

Cork Area Commuter Rail Multi-Disciplinary Consultancy Services Depot Access Road Option Selection Report TRJV

26th March 2026

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DEPOT ACCESS ROAD OPTION SELECTION REPORT V04

Glossary

Abbreviation	Meaning
AISRR	All-Island Strategic Rail Review
AFC	Association Football Club
AONB	Area of Outstanding Natural Beauty
ASSI	Areas of Special Scientific Interest
CACR	Cork Area Commuter Rail
CAF	Common Appraisal Framework
CAPEX	Capital Expenditure
CBA	cost benefit analysis
CCC	Cork County Council
CCDP	Cork County Development Plan
CEA	Cost Effectiveness Analysis
CMA	Cork Metropolitan Area
CMASP	Cork Metropolitan Area Strategic Plan
CMATS	Cork Metropolitan Area Transport Strategy
CMD	Cork Municipal Districts
CSO	Central Statistics Office
EIR	Eircom Limited,

Abbreviation	Meaning
ESB	Electricity Supply Board Group
GI	Ground Investigations
GIS	Geographic Information System
GNI	Gas Networks Ireland
GWB	Ground Water Body
HGV	Heavy Goods Vehicle
HVDC	High-Voltage Direct Current
IDA	Industrial Development Agency
LAP	Local Area Plans
LGV	Large Goods Vehicle
MCA	Multi Criteria Assessment
MD	Municipal Districts
MGMT	Management
NIAH	National Inventory of Architectural Heritage
NIFTI	National Investment Framework for Transport in Ireland
NMU	Non-Motorised User
NSL	Noise Sensitive Locations
NSO	National Strategic Objectives
OB	Overbridge
OH	Overhead
OHLE	Overhead Line Equipment
OPEX	Operational Expenditure
QE	Quality Element
RSES	Southern Regional Assembly's Regional Spatial and Economic Strategy
RWB	Receiving Water Body

Abbreviation	Meaning
SAC	Special Areas of Conservation
SAPS	Small Area Population Statistics
SI	Site Investigation
SMR	Sites and Monuments Record
SPA	Special Protection Areas
TAF	Transport Appraisal Framework
TII	Transport Infrastructure Ireland
UB	Underbridge
UEA	Urban Expansion Area
VRU	Vulnerable Road User
WFD	Water Framework Directive

Executive Summary

The Cork Area Commuter Rail (CACR) Programme represents a transformational investment in the rail network in Cork. It will improve the attractiveness of rail, encourage modal shift from car-based travel and reduce congestion and emissions. Improvements to the commuter rail network in Cork were initially identified through the Cork Metropolitan Area Transport Strategy (CMATS) and the CACR Programme is a fundamental transport commitment in Project Ireland 2040.

CACR will play a key role in a future sustainable transport system in the Cork region and nationally. In the context of the State's climate action plans, investment in transport infrastructure is vital. CACR will be essential to the reduction in transport emissions: firstly, through the procurement of a low emissions fleet and, secondly, through reducing emissions from road congestion by encouraging and enabling people to choose public transport.

CACR will optimise the value of the existing heavy rail network, an important State asset, by creating a mass transit system capable of transporting large volumes of passengers, which is heavy rail's unique advantage.

The options selection for the CACR Programme depot access route has been documented in this report. It has been produced following a review of previous studies carried out for the programme and has adopted an even handed approach to the identification of potential sites for the depot to confirm the emerging preferred option for the depot access road. It has implemented an options selection process aligned with the current Transport Appraisal Framework guidance documentation.

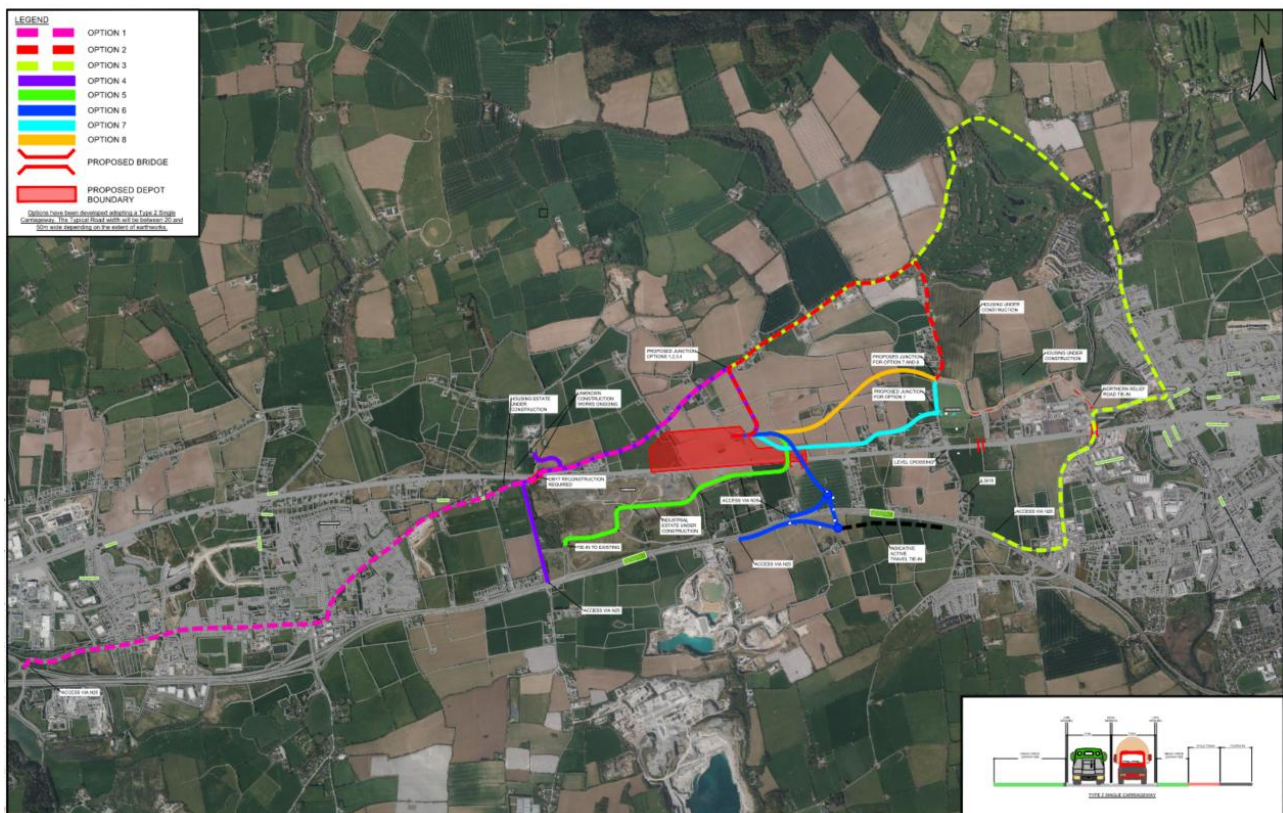


Figure E.0.1 Depot location and Options Assessed

Eight options have been developed / considered using the available topographical information. Based on this information, the existing and proposed alignments require consideration for the interactions with the planned OHLE works as part of this assessment. Options which require the inclusion of bridging over the

railway will, as a result, require a minimum clearance envelope for overhead electrification lines, and an overall headroom for new structures over railways. To achieve this clearance, the options have been examined, with consideration of the feasibility of achieving the required clearances and thereafter assessed using the MCA.

The options developed are as follows:

- Do-Management (Mgmt.) – Options 1, 2 and 3
 - (Three options utilising existing roads with access to the depot via connection off Ballyrichard More Road to accommodate low-loaders)
- Do-Something – Options 4, 5, 6, 7 and 8
 - (Five options incorporating proposed roads with tie-ins to existing roads also accommodating low-loaders and wider cross-section for active travel/greenway integration)

A “Do Nothing/Do-Minimum” option is not considered as an intervention that meets the objectives of the CACR project as the location of the depot does not have an existing access that meets the needs of the project and, is considered infeasible.

A Multi Criteria Analysis (MCA) methodology, aligned with the Transport Appraisal Framework (TAF) Guidelines, is based on an absolute rating, evaluating each alternative independently according to the set of criteria, rather than comparing one option to another directly. This approach provides a structured and systematic way of assessing the different options.

The assessment is proposed to be on an unweighted basis to allow the influence and effectiveness of the comparators to be monitored. The rated, coloured, and numeric scale was implemented in alignment with the TAF.

The criteria and sub-criteria scoped for assessment include:

- Transport User Benefits and Other Economic Impacts
 - Staff and Delivery Access Quality
 - CAPEX and OPEX
 - Change of Land Value
- Accessibility Impacts
 - Impact on Residents
- Social Impacts
- Land Use Impacts
 - Change in Quality of Public Realm
 - Existing Transport Network and Service Impact
 - Material Assets
 - Built Services
 - Land Use Impacts
 - Soils and Geology (incl. Waste)
 - Planning Applications
 - Zoned Land, Land Use Planning and Spatial Planning
- Safety Impacts
 - Collisions & Related Impacts
 - Other Safety Impacts

- Climate Change Impacts
 - Climate Action Impact
 - Climate Adaption Impact
- Local Environment Impacts
 - Biodiversity
 - Water Resources
 - Landscape & Visual Quality
 - Cultural & Heritage
 - Noise & Vibration
 - Air Quality

The summary outcome of the multi-criteria analysis is presented in **Figure E 0.2**. From the assessment carried out, Options 1, 2 and 3, the Do-Management Options, achieve the worst ratings as Slightly Negative Impact consequent on poor accessibility performance, negative social impacts and negative safety impacts. Options 4, 5 and 6 achieve the average scores as Neutral Impact while Options 7 and 8 achieve the highest scores as Slightly Positive Impacts. Option 7 narrowly edges out Option 8 on Land Use Impacts and Local Environment Impacts. It is recommended that Option 7 be the Emerging Preferred Option.

	Criteria	Option 1	Option 2	Option 3	Option 4	Option 5	Option 6	Option 7	Option 8
	Sub-Criteria Consolidation								
1	Transport User Benefits and Other Economic Impacts	4 - Neutral Impact	4 - Neutral Impact	4 - Neutral Impact	4 - Neutral Impact	5 - Slightly Positive Impact	5 - Slightly Positive Impact	5 - Slightly Positive Impact	5 - Slightly Positive Impact
2	Accessibility Impacts	1 - Highly Negative Impact	3 - Slightly Negative Impact	2 - Negative Impact	4 - Neutral Impact	5 - Slightly Positive Impact	5 - Slightly Positive Impact	6 - Positive Impact	6 - Positive Impact
3	Social Impacts	2 - Negative Impact	3 - Slightly Negative Impact	2 - Negative Impact	5 - Slightly Positive Impact	4 - Neutral Impact	5 - Slightly Positive Impact	6 - Positive Impact	6 - Positive Impact
4	Land Use Impacts	3 - Slightly Negative Impact	3 - Slightly Negative Impact	3 - Slightly Negative Impact	4 - Neutral Impact	4 - Neutral Impact	4 - Neutral Impact	4 - Neutral Impact	4 - Neutral Impact
5	Safety Impacts	2 - Negative Impact	2 - Negative Impact	2 - Negative Impact	5 - Slightly Positive Impact	6 - Positive Impact	4 - Neutral Impact	6 - Positive Impact	6 - Positive Impact
6	Climate Change Impacts	3 - Slightly Negative Impact	4 - Neutral Impact	3 - Slightly Negative Impact	3 - Slightly Negative Impact	3 - Slightly Negative Impact	3 - Slightly Negative Impact	4 - Neutral Impact	4 - Neutral Impact
7	Local Environment Impacts	3 - Slightly Negative Impact	3 - Slightly Negative Impact	3 - Slightly Negative Impact	3 - Slightly Negative Impact	3 - Slightly Negative Impact	2 - Negative Impact	3 - Slightly Negative Impact	2 - Negative Impact
	Criteria Consolidation								
	Overall Ranking	3 - Slightly Negative Impact	2.6 - 3 - Slightly Negative Impact	3.2 - 3 - Slightly Negative Impact	2.7 - 4 - Neutral Impact	3.3 - 4 - Neutral Impact	4.1 - 4 - Neutral Impact	4.0 - 5 - Slightly Positive Impact	4.7 - 5 - Slightly Positive Impact
	Emerging Preferred Option	No	No	No	No	No	No	Yes	No

Figure E 0.2 Summary MCA Table

Option 7 performs better than other options as follows:

- The scale of works associated with Option 7 is smaller than other Do-Something Options. There is no bridge construction associated with this option.
- This option provides for widened carriageway along an existing route with provision for non motorised access.
- The impact on 110kV overhead lines significantly lower for Option 7 than for other options;
- The smaller quantities of earthworks materials associated with Option 7 mean the soils and geology impacts associated with this option are lower than for other options.
- Option 7 facilitates the implementation of planning Cork County Council objectives MD-U-02, 07 and 08.

