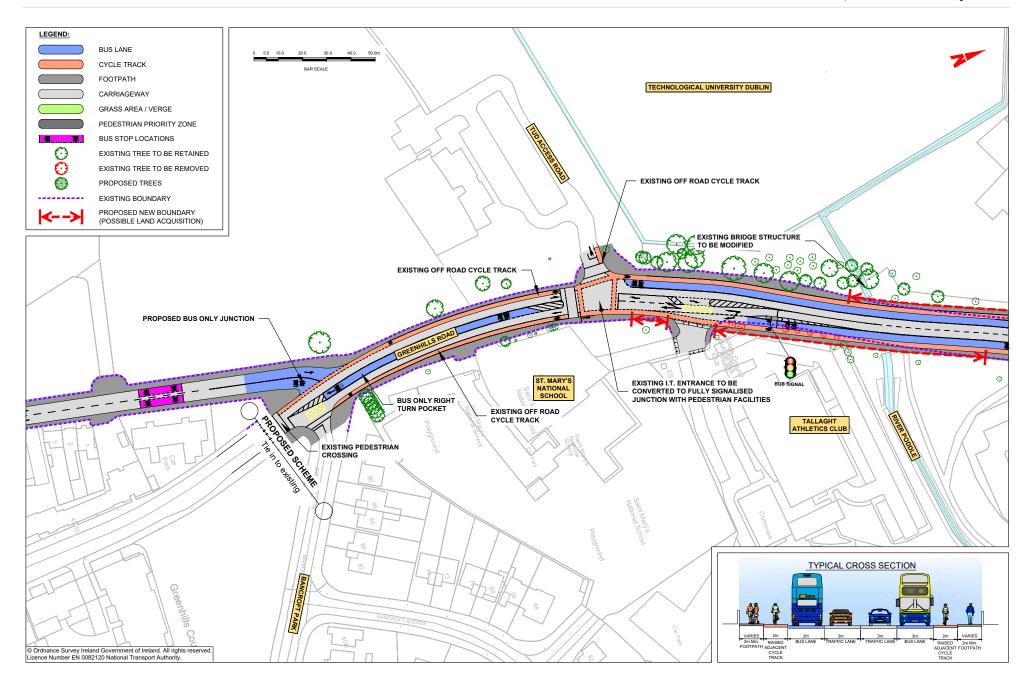


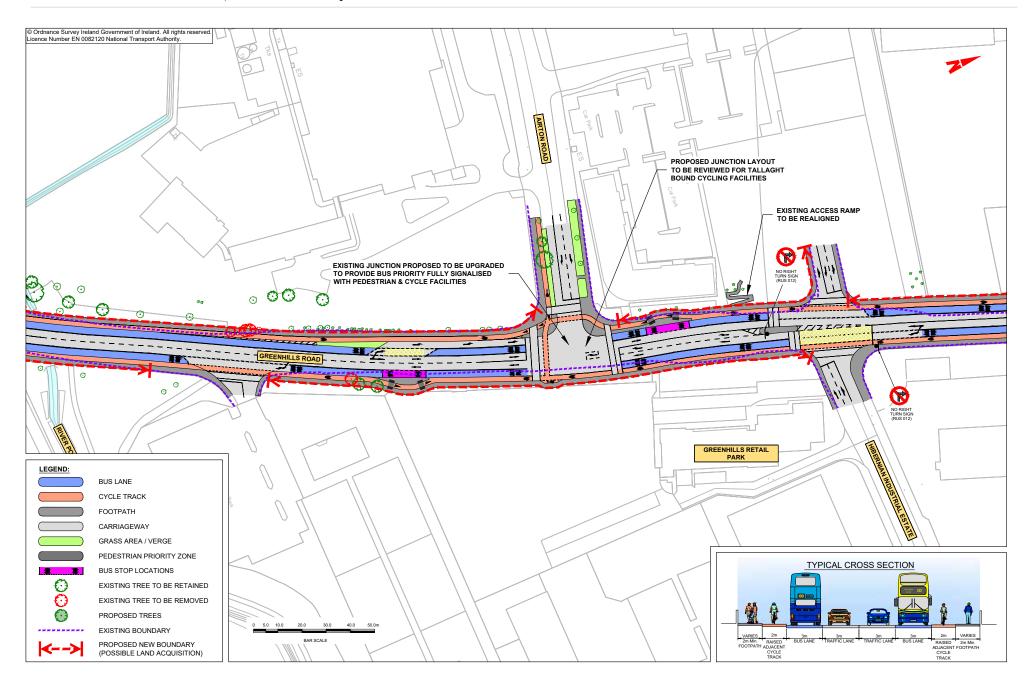


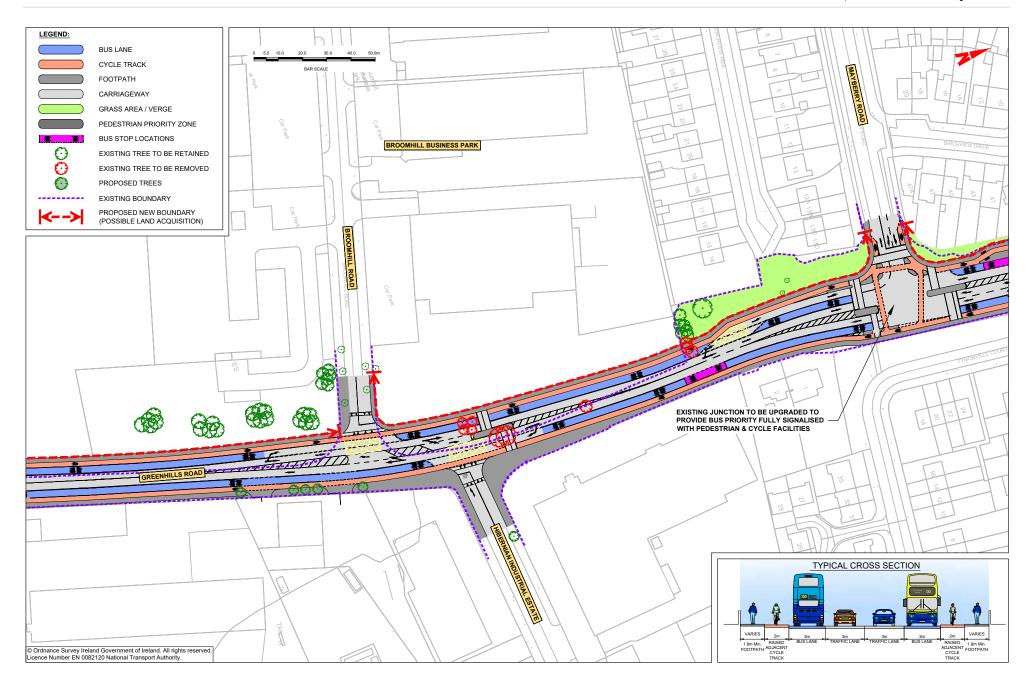


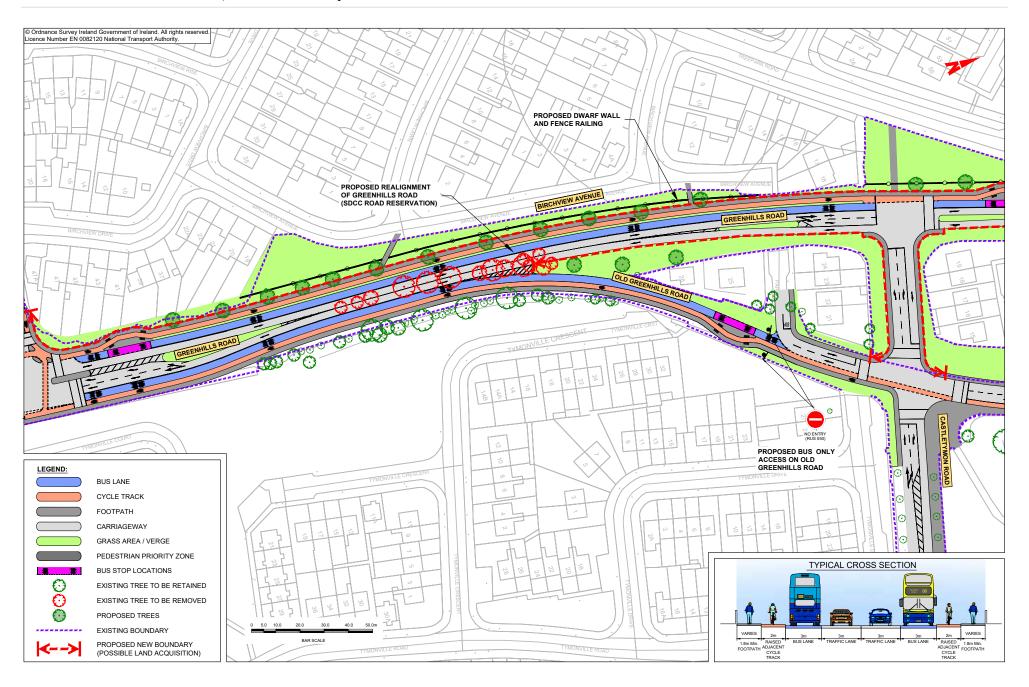


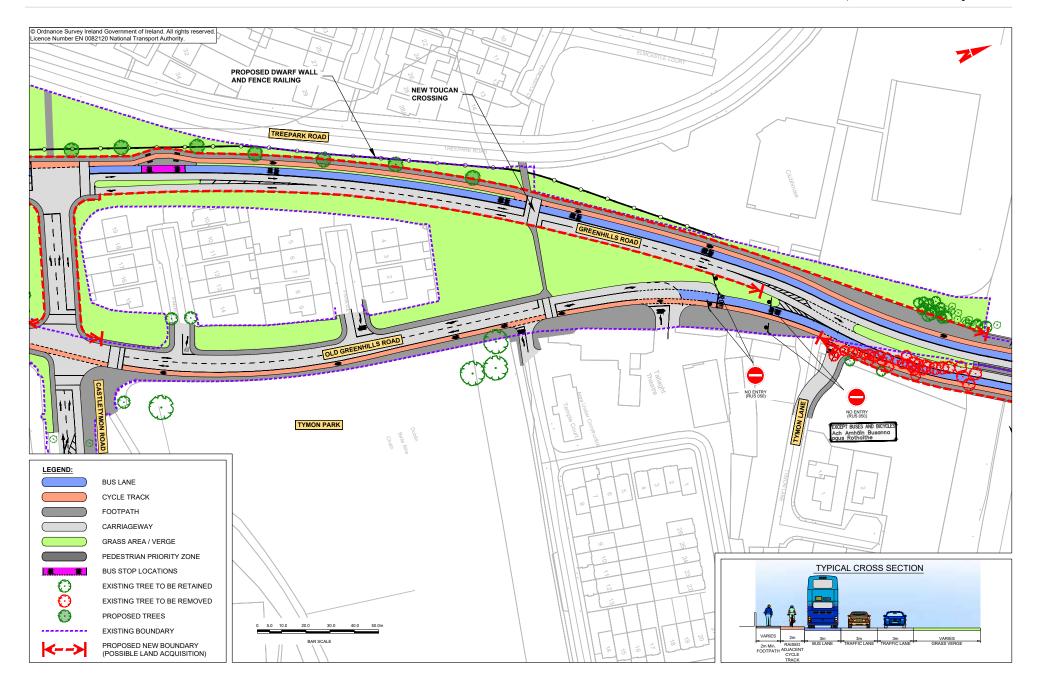


