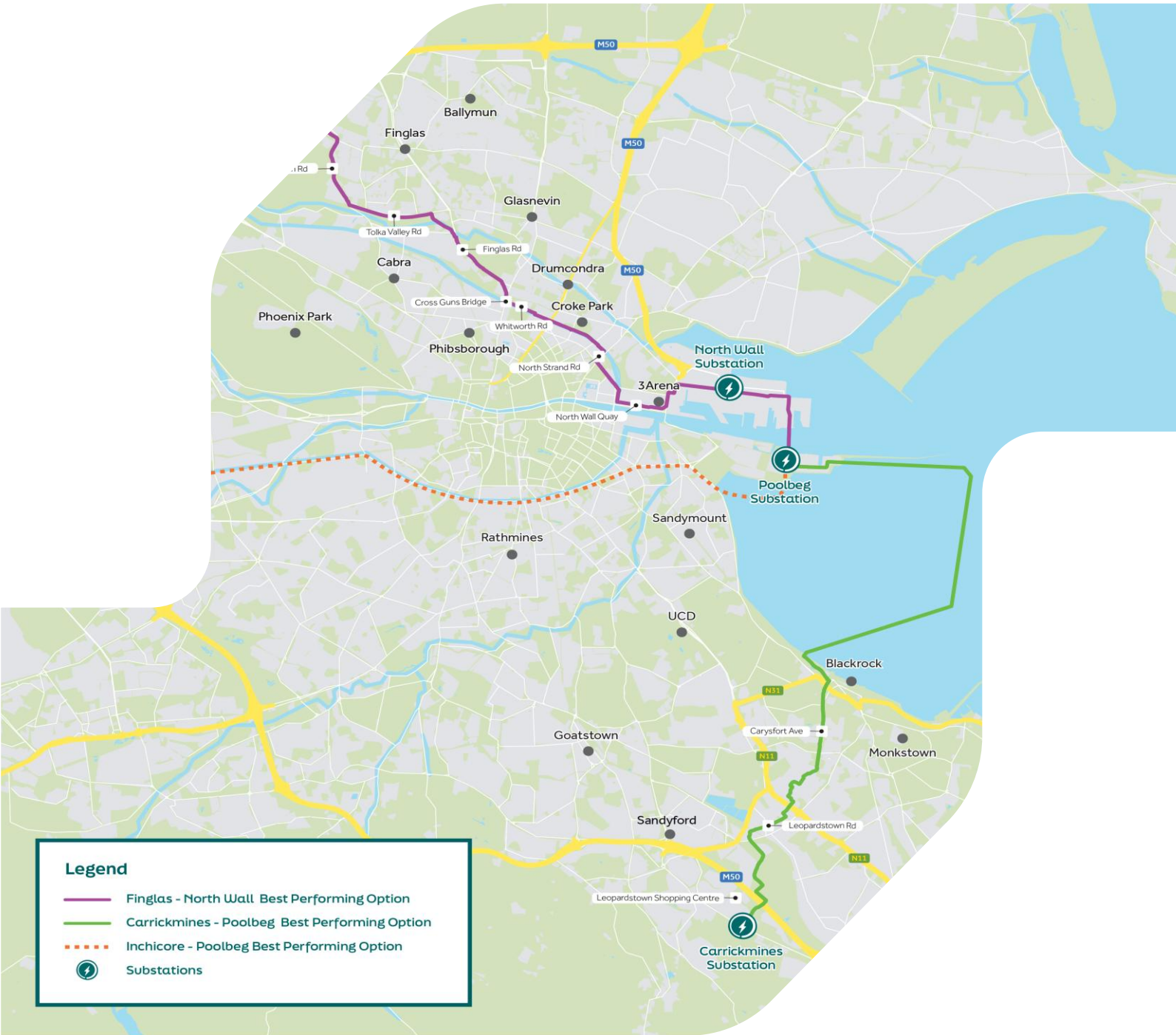
DUBLIN REPLACEMENT UNDERGROUND CABLE PROGRAMME

Best Performing Option – CP1150/CP1157 Inchicore to Poolbeg Cable Replacement



www.EirGrid.ie

Document Status					
Version	**Purpose of Document**	**Authored by**	**Reviewed by**	**Approved by**	**Review Date**
S3 P01	Review	LKR	CM/DC	DC	10.06.25
S3 P02	Client Comment	LKR	PK/DC	DC	17.07.25
S3 P03	Update following Comment	LKR	PK/DC	DC	11.08.25
S4 P01	Review and authorisation	LKR	PK/DC	DC	25.08.25
S5 P01	Acceptance	LKR	PK/DC	DC	15.09.25
A1 C01	Authorised and accepted	LKR	CM	DC	12.11.25

Approval for issue	
DC	12 November 2025

Contents

Tables

Figures

EXECUTIVE SUMMARY

What is the Powering Up Dublin – Replacement Underground Cable programme?

Powering Up Dublin (PUD) is a critical programme that will strengthen key electricity infrastructure in Dublin and the surrounding areas, making the city 'renewable ready'. Dublin's demand for electricity has grown and will continue to grow in the years ahead as society moves to using electricity for heat and transport. These works allow the country to meet our energy demands now and in the future.

In this first phase of the project, approximately 50km of cables will be installed across the city. A new electricity substation will be built in Central Dublin, and upgrades will also take place in a number of other substations to support Dublin's electricity network. Due to the city landscape of Dublin, these new cables are proposed to be placed underground, and they will connect electricity substations located in and around Dublin.

Studies have been carried out to identify new underground cable routes that will link the following 220kV electricity substations to each other.

- Carrickmines and Poolbeg
- North Wall and Poolbeg
- Finglas and North Wall
- Inchicore and Poolbeg (two circuits)

This report identifies the Best Performing Option to replace the existing Inchicore to Poolbeg 220kV circuits 1 & 2 (CP1150 & CP1157).

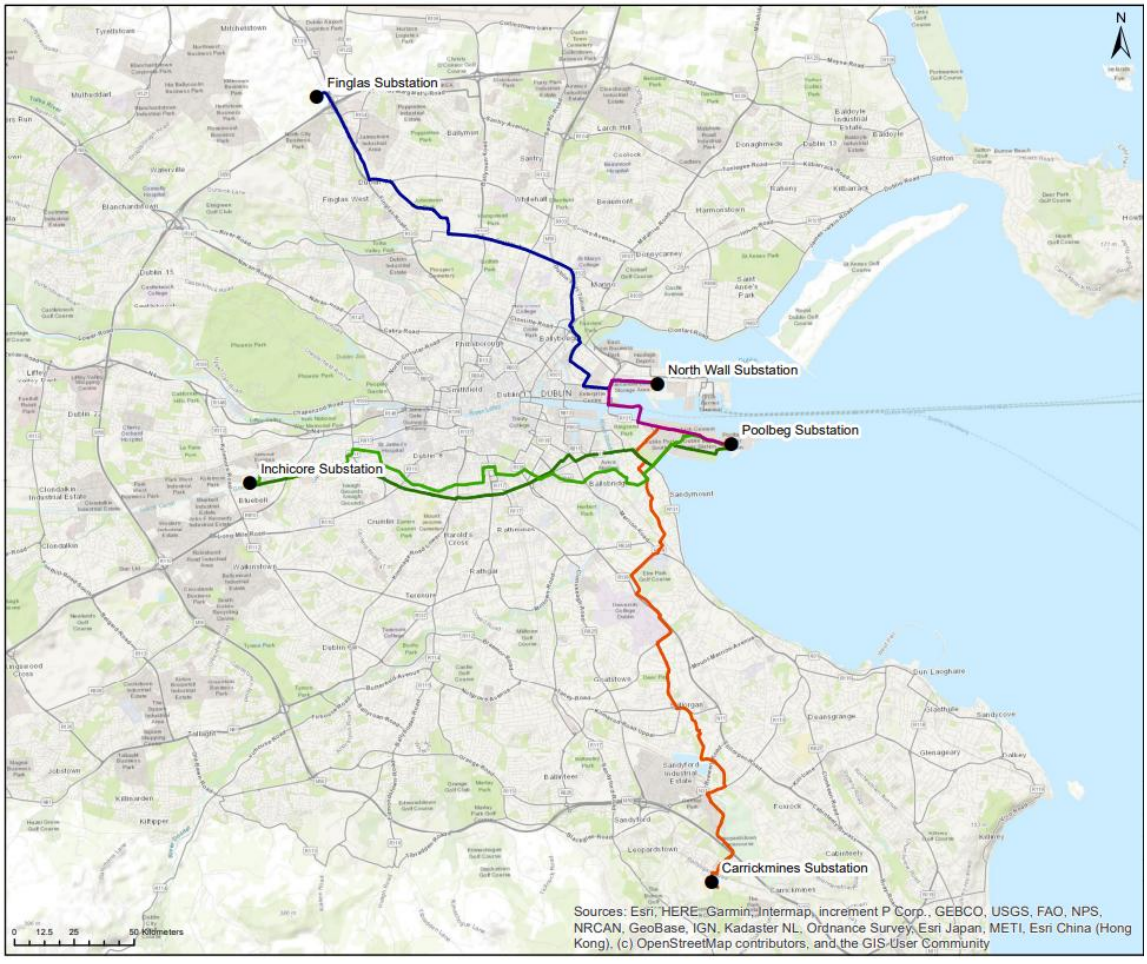


Figure 0-1: Existing 220kV circuits to be replaced as part of the Powering Up Dublin Programme.

Purpose of this Report

The Powering Up Dublin - Replacement Underground Cable Programme follows EirGrid's Framework for Grid Development, which is an end-to-end process for all EirGrid's grid development projects. The framework takes projects from their conception – the identification of a need to develop the electricity transmission grid – to their eventual construction and subsequent energisation. The framework is explained in EirGrid's "Have your Say" document and is illustrated in Figure 0-2.

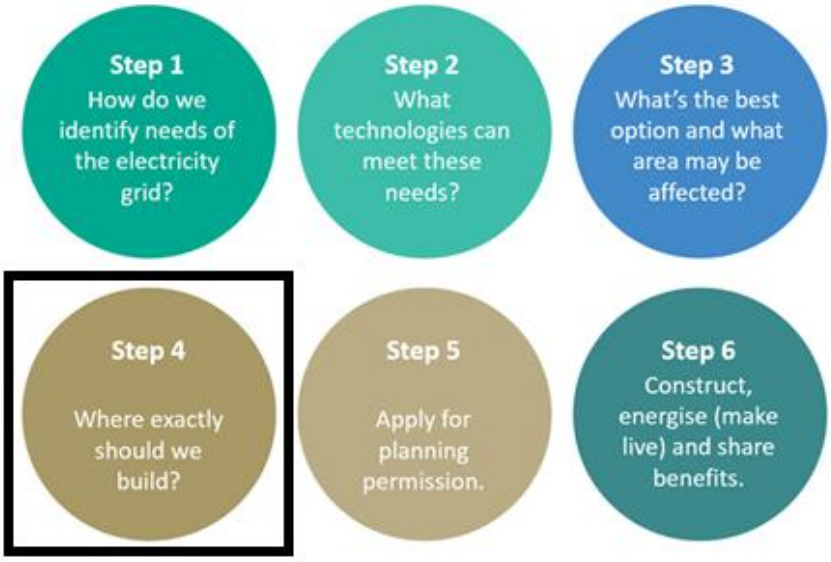


Figure 0-2: EirGrid's Six-Step Framework for Grid Development

This approach facilitates engagement and consultation with stakeholders and the public which helps to explore options fully and make more informed decisions.

The project has now completed Step 4. The objective of Step 4 is to determine the best performing option and the precise route where the project will be built. This step is characterised by two main outputs:

- Route Options Assessment (Step 4A), followed by,
- Best Performing Option Assessment (Step 4B).

The Route Options Assessment identifies all possible route options to replace the existing Inchicore to Poolbeg 220kV dual circuits, analyses these route options and identifies the Emerging Best Options. The Route Options Assessment was completed in March 2023, and the report (available at Inchicore to Poolbeg: Step 4A) was subsequently published for public consultation. The public consultation period closed eight weeks later in May 2023. Section 3 of this report provides a summary and results of the assessment process.

The second phase of Step 4, the Best Performing Option Assessment, develops the Route Options Assessment, taking account of feedback obtained during the public consultation phase and additional technical information from surveys and route walks to arrive at the Best Performing Option. The Best Performing Option is based on the information currently available and further refinement of the option may be informed by site investigations performed as the detailed design phase progresses. This second phase was progressed between May 2023 and March 2025. The assessment process is explained in more detail in Section 4 and 5 of this report.

Summary of Route Options Assessment (Step 4A)

All the potential route options for the Inchicore to Poolbeg dual circuits were identified, broken down into unique sections and each section was assessed using a Multi-Criteria Analysis (MCA) comprising EirGrid's five multicriteria assessment categories: Technical, Deliverability, Economic, Socio-Economic, and Environment, shown in Figure 0-3.

Figure 0-3: EirGrid's Five Multi-Criteria Assessment Categories

From the Assessment results, using the best possible ranked sections, three optimised routes, Option J, Option K and Option L were progressed as Emerging Best Options (EBOs) for further consideration. These routes are shown in Figure 0-4.

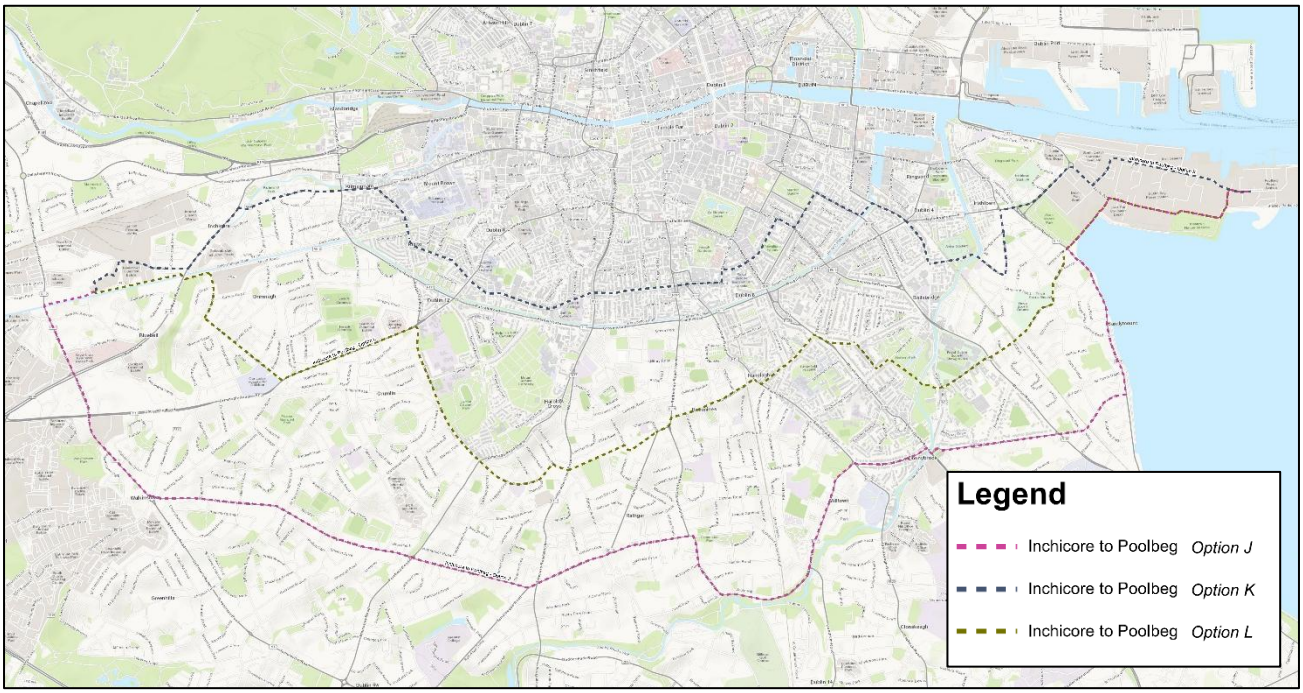


Figure 0-4: Map of Option J, Option K and Option L

Design Development (Step 4B)

As part of the Best Performing Option Assessment (Step 4B) further work was undertaken to assess the route options identified and confirm the feasibility of their delivery. The first step for the technical team was to identify locations where there is increased risk to the delivery along each of the route options and identify investigative work.

As part of the assessment, option K was removed from consideration, due to complexities such as utility density, road reinstatement, and physical constraints associated with the route option. A letter was issued to stakeholders within the established engagement zone confirming that option K was no longer being considered. The trenched route options J & L underwent further design development.

