



Collins Avenue Station: Environmental Assessment Report of the Options

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This report was provided to members of public, who requested it after the submission of the railway order application.

While this report was not finalised, it did inform the conclusions of the EIAR that there was no reasonable alternative to the station location identified at the Emerging Preferred Route stage, owing the lack of open space elsewhere in this area, which would constrain the provision of a station or (in the event the Collins Avenue Station were moved to Albert College Park) the construction of an intervention shaft between Ballymun and Albert College Park.

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1. Introduction

This report presents the robust decision-making process that led to the location of the proposed station at Collins Avenue. The identification of a preferred location was achieved by employing a four-stage assessment process as outlined below:

- Stage 1: Review of the receiving environment;
- Stage 2: Identification and description of potential station locations;
- Stage 3: Preliminary analysis; and
- Stage 4: Multi Criteria Assessment

1.1 Proposed Study Area

The study area extends 200m around the various options. All options are within an area close to DCU, within or close to Ballymun Road and Collins Avenue.

1.2 Background to MetroLink

Dublin Metro North (DMN) was the project name of the original proposal for a metro railway system connecting Swords and Dublin Airport with Dublin City Centre at St Stephen's Green. This scheme was developed by the Railway Procurement Agency and granted a Railway Order by An Bord Pleanála (ABP) in 2010. The global economic downturn intervened, and in 2011 the Government postponed the Dublin Metro North project.



The National Transport Authority's (NTA) Transport Strategy for the Greater Dublin Area, 2016-2035 (NTA 2016) identified a Metro service as the preferred public transport mode to address the transport needs of the Swords-Airport-City Centre corridor. It also envisaged the upgrading of the existing Luas Green Line between Ranelagh and Sandyford to a Metro level of service.

Project Ireland 2040 included the National Development Plan (2018-2027) (DHPLG 2017), which combined those two projects to form MetroLink. MetroLink will provide a fast, high capacity, high frequency, modern and efficient public transport service for people travelling along the Swords/Airport to City Centre corridor. In addition, the Scheme will ultimately interchange with the existing Luas Green Line in the South City area. The route length is approximately 19km and the completed system will have 15 new stations, 3,000 Park and Ride spaces, and a journey time of approximately 25 minutes from the City Centre to Swords.

The NTA/TII commissioned Arup Consulting Engineers to undertake an assessment of route options for the proposed Project (TII 2016). The objective of the study was to carry out a comprehensive route selection to identify an Emerging Preferred Route (EPR) for the Scheme. The study was completed at the end of February 2018 and it included a Concept Design for the EPR.

In January 2018, the NTA/TII commissioned Jacobs and Idom joint venture (Jacobs/Idom) to

provide ongoing engineering design services through to scheme completion. As the design developed, it became apparent that the construction phase of the project would result in significant disruption to the Luas Green Line. In order to mitigate this impact a decision was made to defer the upgrade of the Green Line to a later date and that the MetroLink project would comprise the development of the section between Swords and Charlemont.

1.3 Structure of this Report

This report is structured to build on work undertaken which identified the area of Collins Avenue / Dublin City University as an appropriate area for a station. A number of potential locations within the study area were analysed in order to identify the preferred specific location. This document is therefore structured as follows:

- Section 2 provides the assessment methodology;
- Section 3 provides a description of the potential locations;
- Section 4 includes the Environmental MCA of locations;

- Section 5 References.

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2. Methodology

2.1 Environmental Multi-Criteria Assessment Methodology

2.1.1 Assessment Criteria

The MCA has regard to all the environmental sub-criteria identified in Table 1 below. As identified in Table 1, some criteria were not considered to differentiate between options as the environmental impacts were deemed similar across all the options (EMI/EMC, Resource & Waste Management and Accidents and Disaster) or not applicable (agronomy):

Table 1: Environmental MCA Criteria

Environmental Factor	Included as a sub-criterion	Rationale	Assessment
Human Health	Yes	Human Health impacts may arise from a combination of effects on air quality, noise, dust and access to opportunities for physical activity.	The assessment brought together the findings of the air quality and noise assessments, together with a review of mapping showing sporting facilities that may be affected. A qualitative assessment was then made.
Socio-Economics	Yes	Socio-economic effects may arise from works that would require the closure or restricted access to business premises or to facilities used by community groups.	The assessment involved a qualitative classification of negative impacts, largely during the construction phase. An assessment of the operational benefits was also undertaken.
Electromagnetic Interference / Compatibility	No	Potential for electromagnetic interference at nearby receptors.	Identify any EMI-sensitive receptors within 50m
Noise	Yes	It is not considered that the project will have a significant impact in terms of noise during the operational phase of the project due to modal shift from private vehicles to the MetroLink and the resultant reduction in noise. However, there is potential for impacts on sensitive receptors during the construction phase.	Sensitive receptors within 100m of each station box location were identified and assessed to identify potential impacts.
Vibration	Yes	It is not considered that the project will have a significant impact in terms of vibration during the operational phase of the project due to modal shift from private vehicles to the MetroLink and the	Sensitive receptors within 40m of each option were identified and assessed to identify potential impacts.