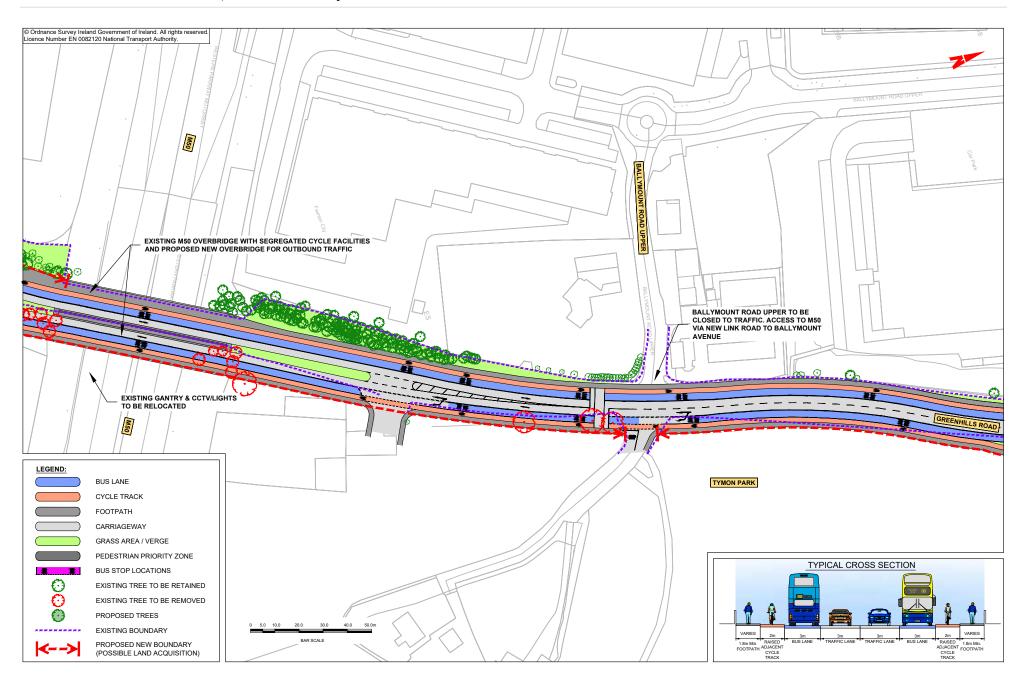


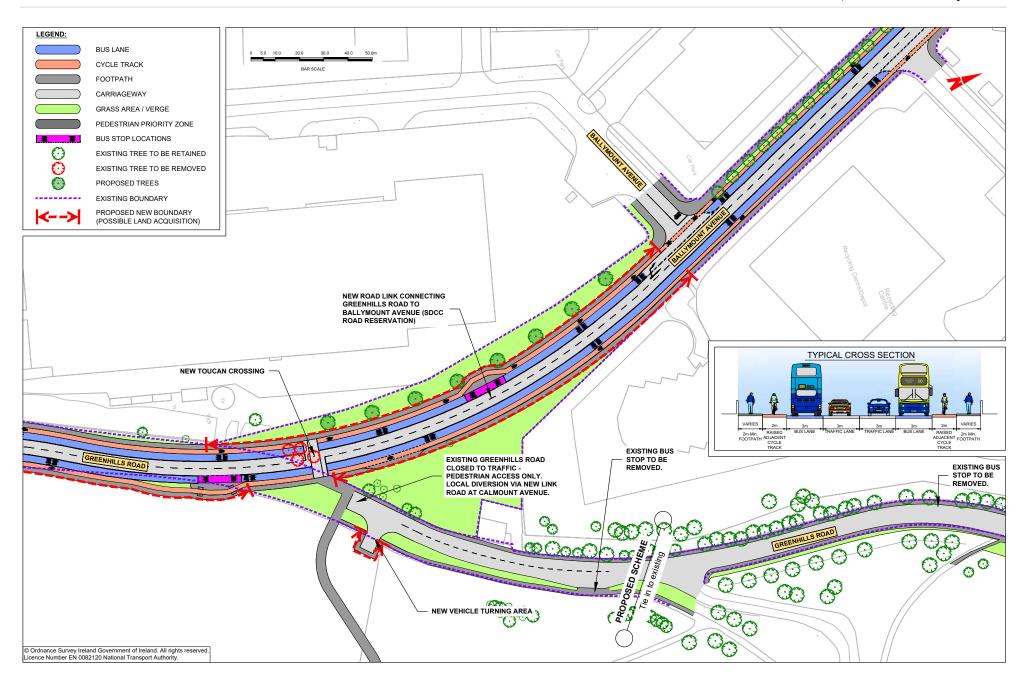


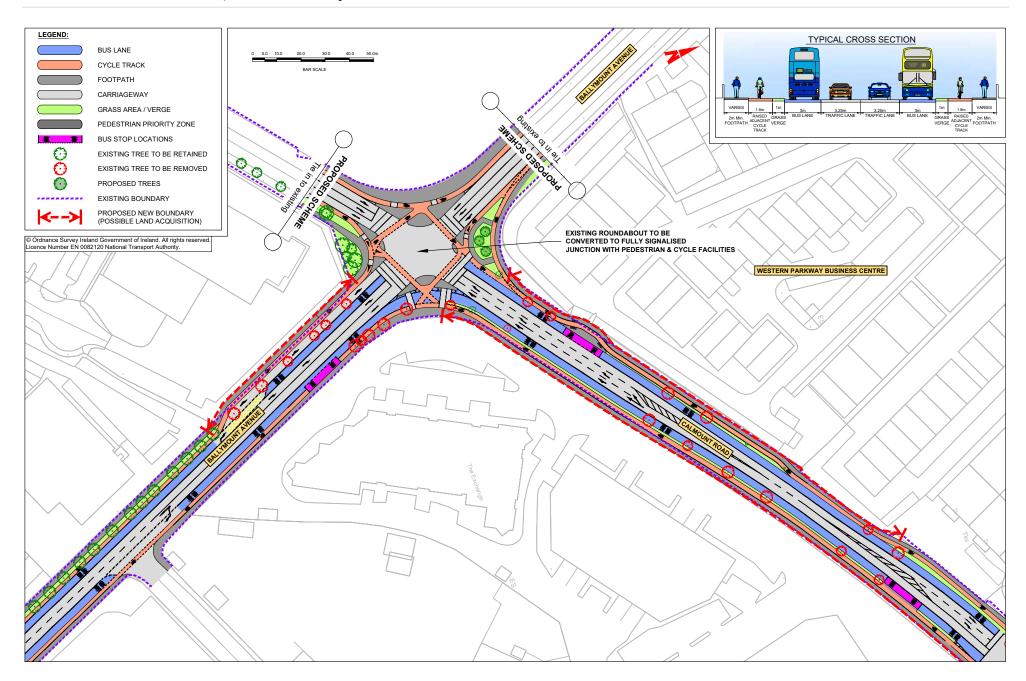


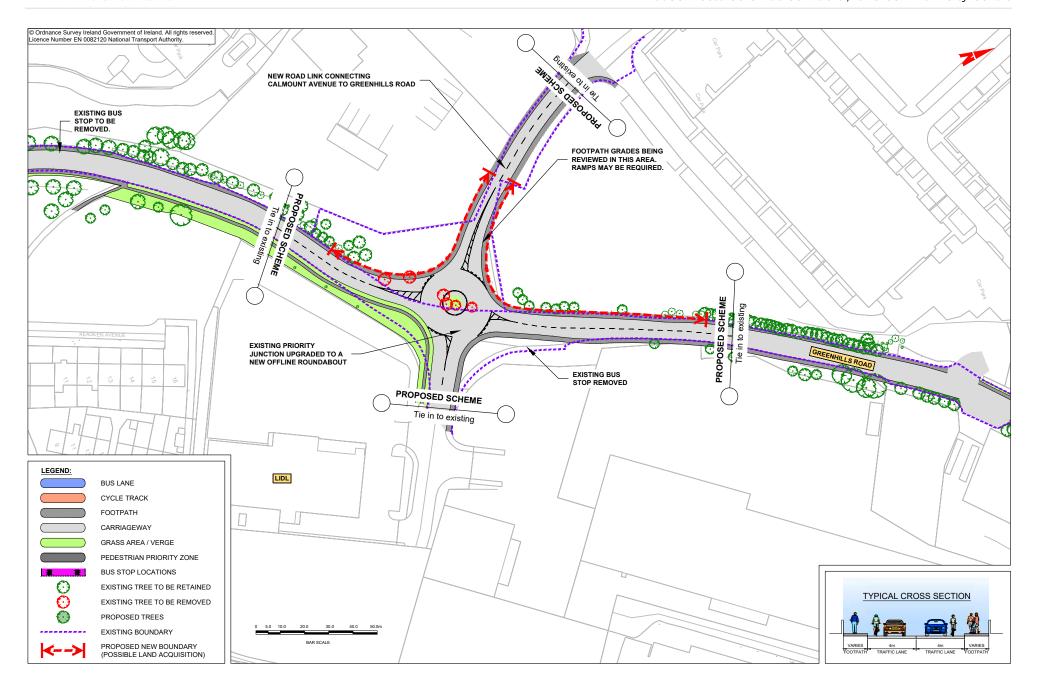


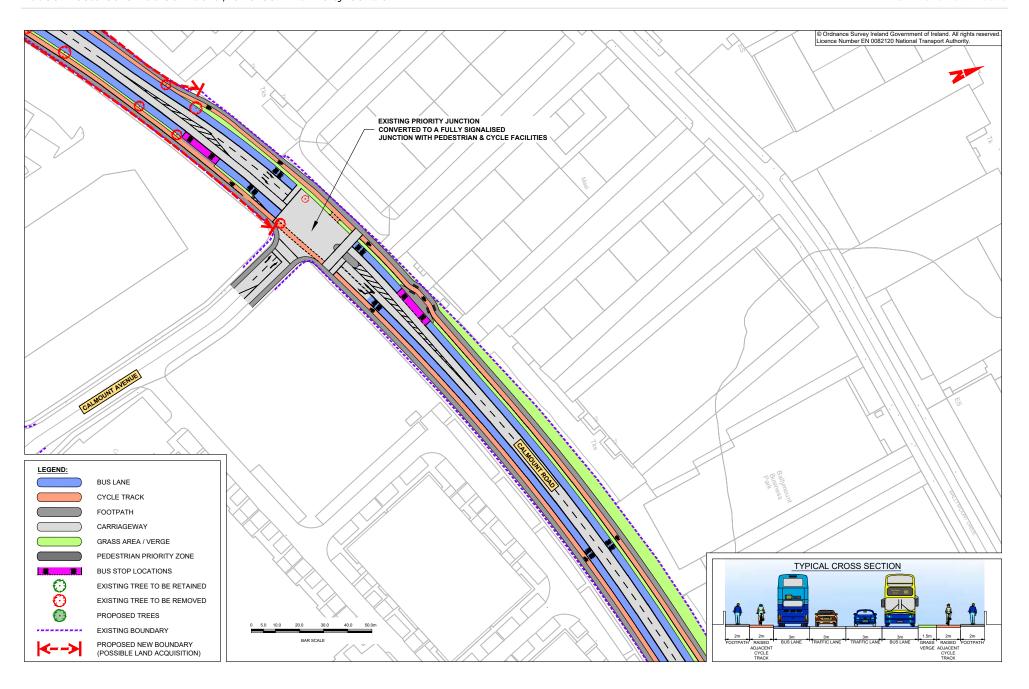