Investigative works, in particular utility surveys, were used to highlight any constraints that may affect the constructability of the cable route as well as potential opportunities that may benefit the construction of the route in a particular location.

The surveys identified areas on the routes that are not practically passable without major disruption to utilities, services and the local community. The density of underground infrastructure in these corridors raised substantial concerns regarding the duration of works required in the public roads, the scale of disruption to traffic, businesses, and residents, and the cumulative impact on already busy city routes.

Due to the volume of utility diversion works that would be required alongside actual circuit construction the decision was made to consider trenchless options of construction in addition to road-based routes.

Following further design development and engagement of an experienced tunnelling contractor, a number of additional route options were identified. These include the preferred route from the Route Options Assessment, a fully trenchless option and two hybrid options that include trenchless and trenched sections.

- Option 1 – Trenched routes L & J [preferred routes from Route Options Assessment].
- Option 2 – Trenchless route for entire length.
- Option 3 - Hybrid route made up of trenchless and trenched sections.
- Option 4 - Hybrid route made up of trenchless and trenched sections.

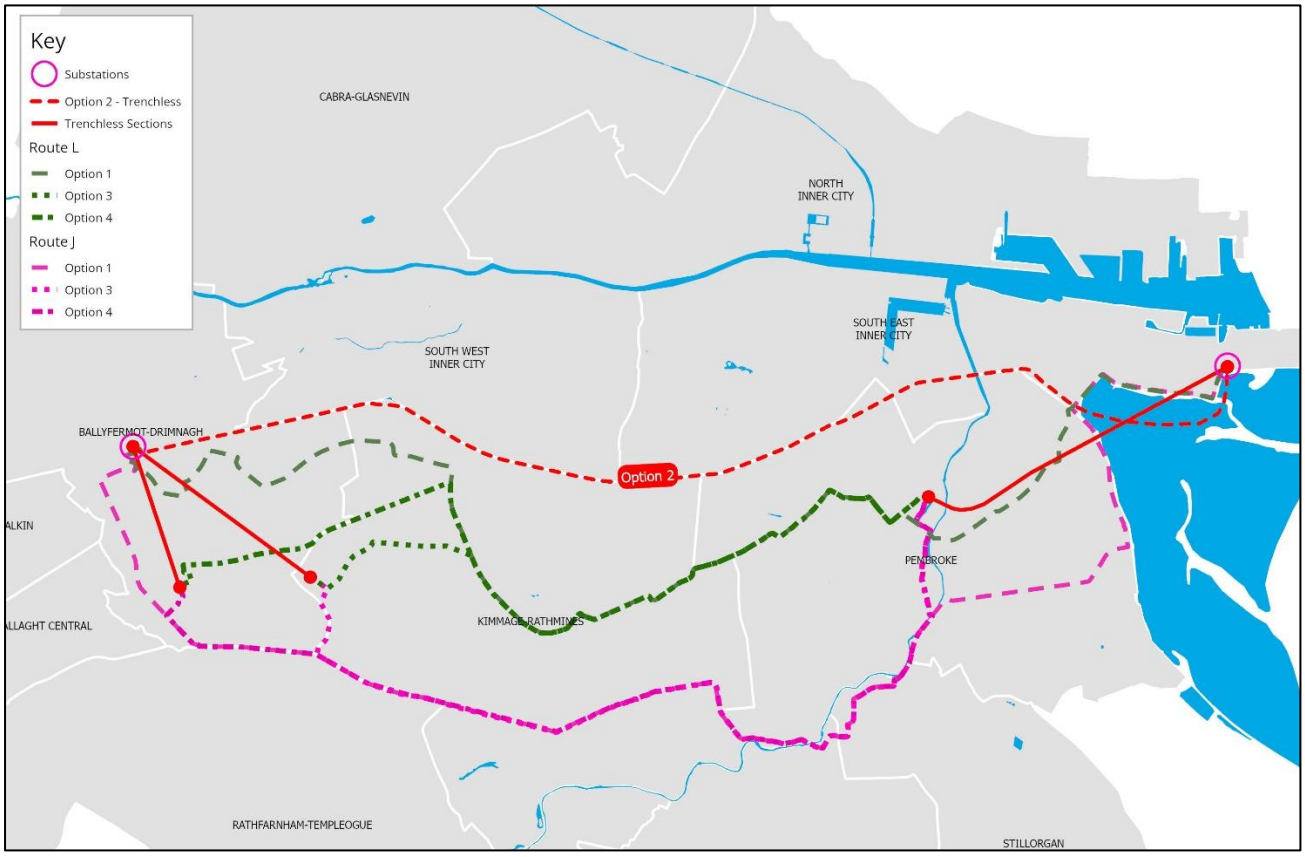


Figure 0-5: Route Options

Best Performing Option Assessment

The assessment consisted of a MCA that used EirGrid's five multi-criteria assessment categories analysing technical, deliverability, economic, socio-economic, and environmental factors. The assessment concluded that the Best Performing Option is Option 2 shown in Figure 0-6 below, consisting of a trenchless route for entire length of the circuit. This option mitigates significant risks associated with the construction of 29km of circuits by trenched methodology, while comparing favourably in terms of estimated costs and offering a potential benefit of the future extendibility of the grid.

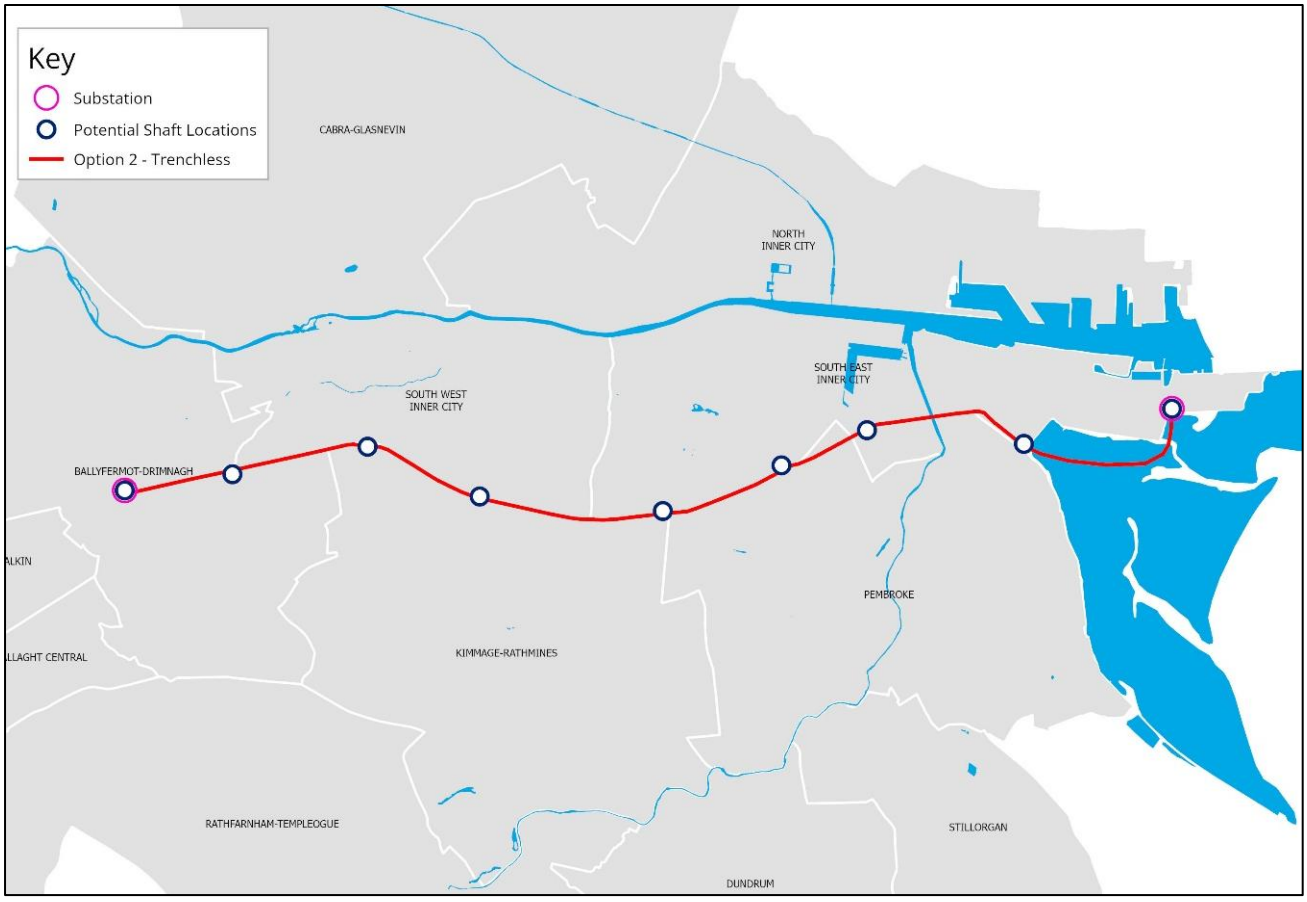


Figure 0-6: Inchicore to Poolbeg Trenchless Option

Further route refinements may be needed at Step 5, after the completion of additional design, surveys, engagement, and assessment. EirGrid will continue to engage with affected landowners, local communities, and prescribed bodies as the design develops. Details will be provided to the public on EirGrid's website. Additional design features may be incorporated at Step 5 including the number of tunnel shafts required and their proposed locations.

Project updates will be available on EirGrid's project website here: Powering Up Dublin.

1 INTRODUCTION

1.1 Who is EirGrid?

EirGrid develops, manages, and operates Ireland's electricity grid and is responsible for the safe, secure, and reliable supply of Ireland's electricity. EirGrid is also leading the secure transition of the grid to a sustainable low-carbon future.

The grid brings power from where it is generated to where it is needed throughout Ireland. It supplies power directly to industry and businesses that use large amounts of electricity. The grid also brings power from generators to the domestic network that supplies the electricity you use every day in homes, schools and hospitals.

This critical infrastructure supports the current development of Ireland's society and economy. But just as importantly, work carried out now to improve the grid will help to create a more sustainable future for future generations.

1.2 What is the Powering Up Dublin - Replacement Underground Cable programme?

Dublin's electricity infrastructure is ageing and reaching its end of life. Work must be done to transform and modernise the city's electricity infrastructure, so Dublin can continue to develop and thrive, while increasingly using power from renewable sources.

Powering Up Dublin is a critical programme that will strengthen key electricity infrastructure in Dublin and the surrounding areas, making the city 'renewable ready'. The existing Inchicore to Poolbeg circuits were energized in 1971. Dublin's demand for electricity has grown and will continue to grow in the years ahead as we move to using electricity for heat and transport. These works allow us to meet Ireland's energy demands now and in the future.

While this work will be disruptive at times, EirGrid seeks to minimise any potential disruption during construction by working with local communities, local authorities, and businesses in Dublin.

Ireland's energy future lies in the ability to continue to harness and grow the potential of renewable energy. Ireland has made good progress to date achieving on average 40% of electricity coming from renewable sources annually. By 2030, Ireland must strive to reach 80% of electricity demand being supplied by renewable resources.

Powering Up Dublin is key to meeting this target, which is set out in Ireland's Climate Action Plan.

In this first phase of the project, 50km of cables will be installed across the city. A new electricity substation will be built in Central Dublin, and upgrades will also take place in a number of other substations to support Dublin's electricity network. These new cables will by default be underground and they will connect electricity substations located around Dublin.

Studies have been carried out to identify new underground cable routes that will link the following electricity substations to each other.

- North Wall and Poolbeg
- Finglas and North Wall
- Carrickmines and Poolbeg
- Two circuits linking Inchicore and Poolbeg

The 220kV circuits which are to be replaced are detailed in Table 1-1.

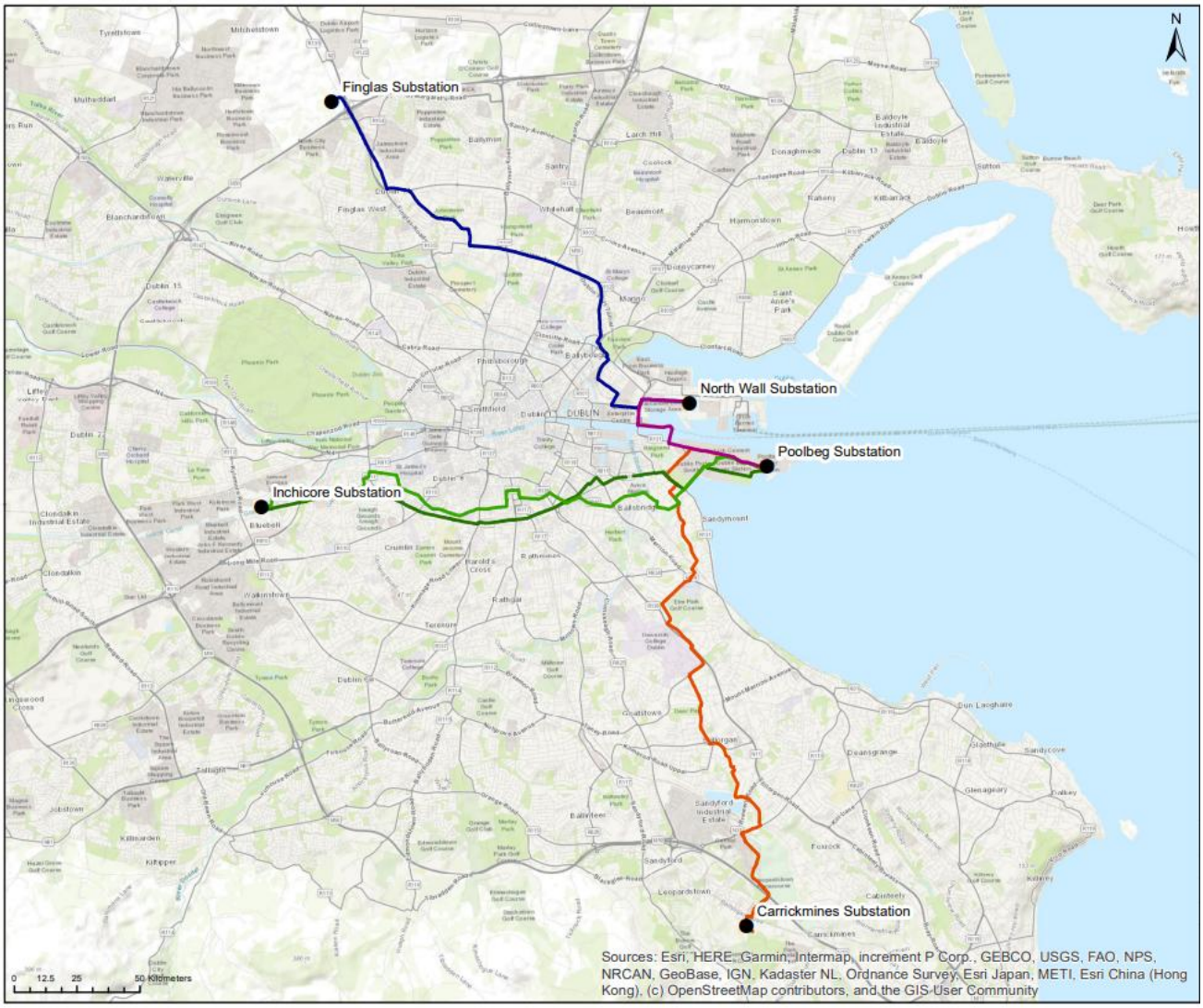


Figure 1-1: Existing 220kV circuits to be replaced as part of the Powering Up Dublin Programme

Table 1-1: Dublin Replacement Cable Projects in the Dublin Area

Project Name	Existing Circuit Route Length
CP1146 Carrickmines - Poolbeg	14.5 km
CP1150 Inchicore - Poolbeg	11.3 km
CP1157 Inchicore - Poolbeg	12.5 km
CP1216 North Wall – Poolbeg	4.6 km
CP1100 Finglas – North Wall	12.0 km

EirGrid will be replacing all the existing circuits with cross-linked polyethylene (XLPE) cable primarily on an offline route to minimize power outages on the existing circuits. These XLPE cables are more efficient and robust than the existing fluid-filled cables, which will enable the grid to carry more power.

Replacing the existing circuits in an offline route means the new circuit follows a different route to the existing circuit. The advantage of this is that there are minimal disruptions to the existing circuit and no, or very few, planned outages would be required during construction.