Environmental Factor	Included as a sub-criterion	Rationale	Assessment
		resultant reduction in noise. However, there is potential for impacts on sensitive receptors during the construction phase.	
Biodiversity	Yes	Construction works have the potential for both temporary and permanent effects on biodiversity, through vegetation clearance, which may reduce available habitat, or through noise, air quality, lighting and disturbance, which may affect protected species.	Records of sensitive habitats and species in the study area were checked, including records from surveys carried out for the project. A qualitative assessment was then made of the potential for the options to affect biodiversity, as a result of construction and operation.
Air Quality	Yes	It is considered that the project will have a largely positive impact on air during the operational phase of the project due to modal shift from private vehicles to the MetroLink and the resultant reduction in emissions. However, there is potential for impacts on sensitive receptors during the construction phase due to emissions. Emissions of relevance during this phase include NO _x and Particulate Matter (PM ₁₀).	Sensitive receptors within 50m of each station box location were identified and considered and assessed to identify potential impacts.
Climate	Yes	It is considered that the project will have a largely positive impact on climate during the operational phase of the project due to modal shift from private vehicles to the MetroLink and the resultant reduction in emissions. However, there is potential for impacts on sensitive receptors during the construction phase due to emissions from plant and from embedded carbon in construction materials.	Options were considered in terms of their size (as an indicator of the comparative amount of materials needed, and hence of embedded carbon) and, where possible, the duration of construction (as an indicator of the comparative use of plant and machinery)/
Flooding	Yes	Construction within a flood plain could increase the risk of flooding on neighbouring land, or could put the development itself at risk of flooding.	Flood maps were checked and interpreted in order to understand the potential for the options to affect flood risk or to be affected by the risk of flooding.
Hydrology	Yes	Surface water flows and quality could be affected either by construction works in a channel, causing an obstruction or change in channel morphology, or by	Connectivity between the options and nearby watercourses was identified with reference to appropriate mapping.

Environmental Factor	Included as a sub-criterion	Rationale	Assessment
		accidental spillages which could lead to water pollution.	
Hydrogeology	Yes	Inner protection areas extend up to 300m from groundwater abstraction points, with outer protection zones extending to 1km. Works within those areas could have adverse effects on the quality of abstracted water. Excavations and underground construction can affect groundwater flows in underground aquifers.	Relevant mapping was checked for the presence of aquifers and wells or springs. A qualitative assessment was made of the risks associated with the options.
Land use, Soils and Geology	Yes	Options in close proximity to each other are likely to encounter the same ground conditions, although localised areas of contaminated land (e.g. former landfill sites) may mean that the risks of mobilising contaminants differ between options.	Reference was made to geological mapping and to earlier reports for the project, which had identified sources of contaminated land.
Properties	Yes	Potential for direct impacts on a number of land holdings and properties.	Properties likely to be affected directly, by land-take, or indirectly, by disruption to access, were identified with reference to mapping.
Agronomy	No	The locations of the options are within a built urban environment. Hence agronomy has been scoped out.	Not applicable.
Resource Use and Waste Management	No	The resources required and the waste generated would be similar for each option. Hence not a differentiator and scoped out.	Not applicable
Archaeological Heritage	Yes	Potential for direct impacts on known and unknown archaeological remains during the construction of the options.	National and local archaeological records were accessed online to identify known archaeological remains in the study area. A qualitative assessment was then made of the potential for remains to be affected by each option.
Architectural Heritage	Yes	Buildings and structures of archaeological merit exist in close proximity to the Metrolink route. There is	A qualitative assessment of potential direct impacts from on elements of architectural

Environmental Factor	Included as a sub-criterion	Rationale	Assessment
		the potential for both direct, physical effects during construction, and for indirect effects on setting through both construction and operation.	heritage from each option and associated construction works.
Landscape and Visual	Yes	Potential for significant impacts on landscape/townscape and visual amenity, particularly during construction.	Assessment involved the qualitative assessment of visual impacts on nearby receptors and changes to the local landscape character.
Accidents and Disasters	No	It is assumed that safety measures will all achieve the same standard, regardless of the option, so this is not a differentiator.	Not applicable.