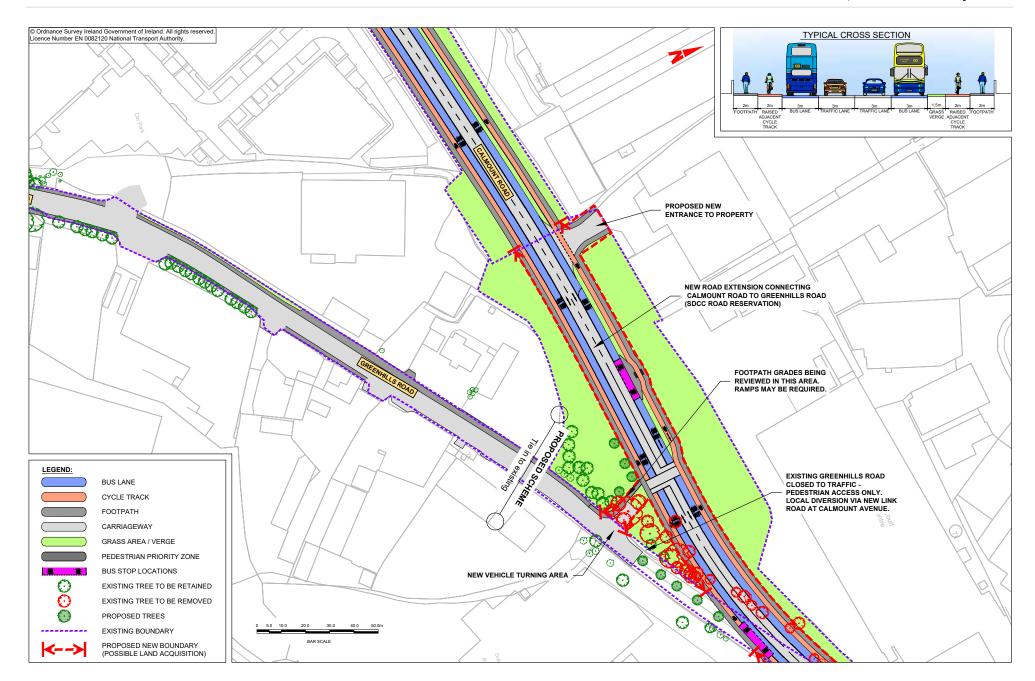


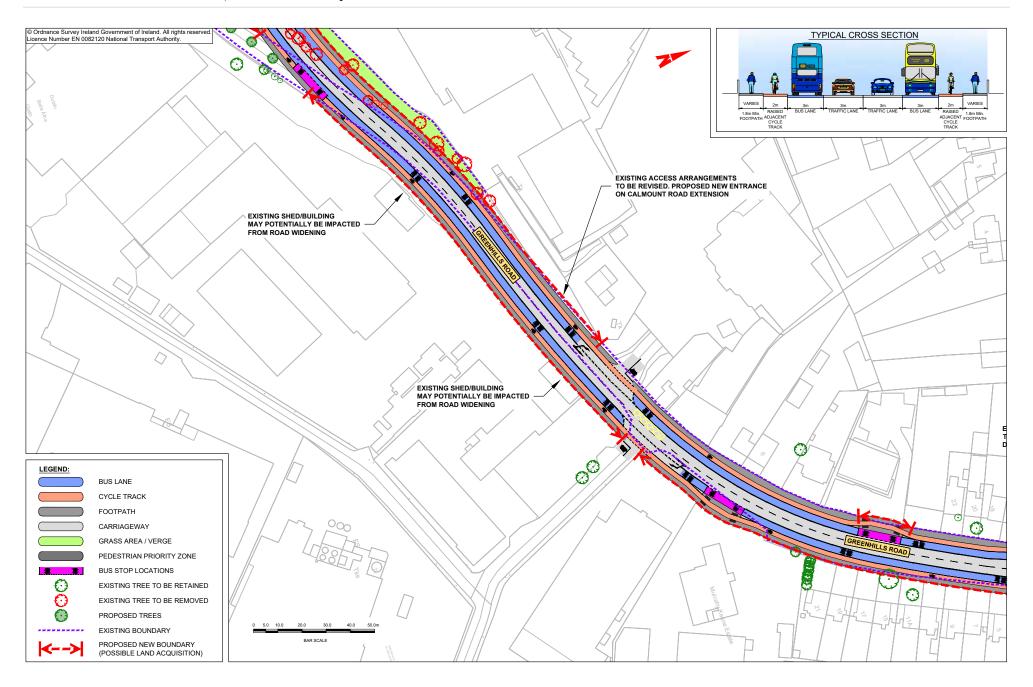


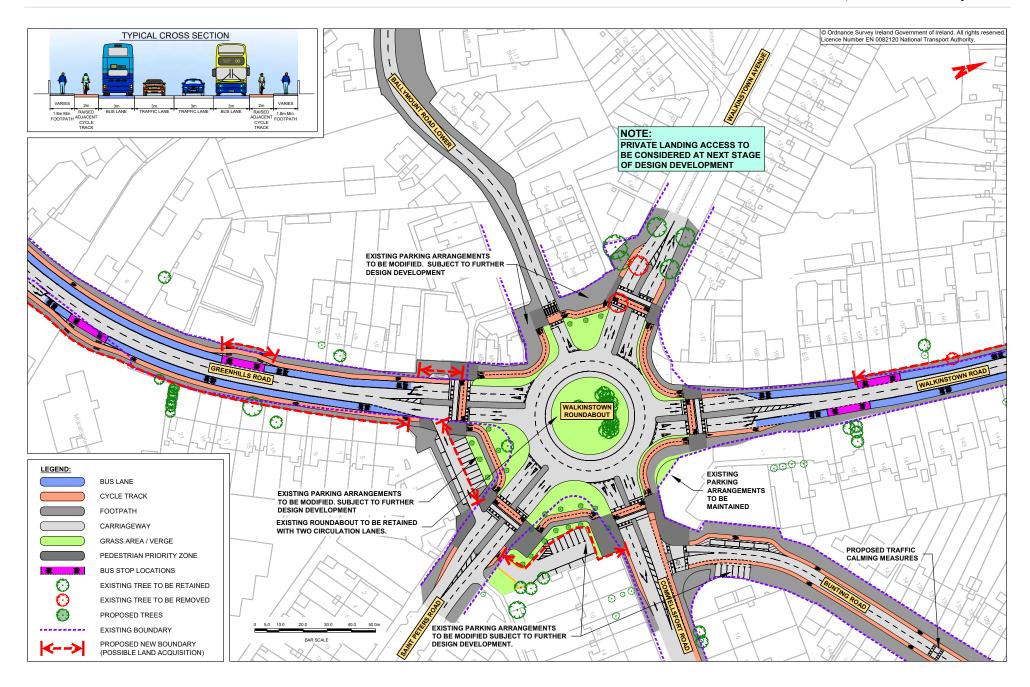


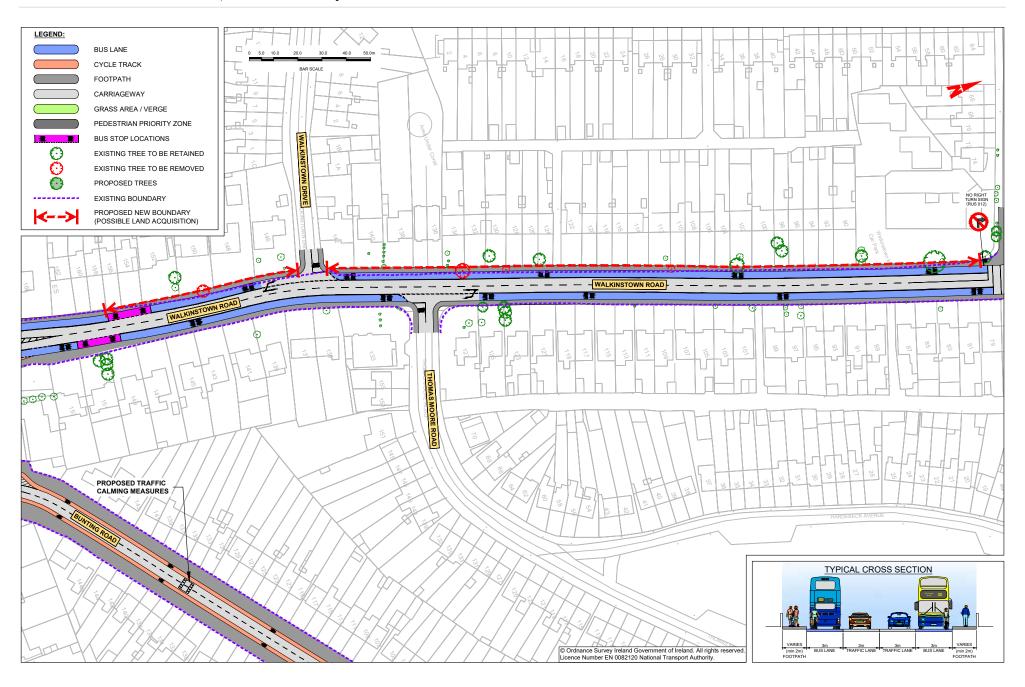


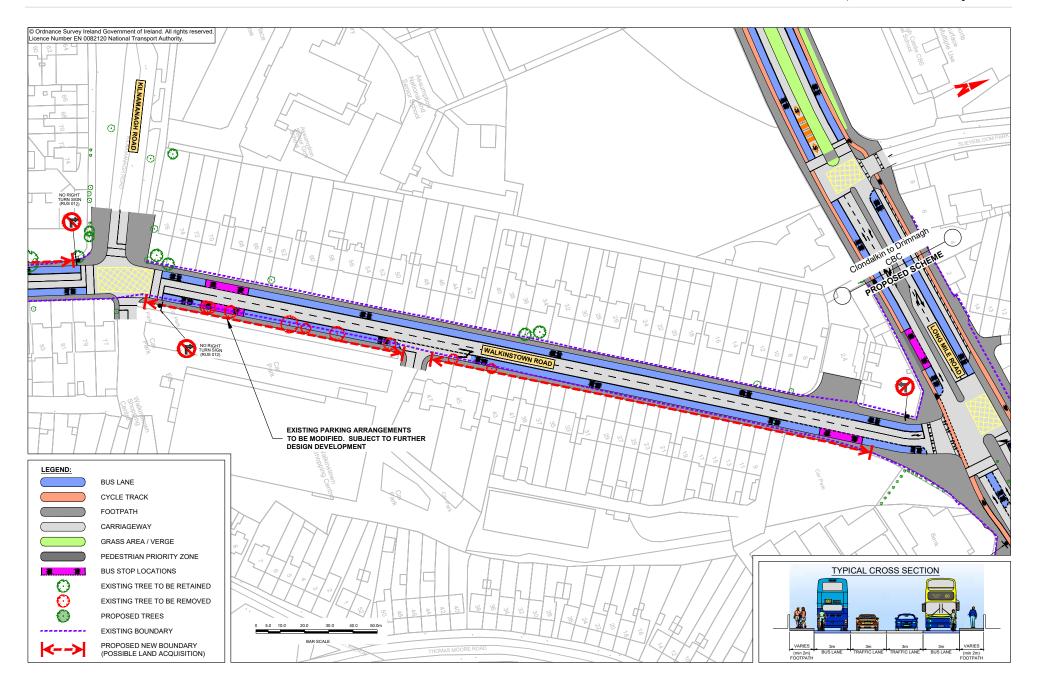