The alternative to this is an online replacement where the new circuit follows the existing circuit route. The old circuit is decommissioned as the new circuit is laid. For this method, a circuit outage of the existing

circuit would be required for the entire construction period. Constructing on-line requires the old circuit to be removed before the new is installed. For this method, the existing Inchicore to Poolbeg circuits would require an outage of at least 2 years

Due to the electricity needs of Dublin, an online replacement is not feasible. For this reason, offline installation is considered for the replacement of this circuit.

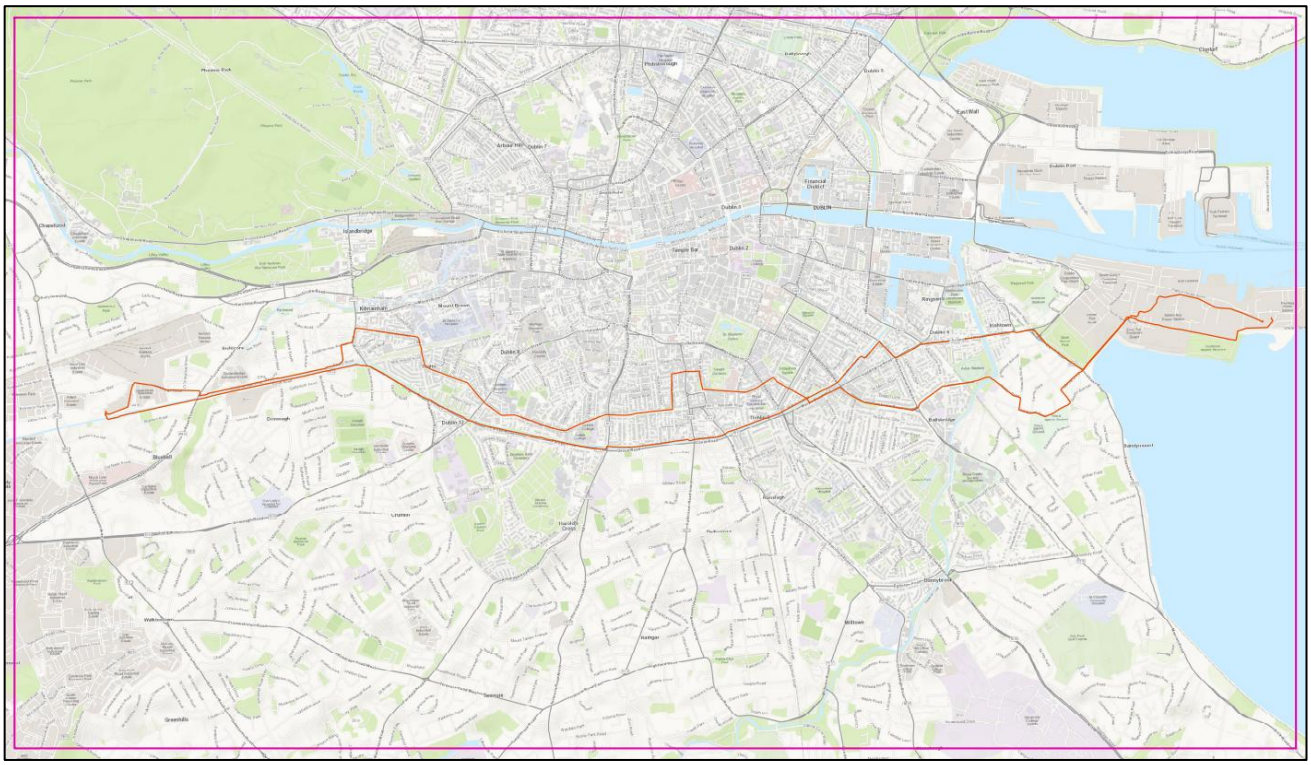


Figure 1-2: Existing Inchicore to Poolbeg 220kV circuits within the study area.

1.3 Purpose of this Report

The Powering Up Dublin - Replacement Underground Cable Programme is following EirGrid's Framework for Grid Development, which is an end-to-end process for all EirGrid's grid development projects. The framework takes projects from their conception - the identification of a need to develop the electricity transmission grid - to their eventual construction and subsequent energisation. This report outlines the work undertaken in Step 4. The timeline for this step is shown in Figure 1-3.

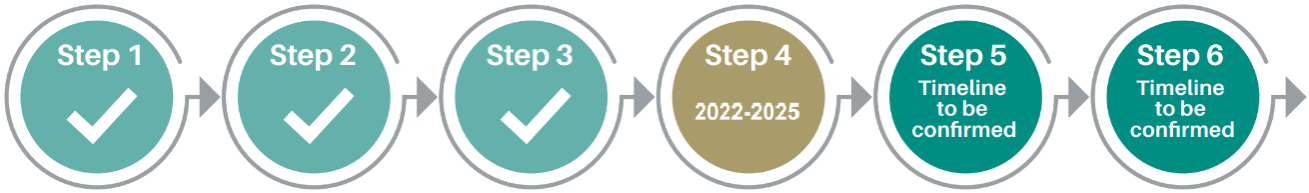


Figure 1-3: The timeline of EirGrid's Six-Step process for this project.

In Step 1, EirGrid identified the need for this project.

In Step 2, EirGrid assessed and confirmed the technology required to achieve the need; namely the required ratings to support the capacity of (renewable) energy to be transmitted. The cable technology selected is XLPE 220kV cable.

In Step 3, EirGrid assessed the feasibility of the Powering Up Dublin - Replacement Underground Cable Programme in December 2022. This Step looked at the key constraints, considerations, and opportunities in the Inchicore, Carrickmines and Poolbeg areas as well the proposed technology options. The report confirmed the need for the replacement of the existing 220kV circuits, in a mostly offline replacement to limit the outages required.

In Step 4, the Route Options Assessment Report was published in March 2023 and a public consultation period ran for eight weeks ending May 2023. This report fully described and analysed the route options within the Inchicore to Poolbeg study area. Each route option was assessed, and the Emerging Best Options (EBO) were identified.

The project has now completed the second phase of Step 4, where the project team, in consultation with stakeholders and the community, identifies exactly where the underground electricity connection will be built.

It is noted that, as the project progresses through to Step 5, there is a possibility that the replacement of underground electricity transmission cables may be classified as exempted development, meaning planning permission is not required. This is subject to an assessment of the project and it meeting specific requirements including environmental and ecological criteria.

1.4 Accompanying Reports

This Best Performing Option report is supplemented by the following reports:

- Route Options Assessment Inchicore to Poolbeg
- Powering Up Dublin project brochure
- Constraints Report Inchicore to Poolbeg
- EirGrid Dublin Fluid Filled Cables Replacement Feasibility Study
- Powering Up Dublin Strategic Framework for Planning & Environment
- Public Consultation Feedback Report

These reports as well as further information on the Powering Up Dublin project can be found here: Powering Up Dublin.

2 SUMMARY OF STEP 4

In EirGrid's Six-Step Framework, Step 4 determines the precise route where the project will be built. This step is characterised by two main outputs.

- Route Options Assessment, and
- Best Performing Option Assessment.

Figure 2-1 outlines the design process followed in Step 4, showing the process used for Route Options Assessment and how that is developed to identify the Best Performing Option.

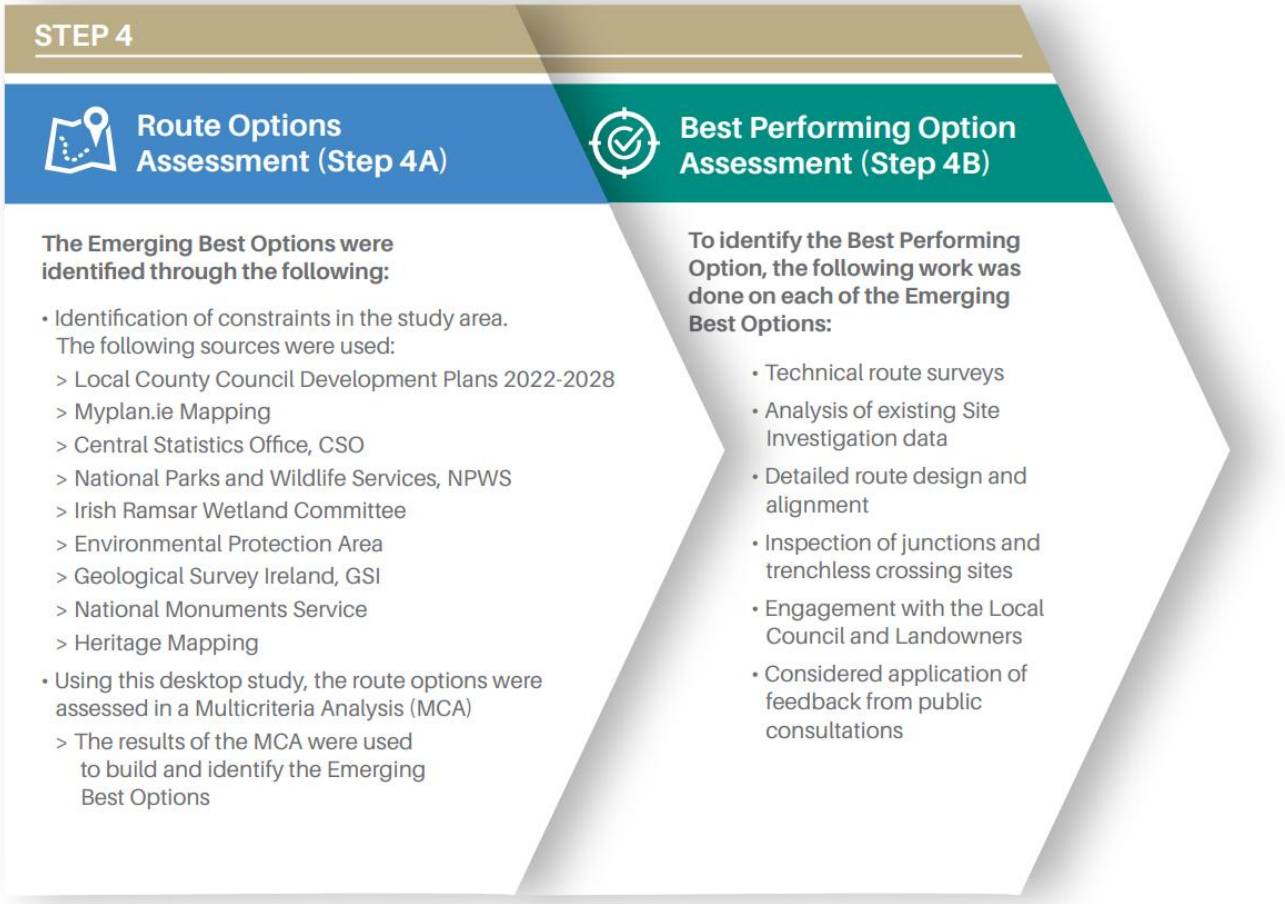


Figure 2-1: Step 4 design process.

The Route Options Assessment identifies all possible route options to replace the existing Inchicore to Poolbeg 220kV circuit, analyses these route options and identifies the Emerging Best Options. The Route Options Assessment was completed in March 2023, and the report was subsequently published for public consultation. The public consultation period closed eight weeks later in May 2023. Section 3 provides a summary and results of the assessment process.

The second phase of Step 4, the Best Performing Option Assessment, builds on the Route Options Assessment, including the public consultation feedback, and development of the design to present the Best Performing Options. The Best Performing Options are based on the information currently available and further development of the option may be triggered by site investigations performed at a later stage. This has been progressed between May 2023 and March 2025 to identify the Best Performing Option for Inchicore to Poolbeg 220kV.The assessment process is explained in more detail in Section 4.

3 ROUTE OPTIONS ASSESSMENT SUMMARY

The study area for this project was carried through from Step 3. The first step in completing Step 4 was to identify the constraints in this study area in December 2022, followed by establishing all possible route options to replace the existing Inchicore to Poolbeg 220kV circuits. These options were then assessed as part of the Route Options Assessment Report and the Emerging Best Options (EBOs) were identified for further investigation in March 2023. This Route Options Assessment design process is shown in Figure 3-1.

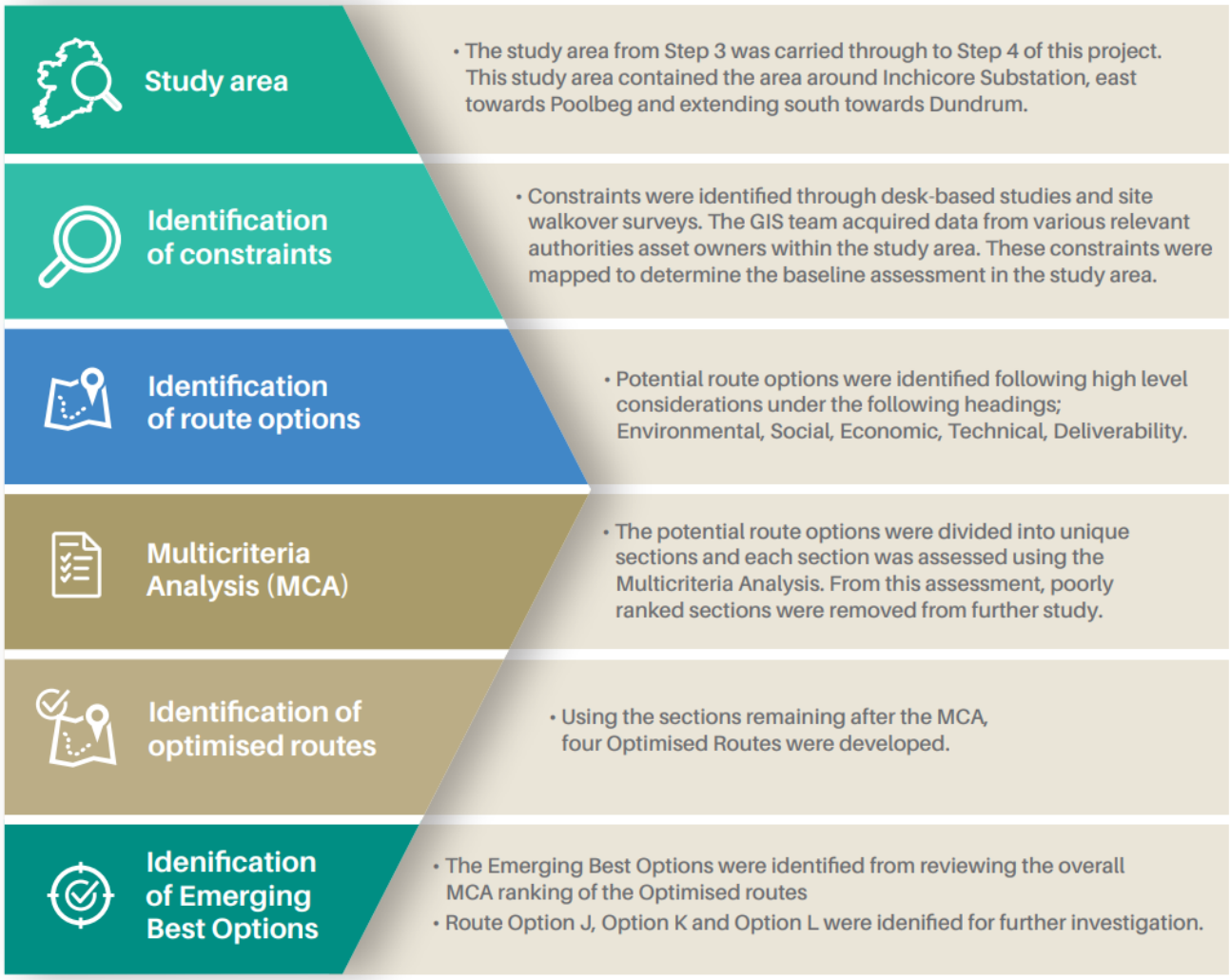


Figure 3-1: Route Options Assessment Design Process

This section summarises the Route Options Assessment process from the identification of the route options, through to the identification of the Emerging Best Options.

Four potential route options for the Inchicore to Poolbeg circuits were identified, broken down into unique sections and each section was assessed in a Multi-Criteria Analysis (MCA) using EirGrid's five multicriteria assessment categories, shown in Figure 3-2.