- Option 7 has neutral impact on Flood Risk whereas other options are rated more negatively.

1. Introduction

1.1. Purpose of this Report

This report has been prepared to document and to set out the detail of the options selection process that was undertaken to determine an emerging preferred location for the proposed Depot Access Road.

The Cork Area Commuter Rail (CACR) Programme represents a transformational investment in the rail network in Cork. It will improve the attractiveness of rail, encourage modal shift from car-based travel and reduce congestion and emissions. Improvements to the commuter rail network in Cork were initially identified through the Cork Metropolitan Area Transport Strategy (CMATS) and the CACR Programme is a fundamental transport commitment in Project Ireland 2040.

CACR will play a key role in a future sustainable transport system in the Cork region and nationally. In the context of the State's climate action plans, investment in transport infrastructure is vital. CACR will be essential to the reduction in transport emissions: firstly, through the procurement of a low emissions fleet and, secondly, through reducing emissions from road congestion by encouraging and enabling people to choose public transport.

CACR will optimise the value of the existing heavy rail network, an important State asset, by creating a mass transit system capable of transporting large volumes of passengers, which is heavy rail's unique advantage. To power CACR requires the installation of new Overhead Line Equipment (OHLE) along the entire route from Mallow to Cobh and from Glounthaune to Midleton.

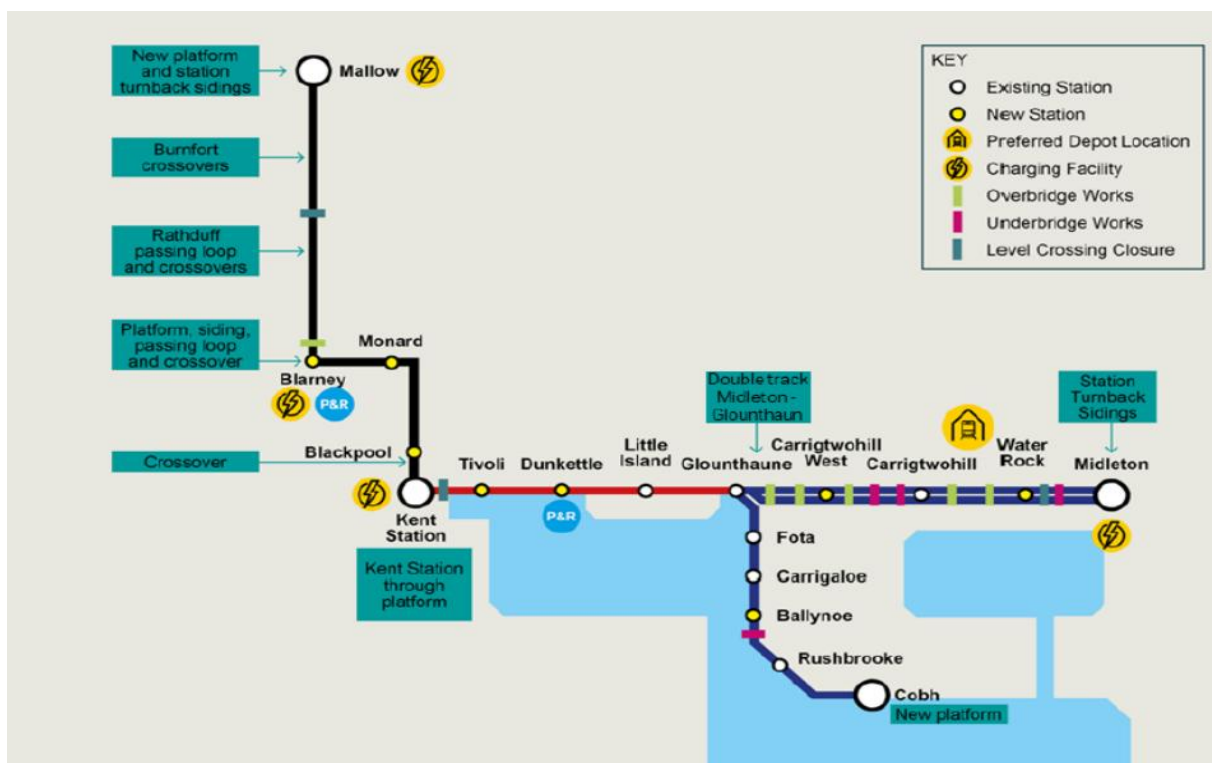


Figure 1.1 Proposed Route for CACR

1.2. CACR Programme Objectives

The CACR Programme primary objective is as follows:

- Support compact urban growth and contribute to reducing transport congestion and emissions in the Cork Metropolitan Area (CMA) by enhancing the existing heavy rail system, providing a sustainable, safe, efficient, and integrated public transport service that will improve the attractiveness of rail services.

The CACR Programme sub-objectives are as follows:

- Cater for existing heavy rail travel demand and support long-term patronage growth along established rail corridors in the CMA through the provision of a higher frequency, higher capacity, electrified heavy rail service which supports sustainable economic development and population growth.
- Develop an integrated suburban rail system improving accessibility to jobs, education and other social and economic opportunities, inter-modal connectivity, and integration with other public transport services.
- Enable consolidation of urban compact growth along existing rail corridors, unlock regeneration opportunities and more effective use of land in the CMA, for present and future generations, through the provision of a higher capacity heavy rail network.
- Deliver an efficient, sustainable, low carbon and climate resilient heavy rail network, which contributes to a reduction in congestion on the road network in the CMA and which supports the advancement of Ireland's transition to a low emissions transport system and delivery of Ireland's emission reduction targets.

The concept of CACR has been in existence for nearly 20 years, this concept was further refined in 2003/04 as part of a Feasibility Study on a Cork Suburban Rail project and the 2003 Strategic Rail Review. The alignment of CACR with policy has been assessed through the SAR. There is a strong strategic policy fit between CACR and national, regional and local policy objectives, particularly in relation to sustainable mobility, emissions reductions, compact land use development, and consolidation of population and employment growth along high-frequency transport corridors.

At a national level, the key drivers for CACR include:

- Project Ireland 2040, where CACR is aligned with multiple National Strategic Objectives (NSOs) for compact growth, enhanced regional accessibility, a strong economy and a transition to a low carbon and climate resilient society.
- The National Investment Framework for Transport in Ireland (NIFTI) (2021) enables delivery of Project Ireland 2040 by guiding the appropriate investment in transport infrastructure. It addresses the importance of decarbonisation in the decades ahead to meet Ireland's climate change goals. It prioritises maintaining, optimising and improving existing assets over the building of new infrastructure in addition to prioritising active travel and public transport modes over private vehicles. CACR is aligned in seeking to optimise and improve the existing suburban rail system for Cork.
- The Climate Action and Low Carbon Development Act 2021 provides statutory recognition of the national climate objective and a requirement for sector-relevant carbon budgets. The subsequent Climate Action Plan 2021, places further emphasis on the need to decarbonise the transport sector. CACR is aligned in seeking to deliver a new fleet of non-carbon-based fuel trains for the network. At a regional level, CACR aligns with:
- The Southern Regional Assembly's Regional Spatial and Economic Strategy (RSES) outlines 11 core 'Statements of the Strategy' to build a strong, resilient and sustainable region. CACR aligns with six of these; compact growth; enhanced regional accessibility; sustainable mobility; a strong economy; a

low carbon, climate resilient and sustainable society; and sustainable, planned and infrastructure led development

- Locally, CACR is aligned with the Cork Metropolitan Area Transport Strategy (CMATS) as it will deliver the suburban rail elements of the Strategy. CMATS examined strategic transport options for the Cork Metropolitan Area (CMA), and extending to Mallow, an area hereafter referred to as the 'Cork Region,' on a corridor-by-corridor basis. It concluded that heavy rail is the optimum public transport mode to cater for demand in the catchment of the existing rail line between Mallow, Midleton and Cobh, serving Kent Station.
- Both the Cork City and Cork County Development Plans recognise and aim to enable the proposals in CMATS
- Finally, the Local Area Plans (LAPs) developed for several of the Cork Municipal Districts (MDs) outline proposals and zoning objectives for significant population and employment growth at existing and planned railway stations in the CMA.

1.3. Report Structure

Section 1 of this report sets out the context of the study within the CACR Programme.

Section 2 provides the characterisation of the study area for the options assessment.

Section 3 describes the options selection process adopted for the study and provides a description of the options identified.

Section 4 provides details of the multi-criteria analysis conducted on the options and documents a recommended emerging preferred option.

Section 5 gives a summary of the multi-criteria analysis with a recommendation on the preferred option to be progressed to preliminary design.

Appendix A included with the report provide the details of the various options.

Appendix B provides details of the multi-criteria analysis.

Appendix C provides the options drawings.

2. Site and Function

2.1. Site Location

The extent of the proposed Ballyrichard More Depot is illustrated in the image below

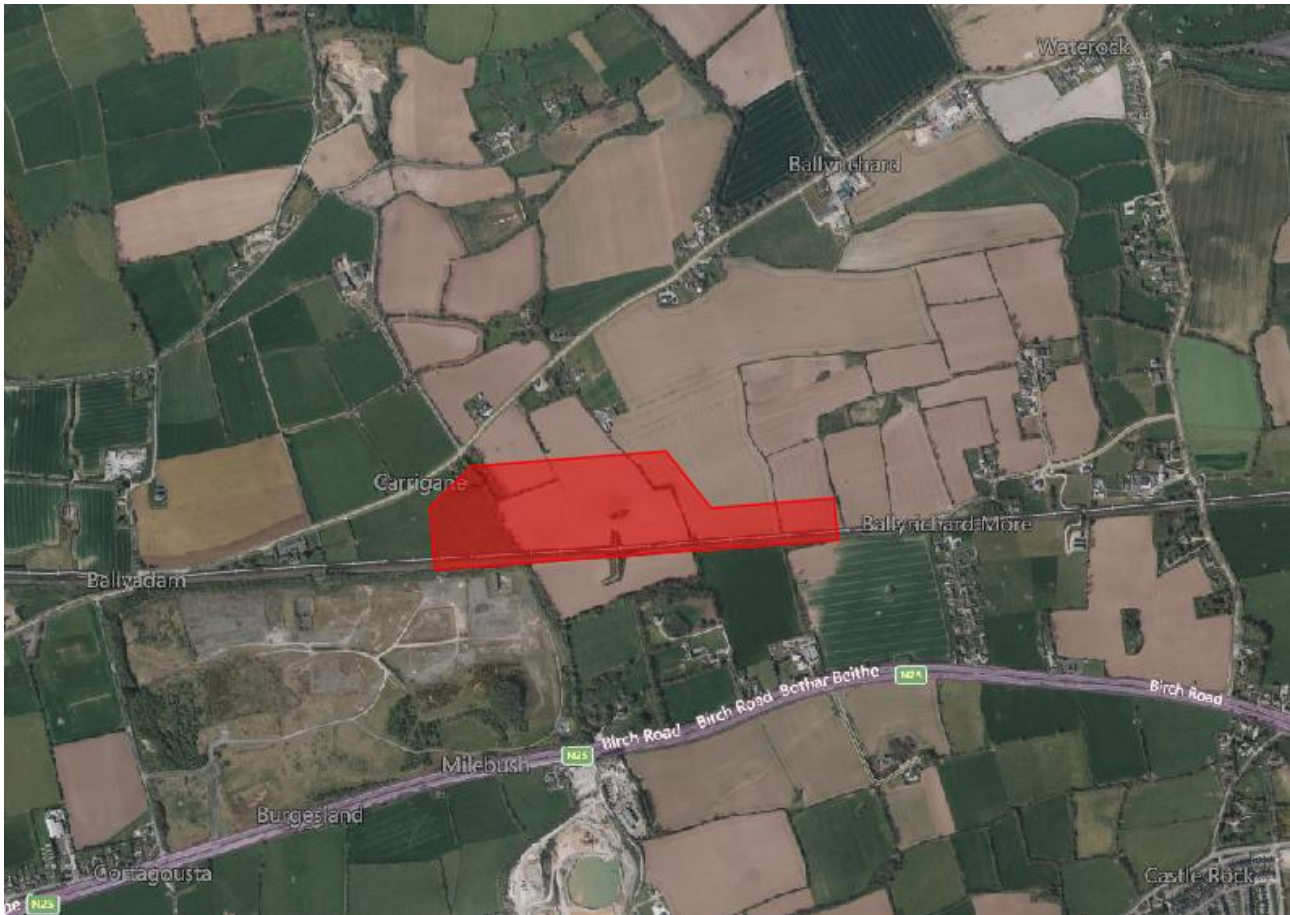


Figure 2.1 Site Location

The proposed depot site is situated in Ballyrichard More, County Cork. The site is located to the north of the railway line in lands that are in agricultural use. The site is east of Carrigtwohill and immediately north and east of the Ballyadam site. It is bound by the Carrigane Road (L3617) to the north. The proposed Depot is located between the proposed Water-Rock station to the east and with the proposed Carrigtwohill West station to the west.