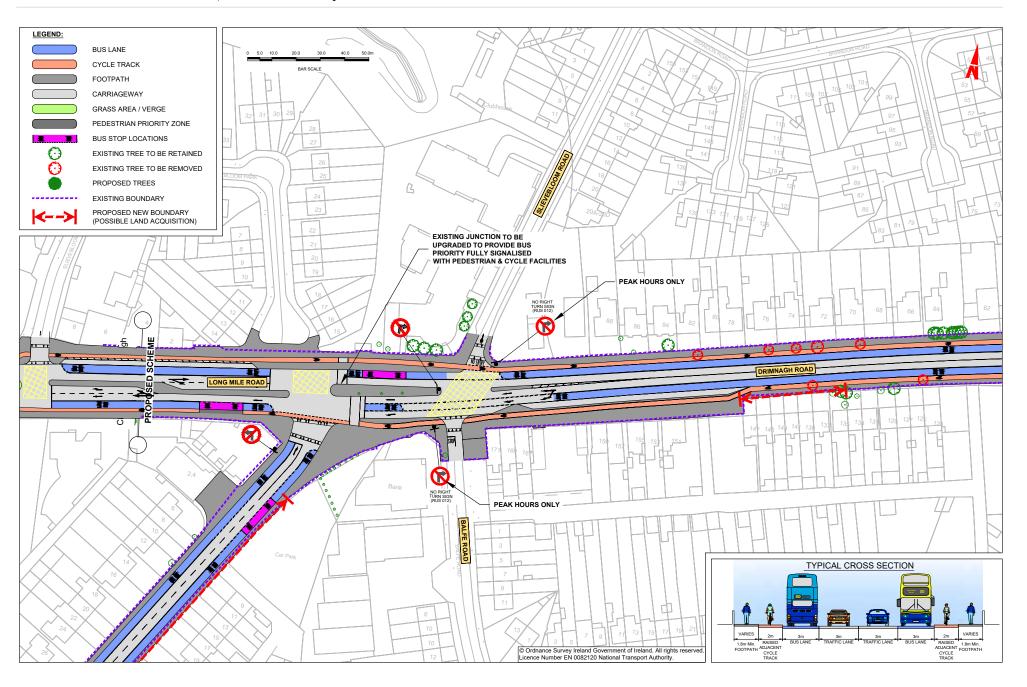


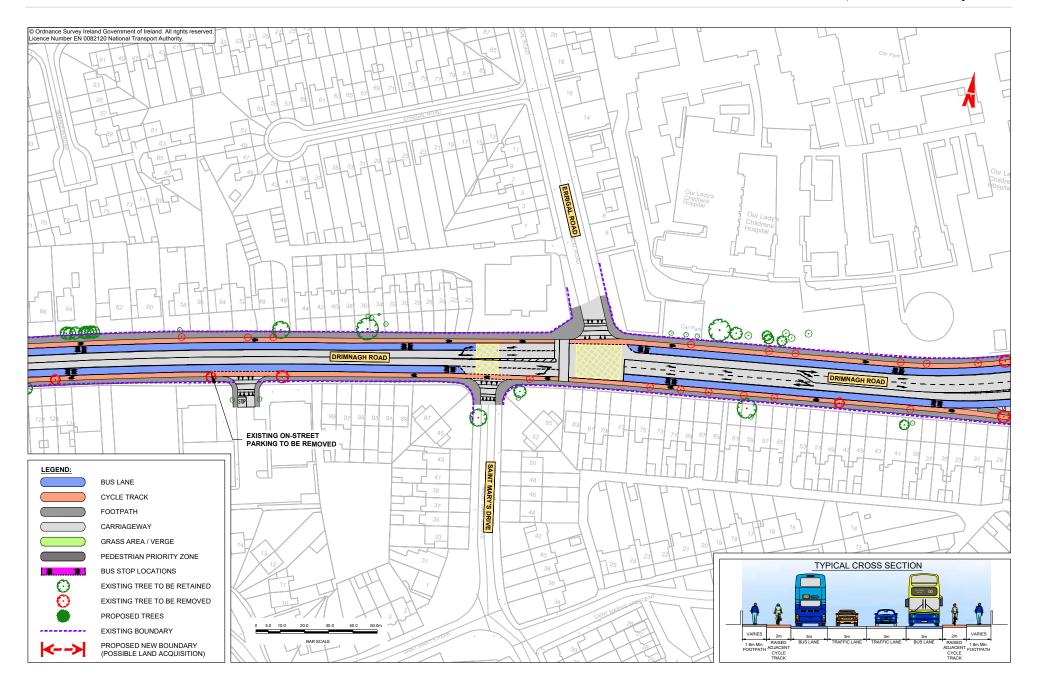


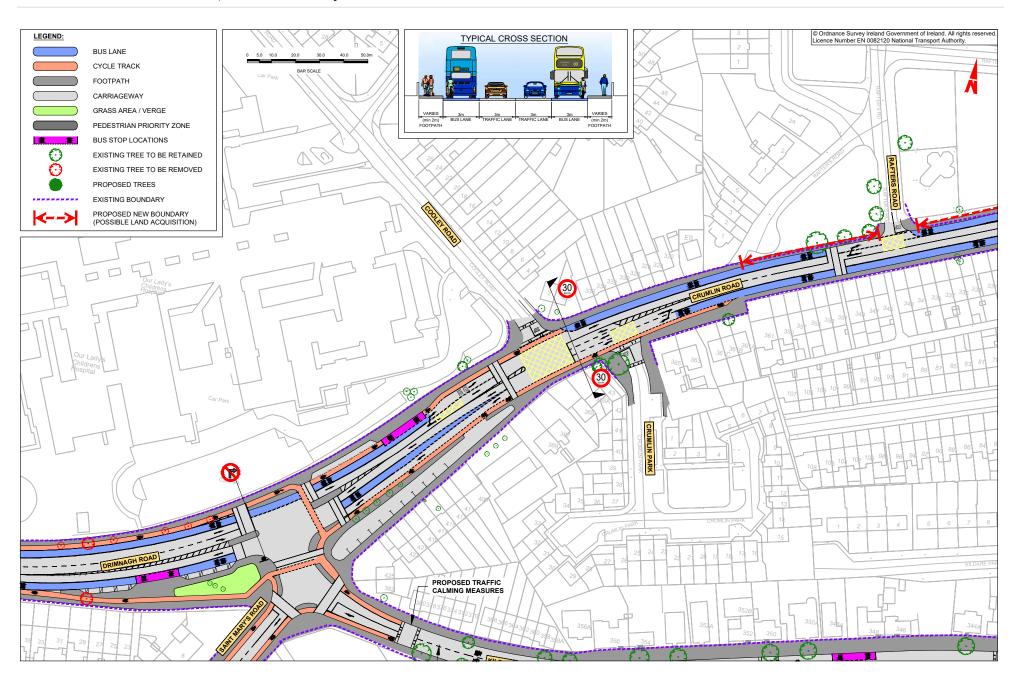


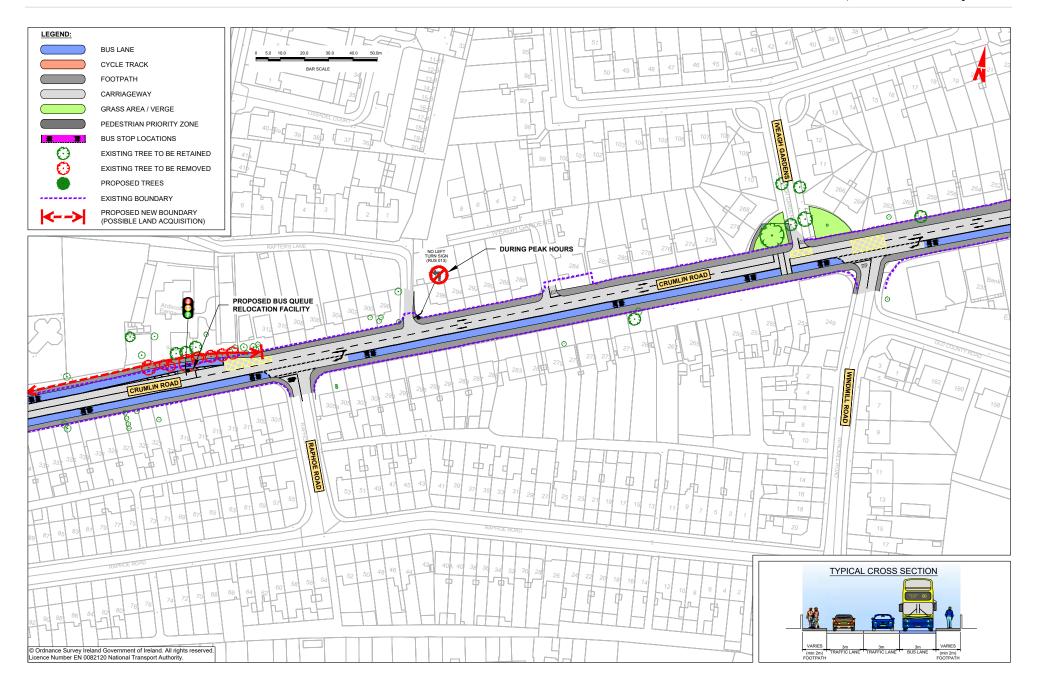


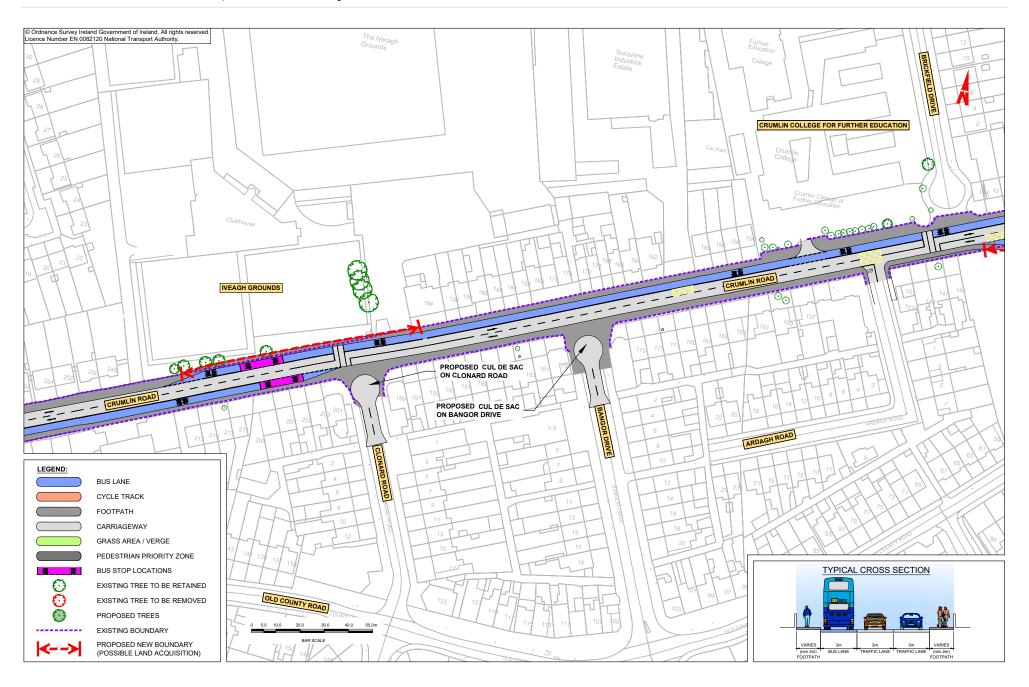