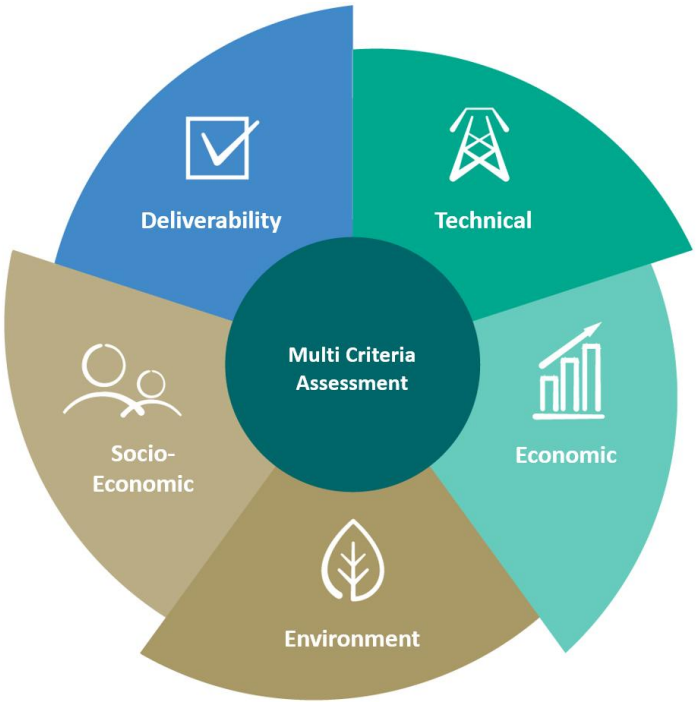


Figure 3-2: EirGrid's Five Multi-Criteria Assessment Categories

The categories were further split into the subcategories shown in Table 3-1.

Table 3-1: Categories and subcategories in the Multi-Criteria Analysis

Category	Subcategories
Technical	Technical Operating Risk Compliance with EirGrid Functional Specification for 220kV Expansion/Extendibility Geotechnical conditions
Deliverability	Road Access Outage Impact Route Geometry Land Availability Planning and other statutory requirements Material Assets Utility Congestion Working Time Constraints Reinstatement Requirements Dependence on other projects
Economic	Number of complex crossings Reinstatement Costs Utility Diversion Requirements Bespoke Circuit Trench Requirements
Socio-Economic	Cultural heritage Proximity to critical services Duration of the works Settlements and Communities Amenity Traffic and Transport Emergency services
Environment	Planning policy and land use Biodiversity, Flora and Fauna Landscape and Visual Contaminated land Flood risk Water Impact

The map of all route sections between nodes that were assessed as part of this MCA are shown in Figure 3-3. The colour of each section shows the overall MCA ranking of that section. The colour coding is outlined in Table 3-2.

Table 3-2: Colour coding of Risk / Significance / Sensitivity levels

Colour Key	Level of Risk / Significance / Sensitivity
Yellow	Low
Green	Low-Moderate
Dark Green	Mid-Level / Moderate
Blue	Moderate-High
Dark Blue	High

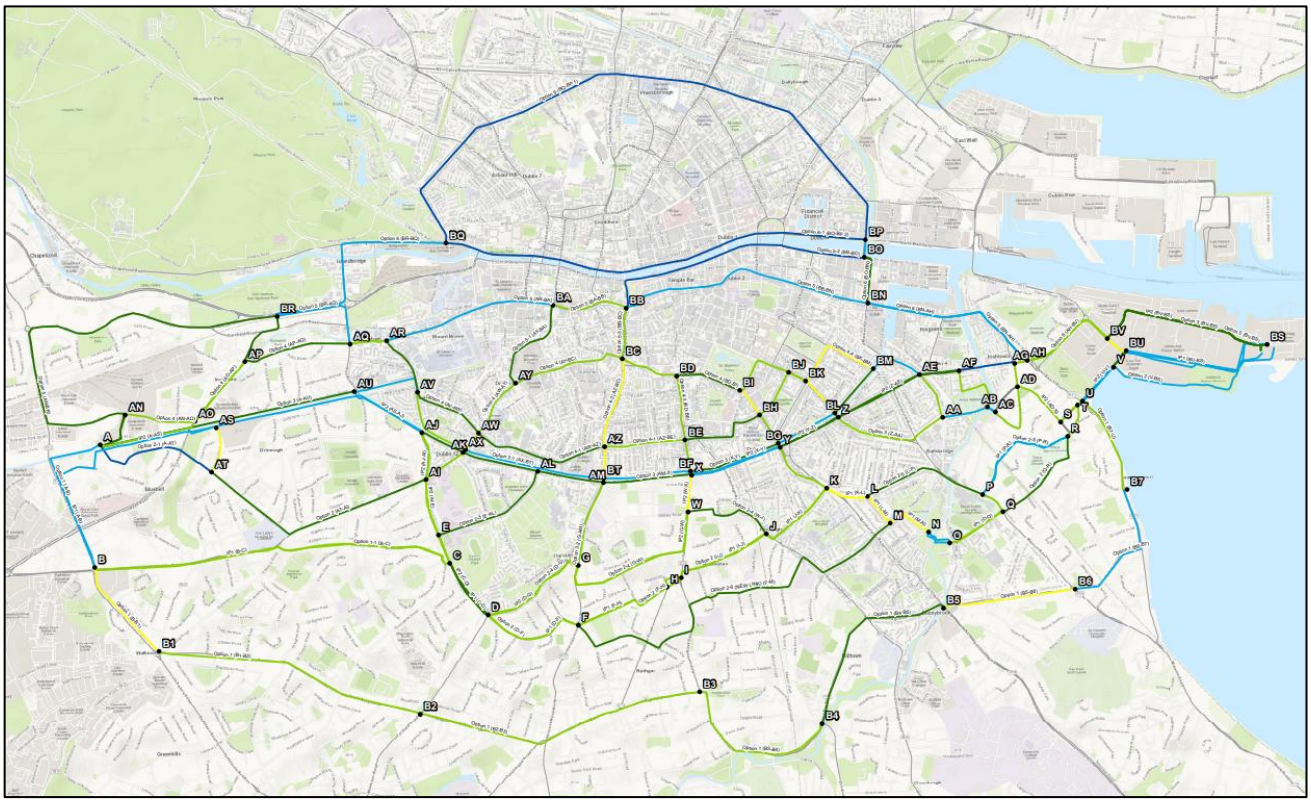


Figure 3-3: Route section and node map for Inchicore to Poolbeg route options.

3.1 Step 4A Emerging Best Options

Option J, Option K and Option L were identified as the Emerging Best Options for further consideration in this report. This section outlines the overall MCA ranking of each Option and the outstanding challenges that were identified at this stage for each route. Figure 3-4 shows a map of these EBOs.

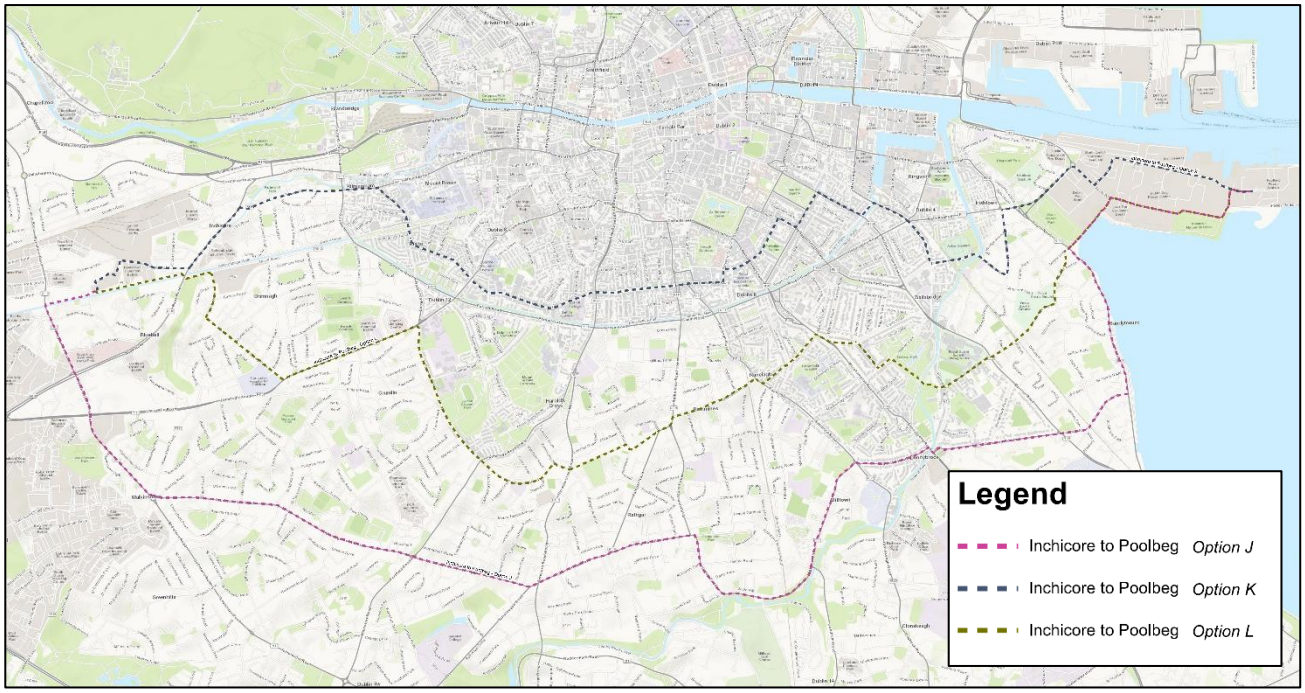


Figure 3-4: Map of EBOs: Option J, Option K and Option L

Option J (Figure 3-5) was selected due to the overall ranking of low-moderate. The higher ranking of mid-level/moderate in the Deliverability, Economic, Socio-Economic and Environment criteria was being driven by the working time constraints, high utility congestion, number of crossings and it runs through inland bird feeding sites of DCC for Brent Geese at Ringsend and Irishtown/Sean Moore Park; and it is adjacent to South Dublin Bay proposed Natural Heritage Area (pHNA), Special Protection Area (SPA) and Special Area of Conservation (SAC). Nonetheless, this can be managed with careful planning and site investigation. The high working time constraint was due to large sections of the route having a high Traffic Impact Number (TIN) and may increase the working time for construction in these areas. Part of this can be mitigated by well-planned traffic management during construction. Another factor driving the ranking was the Grand Canal crossing at Kylemore Road, the Luas Red Line crossing under the Naas Road and the DART crossing at Sydney Parade. This route could be constructed in compliance with EirGrid specifications but would have minimal expansion/extendibility issues.

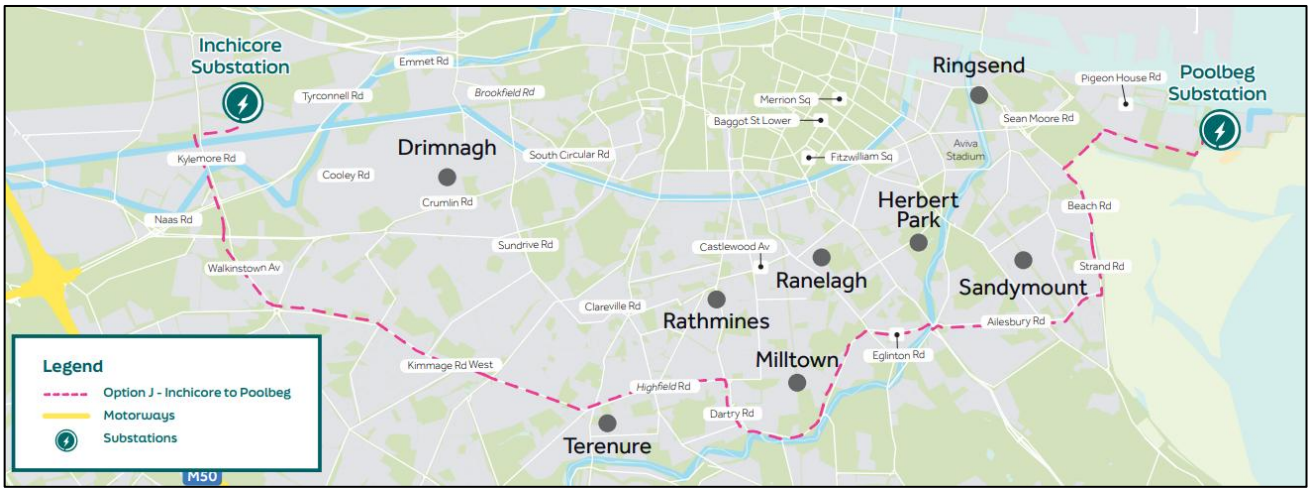


Figure 3-5: Map of Option J

Option K (Figure 3-6) was progressed for further consideration. The Deliverability and Economic ranking of mid-level/moderate was being driven by utility congestion, material assets and outage impact. Space was

required for HDD or microtunnel crossing for the DART crossing at Lansdowne Road. The Grand Canal crossing needs to be determined if there is space in the bridge deck, or if HDD or another trenchless crossing would be required. The LUAS Green Line requires space for HDD crossing. This route could be constructed in compliance with EirGrid specifications but would have minimal expansion/extendibility issues.

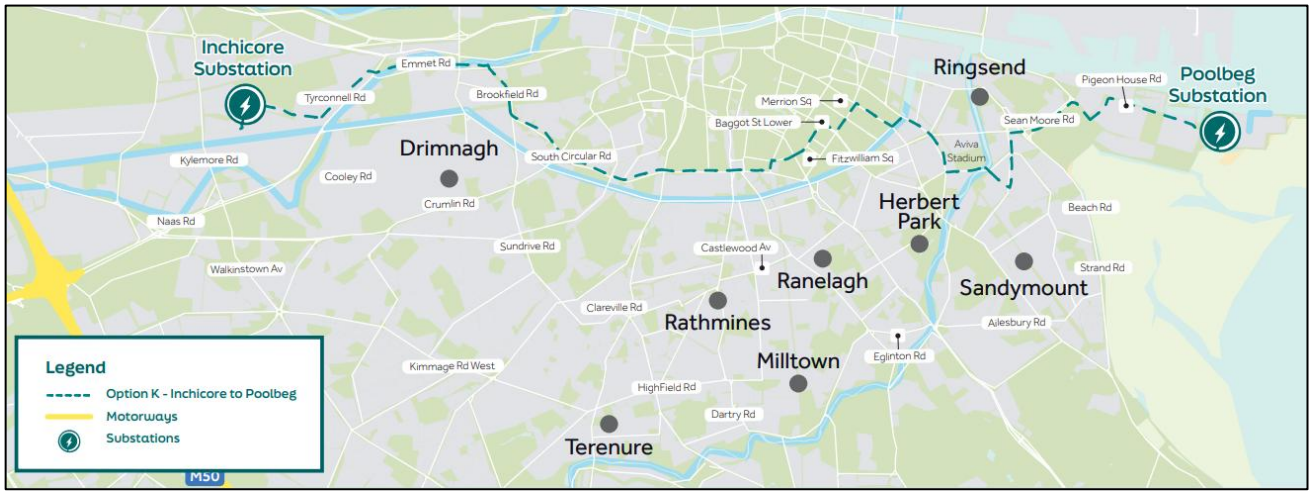


Figure 3-6: Map of Option K

Option L (Figure 3-7) had an overall ranking of low-moderate. The higher ranking of mid-level/moderate in the Deliverability and Economic criteria were due to high utility congestion and number of crossings. The main pinch point of this route option was between the Inchicore substation and the Lansdowne Valley Park, with some areas of high utility congestion. With site investigations, this can be managed. For all of the following crossings, it must be determined whether HDD or another trenchless crossing methodology is required; the Grand Canal crossing at Tyrconnell Road, the Luas Red Line crossing at Tyrconnell Road, the River Dodder crossing at Ballsbridge and the DART crossing at Serpentine Avenue. This route could be constructed in compliance with EirGrid specifications but would have minimal expansion/extendibility issues.