2.1.2 Multi-Criteria Assessment

The environmental MCA assessment considered each environmental factor during both construction and operation, and scored them in turn, using a refined, seven-point scale, as shown in Table 2. The scores for each topic are included in section 4 of this report, with full details of the assessment findings provided in Appendix A.

Table 2: MCA Scoring Key

Assessment Score for Individual Environmental Factors	Significance
7	Major or Highly Positive
6	Moderately Positive
5	Minor or Slightly Positive
4	Not significant or neutral
3	Minor or Slightly negative
2	Moderately Negative
1	Major or Highly Negative

3. Identification and Description of Potential Station locations

3.1 Introduction

Feasible station location options were developed for Collins Avenue and the detail of these options are presented here.

3.2 Outline Construction Methodology

The proposed construction methodology is as follows:

- Establishment of the works area/site, site offices, compounds and security required;
- Site preparation including vegetation clearance required within the construction area;
- Diversion of utilities;
- Excavation and construction of the station box;
- Construction of associated structures such as lifts, escalators and sky lights;
- Installation of railway tracks;
- Installation of operating equipment;
- Fitting out of station; and
- Finishing and landscaping including the reinstatement of railings, bollards, lamp posts etc and planting of trees.

The primary construction activity is to create an underground station box into which the tunnel connects, with an entrance located at the surface above the station. The station box would be constructed using the “top-down” cut and cover method. Cut and cover involves excavating the area required for the station from ground level down to the desired level before constructing the station and reinstating the ground level to the desired finish.

3.3 Station Description

For all locations considered in this report the station would consist of the following design elements:

- A station box at 113.5m long by 24.5m wide and 24.3m deep from street level to TOR level;
- Total gross area of 6,813m²
- Platforms would be 6.2m wide on each side of the tracks;
- Three main levels in line with the typical underground station design, concourse, mezzanine and platform levels;