2.2. Site Description and Topography

The Ballyrichard More site is the emerging preferred site following the site selection process for the development of a maintenance depot for the CACR programme. The southern boundary of the site fronts a large area of proposed residential development and the ESB interconnector.

The depot is located within a predominantly rural landscape characterised by open fields. There are also several structures in proximity to this site. These include river crossings, cattle passes and public roads. The site's natural contours and rural setting provide a serene environment, with the overbridge serving as a critical link for local transportation and connectivity of agricultural lands.

2.2.1. Other Works in the Area

The following works have been identified in proximity to the site:

- An Inter-Urban Cycle Route is planned to be built which passes through the lands identified for the depot.
- A residential property is currently being built on the western side of the depot, adjacent to the existing railway.
- EMR Projects LTD is currently developing a 6.7ha site that is close to Water-Rock station.
- EirGrid Plc. are constructing a Celtic Interconnector project to the south of the depot site.

2.2.2. Stakeholders

The following stakeholders will be consulted during the preliminary design and planning process:

- Cork County Council (CCC) (including Heritage department)
- Transport Infrastructure Ireland (TII)
- Adjacent Landowners
- Utility companies (where applicable)

The depot access roads tie-in to local roads (Carrigane Road, Ballyrichard More Road and Castle-Rock Avenue Road) which in turn have junction connections to a national road N25, therefore close consultation will be required with both Cork County Council and Transport Infrastructure Ireland.

2.3. Existing Roads and Condition

The depot site is bordered by the railway track to the south, Ballyrichard More Road and Castle-Rock Avenue local roads to the North, East and West of the site. The N25 National Road is located further south of the depot. Access from the N25 is present at multiple locations to serve the lands south of the railway. The existing roads to the north and south of the depot site are connected via a bridge (OBY7) to the west of the site and a level crossing to the east.

The N25 is located to the south of the depot site and can be characterised as a Type 1 Dual Carriageway with a speed limit of 100km/h. The section of the N25 in proximity to the depot site utilises over the edge drainage.

Ballyrichard More Road is located to the north of the depot. It is a local road with a speed limit of 80km/h which connects Ballyrichard Beg, Ballyrichard More, Carrigtwohill, Carrigane and Curragh. There are no footways or cycle facilities located along this road at present. Several residential properties are located along the road. Hedge rows, trees and stone walls are present along the road. Overhead pylons are also present in the lands surrounding this road (some of which are in a proximity to the road edge).

Castle Rock Avenue is located to the east of the depot site. It is a local road with a speed limit of 80km/h which connects Ballyrichard More and Water-Rock with access to/from the N25. There are no footways or cycle facilities located along this road at present, however as part of the planned Water-Rock development; this section of road is to be upgraded with Non-Motorised User (NMU) facilities proposed. Several residential properties are located along the road with construction currently being undertaken for the planned Water-Rock residential developments (to the east of the road). Hedge rows, trees and stone walls are also present along the road. Overhead poles are also present on this road (many of which are in a proximity to the road edge).

The L7642 is located to the west of the depot site. It is a local road with a speed limit of 80km/h which provides the residents along the road with connection to Ballyrichard More, Carrigtwohill, and Poulanska with access to/from the N25. There are no footways or cycle facilities located along this road at present. Several residential properties are located along the road with construction currently being undertaken within the industrial zoned lands to the east of the road. Carrigtwohill United AFC sports grounds border the road (to the west). Hedge rows, trees and stone walls are also present along the road. Overhead poles are also present on this road (many of which are in a proximity to the road edge).

3. Options Selection Process

3.1. Transport Appraisal Framework - Overview

In 2023 the Transport Appraisal Framework (TAF) was introduced to replace the Common Appraisal Framework (CAF) providing guidance on appraisal and implementation “that aims to promote investment in the transport system which meets the needs of society, fulfils strategic policy objectives, and delivers value for money through a common framework for appraising transport investments in accordance with the Infrastructure Guidelines”. It notes that the “guidance takes effect immediately and should be followed by Sponsoring Agencies when submitting appraisal documentation to the appropriate Approving Authority.” “The TAF is intended to serve as the principal appraisal guidance for all publicly funded transport investment proposals in Ireland.”

The TAF comprises ten modules with Module 7 (Detailed Guidance on Appraisal Techniques) being the most applicable to this optioneering report as follows:

The framework has six core aims in relation to both the development and assessment of investment proposals and business cases including:

- To promote rigorous, objective scheme appraisals within transport investment business cases;
- To promote standardised formats and methods for transport investment proposals and business case material to the greatest extent possible.

The options appraisal for the project business case comprises three separate components as follows:

- Multi-criteria analysis taking account the concerns of the Environmental Directive;
- Cost effective analysis of the proposed infrastructure; and
- Cost benefit analysis.

3.2. Multi Criteria Analysis - Criteria Scope

Where options appraisal is carried out in respect of elements of the overall project or programme, the assessment should be consistent with that used for the end-to-end options. While a cost benefit analysis (CBA) and cost effectiveness analysis (CEA) may be appropriate to an overall project programme, they may not be appropriate standalone elements of the scheme. In this situation however, the multi-criteria analysis should take account of the comparative economic benefits and costs of the options considered in making an assessment.

Table 3.1 Scoped MCA Criteria

TAF Criteria	Sub-Criteria	Indicators	TAF Proposed Data Source for Appraisal	Proposed Comparators
Transport User Benefits and Other Economic Impacts	Staff and Delivery Access Quality	Measure of the direct impact on the amount of time people spend travelling.	Travel Time Savings (VTS) measure	Detour lengths, Quality of Access, Provision of facilities to required standard for Multi-Modal Use.
	CAPEX and OPEX	Transportation Costs based on CAPEX and OPEX	Economic, modelling and customer service analysis, Cost Estimates	Capital Cost Estimates
	Change of Land Value	Impact on land use value, improved accessibility, likely zoning, impact on agricultural land	Change in land values can potentially be included as a monetised benefit or cost in	Land values across the proposed CACR network will benefit from the delivery of a depot to facilitate the service.

TAF Criteria	Sub-Criteria	Indicators	TAF Proposed Data Source for Appraisal	Proposed Comparators
			a CBA of a project or programme.	All options perform equivalently under this sub-criterion.
Accessibility Impacts	Impact on Residents	Access to Key Services, Access to Jobs, Access to International Transport Gateways	GIS analysis of number of people within 1km of a scheme	GIS analysis of number of people within 1km of access road Based on CSO Small Area Population Statistics (SAPS)
Social Impacts	Social Impacts	Impact on Socially disadvantaged homes. Impact on Mobility impaired, physically and intellectually impaired. Impact on aged, carers. Hidden disabilities impact -Autism, dementia. Impact on lower income groups. Impacts on households without a car. Impact on child supporters, those with strollers. Gender Impacts.	Spatial analysis on green spaces and recreational facilities GIS analysis on the number of deprived and the percentage of households with no car ownership within 1km of the scheme	Spatial analysis on green spaces and recreational facilities GIS analysis on the number of deprived and the percentage of households with no car ownership within 1km of the access road
Land Use Impacts	Change in Quality of Public Realm	Impacts related to changes in public realm, such as streets, footpaths, and public buildings, as a result of a scheme. Assess how the scheme will impact on public realm. These impacts may include provision of public amenities and green space.	Extent of alignment with the road network and the local area	Extent of alignment with the road network and the local area
	Existing Transport Network and Service Impact:	Impacts on connectivity with the existing transport infrastructure in an area and with broader national and regional planning policy objectives.	Extent of alignment with each public transport mode	Impact on Local Road Network. Assess the degree to which the scheme integrates with each mode of existing transport network and major transport hubs.
	Material Assets: Property	Direct and indirect impacts on sensitive agricultural enterprise (e.g., beef or equine farms. Tillage is low sensitivity). Severance of landholding, direct acquisition of farmyards, sheds etc). Indirect impacts due to construction and operation near sensitive Agri enterprises. No. of residential, community and businesses directly impacted by the option (acquisition). Indirect impacts (due to construction and operation activities) on non-Agri properties.	Assessment of Impacts on Agricultural and Non-agricultural Properties	Impact on Agricultural and Non-agricultural Properties
	Built Services (Utilities)	Varied impact on existing utilities	Impacts on existing utilities	Estimated Utility Asset diversion
	Soils and Geology (incl. Waste)	Impacts on existing utilities	Impacts on existing utilities	Impacts on existing utilities
	Planning Applications	Planning search: LAs, ABP, EIA Portal Large Scale residential and non-residential planning applications (granted and	Impact on planned developments	Impact on planned developments

TAF Criteria	Sub-Criteria	Indicators	TAF Proposed Data Source for Appraisal	Proposed Comparators
		pending) potentially within the site boundaries.		
	Zoned Land, Land Use Planning and Spatial Planning	Impacts on strategic land-use planning at a national, regional, or local level, along with impacts to planning applications in proximity to the options.	Extent of alignment with other government policies and objectives	Impact on Land Use Planning
Safety Impacts	Collisions & Related Impacts	Estimated impacts on vulnerable users in this context – pedestrians, cyclists, motorcyclists Level Crossings Analysis	Collision Statistics	Safety Considerations at Level Crossings. Collision Statistics.
	Other Safety Impacts	Impacts on anti-social behaviour, trips, falls, etc Assessment of Alignment Integration with local urban infrastructure.	Assessment of Alignment Integration with local urban infrastructure	Review of interfaces and alignment with local urban infrastructure. Impacts on trips, falls etc.
Climate Change Impacts	Climate Action Impact	Direct impact on emissions	Updating of train emissions profile in TUBA	Assessment of individual options based on CAPEX, OPEX and characterisation of impacts
	Climate Adaption Impact	Impact on Resilience and Robustness of Transport Infrastructure Comparative Assessment of Options.	Comparative Assessment of Options	Comparative Assessment of resilience to future climate change risks
Local Environmental Impacts	Biodiversity	Impact on European sites (SAC / SPAs/RAMSAR), Nationally designated sites and protected species, ASSIs, AONBs Nature Reserves, Wildlife Reserves. Invasive Species	Environmental constraints assessment of options	Environmental constraints assessment of options
	Water Resources	Impact on surface water, ground waterbodies.	Environmental constraints assessment of options	Environmental constraints assessment of options. Flood Risk, Vulnerable Aquifers, Soils
	Landscape & Visual Quality	Potential visual impacts along the proposed route	Environmental constraints assessment of options	Environmental constraints assessment of options Visual Impact,
	Cultural & Heritage	Impact on protected structures, archaeological sites and cultural heritage sites / features.	Environmental constraints assessment of options	Comparative assessment of impacts on protected structures and/or cultural heritage sites/features.
	Noise & Vibration	Reduced noise and vibration from commuter depot operations and construction.	Transition away from diesel-powered fleet.	Impact on local receptors (within 0- 50m, and 50m-100m bands) during construction and operational phases.
	Air Quality	Impact on level of human exposure to NO _x , PM ₁₀ , PM ₂₅	Overall network emissions from SWRM results	Impact on level of human exposure to NO _x , PM ₁₀ , PM ₂₅ Estimated number of sensitive receptors

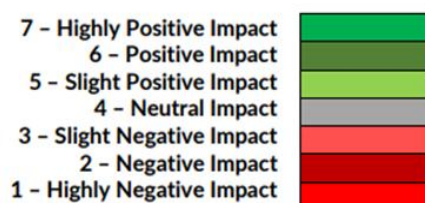
TAF Criteria	Sub-Criteria	Indicators	TAF Proposed Data Source for Appraisal	Proposed Comparators
				(residential properties, community facilities etc) likely to be affected by air quality impacts with the project within bands 0- 50m, 50m-100m,100m-200m, 200-250m of the site boundary.