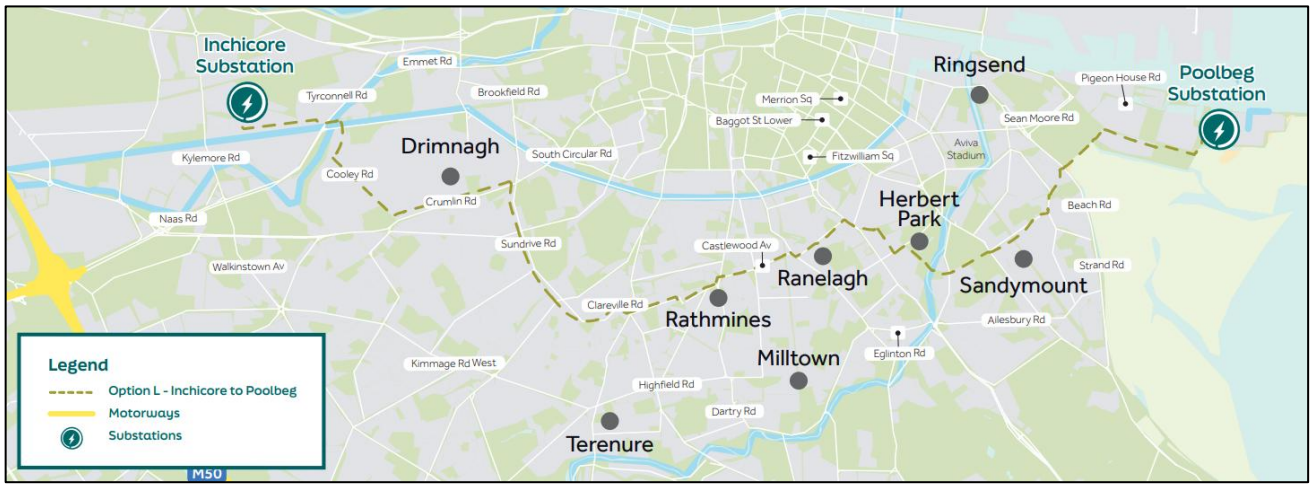


Figure 3-7: Map of Option L

3.2 Route Options Consultation

The public consultation period commenced on Tuesday, 28 March 2023 and ran for an eight-week period ending on Tuesday 23 May 2023. All relevant consultation material was available on the EirGrid Powering Up Dublin (PUD) website here. This included:

- Project Summary Brochure
- Project Leaflet
- Route Maps including an Interactive Map Tool
- Link to Online Consultation Survey
- Link to Submission Portal
- Supporting Information

The consultation was promoted by EirGrid through advertising, social media and generating local and national news reports and interviews.

For up to three weeks before the consultation phase began, advertising was placed in newspapers, bus shelters, outdoor adshels, online and on radio. Advertising to promote the consultation continued throughout the eight-week consultation period on radio and social media.

Five in-person consultation events were conducted at relevant locations in the greater study area. Two dedicated Community Liaison Officers (CLOs) are in place since the start of the project in 2022. Community Liaison Officer drop-in clinics were undertaken throughout the public consultation period (i.e., March to May 2023). Briefings were offered and delivered to elected representatives, resident groups, schools, businesses, and community groups.

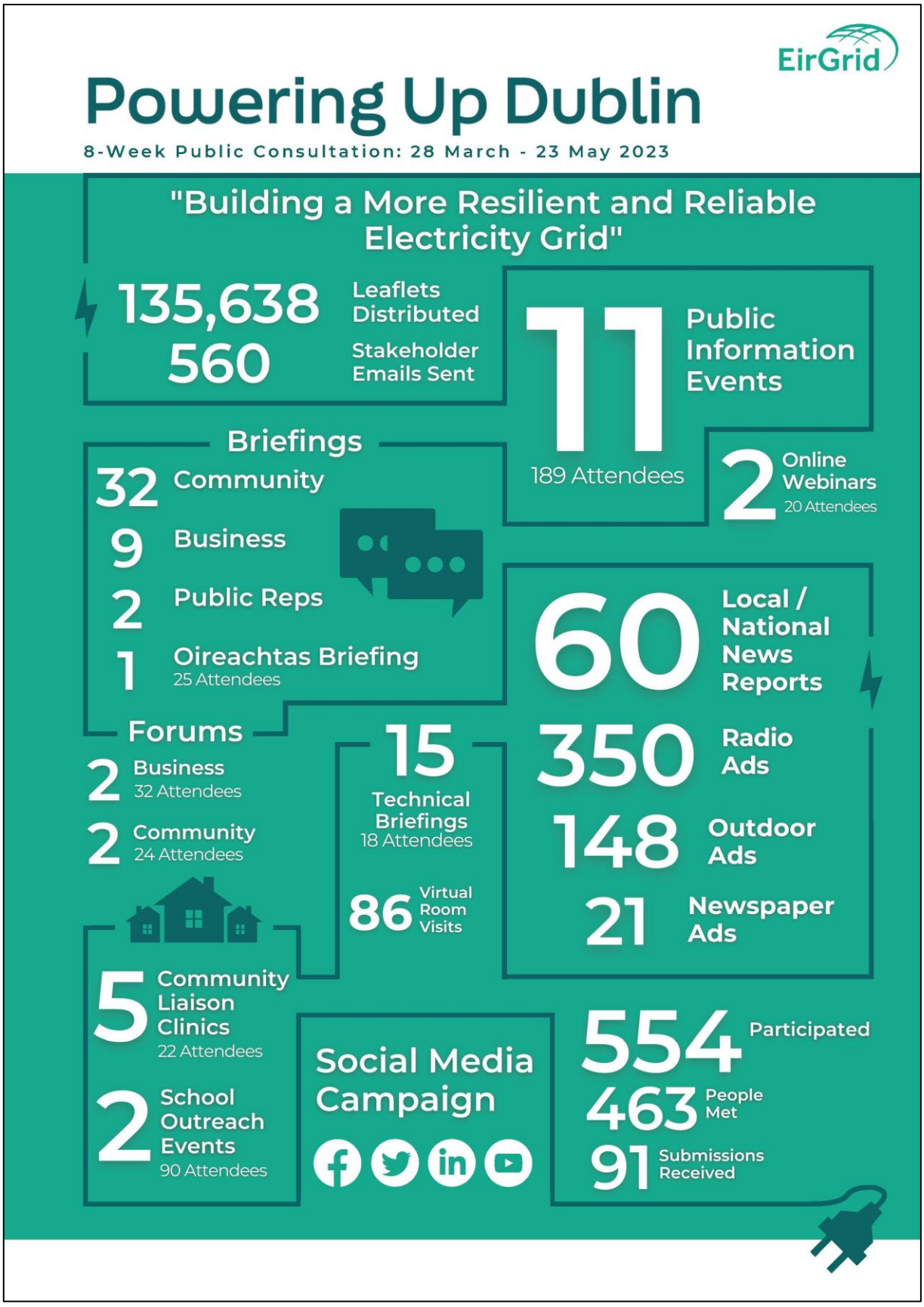


Figure 3-8: Consultation Activity Summary

3.3 Route Options Consultation Feedback

The *PUD Consultation Findings Report* summarises feedback, responses and comments received relating to the non-statutory public consultation on the first phase of the Powering Up Dublin (PUD) Project.

Overall, most people understood the need for the project and there was widespread acceptance of the PUD project. Notwithstanding this, submissions received included valuable feedback on the concerns related to the project.

The most frequently emerging themes raised included local environmental issues, cumulative impacts, business impacts and traffic disruption. Concerns regarding the potential traffic impact on schools and the disruption to businesses in the area were also raised.

However, there were concerns regarding the potential impacts of the required works when the project reaches the final route selections and subsequent construction stage. The area of primary concern and most frequently recurring issue was that of traffic disruption (general, business and traffic specific) and congestion resulting from construction stage. A high volume of respondents referenced the need for robust traffic management measures, routing preferences and retention of public transport/pedestrian routes throughout construction.

Respondents also voiced concerns in relation to potential for cumulative impacts of multiple utilities projects programmed, in progress and recently completed in the communities where several of the potential route's pass through.

Individual respondents expressed strong preferences for collaboration between utilities companies and local authorities, where possible, and this sentiment was echoed by several utility companies and local authorities (e.g.: ESB Networks, Uisce Eireann and Dublin City Council) in their submissions. Those utility companies and local authorities called for continued dialogue and engagement regarding the project, route development and collaborative opportunities. The overarching sentiment of responses referring to collaborative opportunities was that they may reduce the potential of disruption to communities, such as through reducing the need for ongoing or repeated carriageway excavations.

Respondents commented that tunnelling and underground methods would be less invasive and requested it be seriously considered as an option.

The Consultation Findings Report can be found here.

The feedback and findings from the consultation were used within the Best Performing Options Assessment (Step 4B) to support route selection and optimisation.

4 BEST PERFORMING OPTION ASSESSMENT (STEP 4B)

4.1 Introduction

To determine the Best Performing Option, the three Emerging Best Options (EBOs) identified in the Route Options Assessment Report were examined in greater detail. This process included carrying out route surveys, stakeholder and landowner engagement, and further route design, focusing on areas of particular difficulty such as water course or railway crossings.

The design process to determine the Best Performing Option is shown in Figure 4-1. It is noted that the assessment process is iterative. This means, for example, that information found at the information gathering stage could be used to inform the technical route surveys and stakeholder engagement, which feeds back into the information gathering and route assessment.

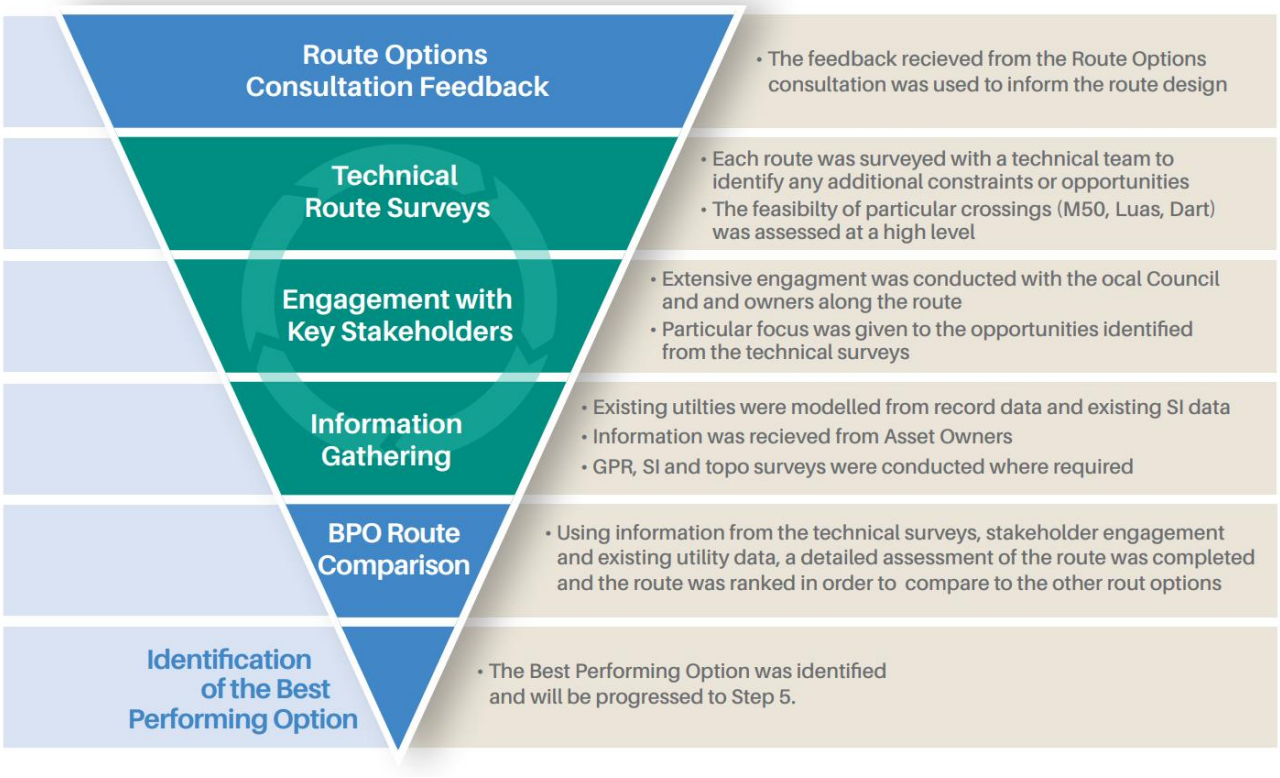


Figure 4-1: Best Performing Option Assessment Design Process

4.2 Information Gathering and Route Assessment

The first step for the technical team was to carry out surveys of all three route options identified in Step 4A. The team identified any constraints that may affect the constructability of the circuit, as well as potential opportunities that may benefit the construction of the circuit.

Multidisciplinary assessments were undertaken on each EBO route. This included environmental and ecological assessments. These assessments were desktop based with targeted walkover surveys of particular areas of sensitivity or importance.

EirGrid also carried out considerable engagement with landowners and stakeholders along the cable route. This engagement has allowed the landowners and stakeholders to inform the route assessment based off their preference, current or future land use and any land conditions they have knowledge of.

Technical issues along the route were considered to identify the best crossing locations of important features such as the Grand Canal, Luas line, DART railway, and River Dodder amongst others. The suitability of each

crossing was assessed considering the methodology, location including space for works areas and factors such as utility congestion in the area. Bridges were assessed to determine the availability of space for routing the circuit in the bridge deck. This included considering if the bridge depth was of suitable and if there was space required to achieve minimum separation from existing utilities.

As a result of the assessment, option K was removed from further consideration, due to complexities such as utility density, road reinstatement, and physical constraints associated with the route option.

Some route modifications were identified for Routes J & L as a result of the work done during the Best Performing Option assessment. The changes identified resulted in improved routes from the original EBOs.

4.3 Route Comparison

As part of the Best Performing Option Assessment further work was undertaken to assess the route options identified and confirm the feasibility of these route options. The first step for the technical team was to identify areas of concern along each of the route options and identify investigative work. Investigative works, in particular utility surveys, were used to highlight any constraints that may affect the constructability of the circuit as well as potential opportunities that may benefit the construction of the circuit in a particular location.

The survey areas were identified by using several different methods. These included combining and analysing multiple utility and infrastructural datasets, consultation with DCC regarding project linking opportunities and public consultation feedback.

The survey deliverables included manhole record sheets and three-dimensional models of the utilities at each location. The models were produced using the PAS128 specification. This specification defines tolerances and quality levels of each element within the survey.

The survey areas identified constrained locations which required further assessment. The utility surveys were identified and completed in stages. This allowed the technical team to develop the route assessment in stages by using the survey information available to inform the design process, before moving on to the next stage and seeking further survey information.

Priority survey areas were identified and were used to inform the assessment. The surveys have identified areas on the routes that are not practically passable without major disruption to services and the local community. These areas are predominantly in the West approaching Inchicore substation and in the east from Ballsbridge towards Sandymount.

During detailed assessment of the route options for the Inchicore to Poolbeg circuit replacement, significant utility congestion was identified along key sections of the proposed routes. The utility surveys revealed that certain areas, particularly in the west approaching Inchicore substation and in the east from Ballsbridge towards Sandymount, were not practically passable without major disruption to existing utilities, essential services, and the local community.

The density of underground infrastructure in these corridors raised substantial concerns regarding the duration of works required in the public roads, the scale of disruption to traffic, businesses, and residents, and the cumulative impact on already busy city routes. Given the potential for prolonged road closures, increased risk of programme delays, and the associated cost implications. Based on these findings it became clear that trenchless methods of construction should be considered alongside the existing trenched routes to investigate reductions in impact to project cost, programme and disruption to local communities.

These findings directly informed the development of Section 5, which focuses on the identification and assessment of alternative construction methodologies and routes, including trenchless and hybrid approaches.

4.4 Identification of Alternative Methodologies

Following further route assessment, based on additional investigative works, significant constraints were identified associated with the remaining Emerging Best Performing Options (options J & L). To mitigate the constraints associated with high levels of utility congestion, high traffic impact, and difficulties related to reinstatement it was proposed that alternative construction methodologies would be considered, including trenchless delivery methods.

The methodologies considered are:

- trenching, which may be a combination of trenching and trenchless methods for crossing major constraints
- trenchless methods of construction, via TBM or micro tunnelling
- hybrid methodology of trenchless construction methods and trenching.

A number of activities have been undertaken to consider alternative route options:

- Development of high-level options: a number of potential tunnelling options for consideration.
- Desktop review: a review of available information (project information and publicly available information) was conducted to analyse available existing data such as ground conditions and carry out a high-level feasibility assessment of tunnelled options along the routes.
- Site visits: along with the desktop analysis, site visits were carried out to give a deeper understanding of the project environment.
- Finalising route options for analysis; following the early analysis, a number of options were developed to consider as part of the feasibility assessment. The assessment consisted of five main criteria Deliverability, Technical, Economic, Socio-Economic and Environment.
- An experienced tunnelling contractor who has extensive experience in the design and construction of significant tunnels was engaged.
- The feasibility of these options is based on several assumptions including land acquisition, EirGrid functional specifications developed in advance and operation and maintenance requirements agreed.

During the next step EirGrid will engage tunnelling specialists and undertake further design work, geotechnical surveys and 3rd party engagements before deciding on a final route and construction methodology.

These routes were assessed further by the project team using a MCA. Details of the proposed routes and the MCA are included in Chapter 5.