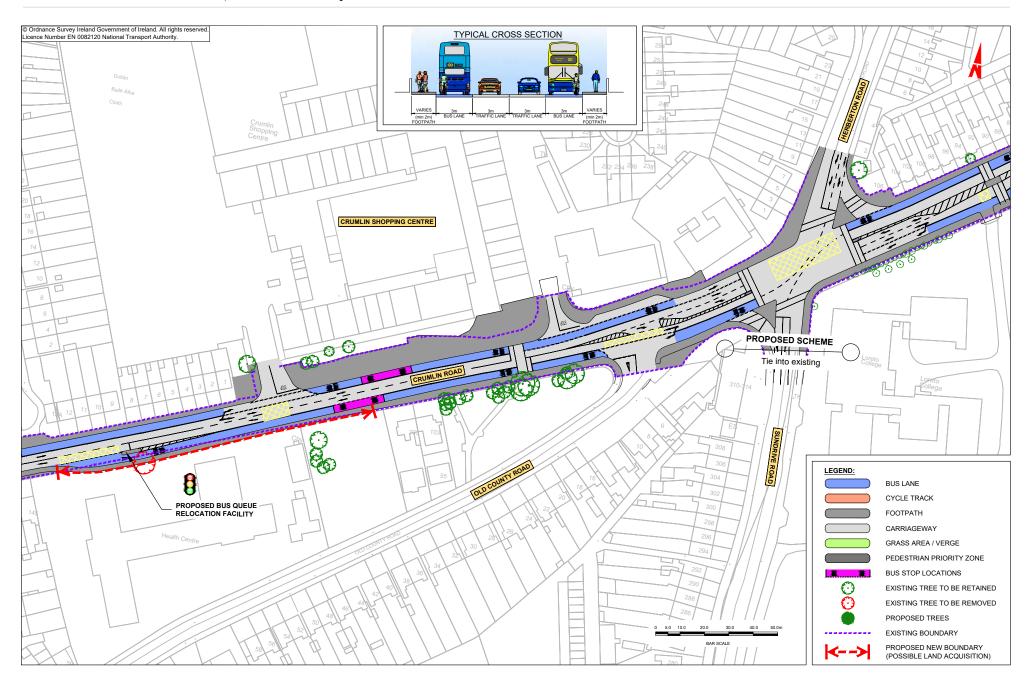




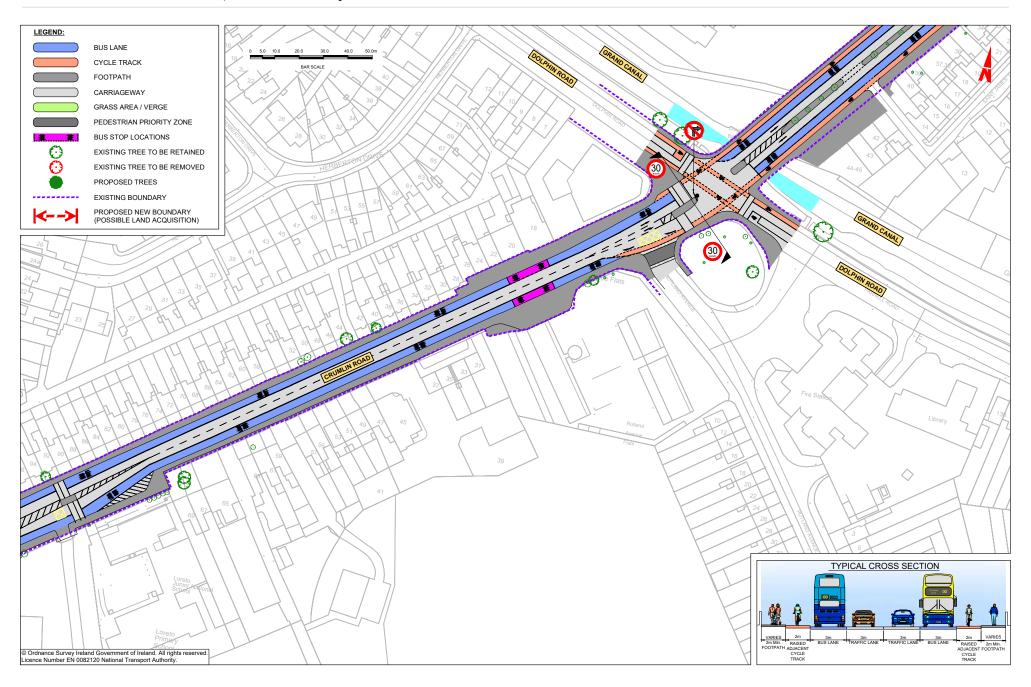


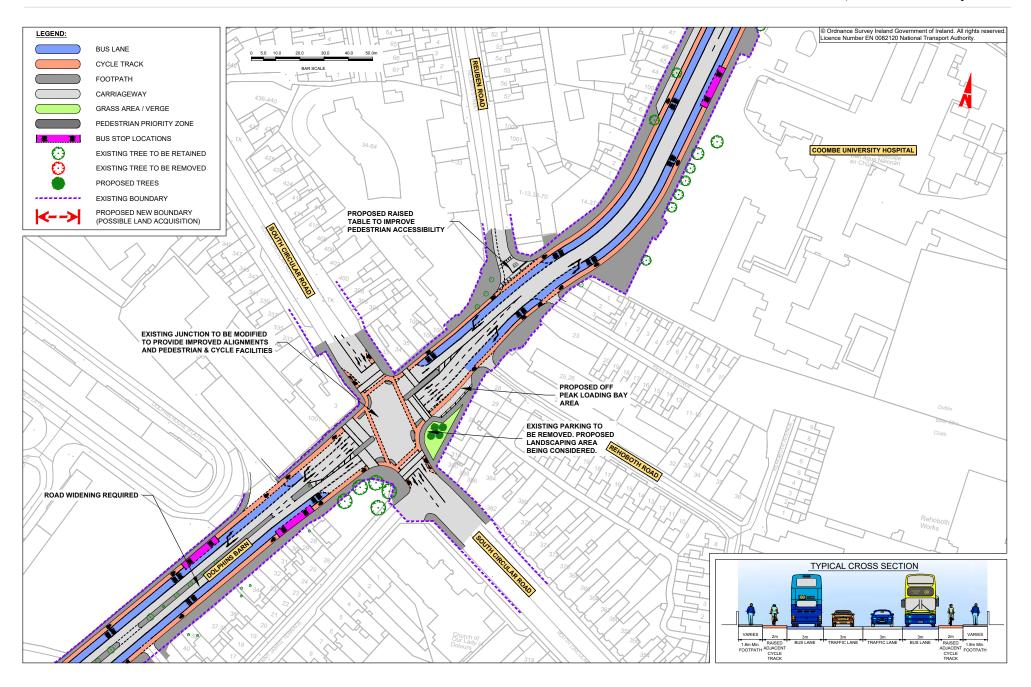


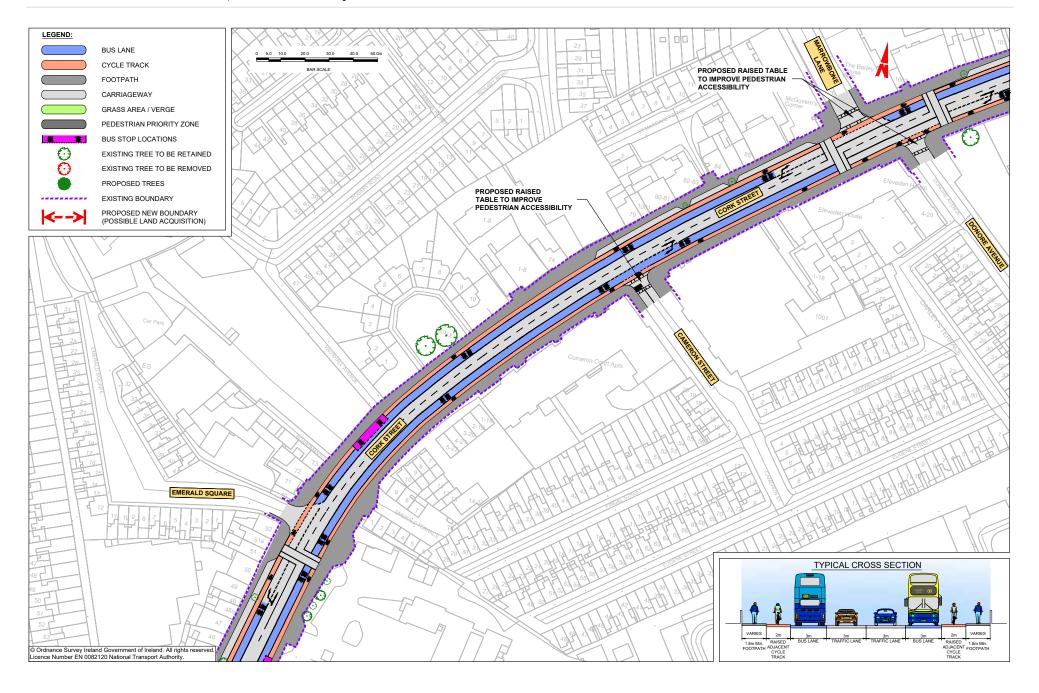


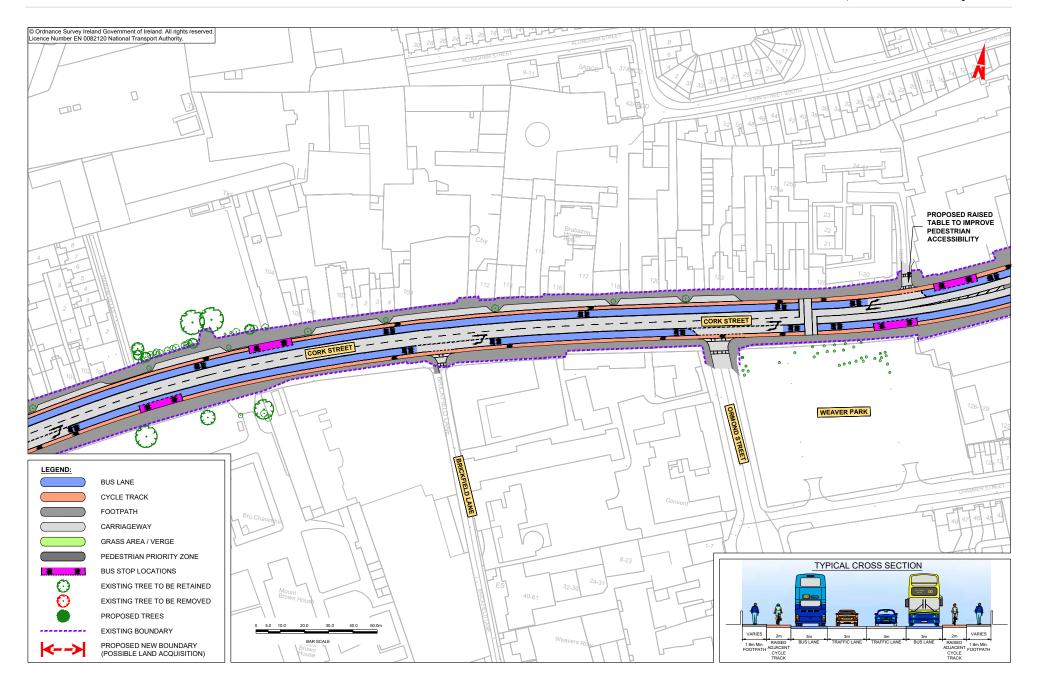