The table above identifies the principal TAF criteria, sub- criteria Indicators and data sources as identified in the published documentation. The Influential characteristics identified in the left column of the table identify the proposed Comparators for the Options Selection.

Each comparator is described in more detail in Section 5 of this report.

The assessment will initially be set up on an unweighted basis to allow the influence and effectiveness of the comparators to monitored. A scoring scale is envisaged as set out in the graphic below.

The following MCA scoring scale example can be used to sift a longlist of options, or to assess scheme impacts at detailed appraisal stage:



Scores should be assigned to options based on their respective impacts on addressing identified issues or opportunities, meeting SMART objectives and probability of impacts occurring. The table below sets out some guidance for assigning scores for impacts and options:

7 - Highly Positive Impact	The option is likely to significantly improve conditions in the relevant criteria.
6 - Positive Impact	The option is likely to improve conditions in the relevant criteria.
5 - Slight Positive Impact	The option is likely to somewhat improve conditions in the relevant criteria.
4 - Neutral Impact	The option will result in no changes to conditions in the relevant criteria.
3 - Slight Negative Impact	The option is likely to somewhat worsen conditions in the relevant criteria.
2 - Negative Impact	The option is likely to worsen conditions in the relevant criteria.
1 - Highly Negative Impact	The option is likely to significantly worsen conditions in the relevant criteria.

Figure 3.1 TAF MCA Scoring Scale

The options will be assessed on an absolute impact basis under each sub-criteria initially on the numbered rating basis set out above. The outcome of the sub-criteria assessment will then be consolidated to criteria level, i.e. each criteria having equal weighting. Thereafter the criteria will be consolidated to identify the emerging preferred option.

3.3. Options Assessment/Multi Criteria Assessment (MCA)

The Options Assessment in respect of each of the proposed options is presented in this report. A multi-criteria analysis (MCA) mechanism has been developed based on the "Department of Transport, Transport Appraisal

Framework (TAF) for Transport Projects and Programmes July2024” for options assessment. It includes the seven appraisal criteria described above in Section 3.1.

Multi-Criteria Analysis (MCA) can be used to describe any structured approach to determine overall preferences among alternative options, where the options should accomplish multiple objectives. MCA establishes preferences between scheme options by reference to an explicit set of criteria and objectives. These should normally reflect policy/programme objectives and other considerations as appropriate, such as value for money, costs, social impacts, environmental impacts, equality considerations, etc. MCA has been adopted as it can consider a wide range of scheme impacts and does not focus solely on monetary values.

The information needed to carry out the multicriteria analysis is set out below with the proposals in respect of the project:

Table 3.2 Information & Project Assessment Approach

Information Needed	Project Approach
The options that have to be analysed	Component Options are presented for each
The evaluation criteria that will be used analyse the options	The above criteria are broken into sub-criteria each of these are used to carry out a comparative assessment of the options.
The importance of these criteria (that is, the weights); and	For individual scheme components either a fully qualitative mechanism without weighting has been used or a weighted mechanism has been adopted dependent on the perceived appropriateness for each component.
The evaluation of the options on the different criteria. These evaluations can be given a numerical or ordinal (comparative) scale.	The evaluations are on the basis of colour coding as describes in Figure 3.1 above.

In this option assessment process, a single stage MCA is used. Other MCA approaches adopt a two stage MCA when many options are feasible. Typically, MCA 1 is used to sift and remove the infeasible options as well as the options which are obviously inferior to others. MCA 2 is used to facilitate a more detailed assessment of the higher ranked options from MCA 1.

3.3.1. MCA Process

The MCA process is developed to facilitate a scoring of each option against a set of defined criteria. It comprises either a qualitative and/or a quantitative assessment of the options developed. It can be a comparative assessment of all options based on design or baseline data collection in order to screen and assess all options or an absolute assessment based on the impact of the option.

3.4. Assessment Methodology

The MCA methodology will be based on an absolute rating, the key focus of which is on evaluating each alternative independently according to the set of criteria, with each criterion being rated on an absolute scale, rather than comparing one option to another directly. This approach provides a structured and systematic way of assessing the different options.

The assessment is proposed to be on an unweighted basis to allow the influence and effectiveness of the comparators to be monitored. A ranked, coloured, and numeric scale will be implemented, in accordance with TAF guidance. Figure 3.1 above illustrated the proposed impact rating scale.

Each individual option will be given an impact score against each sub-criterion. The sub-criteria scores are added and the average to provide a score for the main criteria. The main criteria scores are added to provide the overall score for each option. The option with the highest score is deemed to be the emerging preferred option.

3.4.1. Potential Impacts

The types of potential impacts under consideration relate to the construction and operation activities (including maintenance) of new and/ or modifications to road infrastructure and bridge infrastructure.

They are the direct and indirect effects associated with the construction phase including considerations relating to ease of construction/buildability and the likely temporary or permanent effects on all criterions. For example, direct effects on land use (Agronomy) could include permanent and temporary land-take, severance or reduction of viability, which prevents or reduces its value for intended use. Such uses include residential, commercial, recreational, agricultural etc. Similarly, soils may be impacted or degraded during construction. These impacts should be considered under each criterion and sub-criteria as appropriate. Indirect effects during the construction or replacement of an overbridge may include impacts on air quality, noise levels, the landscape and visual amenities associated with changes to the existing urban environment. These may arise from temporary and permanent modifications, such as road realignments, bridge approaches, junction upgrades, lighting installations and associated infrastructure works. Such changes are likely to result in direct and indirect effects on a range of environmental and community-related criteria.

The changes in land use are considered under the planning policy consideration under Integration parameter. The changes in traffic and associated impacts on the 'economy' are addressed under the Economy criteria and are not duplicated as part of the Environment assessment. The parameters, criteria, sub-criteria, and their respective assessments for each aspect of the CACR project is set out in Section 4.2.

3.5. Description of Options

The options developed for the Depot Access Road range from Do-Management, through to Do-Something (Investment) options. The analysed options located in the Ballyadam area are approximately 1.3km west of the proposed Water-Rock station, 1.9km to the east of the proposed Carrigtwohill station and approximately 3.4km to the existing Carrigtwohill West station.

The alignments for the assorted options have been developed / considered using the available topographical information. Based on this information, the existing and proposed alignments require consideration for the interactions with the planned OHLE works as part of this assessment. Options which require the inclusion of bridging over the railway will as a result require a minimum 5.1m clearance for OHLE, and an overall headroom for new structures over railways. To achieve this clearance, the options have been examined, with consideration of the feasibility of achieving the required clearance and thus assessed using the MCA.

It should be noted that there is no "Do Nothing/Do-Minimum" option as it is not considered as an intervention that meets the objectives of the CACR project, the location of the depot does not have an existing access point. It is also not considered as the clearance shortfall described above mandates that an intervention is required for the following:

- Do-Management (Mgmt.)

- (Three options utilising existing roads with access to the depot via connection off Ballyrichard More Road to accommodate low-loaders)
- Do-Something
 - (Five options incorporating proposed roads with tie-ins to existing roads also accommodating low-loaders and wider cross-section for active travel/greenway integration)

Refer to Appendix C for illustrations of the options described.

3.5.1. Do Management (Mgmt.) Options

Three Do-Management options have been considered with regards to accessibility for the depot. The options considered under this heading make use of the existing roads with access to the depot via northern access (on Ballyrichard More Road) to accommodate heavy-duty vehicles and low-loaders necessary for the depot operations.

Option 1

This option makes use of the Carrigane Road for 5.88km with access from the N25 national road via the N25 diverge roundabout onto the L3612 Barryscourt Road into Carrigtwohill for approximately 0.6km.

Carrigane Road is a 6.5m wide (3.25m in both directions) single carriageway road with limited footpaths (a 2m footpath along the northbound lane) and 0.5m verge within the urban area (approximately 1km) which narrows to a 5.5m wide single carriageway with superelevation as the road is bordered by fences and walls with no pedestrian or cycling facilities incorporated (approximate length of 1.6km). This option is anticipated to require significant traffic management (i.e. temporary road closure / diversion of traffic through) as part of the operational sequence as well as during the reconstruction of the existing masonry structure (existing bridge – OBY7). This will involve the demolition of the existing bridge and the construction a new bridge across the railway track as part of the depot and OHLE work packages on the CACR programme. The bridge construction will be time consuming and likely require multiple possessions in order not to damage the retained substructure. This has been factored into the MCA.

Option 2

This option is approximately 3.98km and provides access from the N25 before heading north using Cork Road and Northern Relief Road after the first intersection. This option utilises Water-Rock Development Road. It continues onto the L3618 Water-Rock Road until reaching the L3617 Curragh Road junction. It should be noted that the route option is required to accommodate HGVs and low-loader vehicles. The junction intersecting the Castle Rock Avenue Road and Water-Rock development will require a wider junction radius to allow large vehicles manoeuvres. This option utilises the one-way access to/from to the N25. Access to the N25 is via the road overbridge (CC.N25-014.00).

At L3617 Curragh Road junction, similar junction widening will be required which will likely require property acquisition of a garden situated to the left of the junction. The stone wall of the property will be impacted and likely require demolishing along with OH divergence works as one electricity pole is located within the left-turn Swept Path for larger HGVs. Access to the depot is provided via a proposed northern junction on Ballyrichard More Road to allow HGVs and low-loaders to access the depot for approximately 1.8 km.

Both Castle Rock Road and L3618 Water-Rock Road are single carriageway roads with no footpaths and no cycling facilities, the carriageway width varies between 5.5m and 6.5m as the road is bordered by fences, walls, trees, and hedge rows.

Option 3

This option is approximately 7.11km in length and makes use of the R627 road as access from the N25 before heading north using Cork Road and Northern Relief Road after the first intersection. This option runs along OBY9B overpass towards the R626 Upper Mill Road and progresses north through Broomfield West town until it reaches the L3617 Curragh and accesses the depot via a proposed northern junction along Ballyrichard More Road to accommodate HGVs and low-loaders transit. This option utilises the one-way access to/from to the N25. Access to the N25 is via the road overbridge (CC.N25-014.00).

This option makes use of carriageways with varying cross-section (which include multiple wide lanes to the south of the route option), several splitter islands and kerbs are likely to be impacted which will require reconstruction to allow for larger HGVs such as low-loaders to manoeuvre through the route option at key junctions and will likely require significant traffic management in order to manage traffic movements through the various village/town centres.

The southern section of this option is a single carriageway road with lanes separated by central islands and ghost islands. Cycle facilities and footways are provided on both sides of the road providing segregation from motorised traffic up to the intersection of the Northern Relief Road and the R626. Progressing northbound, cycle facilities are located on the left side of the road for approximately 0.25km before switching to the right side of the road (in front of Midleton National School) with footways available until the end of the town. There are no footways or cycleways available beyond the Broomfield Ridge/R626 Upper Mill Road junction.