5 BEST PERFORMING OPTION ROUTE COMPARISON

This chapter outlines the alternative potential route options identified for replacing the Inchicore to Poolbeg 220kV circuits (CP1150 and CP1157). The alternative route options identified for consideration include the preferred routes from the Route Options Assessment, a full trenchless option and two hybrid options that include trenchless and trenched sections.

Option 1 – Option L & J [preferred routes from Route Options Assessment]

Option 2 – Trenchless route for entire length

Option 3 - Hybrid route made up of trenchless and trenched sections.

Option 4 - Hybrid route made up of trenchless and trenched sections.

Each option is described in further detail in the following sections.

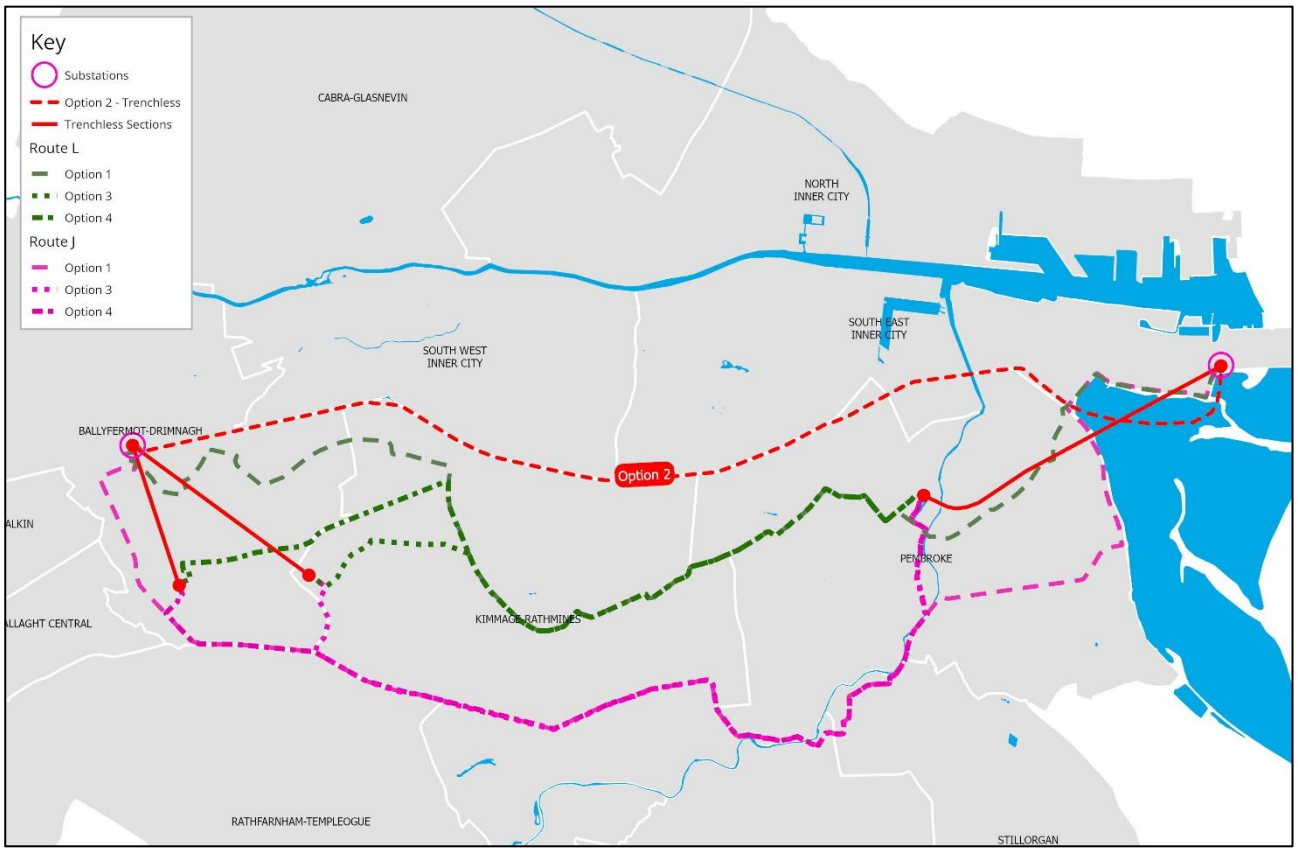


Figure 5-1: Route Options

5.1 Option 1 - Trenched Options

5.1.1 Trenched Route J

Option 1 is made up of two trenched routes, the first, previously identified at Step 4A is the route Option J. There are a number of changes to this route from Option J that were established during the Best Performing Options assessment, with particular focus on the feedback from landowners, stakeholders and the community (Figure 5-2).

Following these changes additional design development and survey work was carried out. The surveys identified areas on the routes that are not practically passable without major disruption to the local community. These areas are predominantly in the West approaching Inchicore substation and in the east from Ballsbridge towards Sandymount. The trenched routes have been revised locally to avoid these high impact areas and to minimise disruption where possible.

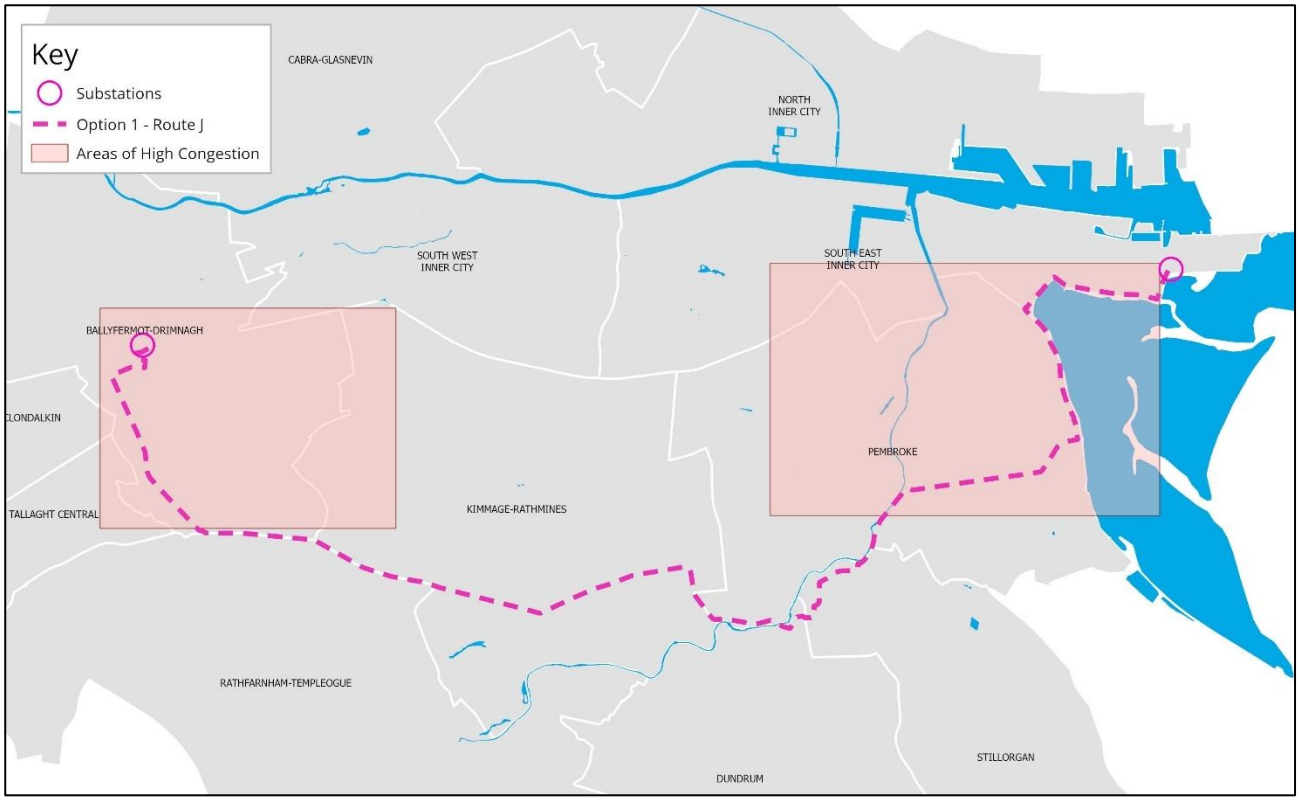


Figure 5-2: Inchicore to Poolbeg Trenched Option J

The route consists of 15.56km of trenching through south Dublin from Inchicore to Poolbeg. The route commences at the boundary of the Inchicore substation and travels through brownfield land to the Grand Canal. A trenchless crossing of the Grand Canal will be completed at this location. The crossing will be approximately 90m in length and will most likely be completed via horizontal directional drill (HDD), however another trenchless method may be required dependant on the outcome of site investigation.

After crossing the Grand Canal, the route travels east through Millrose Estate and south down Canal Terrace before turning west onto Bluebell Avenue, which it follows until Kylemore Road junction. The route follows Kylemore Road south until the Nass Road/Luas red line.

A trenchless crossing of the Luas Red Line will be completed. This crossing will most likely be completed via horizontal directional drill (HDD). Exiting the Naas Road, the route continues south on Walkinstown Avenue, crossing Long Mile Road, and travels in a south-westerly direction towards the Walkinstown Roundabout.

The route enters the Walkinstown Roundabout, taking the second exit onto Cromwellsfort Road. This construction will be completed with a focus on minimizing the traffic disruption to this area using a Traffic Management Plan. The route continues with an easterly direction along Cromwellsfort Road, Kimmage Road W and Terenure Road W. The route exits Terenure Road W, east through Terenure Place and onto Terenure Road E. Following east down Terenure Road E, the route continues straight through the crossroads at Rathgar Avenue and continues onto Highfield Road.

The proposed route will run east along Highfield Road before turning south down Dartry Road. Continuing east onto Milltown Road, the route approaches the Nine Arches Bridge. The route crosses under the Luas Green Line in the Nine Arches Bridge on Milltown Road. The route then travels southeast into Shanagarry Park.

Travelling southeast through Shanagarry park, a trenchless crossing will be required. This crossing will most likely be completed via horizontal directional drill (HDD).

On the southern side of the River Dodder, the route travels southeast rising up an embankment before turning north and exiting the park via Dundrum Road. The route passes through Churchfields and onto Milltown Bridge Road, travelling along Whitebeam Road as far as Clonskeagh Road. The route turns up Beach Hill Road and follows as far as the end of Beaver Row.

The route passes through the crossroads and up Ailesbury Road. The route travels the length of Ailesbury Road before taking a turn northeast up Sydney Parade Avenue. The route continues up to the DART station. A trenchless crossing will be required at this point. This crossing will most likely be completed via horizontal directional drill (HDD) or microtunnel.

The route continues along Sydney Parade Avenue, north up Strand Road continuing onto Beach Road. The route turns northeast and enters Seán Moore Park following the second outermost path parallel to the southern perimeter of the park, the route swings northeast adjacent to Sandymount Beach.

The route travels along the waterfront through Irishtown Nature Park, entering the Shellybanks 220 kV Substation. The route runs parallel to route L in this location. It is likely that both circuits will be constructed within the same widened trench on this section to reduce the construction impact in the area.

5.1.2 Trenched Route L

The second route of Option 1, previously identified at Step 4A is the route Option L. There are a number of changes to this route from Option L that were established during the Best Performing Options assessment, with particular focus on the feedback from landowners, stakeholders and the community (Figure 5-3).

Following these changes additional design development and survey work was carried out. The surveys identified areas on the routes that are not practically passable without major disruption to the local community. These areas are predominantly in the West approaching Inchicore substation and in the east from Ballsbridge towards Sandymount. The trenched routes have been revised locally to avoid these high impact areas and to minimise disruption where possible.

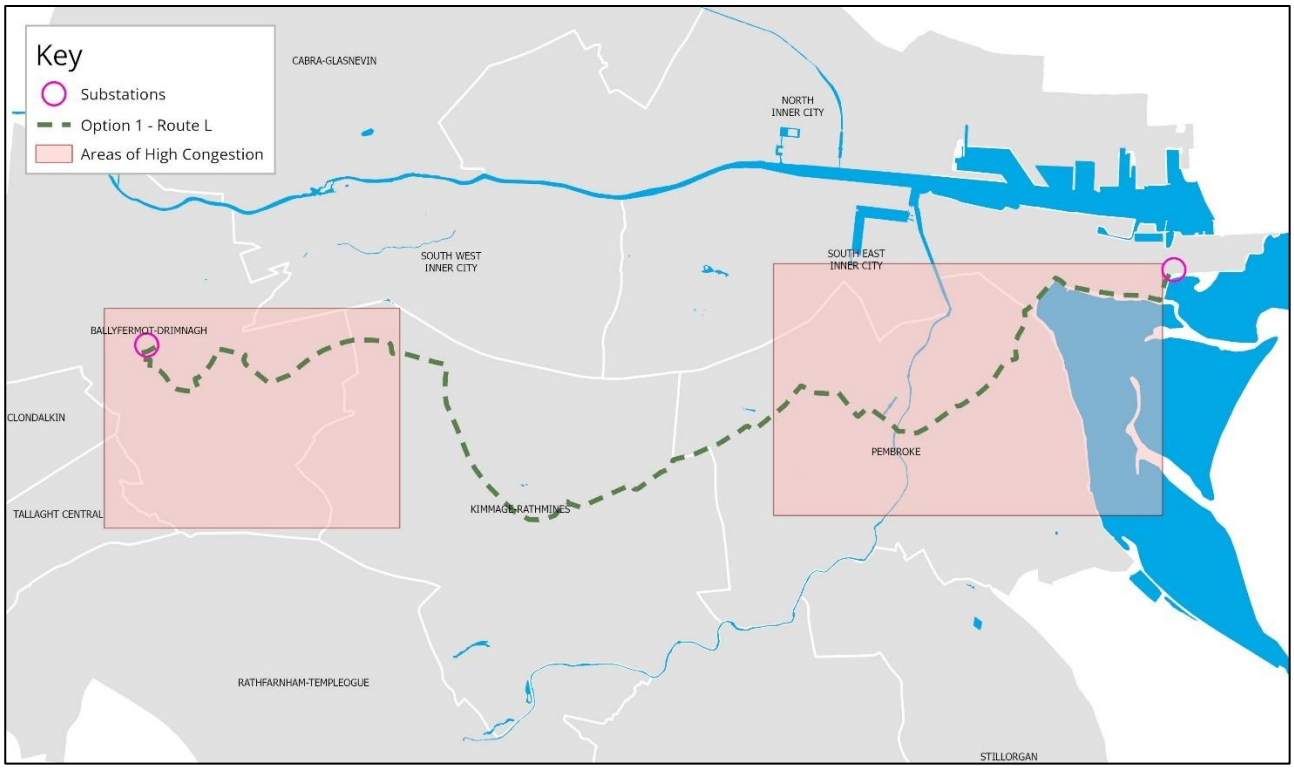


Figure 5-3: Inchicore to Poolbeg Trenched Option L

The route consists of 13.43km of trenching through south Dublin from Inchicore to Poolbeg. The route commences at the boundary of the Inchicore substation and travels through brownfield land to the Grand Canal. A trenchless crossing of the Grand Canal will be completed at this point. The crossing will be approximately 90m in length and will most likely be completed via horizontal directional drill (HDD), however another trenchless method may be required dependant on the outcome of site investigation.

After crossing the Grand Canal, the route travels east through Millrose Estate and south down Canal Terrace before turning east onto Bluebell Avenue, which it follows straight onto La Touche Road. The route turns east onto Huband Road, which it follows to take an east turn onto Bluebell Road.

The route travels to the end of Bluebell Road, where it continues straight through the open green space before the Naas Road Luas Red Line Crossing. A trenchless crossing of the Luas Red Line will be completed at this point. Directly after, another trenchless crossing will be completed of the River Camac. These crossings will most likely be completed via horizontal directional drill (HDD). After the crossings, the route then travels south until in line with the southern part of Cooley Road. The route then runs onto Cooley Road.

The route follows a southeasterly direction on Cooley Road before taking the first exit on the roundabout onto Mourne Road. The route travels east on Mourne Road until the Slievenamon Road intersection, when it turns south down Slievenamon Road, before turning east onto Keeper Road. The route follows Keeper Road in an easterly direction, then turns south onto Herberton Road.

The route travels down Herberton Road and continues south on Sundrive Road. The route continues, following the bend through Larkfield park and Clareville Road, then taking a southeasterly turn onto Kenilworth Park. Travelling northeast onto Kenilworth Road, the route turns south on Grosvenor Place, before turning east onto Grosvenor Road.

The route travels through Rathgar Road, swinging north up Rathmines Road Lower, before turning east onto Castlewood Avenue. The route continues east along Charleston Road until it reaches the Luas Green Line. The route crosses under the Luas Green Line under the bridge on Cullenswood Road.