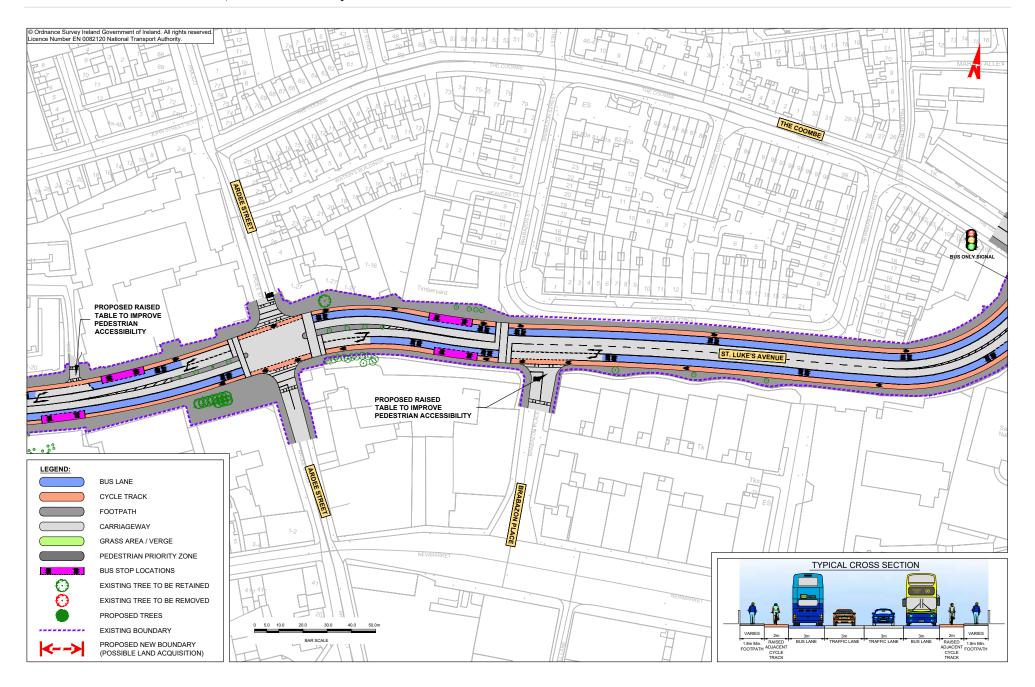


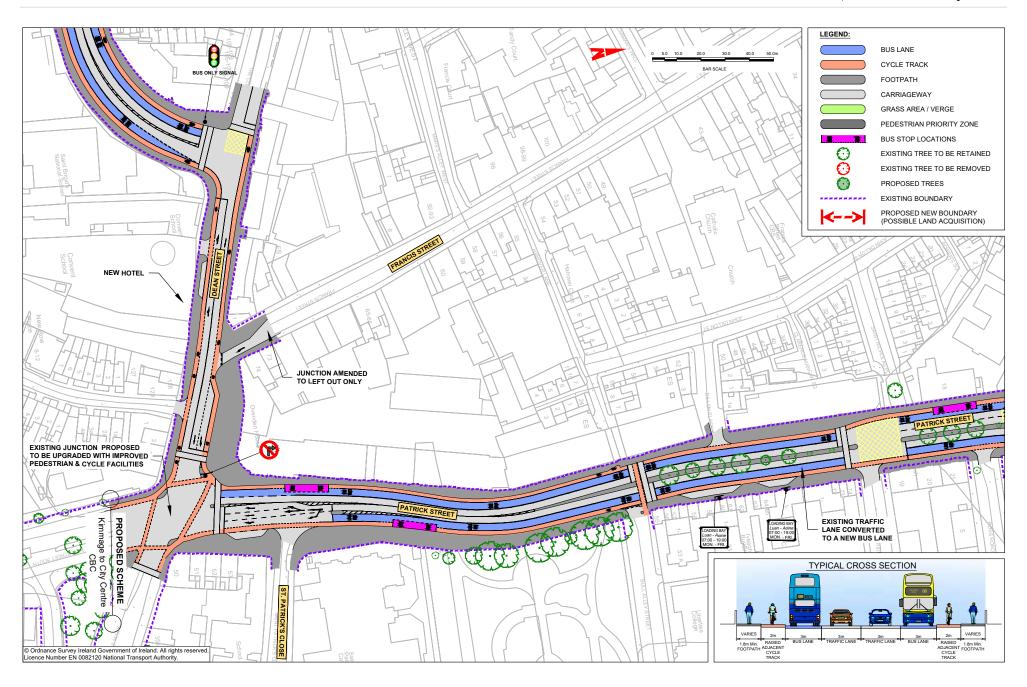


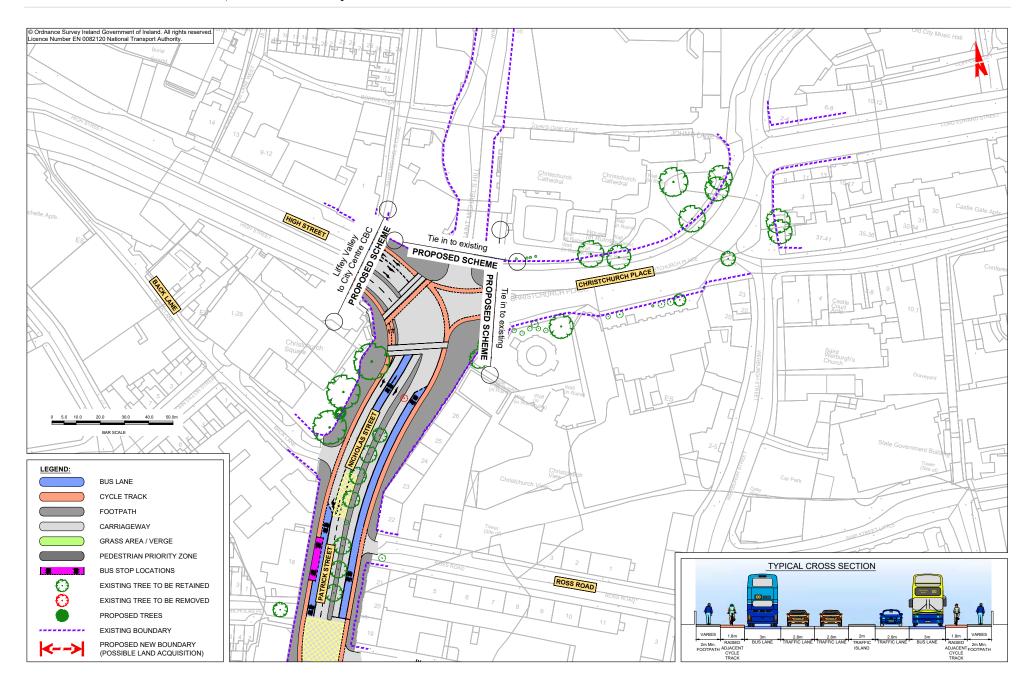


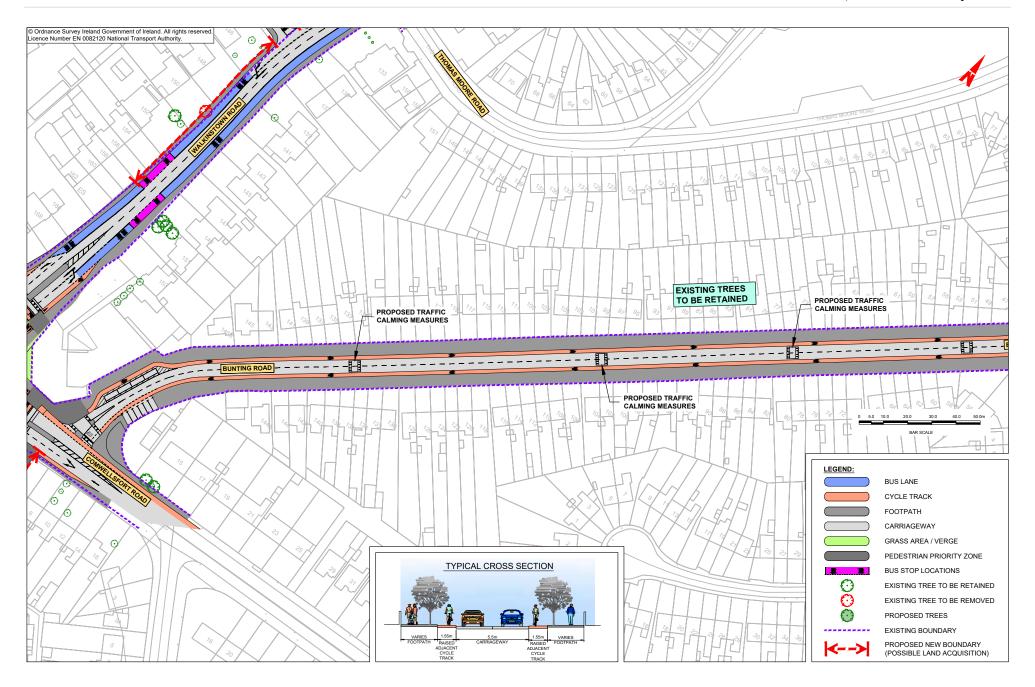


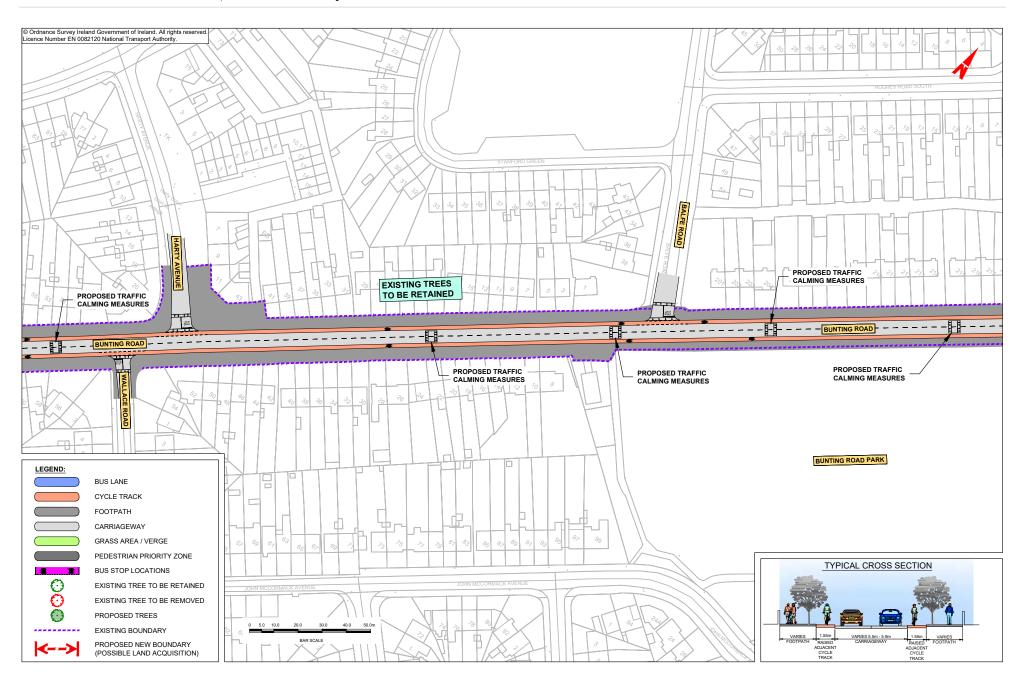