This option makes use of the Ballyedmond Bridge (NIAH 20906515) on Upper Mill Road in the north.

3.5.2. Do-Something (Investment) Options

Five Do-Something options have been considered with regards to accessibility for the depot. The options considered under this heading integrate proposed roads into the existing local road network with accesses to the depot provided from the north and east of the site. These options require tie-ins to the existing roads. The proposed options adopt a type 2 single carriageway with pedestrian and cycle infrastructure provided to cater for motorised and non-motorised road users while accommodating the heavy-duty vehicles and low-loaders necessary for the proposed depot operations. The adoption of this carriageway type also allows for active travel/greenway integration.

Option 4

This option is approximately 2.83km in length and provides left-in/left-out access from the L7642 junction to the N25. Future access via the N25/Industrial Area Junction. Similar to Option 2; due to the narrow access from the N25, larger sized vehicles such as low-loader cannot manoeuvre through the junction without implementing a wider junction. As a result, the field adjacent to the junction will be required to implement the necessary junction modifications along with potential OH Line diversions at this location.

The southern section of this option is a straight road approximately 0.65km in length and starts from the N25 junction. This section will require online widening works to accommodate the necessary lane widths and incorporate the required active travel facilities that do not currently exist. OBY7 is to be replaced by a new overpass that offers a more relaxed angle allowing HGVs and Low-loaders to pass through it before heading east bound where a road realignment is required to incorporate the new infrastructure. Several surrounding fields are likely to be impacted due to bridge reconstruction. Replacing several electricity poles will be required along Ballyrichard More Road and an access to the depot is to be provided via a proposed northern junction to allow for HGVs and low-loaders manoeuvres.

Option 5

This option is approximately 2.12km in length and utilises the industrial area and agricultural fields to the south of the depot location. Wills Bros Ltd. Interconnector site office is situated in this industrial area. Lane widening is required to allow large HGVs such as low-loaders to manoeuvre through the existing road radii while incorporating active travel facilities. A new overpass over the railway is required for access to the depot with the alignment rising over a section of the depot. The overhead lines at the bridge location are likely to be impacted. Option 5 provides left-in/left-out access from the L7642 junction to the N25. Future access via the N25/Industrial Area Junction.

Option 6

This option is approximately 1.58km in length and proposes a dumbbell configuration with connections to and from the N25 two new roundabouts and two bridges are required as part of this option with one bridge over the N25 and the other over the railway. This option also accommodates active travel facilities up to the southern roundabout to allow for possible active travel connections south of the N25. The N25 junction accesses will require widening into the adjacent field and requires land acquisition.

Option 7

This option is approximately 2.83km in length and utilises the Water-Rock development road has existing active travel facilities incorporated for approximately 1.24km. This option has an offline section of approximately 2.07km. This option utilises two junctions (in staggered arrangement) on Castle Rock Avenue which will require widening to allow large HGVs such as low-loaders to manoeuvre through the existing road radii. These junctions will allow for signalisation for safer NMU crossings. Those widening works will require land acquisition. Additionally, this option requires land acquisition east of the depot before it ties into Castle Rock Avenue.

This option utilises the one-way access to/from to the N25. Access to the N25 is via the road overbridge (CC.N25-014.00). Access from the N25 before heading north using Cork Road and Northern Relief Road after the first intersection.

Option 8

This option is approximately 2.67km in length and connects to the Water-Rock development site via Castle Rock Avenue junction which provides continuity and connectivity in active travel facilities from the development to the depot. The Water-Rock development road has existing active travel facilities incorporated for approximately 1.24km. This option has an offline section of approximately 1.37km. This option requires land acquisition east of the depot before it ties into L3618.

This option utilises the one-way access to/from to the N25. Access to the N25 is via the road overbridge (CC.N25-014.00). Access from the N25 before heading north using Cork Road and Northern Relief Road after the first intersection.

4. Multi Criteria Assessment

4.1. Transport User Benefits and Other Economic Impacts

As highlighted in Section 3.2, this criterion takes account of the comparative economic benefits and costs of the options considered in making an assessment based on the principal TAF criteria, sub- criteria Indicators and data sources. This has been depicted based influential characteristics identified as the proposed comparators for the Options Selection.

4.1.1. Staff and Delivery Access Quality

This sub-criterion assesses the quality of transport infrastructure incorporated within the access options as this has a direct impact on the amount of time spent travelling.

An intuitive assessment has been undertaken comparing the existing scenario and the proposed options.

Options 1, 2 and 3 are scored Negative Impact as they utilise existing roads which do not allow for HGVs to pass each other without stopping while providing no facilities for non-motorised users over their significant detour lengths.

Options 4, and 6 are scored Slightly Positive Impact as they provide improved access quality with wider 7m carriageways for HGVs to pass each other without stopping while providing facilities for non-motorised users over their significant detour lengths. Online widening along sections of the existing roads are required which are spatially constrained at certain locations.

Options 5, 7 and 8 are scored Positive Impact as they provide improved access quality with wider 7m carriageways for HGVs to pass each other without stopping while providing facilities for non-motorised users over their significant detour lengths. These options utilise recently upgraded roads resulting in less intervention to allow for the necessary modes of transport to be accommodated without significant spatial constraints.

4.1.2. Travel Costs

This sub-criterion assesses the CAPEX transportation costs developed based on the cost estimates for the various options.

The estimated capital costs for each of the options have been developed and summarised below.

Table 4.1 CAPEX for Options

Option	CAPEX (%)
Option 1	238
Option 2	100
Option 3	208
Option 4	1862
Option 5	1723
Option 6	1458
Option 7	1219
Option 8	1204

Cost estimates capture Construction Costs, Land Costs, Traffic Management, Administration and related Accommodation / Statutory Undertaker Works. It has been assumed that the access road ownership will revert to the County Council and as such OPEX has been omitted from the Travel Costs.

Options range has been considered based on cost implications (as percentages of the lowest cost) to project as shown below. Options ranging between 100 to 1000% are scored as Neutral Impact. Options ranging between 1000 to 2000% are scored as Slightly Negative Impact. Options ranging between 2000 to 3000% are scored as Negative Impact. Options ranging greater than 3000% are scored as Highly Negative Impact.

Table 4.2 Scoring range for CAPEX

Range of CAPEX (% of lowest cost option)	MCA Scoring Scale
100-1000	4. Neutral Impact
1000-2000	3. Slightly Negative Impact
2000-3000	2. Negative Impact
>3000	1. Highly Negative Impact

As such, Options 1, 2 and 3 are scored as having Neutral Impact based on the range identified. Options 6, 7 and 8 are scored as having Negative Impact while Options 4 and 5 are scored as having a Highly Negative impact.

4.1.3. Change of Land Value

This criterion is not applicable in remote context however the introduction of the CACR service will lead to an increase in property values proximal to the railway in a wider context. This impact applies across the whole of the CACR Network and arises from the delivery of a depot which the access roads are an essential part of. The outcome is independent of site location. The Highly Positive Impact rating is common for all options.

4.2. Accessibility Impacts

4.2.1. Impact on Residents

This criterion assesses the access options provided to key services, jobs, and healthcare facilities as the provision of road access options has a direct impact on the local area residents.

The assessment of this sub-criterion has been conducted via GIS analysis of the number of people within 30mins / 3km of Depot based on CSO Small Area Population Statistics (SAPS).

The total population within 3km Radius of Depot is estimated at 13494.

Option 1 is scored as Highly Negative Impact. The option impacts Ballyadam, Ballyrichard More, Carrigtwohill and Middleton areas. This option introduces increased HGV traffic along Ballyrichard More Road and Carrigane Road and Carrigtwohill town centre (Main Street) / commercial area. This results in significant impacts to residential access to key services and other job locations beyond the depot. This option is also closer in proximity to a high-density residential area in Carrigtwohill and is in proximity to recreational amenities. There are no significant improvements to road infrastructure beyond bridge reconstruction for OBY7. There are long-term accessibility impacts due to the requirement for traffic management when HGVs utilise this route option.

Option 2 is scored as Slightly Negative Impact. The option impacts Ballyadam, Ballyrichard More, Carrigtwohill and Midleton areas. This option introduces increased HGV traffic along Ballyrichard More road and Castle-Rock Avenue. This results in significant impacts to residential access to key services and other job locations beyond the depot. This option is not closer in proximity to a high-density residential area or recreational amenities and does not pass through a commercial area. There are no significant improvements to road infrastructure beyond junction widening for HGV access. There are long-term accessibility impacts due to the requirement for traffic management when HGVs utilise this route option.

Option 3 is scored as Negative Impact. The option impacts Ballyadam, Ballyrichard More, Carrigtwohill and Midleton areas. This option introduces increased HGV traffic along Ballyrichard More Road and Northern Relief Road and Upper Mill Road (One main artery to Midleton centre). This results in significant impacts to residential access to key services and other job locations beyond the depot. This option is also closer in proximity to a high-density residential area in Midleton and is in proximity to a golf course. This option is also in proximity to the Midleton commercial area. There are no significant improvements to road infrastructure beyond junction widening for HGV access. There are long-term accessibility impacts due to the requirement for traffic management when HGVs utilise this route option.

Options 4 is scored as Neutral Impact. The option impacts Ballyadam, Ballyrichard More, Carrigtwohill and Midleton areas. There are significant impacts to the recreational area (namely the Sports Ground) in the short-term during bridge reconstruction of OBY7. This option introduces increased HGV traffic along Ballyrichard More road and Carrigane Road. This option also results in minor impacts to residential access to key services and other job locations beyond the depot. This option is not in proximity to a high-density residential area but is in proximity to recreational amenities at Carrigtwohill United AFC sports ground. This option does not pass through a commercial area. Option 4 provides a widened carriageway width with provision of active travel facilities. Option 4 requires bridge reconstruction for OBY7. There are a short-term accessibility impacts due to the requirement for traffic management during construction.

Options 5 and 6 are scored as Slightly Positive Impact. The option impacts Ballyadam, Ballyrichard More, Carrigtwohill and Midleton areas. These options introduce increased HGV traffic along Ballyrichard More road, Carrigane Road, Castle-Rock Avenue and Water-Rock Development Road. These options result in minor impacts to residential access to key services and other job locations beyond the depot. These options are not in proximity to a high-density residential area or recreational amenities. These options do not pass through a commercial area. These options provide widened carriageway width with provision of active travel facilities. There are a short-term accessibility impacts due to the requirement for traffic management during construction.

Options 7 and 8 are scored as Positive Impact. The option impacts Ballyadam, Ballyrichard More, Carrigtwohill and Midleton areas. These options introduce increased HGV traffic along Castle-Rock Avenue, Northern Relief Road and Water-Rock Development Road. These options result in minor impacts to residential access to key services and other job locations beyond the depot. These options are not in proximity to a high-density residential area or recreational amenities. These options do not pass through a commercial area. These options provide widened carriageway width with provision of active travel facilities. There are a short-term accessibility impacts due to the requirement for traffic management during construction.

4.3. Social Impacts

This criterion assesses the options qualitatively based on the following:

- Impact on Socially disadvantaged households, Impact on Mobility impaired, physically and intellectually impaired. Impact on aged, carers
- Impact on hidden disabilities - Autism, dementia.
- Impact on lower income groups.
- Impacts on households without a car. Impact on child supporters, those with strollers.
- Gender Impacts.

A spatial analysis of green spaces and recreational facilities as well as a GIS analysis on the number of deprived and the percentage of households with no car ownership within 30min / 1 km of the Depot access road option was undertaken for this assessment.

A qualitative analysis in relation to the impacts on mobility impaired, physically, intellectually impaired, aged and carers has also been conducted.

Option 1, 2 and 3 do not provide any improvements to the existing infrastructure as these options utilise the existing road network without upgrading or providing improvements to the existing infrastructure. These options introduce HGVs to existing roads that do not have segregation for NMUs. Members of recreational facilities (namely the Carrigtwohill United AFC Sport's ground and the Golf Course) are negatively impacted by Option 1 and 3 as more HGVs are introduced to the area with no existing NMU infrastructure to separate vulnerable road users (VRUs) such as aged people, people with reduced mobilities, people with children or strollers from motorised traffic. Option 1 and 3 are scored Negative Impact while Option 2 is scored Slightly Negative Impact as a result.