The route turns southeast into Ranelagh, before taking a northeasterly turn and travelling up Chelmsford Road and Appian Way. As the route turns southeast onto Leeson Street Upper, it then takes an easterly turn onto Wellington Place. The route travels southeast on Pembroke Park before reaching Herbert Park Road.

The route travels northeast on Herbert Park Road, before turning into Herbert Park. The route follows the second outermost path on the southwest perimeter directly through to the River Dodder.

A trenchless crossing of the Dodder River will be completed at this location. This crossing will most likely be completed via horizontal directional drill (HDD). The route travels adjacent to the northern perimeter of Merrion Cricket Club, and out the main entrance on Anglesea Road.

The route travels straight through Simmonscourt Road before reaching the Merrion Road intersection. The route travels onto Sandymount Avenue and continues with a northeasterly direction until the Sandymount DART Station.

A trenchless crossing of Sandymount DART Station will be completed. This crossing will most likely be completed via horizontal directional drill (HDD) or microtunnel. The route continues on Sandymount Avenue, then turns north on Gilford Road. The route runs onto Seafort Avenue, before travelling through Seafort Terrace and onto Dromard Terrace. The route then takes a northeasterly turn onto Marine Drive.

Continuing this northeasterly direction on Marine Drive, the route travels along the waterfront through Irishtown Nature Park, entering the Shellybanks 220 kV Substation. The route runs parallel to route J in this location. It is likely that both circuits will be constructed within the same widened trench on this section to reduce the construction impact in the area.

5.2 Option 2 – Fully Trenchless Option

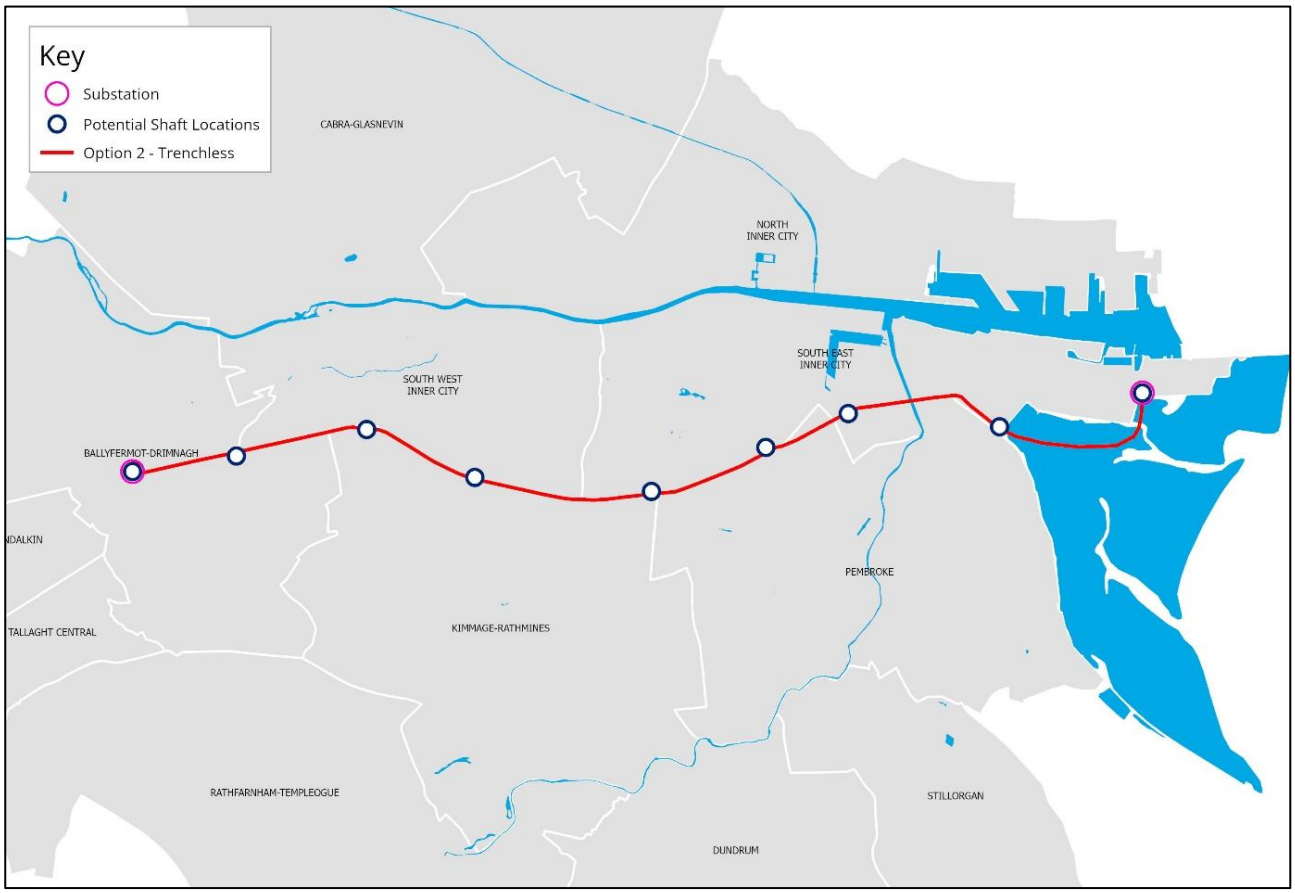


Figure 5-4: Inchicore to Poolbeg Fully Trenchless Option

The trenchless route and shaft locations shown in this section are preliminary and are indicated as a proof of concept. During development of the design further consideration will be given to shaft spacing intervals and required working areas. As the design is further developed and specifications are agreed the number of tunnel shafts required and their locations will be reviewed. Consideration was given when developing the tunnel route to followg public and state lands where possible The tunnel route shown is just one feasible route option and will be subject to detailed route and site selection at Step 5 (Figure 5-4).

The route commences at the boundary of the Inchicore substation with a tunnel launch shaft sunk in the brownfield land adjacent to the Grand Canal and terminates with a shaft in the greenspace adjacent the Poolbeg Substation.

The route consists of an approx. 10.5km total length tunnel in the vicinity of the Grand Canal from Inchicore to Poolbeg. The proposed depth of the tunnel is variable between 15m and 60m.

The route will be constructed at a depth below the clay lining of the Grand Canal, which is itself watertight, and below a layer of Dublin boulder clay. The tunnel itself is designed to be watertight using robust materials that can resist water ingress. Advanced construction techniques such as the use of reinforced concrete and waterproof membranes are employed to ensure that the tunnel remains watertight. Effective drainage systems are integrated into the tunnel design to manage any potential water accumulation.

The tunnel will comply with local regulations and standards related to flood risk management including compliance with relevant legislation relating to consenting, environmental and ecological assessment, obtaining required planning permissions and conducting environmental impact assessments to ensure that the construction does not adversely affect the surrounding water bodies.

5.3 Option 3 – Hybrid Route 1

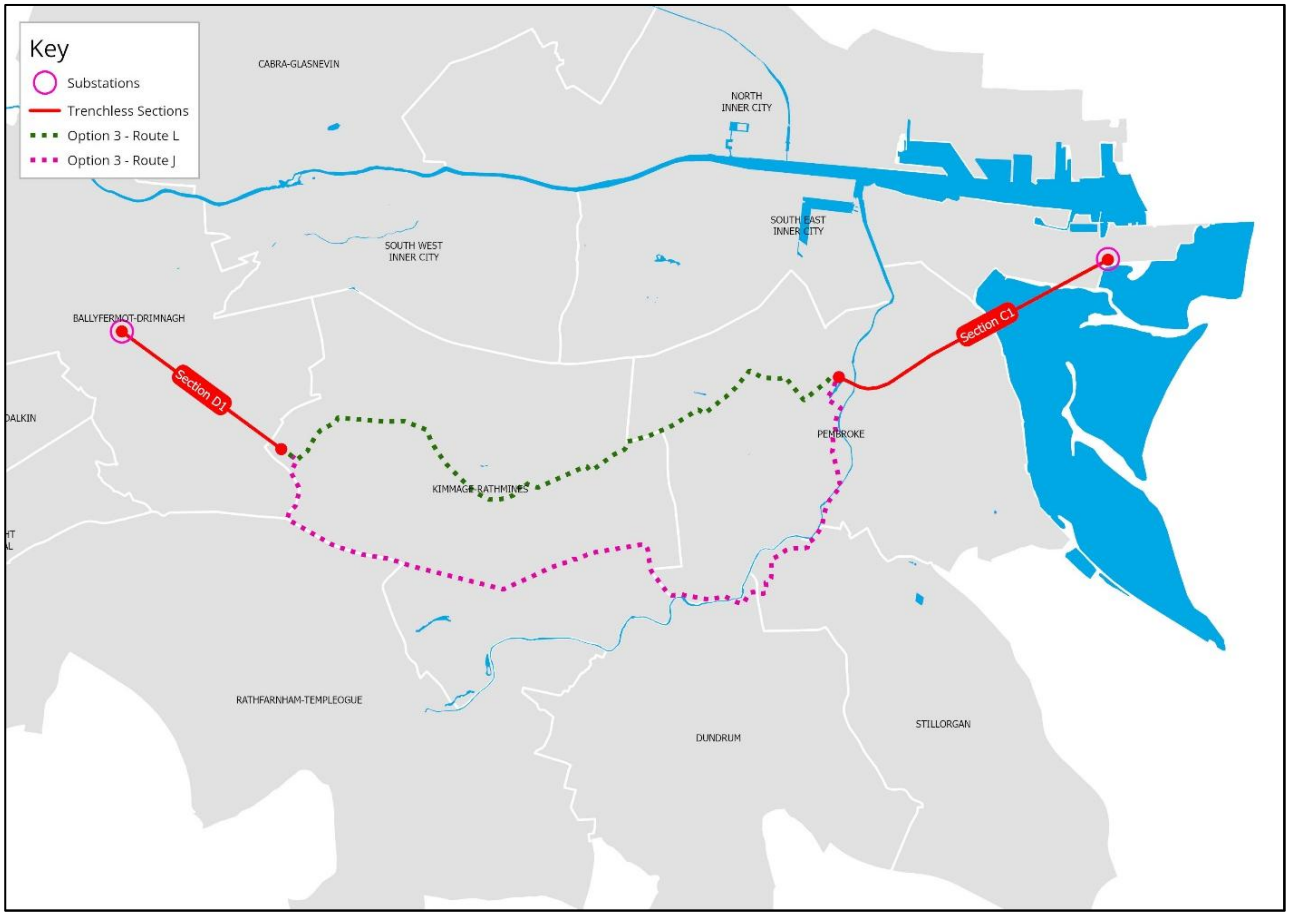


Figure 5-5: Inchicore to Poolbeg Hybrid Route 1

The route begins with a tunnelled section with the cable routes combined in a deep underground tunnel from Inchicore 220kV Substation to public greenspace in Crumlin before splitting into two trenched sections along the previously identified routes J & L. The routes combining again for a second tunnel run from public greenspace in Ballsbridge to Poolbeg 220kV Substation (Figure 5-5).

The route commences at the boundary of the Inchicore substation. Tunnel D1 begins with an approx. 10m diameter launch shaft sunk in the brownfield land adjacent to the Grand Canal. The depth of tunnel D1 will be approx. 10m below the lowest ground level along the route.

The route travels from the launch shaft adjacent the Inchicore substation to a reception shaft in public open space in Drimnagh. The total length of the tunnel is 2.04km. At this point the cable route transitions to trenched methods of construction and splits into two distinct trenched routes.

Route J travels southeast along Pearse Memorial Park until Windmill Road where it turns south and continues along Saint Agnes Road until Kimmage Road West where it rejoins the previously identified Trenched Option J. The hybrid trenched route diverges from Trenched Option J prior to Anglesea Bridge at Beaver Row where it crosses the River Dodder and travels north along Brookvale Road. the route crosses Donnybrook Road and continues north along Eglinton Terrace before entering public greenspace in Ballsbridge where the routes converge at the launch shaft of Tunnel C1.

Route L also travels southeast along Pearse Memorial Park travelling adjacent Route J. The routes diverge at Windmill Road where Route L turns northeast and continues until Kildare Road where it continues easterly until Sundrive Road where it rejoins the previously identified Trenched Route L. The hybrid trenched route diverges from Trenched Option L at public greenspace in Ballsbridge where the routes converge at the launch shaft of tunnel C1.

Tunnel C1 begins in the northeast corner of public greenspace in Ballsbridge with a 10m diameter launch shaft. The depth of tunnel C1 will be approx. 10m below the lowest ground level along the route. The tunnel route travels from this point deep underground to reach the reception shaft in the greenspace adjacent the ESB 220kV substation.

5.4 Option 4 - Hybrid Route 2

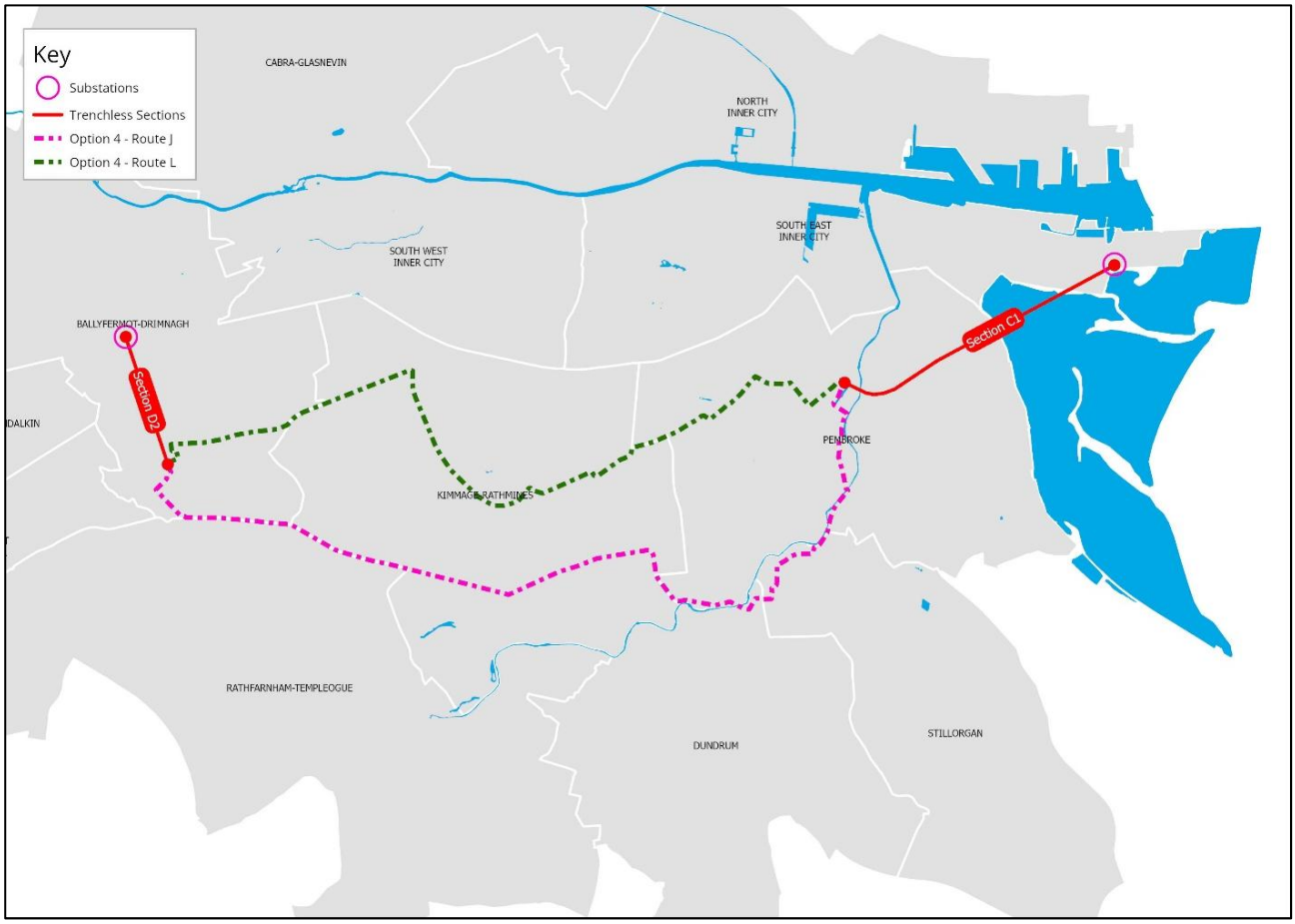


Table : Inchicore to Poolbeg Hybrid Option 2

The route begins with a tunnelled section with the cable routes combined in a deep underground tunnel from Inchicore 220kV Substation to public greenspace in Walkinstown before splitting into two trenched sections along the previously identified Trenched Option J & Trenched Option L before combining again for a second tunnel run C1 from public greenspace in Ballsbridge to Poolbeg 220kV Substation (Figure 5-6).