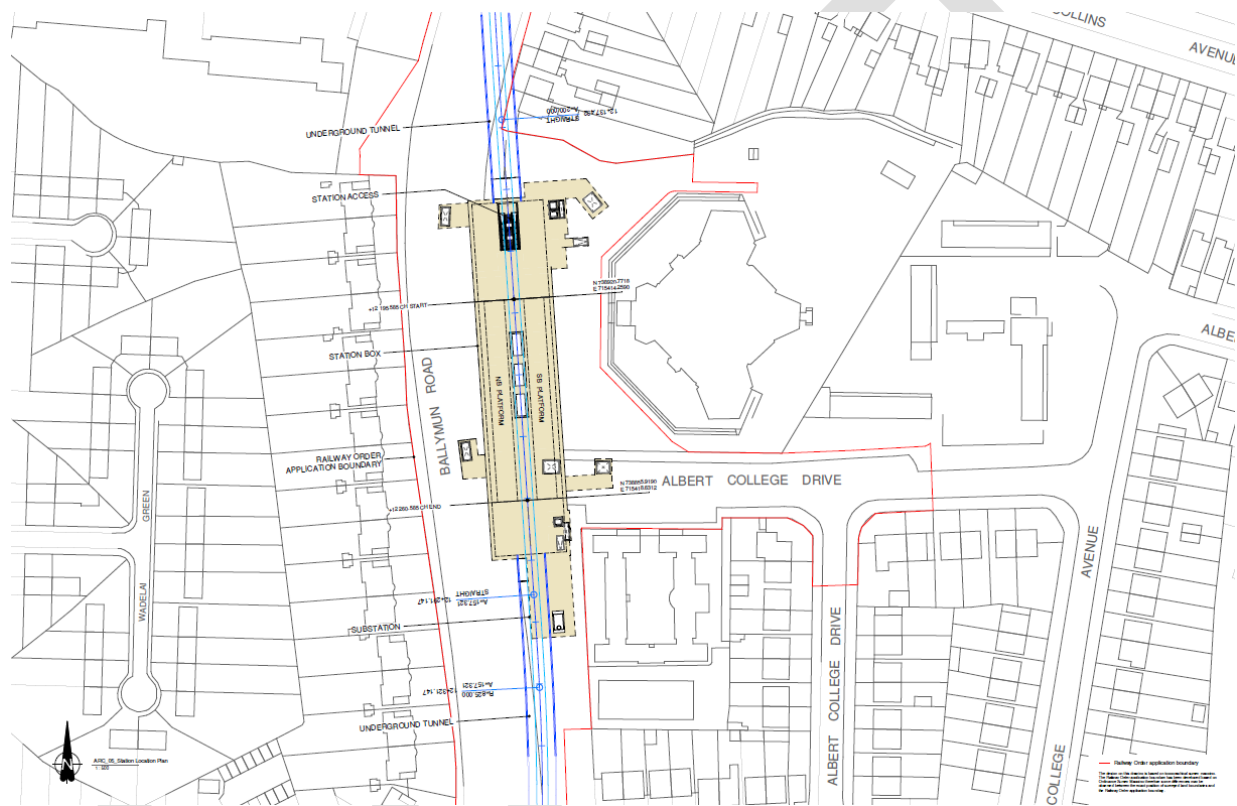
3.4 Summary of Proposed Station Options

This report covers the environmental MCA of the options for stations only. Whilst it is noted that some options would require route alignment changes, and at least one may require an intervention shaft to address distances to the next station along the line, those are beyond the scope of this assessment.

3.4.1 Option 1: EPR and PR location (Our Lady of Victories church grounds)

EPR and PR options are considered together as they are both located on Ballymun Road (R108) in front of Our Lady of Victories Church as shown in Figure 3-1

Figure 3-1: EPR and PR Location



3.4.2 Option 2: Metro North - DCU Ballymun Road (North Option)

This option would be located on the eastern side of Ballymun Road, opposite the junction with St. Pappins Road, as shown in Figure 3-2

Figure 3-2: Metro North - DCU Ballymun Road (North Option) Location



3.4.3 Option 3: Metro North - DCU Ballymun Road (South Option)

This option would be located further south along the R108, at the edge of Albert College Park, as shown in Figure 3-3.

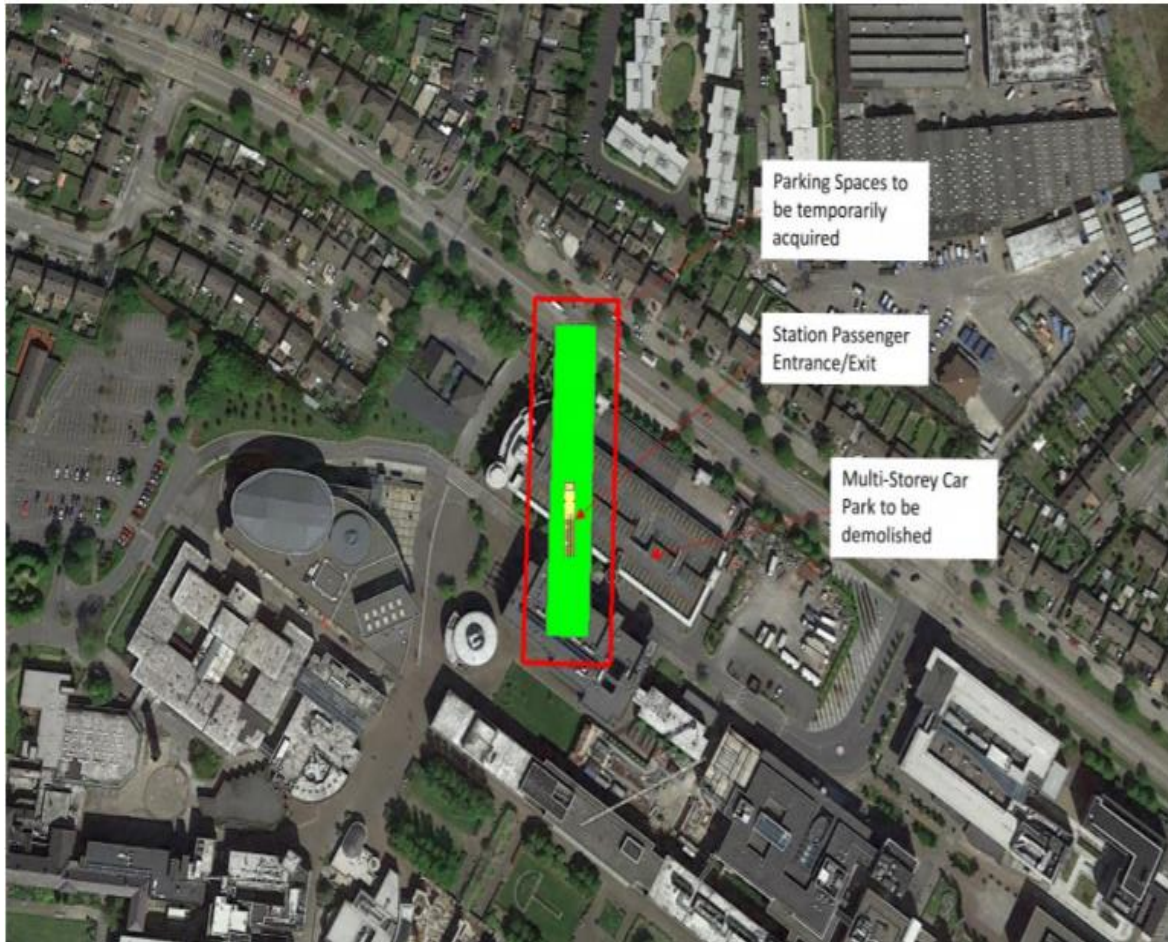
Figure 3-3: Metro North - DCU Ballymun Road (South Option) Location