Option 4: introduces NMU facilities and lighting to the residents along this option which generates a positive impact to VRUs. Moreover, NMU facilities connect residents to recreational areas (AFC Sport Ground) allowing non-motorised users to access this facility while being separated from motorised traffic. Due to OBY7 reconstruction, there will be a likely temporary disturbance to members of the recreational facility. Option 4 is scored as Slightly Positive Impact as a result.

Option 5: is limited to the industrial area and as such does not provide further benefits to socially disadvantaged households in the surrounding area. The industrial area already provides necessary segregation of motorised and non-motorised traffic for most of the online sections. Option 5 scores as Neutral Impact as a result

Option 6: provides a direct link from N25 to depot and does not connect to residential areas. The option spatially accommodates an opportunity to provide potential active travel connection to residents on both sides of the N25 which could benefit impaired groups in the long term for socially disadvantaged households. Option 6 is scored as Slightly Positive Impact as a result.

Option 7: utilises Water-Rock development road which already incorporates public lighting as well as NMU facilities with segregated cycling infrastructure. This option provides continuity in NMU facilities (both footways and cycle tracks) from the depot to the junction intersecting Northern Relief Road and R907. This option proposes junction signalisation to accommodate NMU crossing facilities at two new locations. This Option provides immediate improvements in infrastructure for current residents as it provides improved NMU segregation that benefits socially disadvantaged households. Option 7 is scored as Positive Impact as a result.

Option 8: also utilises Water-Rock development road which already incorporates public lighting as well as NMU facilities with segregated Cycling lanes. This option provides continuity in NMU facilities (both footways and cycle tracks) from the depot to the junction intersecting Northern Relief Road and R907 and is a continuity

in alignment from Water-Rock residential development. This option proposes junction signalisation to accommodate NMU crossing facilities at one new location. As there are no current households beyond Castle-Rock junction, this option provides long term improvements in infrastructure for residents as it provides improved NMU segregation that benefits socially disadvantaged households. Option 8 is scored as Positive Impact as a result.

4.4. Land Use Impacts

4.4.1. Change in Quality of Public Realm

Under TAF, public realm is identified as areas containing streets, footpaths, parks, squares, bridges and public buildings and facilities. Existing public realm areas within or in the vicinity of the proposed depot sites have been identified, as appropriate, and the potential change in quality of the public realm areas has been assessed.

This criterion assesses the impacts related to changes in public realm resulting from the proposed interventions under consideration. The proposed options have been assessed considering the impacts the various options have on the existing public realm as well as the changes to the quality of the public realm.

Options 1, 2 and 3 do not provide improvements to the infrastructure of the public realm impacted by each route. On Option 1, existing footpaths are present on Main Street and Carrigane Road which terminate at Elmbury Est within Carrigtwohill. Option 2 has existing footpaths on Norther Relief Road and Water-Rock Development Road which terminate at Castle Rock Ave within Water-Rock. Option 3 has existing footpaths on Norther Relief Road and Upper Mill Road which terminate at Broomfield Ridge junction within Midleton. These options introduce increased HGV traffic in proximity to residential areas and commercial areas. Option 1 and 3 are in proximity to Sports Grounds and a golf course. There is poor integration for varying transport modes along local road network for these options as there is no segregation of NMUs and MUs and any construction works will impact public areas. Options 1 and 2 intersects the interurban cycle route. Option 1 will interact with the interurban cycle route at the junction approaches junction for OBY7 while Option 2 will interact the Interurban cycle route as the route option intersect at Castle Rock Avenue / Ballyrichard More junction. Option 3 has some interaction with the Interurban cycle route at Northern Relief Road roundabout where it utilises the existing NMU facilities onwards into Midleton. Option 3 does not provide connectivity for the Interurban cycle route. These options are scored as Negative Impact as a result.

Options 4 and 6 provide active travel facilities along the options resulting in improvements of the existing infrastructure for mobility impaired, physically and intellectually impaired persons. Option 6 however only offers a potential active travel connection to residents on both sides of the N25 which could benefit impaired groups in the long term. Option 4 introduces increased HGV traffic in proximity to low density residential areas and sports ground while Option 6 provides a direct link from N25 to depot and does not connect to residential areas. Options 4 and 6 are scored as Slightly Positive as a result of the improvements in infrastructure within the public realm.

Option 5 provides active travel facilities within the industrial area only. As such, it does not bring significant improvement for mobility impaired, physically and intellectually impaired persons outside of the industrial area. This option is scored as Neutral Impact as a result.

Options 7 and 8 provides improvements to active travel facilities along the existing roads resulting in significant improvements for mobility impaired, physically and intellectually impaired persons. These options provide continuity in NMU facilities from the depot up to the junction intersecting Northern Relief Road and R907. These options are scored as Positive Impact as a result.

4.4.2. Existing Transport Network and Service Impact

This sub-criterion assesses each option based on the impacts on connectivity with the existing transport infrastructure in an area, as well as with broader national and regional planning policy objectives. This has been carried out by assessing the impacts on the Local Road Network, assessing the degree to which the scheme integrates with each mode of the existing transport network and major transport hubs.

Options 1, 2 and 3 are anticipated to require significant traffic management (i.e. temporary road closure / diversion of through traffic) as part of the operational sequence. There are long-term accessibility impacts due to the requirement for traffic management when HGVs utilise these route option. As the depot severs the planned Interurban Cycle Route, a diversion of the cycle route is required. These options do not provide connectivity for the proposed cycle route as no NMU facilities are provided. On Option 1, the local road network impacted includes: Carrigane Road, Ballyrichard More Road and the northern access road (currently used as an access for the residential developments to the west of the road) that ties-in on approach to OBY7. At L3617 Curragh Road junction, Option 2 requires junction widening which also will likely demand property acquisition for a garden situated to the left of the junction. The stone wall of the property will be impacted by larger HGV manoeuvres and will likely require demolishing along with Overhead divergence works as one electricity pole is located within the left-turn swept path for larger HGVs. Option 3 requires significant traffic management along with the reconstruction of splitter islands and kerbs to allow for larger HGV (low-loaders) manoeuvres. These options are scored Slightly Negative Impact as a result.

Option 4 provides a wider carriageway for HGV transit along with NMU infrastructure. This option provides an improved junction access to N25. Option 4 requires the reconstruction of the OBY7 bridge to allow for HGVs and low-loaders manoeuvrability. This option is anticipated to require significant traffic management (i.e. temporary road closure / diversion of traffic through) as part of the operational sequence. There are long-term accessibility impacts due to the requirement for traffic management when HGVs utilise this route option. The local road network impacted by Option 4 includes Carrigane Road, Ballyrichard More Road and the northern access road (currently used as an access for the residential developments to the west of the road) that ties-in on approach to OBY7. As the depot severs the planned Interurban Cycle Route, a diversion of the cycle route is required, and this option accommodates connectivity through the provision of active travel infrastructure up to the depot. Option 4 is scored as Slightly Positive Impact as a result.

Options 5, 6, 7 and 8 also provide a wider carriageway for HGV transit along with NMU infrastructure. Options 5 and 6 offer improvements to the existing junction accesses to the N25 while Options 7 and 8 offer improved junction connections along Castle-Rock Avenue. Options 5 and 6 will require significant detours to the Interurban Cycle Route and bridging over the railway twice in order to tie-in at the required locations. These options provide significant improvements to the local road network due to segregation of NMUs and provision of wider carriageways for adequate access. These options score as Slightly Positive Impact as a result.

4.4.3. Material Assets: Properties

This sub-criterion assesses each option based on direct impacts on agricultural and non-agricultural properties and identifying significant property impacts arising from permanent land take, property division and / or impacts on access to retained lands / property.

Option 1

Option 1 comprises of an Online Management Option using existing roads from N25 in Carrigtwohill to the L3617 local road and connecting to an offline section of access road to the proposed Depot site at Carrigane Rd. The option will involve the reconstruction of one bridge over rail line (OBY7).

Agricultural property

Land cover is comprised of good quality improved grassland and arable land. Land use is grassland and arable based for livestock grazing / fodder production and tillage crop production. On the offline section, there are two agricultural properties with tillage lands of the Depot access road on which farmhouses and farmyards are present.

Direct impacts will involve permanent land take and farm division on two properties at Carrigane Rd. There will be temporary direct impacts on agricultural lands adjacent to the bridge (OBY7) reconstruction works. On the online section, there may be minor direct impacts to existing property boundaries and field access.

There is a significant or greater cumulative impact on one agricultural property due mainly to the land take impact associated with the Depot site. Mitigation of access to retained lands will be required on two properties.

Non-agricultural property

There are no direct impacts on non-agricultural property.

This option is considered to have a 'Slightly Negative Impact' on Property and is scored as '3' on the TAF Impact scoring scale.

Option 2

Option 2 comprises an Online Management Option using existing roads from Northern Relief Road at Middleton to L3617 local road and connecting to an offline section of access road to the proposed Depot site at Carrigane Rd.

Agricultural property

Land cover is comprised of good quality improved grassland and arable land. Land use is grassland and arable based for livestock grazing / fodder production and tillage crop production. On the offline section, there are two agricultural properties with tillage lands of the Depot access road on which farmhouses and farmyards are present.

Direct impacts will involve permanent land take and farm division on two properties at Carrigane Rd. On the online section, there may be minor direct impacts to existing property boundaries and field access.

There is a significant or greater cumulative impact on one agricultural property due mainly to the land take impact associated with the Depot site. Mitigation of access to retained lands will be required on two properties.

Non-agricultural property

On the offline section of the access road, there are no direct impacts on non-agricultural property. On the online section, there will be a direct impact on one residential property due to permanent land take from garden curtilage and impact on the property boundary. There is no impact on existing access to the property.

This option is considered to have a 'Slightly Negative Impact' on Property and is scored as '3' on the TAF Impact scoring scale.

Option 3

Option 3 comprises an Online Management Option using existing roads from Northern Relief Road at Middleton via the Upper Mill Road (R626) to the L3617 local road and connecting to an offline section of access road to the proposed Depot site at Carrigane Rd.

Agricultural property

Land cover is comprised of good quality improved grassland and arable land. Land use is grassland and arable based for livestock grazing / fodder production and tillage crop production. On the offline section, there are two agricultural properties with tillage lands of the Depot access road on which farmhouses and farmyards are present.

Direct impacts will involve permanent land take and farm division on two properties at Carrigane Rd. On the online section, there may be minor direct impacts to existing property boundaries and field access on agricultural properties.

There is a significant or greater cumulative impact on one agricultural property due mainly to the land take impact associated with the Depot site. Mitigation of access to retained lands will be required on two properties.

Non-agricultural property

On the offline section of the access road, there are no direct impacts on non-agricultural property. On the online section, there are no direct impacts on non-agricultural property.

This option is considered to have a 'Slightly Negative Impact' on Property and is scored as '3' on the TAF Impact scoring scale.

Option 4

Option 4 comprises an Online Option using existing roads from N25 / L7642 junction at Ballyadam to L3617 local road and connecting to an offline section of access road to the proposed Depot site at Carrigane Rd. The option will involve the reconstruction of one bridge over rail line (OBY7) and realignment of the local road.

Agricultural property

Land cover is comprised of good quality improved grassland and arable land. Land use is grassland and arable based for livestock grazing / fodder production and tillage crop production. On the online section, there are six agricultural properties on which farmhouses and farmyards are present on three properties. On the offline section, there are two agricultural properties with tillage lands of the Depot access road on which farmhouses and farmyards are present.

On the offline section, direct impacts will involve permanent land take and farm division on two properties at Carrigane Rd. On the online section, direct impacts will involve permanent land take for the proposed rail bridge and road realignment. There will be impacts to existing property boundaries and field access on remaining agricultural properties.

There is a significant or greater cumulative impact on two agricultural properties due mainly to the land take impact associated with the Depot site. Mitigation of access to retained lands will be required on two properties.