The route commences at the boundary of the Inchicore substation with a 10m diameter tunnel launch shaft sunk in the brownfield land adjacent to the Grand Canal. The depth of the tunnel will be approx. 10m below the lowest ground level along the tunnel route.

The route travels from the launch shaft adjacent the Inchicore substation to a reception shaft in public open space in Walkinstown. The total length of the tunnel is 1.46km. At this point the cable route transitions to trenched methods of construction and splits into two distinct trenched routes.

Route J travels south and then southwest along Walkinstown Avenue where it rejoins the previously identified Trenched Option J. The hybrid trenched route diverges from Trenched Option J prior to Anglesea Bridge at Beaver Row where it crosses the River Dodder and travels north along Brookvale Road. the route crosses Donnybrook Road and continues north along Eglinton Terrace before entering public greenspace in Ballsbridge where the routes converge at the launch shaft of Tunnel C1.

Route L exits the tunnel transition and travels east along Walkinstown Parade before following the road north up Walkinstown Parade. The route turns east along the Long Mile Road where it continues as also travels southeast along Pearse Memorial Park travelling adjacent Route J.

The routes diverge at Windmill Road where Route L turns northeast and continues until Kildare Road, it continues easterly until Sundrive Road where it rejoins the previously identified Trenched Route L. The

hybrid trenched route diverges from Trenched Option L at public greenspace in Ballsbridge where the routes converge at the launch shaft of tunnel C1.

Tunnel C1 begins in the northeast corner of public greenspace in Ballsbridge with a 10m diameter launch shaft. The depth of tunnel C1 will be approx. 10m below the lowest ground level along the route. The tunnel route travels from this point deep underground to reach the reception shaft in the greenspace adjacent the ESB 220kV substation.

5.5 Identification of Best Performing Option (Step 4B)

Table 5-7 shows a summary of the Route Options Assessment, using EirGrid's five multicriteria assessment categories. This assessment has been used to identify the Best Performing Option.

Table 5-1: Colour coding of Risk / Significance / Sensitivity levels

Colour Key	Level of Risk / Significance / Sensitivity
Yellow	Low
Green	Low-Moderate
Dark Green	Mid-Level / Moderate
Blue	Moderate-High
Dark Blue	High

Table 5-2: Identification of Best Performing Option

Route Option	Section Length (Km)	Technical	Deliverability	Economic	Socio-Economic	Environmental	Overall Rating
Option 1 (Trenched L&J)	29.00	Currently no derogations required. Some construction risk remains New trenched routes at approach to substations will constrain any future works. Route at street level through city. Some infrastructure crossings	High potential for outages at Inchicore/Sandymount due to electrical circuit density 29km through major urban environment with crossings of Luas, DART, Grand Canal and River Dodder. Restriction likely due to high TIN numbers at Inchicore and Sandymount	6 Trenchless crossings over 29km Utility surveys have identified areas where diversions will be required to facilitate construction Inchicore/Blue bell area concrete roads. 29km Trenched	Routes traverse dense urban environment with associated services Prolonged construction period at street level. Increased risk of programme slip due to unknowns Impact of construction through major urban areas Greatest impact on communities	Two rivers crossed by HDD some sections run parallel Risk of exposing unknown contaminated areas during construction (especially at Poolbeg) Estimated approx. 45,000 cubic meters of excavation required. Large proportion of material will be road plannings to be brought to waste recycling.	

Route Option	Section Length (Km)	Technical	Deliverability	Economic	Socio-Economic	Environmental	Overall Rating
Option 2 (Trenchless)	10.50	Maintenance access nonstandard. Cable replacement specialist activity. Twin circuit risk. No specification for tunnels developed at this point. Multiple access for future expansion/extendibility at points/shafts constructed across city.	Access to some third party required for shaft construction Tunnelling avoids reinstatement requirements Assumed full planning will be required. To be confirmed later. Some localised interaction with assets at shaft locations Minimal restrictions due to construction methodology	Tunnel construction eliminates complex crossings Tunnelling avoids reinstatement requirements Minor diversions may be required locally at shaft locations Single bespoke tunnel cable arrangement to be developed	Interaction with critical services limited to shaft locations, reducing risk. Comparable construction period with reduced impact due to isolated construction locations. Minimal impact on communities Limited impact at tunnel shaft locations	Estimated approx. 105,000 cubic meters of excavation required. Large proportion of material will be virgin material offering opportunity to be used as fill. Potential shaft construction in pHNA and bird feeding site	
Option 3 (Hybrid Route 1)	2.08 Trenchless 15.4 Trenched 2.97 Trenchless	No specification for tunnels developed at this point Long tunnel sections - Access points are outside city centre. Potential conduit for access to substations for future circuits. Maintenance access nonstandard. Cable replacement specialist activity. Twin circuit risk	Areas with concrete roads avoided. Some reinstatement required Assumed full planning will be required. To be confirmed later. High risk areas avoided using tunnelling Typically, less congestion with lower TIN numbers. High risk areas avoided using tunnelling	Major crossings eliminated using tunnel construction Areas with concrete roads avoided. Some reinstatement required Locations of known diversions avoided using tunnel construction	Routes traverse dense urban environment with associated services. Sandymount and Kylemore/Bluebell areas avoided. Street level construction period reduced due to tunnelling at Inchicore and Sandymount Impact at shaft locations in public open space due to partial use of park for site compounds	Reduction in excavation required vs fully tunnelled. Large proportion of material will be virgin material offering opportunity to be used as fill. Material from trenched sections will be road plannings to be brought to waste recycling Potential shaft location in medium risk flood area.	

Route Option	Section Length (Km)	Technical	Deliverability	Economic	Socio-Economic	Environmental	Overall Rating
Option 4 (Hybrid Route 2)	1.46 Trenchless 18.8 Trenched 2.97 Trenchless	No specification for tunnels developed at this point Long tunnel sections - Access points are outside city centre. Potential conduit for access to substations for future circuits	Assumed full planning will be required. To be confirmed later. High risk areas avoided using tunnelling Typically, less congestion with lower TIN numbers. High risk areas avoided using tunnelling Areas with concrete roads avoided. Some reinstatement required Reduced land and TWA required for 2 no. shaft locations and ventilation points. Access to some third party required for shaft construction	Major crossings eliminated using tunnel construction Areas with concrete roads avoided. Some reinstatement required Locations of known diversions avoided using tunnel construction	Routes traverse dense urban environment with associated services. Sandymount and Kylemore/Bluebell areas avoided Street level construction period reduced due to tunnelling at Inchicore and Sandymount Impact at shaft locations in public open space due to partial use of park for site compounds	Reduction in excavation required vs fully tunnelled. Large proportion of material will be virgin material offering opportunity to be used as fill. Material from trenched sections will be road plannings to be brought to waste recycling Potential shaft location in medium risk flood area.	

The Best Performing Option identified through the work undertaken at this phase of the project is Option 2 (Trenchless Option).

6 DESCRIPTION OF THE BEST PERFORMING OPTION

Based on the assessment undertaken, the Best Performing Option identified is Option 2 (Trenchless Option).

This section contains a description of the Best Performing Option route shown in figure 6-1.

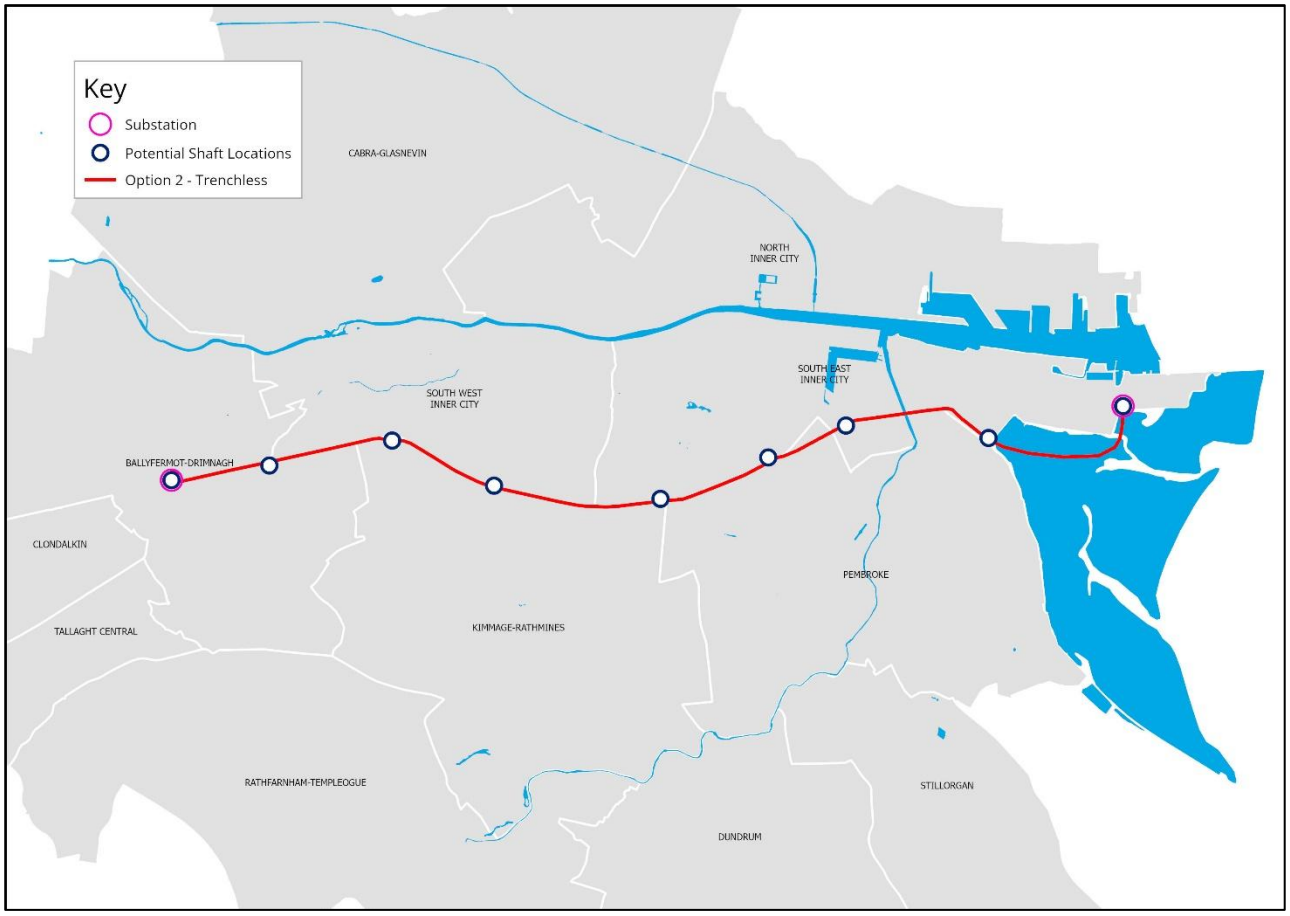


Table 6-1: Inchicore to Poolbeg Best Performing Option

The trenchless route and shaft locations shown in this section are preliminary and will be subject to further design development for the option, including detailed route and site selection.

The route commences at the boundary of the Inchicore substation with an approx. 10m diameter tunnel launch shaft sunk in the brownfield land adjacent to the Grand Canal and terminates with a shaft in the greenspace adjacent the Poolbeg Substation.

The route consists of an approx. 10.5km total length tunnel in the vicinity of the Grand Canal from Inchicore to Poolbeg. The proposed depth of the tunnel is variable between 15m and 60m. The number of tunnel shafts required and their locations will be determined at the next phase of design.

The route will be constructed at a depth below the clay lining of the Grand Canal, which is itself watertight, and below a layer of Dublin boulder clay. The tunnel itself is designed to be watertight using robust materials that can resist water ingress. Advanced construction techniques such as the use of reinforced concrete and waterproof membranes are employed to ensure that the tunnel remains watertight. Effective drainage systems are integrated into the tunnel design to manage any potential water accumulation.

The tunnel must comply with local regulations and standards related to flood risk management including obtaining required planning permissions and conducting environmental impact assessments to ensure that the construction does not adversely affect the surrounding water bodies.

7 CONCLUSION

The purpose of this report is to identify a Best Performing Option for the replacement of the Inchicore – Poolbeg 220kV circuits (CP1150 & CP1157).

During detailed assessment of the route options for the Inchicore to Poolbeg circuit replacement, significant utility congestion was identified along key sections of the proposed routes. The utility surveys revealed that certain areas, particularly in the west approaching Inchicore substation and in the east from Ballsbridge towards Sandymount, were not practically passable without major disruption to existing utilities, essential services, and the local community.

Following this assessment, additional route options were identified for consideration. These include the preferred routes from the Route Options Assessment (trenched routes L & J), a fully trenchless option and two hybrid options that include tunnelled and trenched sections.

- Option 1 – Routes L & J [preferred routes from Route Options Assessment]
- Option 2 – Trenchless route for entire length
- Option 3 - Hybrid route made up of trenchless and trenched sections
- Option 4 - Hybrid route made up of trenchless and trenched sections.

A multi-criteria analysis (MCA) was carried out that utilised EirGrid's five multi-criteria assessment categories analysing technical, deliverability, economic, socio-economic, and environmental factors.

The density of underground infrastructure along the road-based routes raised substantial concerns regarding the duration of works required in the public roads, the scale of disruption to traffic, businesses, and residents, and the cumulative impact on already busy city areas.

Given the potential for prolonged road closures, increased risk of programme delays, and the associated cost implications it was decided that trenchless methods of construction were less impactful than trenched routes for the environment and communities whilst maintaining project cost and programme.

The assessment concluded that the Best Performing Option is Option 2, the fully trenchless option, on the basis that this option mitigates significant risks associated with the construction of 29km of road-based circuits.

Further route refinements will occur during Step 5, after the completion of additional design, surveys, engagement, and assessment. EirGrid will continue to engage with affected landowners, local communities, and prescribed bodies as the design develops. Additional design features may be incorporated at Step 5.

8 NEXT STEPS

The following actions will be completed on the Inchicore to Poolbeg project as part of the wider Powering up Dublin Replacement Underground Cable programme:

- Eirgrid will publish this Best Performing Options Report. Where appropriate the route will be refined, on the basis of feedback, additional information or other engagement.

- EirGrid will continue to engage with affected landowners, local communities, local councillors, the Community Forum, and other relevant stakeholders to discuss the Inchicore to Poolbeg project as part of the wider Powering up Dublin programme.

- EirGrid will continue to engage with bodies such as Dublin City Councils, Transport Infrastructure Ireland, National Transport Authority, Inland Fisheries Ireland, Irish Rail, and utility providers such as Uisce Eireann and Gas Networks Ireland. Initial meetings have taken place with some of these organisations and subsequent meetings will be facilitated to examine further details of the proposed route design.

- EirGrid will engage with environmental stakeholders such as EPA, Local Authorities, Waterways Ireland, the National Parks and Wildlife Service, and local authority heritage officers. Matters to be discussed will include the agreement of watercourse crossing mitigation and reinstatement principles. EirGrid will incorporate biodiversity enhancement into the design where possible. Natural recolonisation will be adopted, in lieu of sowing commercial wildflower seed in the reinstatement of semi-natural habitats. All biodiversity enhancement methods will be discussed in consultation with relevant stakeholders.

- EirGrid will determine the requirement for statutory applications such as planning permission and foreshore licences in accordance with the statutory requirements. Appropriate assessment screening and EIA screening will be undertaken as part of this process.

- EirGrid will complete a wide range of studies, investigations, and surveys to inform the development of the route design and support any necessary statutory applications. This will include consideration of the approach to the construction phase and potential mitigation measures, such as traffic management to minimise traffic disturbance. Surveys include archaeology, ecology, marine investigations, ground investigations, utility surveys, hydrology, and technical assessments. As these surveys are progressed and further information is gathered, new issues may be identified, resulting in changes to the route. This is a normal part of the design development process.

- Further design work will be progressed to ensure that the final design of the route is optimal and has the minimal adverse impact on the public and the environment.

- The project team will prepare the necessary statutory applications (Step 5) for the Inchicore to Poolbeg project. This work will include planning and environmental reports, which will describe the final design of the project, outline the potential impacts, and identify the mitigation measures that will be put into place to avoid or reduce any impacts; and

- Further updates will be published by EirGrid on the project website: Powering Up Dublin.