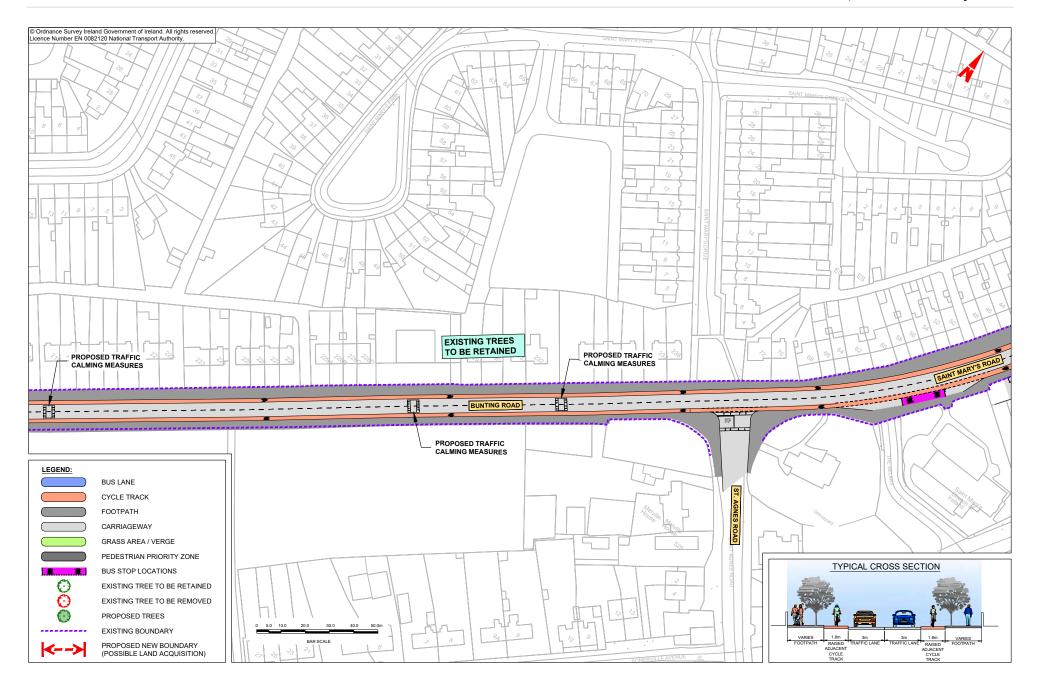


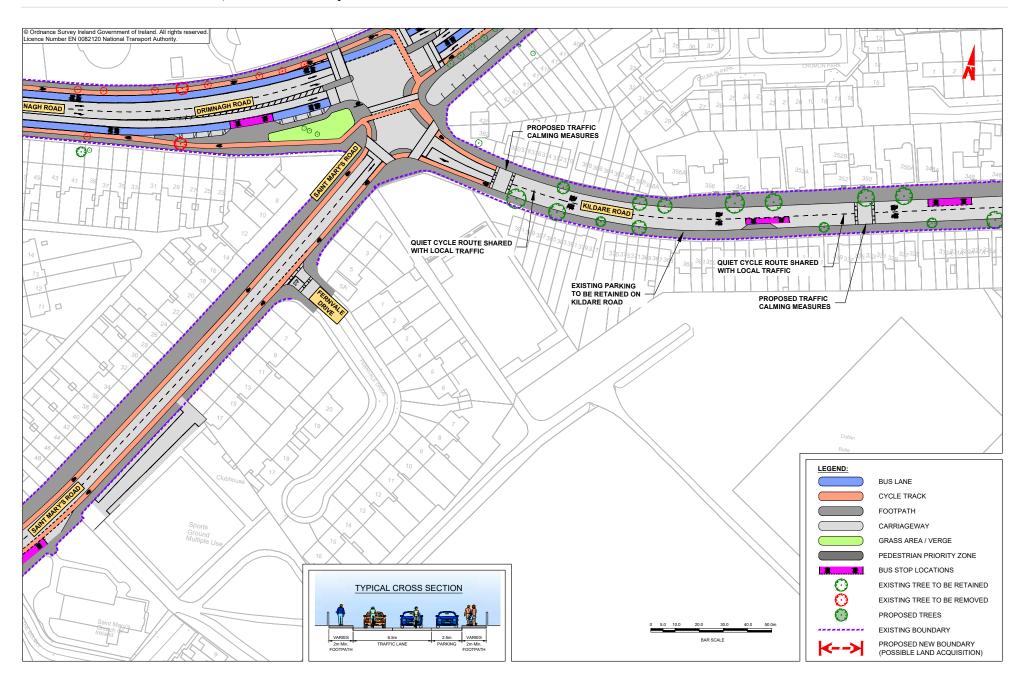


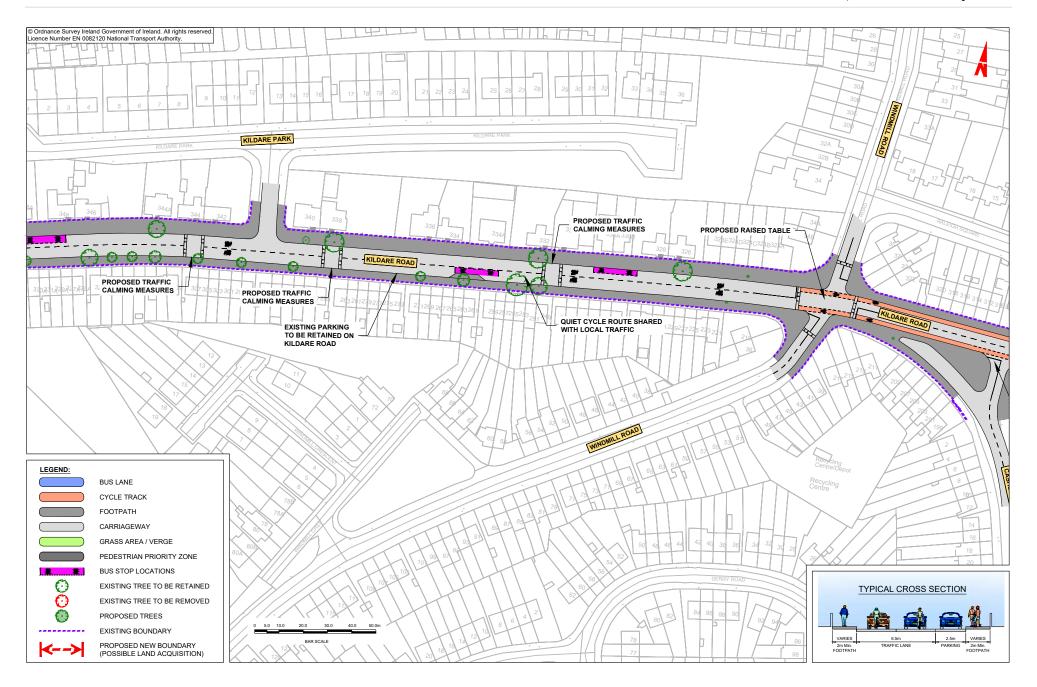


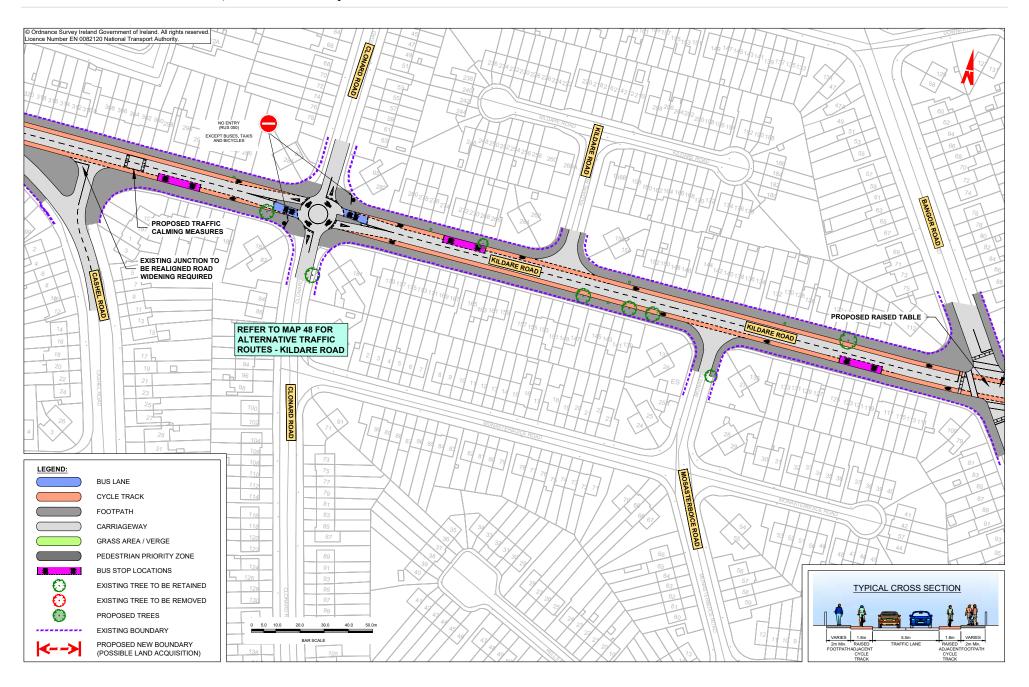


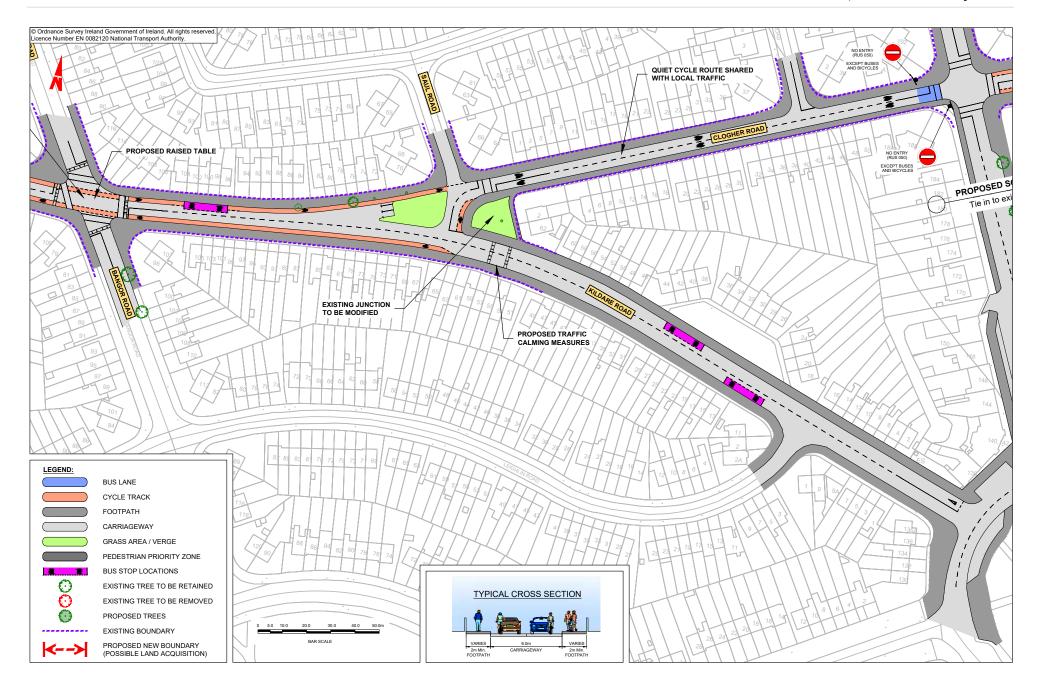