Non-agricultural property

On the offline section of the access road, there are no direct impacts on non-agricultural property. On the online section, there will be direct impacts on three residential properties due to permanent land take for road widening. Property impacts will consist of impacts to existing property boundaries and entrances. There will be temporary impacts on property access during the construction phase. There will be a direct impact on one property (currently being developed) due to road widening of the local road (L7642).

This option is considered to have a 'Negative Impact' on Property and is scored as '2' on the TAF Impact scoring scale.

Option 5

Option 5 comprises of a Partially Offline Option using existing road network within a property (currently being developed) and an offline section on agricultural lands to the proposed Depot site. The option will involve the construction of one new bridge over rail line.

Agricultural property

Land cover is comprised of good quality improved grassland and arable land. Land use is grassland and arable based for livestock grazing / fodder production and tillage crop production. The offline section of the access road will impact on three agricultural properties.

Direct impacts will involve permanent land take on three properties. There is a significant or greater cumulative impact on one agricultural property due mainly to the land take impact associated with the Depot site.

Non-agricultural property

On the online section, there will be a direct impact on one commercial property involving the existing internal road network. There may be permanent land take of existing curtilage to provide for road or junction widening and connection to the offline section.

This option is considered to have a 'Negative Impact' on Property and is scored as '2' on the TAF Impact scoring scale.

Option 6

Option 6 comprises of an Offline Option involving a new grade separated junction on the N25 and access road to the proposed Depot. The option will involve the construction of one new bridge over rail line.

Agricultural property

Land cover is comprised of good quality improved grassland and arable land. Land use is grassland and arable based for livestock grazing / fodder production and tillage crop production. The N25 junction and access road will impact on three agricultural properties.

Direct impacts will involve permanent land take on three properties and farm division on one property. There is a significant or greater impact on one agricultural property due mainly to the land take and farm division impacts.

Non-agricultural property

On the online section, there are no direct impacts on non-agricultural property.

This option is considered to have a 'Negative Impact' on Property and is scored as '2' on the TAF Impact scoring scale.

Option 7

Option 7 comprises of a Partially Offline Option using existing roads from Northern Relief Road and Water-Rock development road to Castle Rock Avenue and an offline section to the proposed Depot site.

Agricultural property

Land cover is comprised of good quality improved grassland and arable land. Land use is grassland and arable based for livestock grazing / fodder production and tillage crop production. The offline section of the access road option and road widening of Castle Rock Avenue will impact on three agricultural properties.

Direct impacts will involve permanent land take on three properties and farm division of a farmyard from retained lands on one property. There is a significant or greater impact on one agricultural property due to the land take and farm division impacts.

Non-agricultural property

On the online section, there will be a direct impact on one residential property due to permanent land take from garden curtilage and an impact on the property boundary. There will be a temporary impact on access to the property during construction.

This option is considered to have a 'Negative Impact' on Property and is scored as '2' on the TAF Impact scoring scale.

Option 8

Option 8 comprises of a Partially Offline Option using existing roads from Northern Relief Road and Water-Rock development road to Castle Rock Avenue (L3618) and an offline section to the proposed Depot site.

Agricultural property

Land cover is comprised of good quality improved grassland and arable land. Land use is both grassland and arable based for livestock grazing / fodder production and tillage crop production. The offline section of the access road option will impact on three agricultural properties.

Direct impacts will involve permanent land take on three properties and farm division on two properties. There is a significant or greater impact on two agricultural properties due to the land take and farm division impacts.

Non-agricultural property

There are no direct impacts on non-agricultural property.

This option is considered to have a 'Highly negative Impact' on Property and is scored as '1' on the TAF Impact scoring scale

4.4.4. Built Services (Utilities)

This sub-criterion assesses the varied impacts on existing utilities based on the likelihood of utility asset diversions required to achieve a suitable alignment within the options corridors. This assessment has assessed the options by carrying out a desktop study against the existing utility records available for the area.

The number of impacts encountered by an option have been grouped by range to determine what score the range of impacts fall under while comparing the options as shown in the table below. Options with less than 10 impacts are scored Slight Negative, options ranging between 11 impacts and 25 impacts are scored Negative and options above 25 impacts are considered Highly Negative in score.

Table 4.3 Scoring range for Utility Impacts

Number of impacts	MCA Scoring Scale
0	4. Neutral Impact
<10	3. Slightly Negative Impact
<25	2. Negative Impact
<45	1. Highly Negative Impact

Options 5, 6, 7 and 8 are scored Slight Negative Impact. Option 5 impacts ESB 110kV one time, ESB 38kV two times and ESB Medium Voltage two times. Option 6 impacts ESB 110kV three times, ESB 38kV one time and ESB Medium Voltage four times. Option 8 impacts ESB 110kV two times, ESB 38kV one time and ESB Medium Voltage two times. Options 5, 6 and 8 have less than ten number of impacts in each option; therefore, scoring as Slightly Negative Impacts. Option 7 impacts ESB 110kV one time, ESB 38kV one time, ESB Medium Voltage four times. Eir impacts on Option 7 one time and existing public lighting one time.

Options 1, 2, and 4 are scored Negative Impact. Option 1 impacts ESB 110kV one time, ESB 38kV two times, ESB Medium Voltage six times and ESB Low Voltage eight times. Option 2 impacts ESB 110kV one time, ESB 38kV two times, ESB Medium Voltage seven times and ESB Low Voltage six times. From the desktop study, possible Eir or ESB Low Voltage overhead cabling is impacted by Option 2 seven times. Option 4 impacts ESB 110kV one time, ESB 38kV two times, ESB Medium Voltage six times and ESB Low Voltage three times. From the desktop study, possible Eir or ESB Low Voltage overhead cabling is impacted by Option 4 one time. Surface water drainage impacted one time.

Option 3 scored High Negative Impact as Option 3 impacts ESB 110kV one time, ESB 38kV two times, High Voltage one time, ESB Medium Voltage five times, ESB Low Voltage seven times. From the desktop study there are possible Eir or ESB Low Voltage overhead cabling impacted twenty-six times by option 3. Option 3 has less than forty-five number of impacts in this option; therefore, scoring as Highly Negative Impact.

4.4.5. Soils and Geology (incl. Waste)

Geotechnical Summary

Geological Context of the Route Options

Geological mapping of the area indicates that the site is predominantly underlain by Glacial Till and Glacial Sands and Gravels, derived from Devonian Sandstones. The eastern and western access routes also traverse areas of Alluvium, while Made Ground is anticipated along existing road corridors and in proximity to bridge structures.

The bedrock geology is largely composed of the Waulsortian Limestone Formation, characterised by massive, unbedded lime-mudstone. However, the northern and eastern sections of route options 2, 3, 5, 6, 7, and 8 intersect additional formations, including:

- **Ballysteen Formation** – dark, muddy limestone and shale
- **Cuskinny Member** – flaser-bedded sandstone and mudstone
- **Gyleen Formation** (north of Option 3) – sandstone, mudstone, and siltstone
- **Old Head Sandstone Formation** – flaser-bedded sandstone with minor mudstone

All route options lie within the northern limb of the Cork Syncline, a large-scale structural feature. Associated faulting is also mapped throughout the area.

Depot-specific ground investigations (GI) have not been undertaken at the time of reporting and available GI information is limited to the existing railway. Based on geological maps, historical geophysical surveys and GMTT Ground Investigation information rockhead levels are anticipated to vary significantly across the study area, ranging from at or near existing ground level, to depths exceeding 10 metres.

Karstic Features

Waulsortian Limestone underlies much of the proposed routes and susceptible to karst weathering. Surface and subsurface karstic weathering features have been identified in proximity of the existing railway, depot and considered options, based on geological maps and existing ground investigation information. Observed features include caves, cavities/voids, and turloughs. Areas underlain by Waulsortian Limestone may encounter karstic features which can be characterised as Youthful (KII) to Complex (KIV) (Waltham & Fookes, 2003)¹. Bridge foundations, drainage solutions and earthworks will need to carefully consider the risks associated with karstic features and ground treatment may be required (infilling, bridging, grouting etc.).

Option 1

The proposed development predominately utilises existing roads and the replacement of OBY7. Moderate volume (100-1000m³) of cut anticipated as a part of temporary works, drainage, road alterations and new access road to the depot. Moderate volume (100-1000m³) of engineered fill to backfill behind abutments, improve existing roads and new access road to the depot.

This option will have a **slightly negative impact** on existing soils due to the bridge reconstruction and anticipated volume/extent of earthworks required. Impact partially mitigated through the reuse of soils excavated as a part of new road construction. Opportunity to utilise site-won aggregate from Depot earthwork activities. Consideration should be made where works are undertaken within an area underlain by Waulsortian Limestone Formation bedrock due to the possible presence of karstic features.

Option 2

The proposed development predominately utilises existing roads and level crossings. Moderate volume (100-1000m³) of cut anticipated as a part of temporary works, drainage, road alterations and new access road to the depot. Moderate volume (100-1000m³) of engineered fill to backfill behind abutments, improve existing roads and new access road to the depot.

This option will have a **slightly negative impact** on existing soils due to the anticipated volume/extent of earthworks required. Impact partially mitigated through the reuse of soils excavated as a part of new road construction. Opportunity to utilise site-won aggregate from Depot earthwork activities. Consideration should be made where works are undertaken within an area underlain by Waulsortian Limestone Formation bedrock due to the possible presence of karstic features.

Option 3

The proposed development predominately utilises existing roads and bridge OBY 9B. Moderate volume (100-1000m³) of cut anticipated as a part of temporary works, drainage, road alterations and new access road to

¹ A.C. Waltham & P.G. Fookes, "Engineering Classification of Karst Ground Conditions," *Quarterly Journal of Engineering Geology and Hydrogeology*, vol. 36, no. 2, pp. 101-118, 2003.

the depot. Moderate volume (100-1000m³) of engineered fill to backfill behind abutments, improve existing roads and new access road to the depot.

This option will have a slightly negative impact on existing soils due to the anticipated volume/extent of earthworks required. Impact partially mitigated through the reuse of soils excavated as a part of new road construction. Opportunity to utilise site-won aggregate from Depot earthwork activities. Consideration should be made where works are undertaken within an area underlain by Waulsortian Limestone Formation bedrock due to the possible presence of karstic features.

Option 4

This option predominately utilises existing roads and replacement of OBY7. Moderate volume (100-1000m³) of cut anticipated as a part of temporary works, drainage, road alterations and new access road to the depot. Moderate volume (100-1000m³) of engineered fill to backfill behind abutments, improve existing roads and new access road to the depot.

This option will have a **slightly negative impact** on existing soils due to the anticipated volume/extent of earthworks required. Impact partially mitigated through the reuse of soils excavated as a part of new road construction. Opportunity to utilise site-won aggregate from Depot earthwork activities. Consideration should be made where works are undertaken within an area underlain by Waulsortian Limestone Formation bedrock due to the possible presence of karstic features.

Option 5

The proposed development utilises existing roads and requires the construction of a new overbridge. Moderate volume (100-1000m³) of cut anticipated as a part of temporary works, drainage, road alterations and new access road to the depot. Large volume (1000-10000m³) of engineered fill to construct abutments, approach embankments, improve existing roads and new access road leading to the depot.

This option will have a **negative impact** on existing soils due to the anticipated volume/extent of earthworks required. Impact partially mitigated through the reuse of soils excavated as a part of new road construction. Opportunity to utilise site-won aggregate from Depot earthwork activities. Consideration should be made where works are undertaken within an area underlain by Waulsortian Limestone Formation bedrock due to the possible presence of karstic features.

Option 6

The proposed development requires connections to and from the N25, two new roundabouts and two bridges, with one bridge over the N25 and the other over the railway. Moderate volume (100-1000m³) of cut anticipated as a part of temporary works, drainage, road alterations and new access road to the depot. Significant volume (>10000m³) of engineered fill to construct abutments, approach embankments, roundabouts, tie-ins and new access road leading to the depot.

This option will have a **highly negative impact** on existing soils due to the anticipated volume/extent of earthworks required. Impact partially mitigated through the reuse of soils excavated as a part of new road construction. Opportunity to utilise site-won aggregate from Depot earthwork activities. Consideration should be made where works are undertaken within an area underlain by Waulsortian Limestone Formation bedrock due to the possible presence of karst features.