3.5.1 Option 4: Metro North DCU Campus Collins Avenue

This option would be adjacent to the main entrance to DCU on Collins Avenue in the vicinity of Shanowen Avenue, to the east of the Helix Theatre, as shown in Figure 3-4.

Figure 3-4: Metro North DCU Collins Avenue West Location



3.6.1 Option 5: Metro North DCU Collins Avenue Junction

This Option would be located in the median of the Ballymun Road at the junction with Collins Avenue., as shown in Figure 3-5.

Figure 3-5: Metro North DCU Collins Avenue Junction Location



4. Environmental Multicriteria Analysis

4.1 Introduction

The options described in Section 3 have been through a multi-criteria analysis to identify the potential environmental impacts of each option in line with the methodology described in Section 2. The full results of the MCA are presented in Appendix A, and a summary table of the results is provided in Section 4.2.3.

4.2 Appraisal of Options

4.2.1 Option 1: EPR and PR Location

A station at this location would be requiring temporary and permanent land take from Our Lady of Victories Church grounds. There would be potential direct impacts of noise, visual and dust disturbances during the construction phase on sensitive receptors such as the abovementioned church, nearby schools and residents etc. There could be disruption to traffic along R108 during construction thereby causing access impacts to local population. There is the potential for impacts on the setting of buildings with architectural heritage value, and potential for damage to possible buried archaeological assets during construction. The location is within an urban area with some roadside vegetation of limited biodiversity value. This option avoids the significant traffic disruption associated with some of the other options. The location is not within a floodzone or close to any surface waterbodies; however there is a historic river running north-south beneath the church building, although no impacts are predicted.

4.2.2 Option 2: Metro North – DCU Ballymun Road opposite St. Pappin’s Road

This option is close to a number of sensitive residential receptors as well as facilities such as College Gate dental clinic which is located across Ballymun Road, all of which could experience access restriction during construction activities at this location. would have a direct impact to a property operating as a pre-school/after-school club. There would also be temporary and permanent land take from the green space/verge immediately east of Ballymun Road and north of Albert College Park, which is assumed not to be in private ownership. Whilst the station box would be beneath the verge, the construction area may extend into the road, leading to traffic disruption.

4.2.3 Option 3: Metro North – DCU Ballymun Road within Albert College Park

This option would be within an existing park and would involve significant vegetation removal, hence there would be impacts on local biodiversity, landscape and visual amenity. The landscape impact of felling matured trees would be have an effect until replanted vegetation matured. This location is also close to other sports ground, hence construction work at this site may reduce the amenity and disrupt access for the users for these grounds. No properties are anticipated to be demolished for this option and impacts on traffic are also less compared to other options as it is not on the main road. The number of sensitive receptors close to this site is also less than the other options, hence the overall impact on environment is less.

4.2.4 Option 4: Metro North –DCU Campus Collins Avenue

This location would be within the DCU campus and would involve the demolition of a multi-storey carpark. A number of residential receptors are within close vicinity and could be exposed to construction noise, dust and visual impacts. Students and staff visiting the DCU campus would also be experiencing these impacts. There could be access restrictions in the adjacent local roads which would impact businesses nearby. Helix Theatre, an active venue within the DCU campus, is adjacent to the construction site, which could be affected by noise, vibration and disruption during construction. There is a historic watercourse beneath the site, which could be directly affected, thus flows would be likely to need to be diverted. There are no green space or sports ground likely to be impacted by this option..