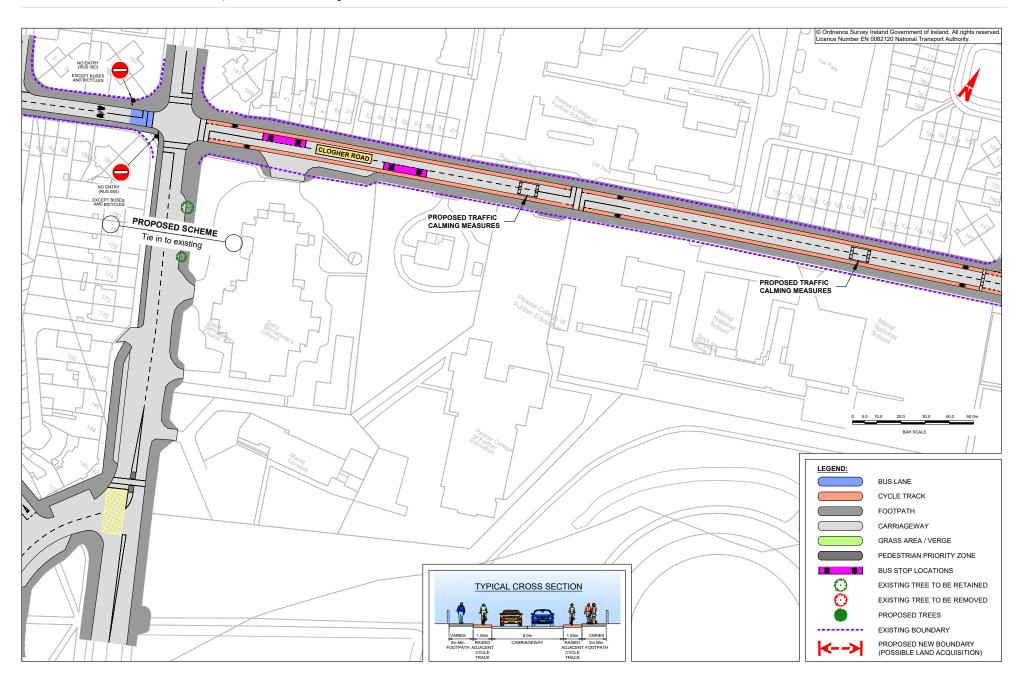


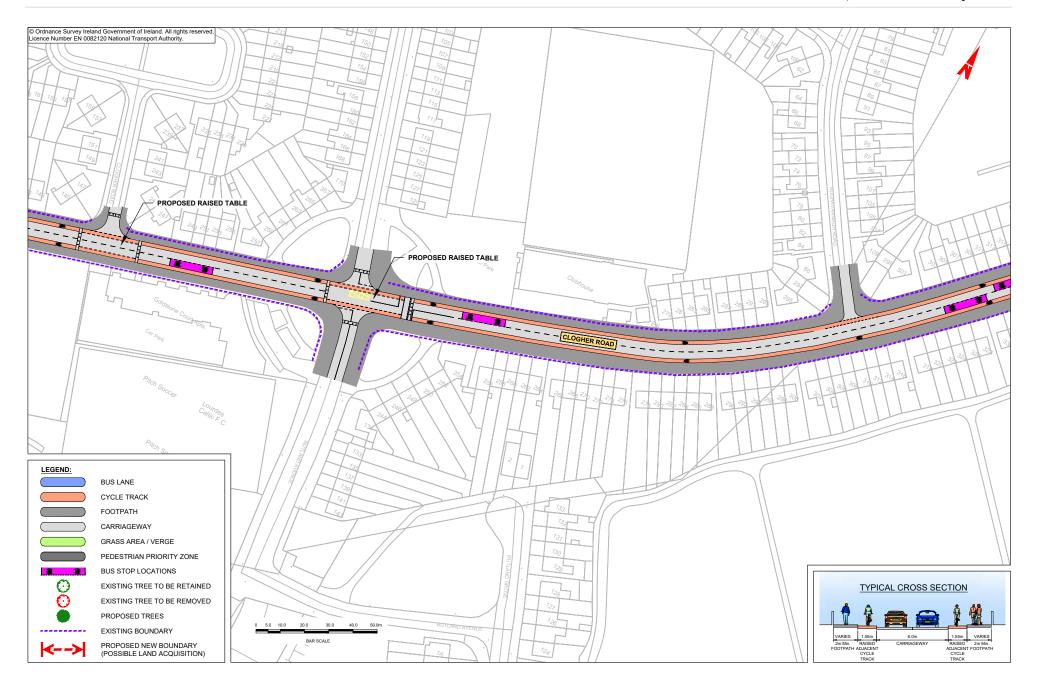


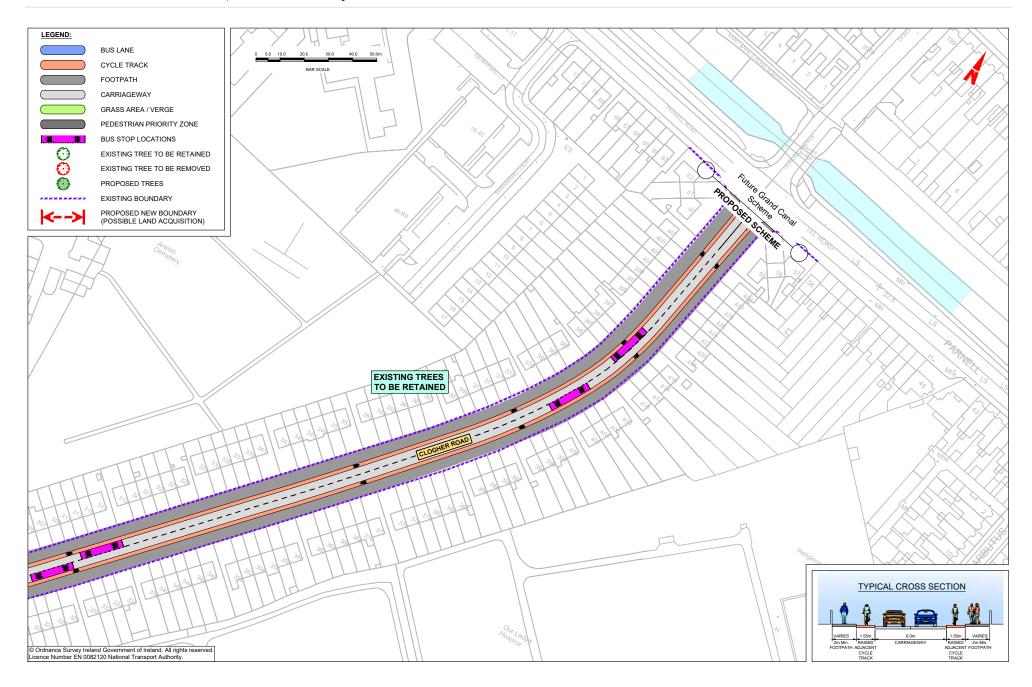


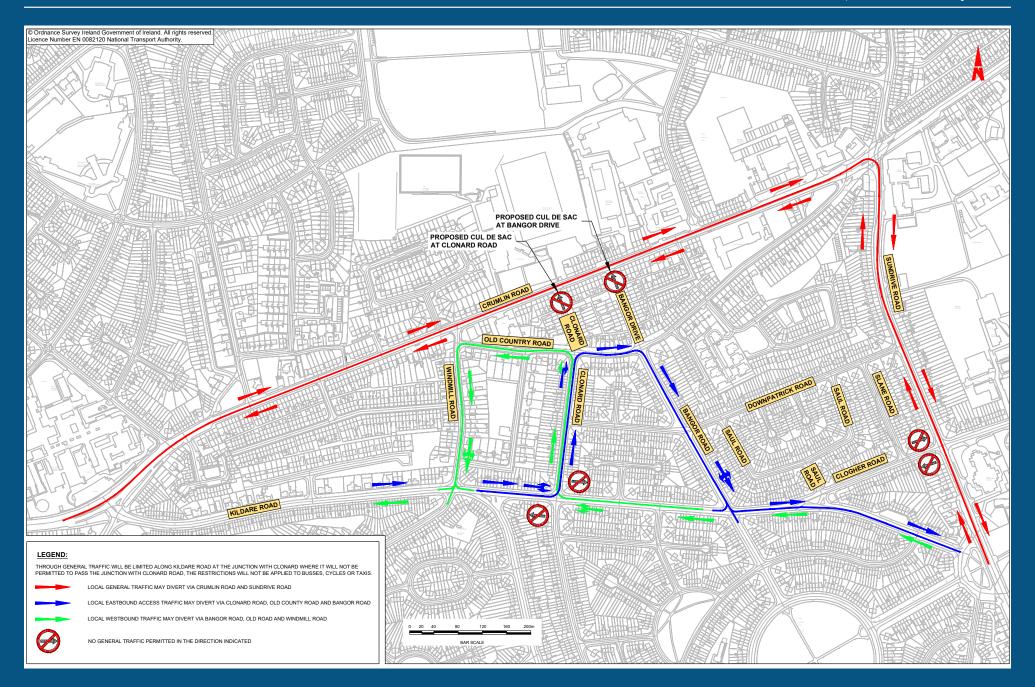














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