4.2.5 Option 5: Metro North - DCU Collins Avenue Junction

Construction work in this location would have a significant impact on traffic and access to surrounding facilities, as it would be within the carriageway of the R108, at its junction with Collins Road. This would require significant traffic management arrangements to be in place during construction. Similar to the EPR/PR option, there are a number of sensitive receptors in the close proximity which can be impacted from construction noise, dust, visual impacts and access restrictions. These include Our Lady of Victories church, a number of schools, a library and residential properties. The northern end of the construction site would be very close to a historic watercourse, presumed now to be in culvert, which could be directly impacted. Three residential properties would require demolition for construction of a station at this location.

4.2.6 MCA Outcome

Table 4 shows the summary results of the environmental multi-criteria analysis. The full table, including descriptions of the potential impacts, is provided in Appendix A.

Table 3: MCA Summary Table

		Options				
Environmental Factors		1	2	3	4	5
Human Health	Construction	2	3	4	3	3
	Operation	5	5	5	4	4
Population	Construction	2	1	3	3	1
	Operation	4	4	4	4	4
EMI/EMC	Construction	4	4	4	4	4
	Operation	4	4	4	4	4
Noise	Construction	1	1	2	1	1
	Operation	4	4	4	4	4
Vibration	Construction	3	3	3	3	3
	Operation	4	4	4	4	4
Biodiversity	Construction	3	3	2	4	3
	Operation	4	4	4	4	4
Air Quality	Construction	2	2	3	3	2
	Operation	4	4	4	4	4
Climate	Construction	4	4	4	4	4
	Operation	4	4	4	4	4
Flooding	Construction	4	4	4	4	4
	Operation	4	4	4	4	4
Hydrology	Construction	4	4	3	2	2
	Operation	4	4	4	4	4
Hydrogeology	Construction	3	3	3	3	3
	Operation	4	4	4	4	4
Land Use, Soils and Geology	Construction	3	4	3	3	3
	Operation	4	4	4	4	4
Properties	Construction	2	1	3	1	1
	Operation	3	1	3	4	4
Archaeological Heritage	Construction	2	4	4	4	4
	Operation	4	4	4	4	4
Architectural Heritage	Construction	4	4	4	4	3

		Options				
Environmental Factors		1	2	3	4	5
	Operation	4	4	4	4	4
Landscape/Townscape and Visual Amenity	Construction	2	2	1	3	2
	Operation	4	4	2	3	4

4.2.7 Summary of Findings

Although all the options are located within an area with numerous sensitive receptors, Options 1, 2 and 5 are much closer to these than Option 3 and 4 and hence could affect more human receptors. All options would also require temporary and permanent land take, although Options 2, 4 and 5 would also require demolition of properties. While Option 5 would require the demolition of three private dwellings, Option 2 would require the demolition a pre-school club, and Option 4 would require the demolition of a multi-storey car park. An existing dental clinic facility may potentially be affected by access restrictions during construction of Option 2.

A historic watercourse flows under the footprint of Options 4 and 5 and very close to Option 3, requiring possible diversion.

Although all the options are situated in an urban setting, Option 3 would be situated within a park, requiring the removal of mature trees, thereby affecting biodiversity and landscape. Option 3 is also the only option that completely avoids construction within a highway, and hence would cause least disruption of traffic.

Option 5 would be entirely within the R108 Ballymun Road, so the associated traffic disruption during construction would be significant.

Whilst Option 3 appears to score well, it is noted that, should the station be constructed this far south, an intervention shaft would need to be constructed to the north, because of the extended distance between stations. This intervention shaft would potentially be close to the junction of Collin's Avenue and Ballymun Road. In contrast, the PR option has the station further north, but an intervention shaft in Albert College Park. All options would require an intervention shaft to be built in addition, because of the distance between Ballymun and Griffith Park, and the safety requirement for ventilation and evacuation facilities to be available at 1km distances along the route.

5. References

ARUP (on behalf of the NTA) (2018). New Metro North - Alignment Options Report.

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Jacobs Idom (2019); Preferred Route Design Development Report.

National Transport Authority (NTA) (2016); Transport Strategy for the Greater Dublin Area 2016-2035.

Office of Public Works (OPW) (2015) Draft St Stephen's Green Park Conversation Management Plan

Transport Infrastructure Ireland (TII) (2016); Project Appraisal Guidelines for National Roads Unit 7.0 - Multi Criteria Analysis.

Appendix A. Multicriteria Analysis Table

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