Option 7

This option utilises a combination of existing roads and a new road connecting to the depot. Moderate volume (100-1000m³) of cut anticipated as a part of drainage, road alterations and new access road to the depot. Moderate volume (100-1000m³) of engineered fill to improve existing roads, tie-ins and new access road leading to the depot.

This option will have a **slightly negative impact** on existing soils due to the anticipated volume/extent of earthworks required. Impact partially mitigated through the reuse of soils excavated as a part of new road construction. Opportunity to utilise site-won aggregate from Depot earthwork activities. Consideration should be made where works are undertaken within an area underlain by Waulsortian Limestone Formation bedrock due to the possible presence of karstic features.

Option 8

This option utilises a combination of existing roads and a new road connecting to the depot. Moderate volume (100-1000m³) of cut anticipated as a part of drainage, road alterations and new access road to the depot. Moderate volume (100-1000m³) of engineered fill to improve existing roads, tie-ins and new access road leading to the depot.

This option will have a **slightly negative impact** on existing soils due to the anticipated volume/extent of earthworks required. Impact partially mitigated through the reuse of soils excavated as a part of new road construction. Opportunity to utilise site-won aggregate from Depot earthwork activities. Consideration should be made where works are undertaken within an area underlain by Waulsortian Limestone Formation bedrock due to the possible presence of karst features.

4.4.6. Planning Applications

This sub-criterion assesses large Scale residential and non-residential planning applications (granted and pending) potentially within the site boundaries.

Option 1

A portion of this option is within the red line Celtic interconnector project boundary extents, involving HVDC underground cabling. Along Carrigane Rd, the proposed route passes an area along Carrigane Rd where there is currently active development (Planning Application: 217130) entailing the construction of residential units and a separate planning application development entailing new site access and local improvement works to facilitate access to the IDA Ballyadam site (Planning Application: 217374). The route also passes the Carrigtwohill United AFC Planning Application (254270) for works within the boundary of the football fields.

The assessment does not anticipate that this option will impact existing planning applications along the route and will therefore have **neutral impact**.

Option 2

A portion of this option is within the red line Celtic interconnector project boundary extents, involving HVDC underground cabling.

The proposed route passes the Water-Rock residential development along the L3618 Water Rock Road), Planning Application (225839) (Ingram Homes Limited- Largescale Residential Development. Ten-year planning permission for 400 residential units to be constructed in a series of phases, a creche and community use unit and ancillary infrastructure, services, and site development works.) as part of the Water-Rock UEA Scheme.

The assessment does not anticipate that this option will impact existing planning applications along the route and will therefore have **neutral impact**.

Option 3

A portion of this option is within the red line Celtic interconnector project boundary extents, involving HVDC underground cabling.

The route utilises a section of the recently constructed Northern Relief Road Tie In s part of the Water-Rock Uran Expansion Scheme.

The assessment does not anticipate that this option will impact existing planning applications along the route and will therefore have **neutral impact**.

Option 4

A portion of this option is within the red line Celtic interconnector project boundary extents, involving HVDC underground cabling.

Along Carrigane Rd, is currently active development (Planning Application: 217130) entailing the construction of residential units and a separate planning application development entailing new site access and local improvement works to facilitate access to the IDA Ballyadam site (Planning Application: 217374). The route also passes adjacent to the Carrigtwohill United AFC Planning Application (254270) for works within the boundary of the football fields.

The assessment does not anticipate that this option will impact existing planning applications along the route and will therefore have **neutral impact**.

Option 5

A portion of this option is within the red line Celtic interconnector project boundary extents, involving HVDC underground cabling.

The assessment does not anticipate that this option will impact existing planning applications along the route and will therefore have **neutral impact**.

Option 6

No recent planning applications within the last 5-year period. The assessment does not anticipate that this option will impact existing planning applications along the route and will therefore have **neutral impact**.

Option 7

Permission granted in 2023 for Planning application 217264, EMR Projects Ltd. Development consisting of a mixed used scheme comprising of residential units at Lands of Knockgriffin and Water-Rock. The proposed route does not impact this development and will therefore have **neutral impact**.

Option 8

No recent planning applications within the last 5-year period. The assessment does not anticipate that this option will impact existing planning applications along the route and will therefore have **neutral impact**.

4.4.7. Zoned Land, Land Use Planning and Spatial Planning

This sub-criterion assesses each option based on impacts to the strategic land-use planning at a national, regional, or local level along with impacts to planning applications in proximity to the options.

An assessment whether/how well the option provides a connection with land zoned for residential or industrial use and acts as an enabler for key national or regional policies such as the National Planning Framework (NPF), Regional Spatial and Economic Strategies (RSES) and Local Area Plans.

Option 1

The proposed route is identified within the Metropolitan Cork Strategic Planning Area.

This option will support the CACR programme in aligning with European and National policy as well as objectives at a Regional and Local policy level including within the RSES, CMASP, CMATS, AISRR, and the Cork County Development Plan 2028.

This option is supported by the following Cork County Development Plan Transport and Mobility (TM) and Climate (CS) Objectives: TM 12-1, TM 12-3, TM 12-6, TM 12-7, CS 2-8, CS 17-1, and CS 17-2.

The proposed route utilises existing roads that traverse through the following land use zoning areas: "Industry", "Industry, Enterprise, employment", "Existing Residential/Mixed Residential and Other Uses", "Town Centre/Neighbourhood Centres", "Business and General Employment" and "Existing Mixed/General Business/Industrial Uses". As the route approaches the proposed depot location, this is in unzoned lands.

The proposed route is impacting on "Residential", "Green Infrastructure" and "Industry" land use zoning areas.

Option 1 will have **positive impact** on strategic land-use planning.

Option 2

The site is identified within the Metropolitan Cork Strategic Planning Area.

This option will support the CACR programme in aligning with European and National policy as well as objectives at a Regional and Local policy level including within the RSES, CMASP, CMATS, AISRR, and the Cork County Development Plan 2028.

This option is supported by the following Cork County Development Plan Transport and Mobility (TM) and Climate (CS) Objectives: TM 12-1, TM 12-3, TM 12-6, TM 12-7, CS 2-8, CS 17-1, and CS 17-2.

This option is crossing a site under the Objective MD-C-01 "Provision of a site for a primary school as part of Phase 1 of the Water-Rock Urban Expansion Area." specified in Specific Development Objectives for Midleton.

The proposed route utilises existing roads that traverse through the following land use zoning areas: "Existing Residential/Mixed Residential and Other Uses" and directly adherend to "Residential" and "Green Infrastructure". The use of the existing roads does not impact the land use zoning policy/objectives for these areas.

Option 2 will have **highly positive impact** on strategic land-use planning.

Option 3

The site is identified within the Metropolitan Cork Strategic Planning Area.

This option will support the CACR programme in aligning with European and National policy as well as objectives at a Regional and Local policy level including within the RSES, CMASP, CMATS, AISRR, and the Cork County Development Plan 2028.

This option is supported by the following Cork County Development Plan Transport and Mobility (TM) and Climate (CS) Objectives: TM 12-1, TM 12-3, TM 12-6, TM 12-7, CS 2-8, CS 17-1, and CS 17-2.

The proposed route utilises existing roads that traverse through the following land use zoning areas: "Existing Residential/Mixed Residential and Other Uses" and "Existing Mixed/General Business/Industrial Uses" and directly adherend to "Residential", "High Technology Campus Development", "Business and General Employment", "Existing Mixed/General Business/Industrial Uses", "Green Infrastructure" and "Special Policy Area". The use of the existing roads does not impact the land use zoning policy/objectives for these areas.

Option 3 will have **highly positive impact** on strategic land-use planning.

Option 4

The site is identified within the Metropolitan Cork Strategic Planning Area.

This option will support the CACR programme in aligning with European and National policy as well as objectives at a Regional and Local policy level including within the RSES, CMASP, CMATS, AISRR, and the Cork County Development Plan 2028.

This option is supported by the following Cork County Development Plan Transport and Mobility (TM) and Climate (CS) Objectives: TM 12-1, TM 12-3, TM 12-6, TM 12-7, CS 2-8, CS 17-1, and CS 17-2.

The proposed route utilises existing roads that traverse through the following land use zoning areas: "Residential", "Industry", "Business and General Employment", "Green Infrastructure" and "Existing Residential/Mixed Residential and Other Uses".

The proposed route is impacting on "Residential", "Green Infrastructure" and "Industry" land use zoning areas.

Option 4 will have **slightly positive impact** on strategic land-use planning.

Option 5

The site is identified within the Metropolitan Cork Strategic Planning Area.

This option will support the CACR programme in aligning with European and National policy as well as objectives at a Regional and Local policy level including within the RSES, CMASP, CMATS, AISRR, and the Cork County Development Plan 2028.

This option is supported by the following Cork County Development Plan Transport and Mobility (TM) and Climate (CS) Objectives: TM 12-1, TM 12-3, TM 12-6, TM 12-7, CS 2-8, CS 17-1, and CS 17-2.

The section of the proposed access road is zoned as "Industry".

Option 5 will have **positive impact** on strategic land-use planning.

Option 6

The site is identified within the Metropolitan Cork Strategic Planning Area.

This option will support the CACR programme in aligning with European and National policy as well as objectives at a Regional and Local policy level including within the RSES, CMASP, CMATS, AISRR, and the Cork County Development Plan 2028.

This option is supported by the following Cork County Development Plan Transport and Mobility (TM) and Climate (CS) Objectives: TM 12-1, TM 12-3, TM 12-6, TM 12-7, CS 2-8, CS 17-1, and CS 17-2.

The proposed route of this option is not zoned.

Option 6 will have **highly positive impact** on strategic land-use planning.

Option 7

The site is identified within the Metropolitan Cork Strategic Planning Area.

This option will support the CACR programme in aligning with European and National policy as well as objectives at a Regional and Local policy level including within the RSES, CMASP, CMATS, AISRR, and the Cork County Development Plan 2028.

This option is supported by the following Cork County Development Plan Transport and Mobility (TM) and Climate (CS) Objectives: TM 12-1, TM 12-3, TM 12-6, TM 12-7, CS 2-8, CS 17-1, and CS 17-2.

The proposed route is in proximity of the site boundary of objective MD-C-01 "Provision of a site for a primary school as part of Phase 1 of the Water-Rock Urban Expansion Area." specified in Specific Development Objectives for Midleton in the Cork County Development Plan 2022 Vol. 4.

The proposed route is in proximity of the site boundary of objectives:

- MD-U-08 "Ensure this existing road and its junction arrangement with the Water-Rock Road meets appropriate standards upon connection to the upgraded Water-Rock Road (MD-U-07)"
- MD-U-07: "Upgrading of the Water-Rock Road to Feeder Street Standard, designed and constructed in accordance with the DMURS guidance document to a standard which meets the approval of Cork County Council. Existing trees and hedgerows should be retained where possible with replacement planting proposed where retention is not possible."
- MD-U-02: "Provision of Services Corridor Link Road, from the Northern Relief Road roundabout to the Water-Rock Road, designed and constructed in accordance with the DMURS guidance for a Link Street and to a standard which meets the approval of Cork County Council. "The location of this option is zoned with "Existing Mixed/General Business/Industrial Uses" and "Residential" and "Community".

Option 7 will have **positive impact** on strategic land-use planning.

Option 8

The site is identified within the Metropolitan Cork Strategic Planning Area.

This option will support the CACR programme in aligning with European and National policy as well as objectives at a Regional and Local policy level including within the RSES, CMASP, CMATS, AISRR, and the Cork County Development Plan 2028.

This option is supported by the following Cork County Development Plan Transport and Mobility (TM) and Climate (CS) Objectives: TM 12-1, TM 12-3, TM 12-6, TM 12-7, CS 2-8, CS 17-1, and CS 17-2.

The proposed route is in proximity of the site boundary of objective MD-C-01 "Provision of a site for a primary school as part of Phase 1 of the Water-Rock Urban Expansion Area." specified in Specific Development Objectives for Midleton in the Cork County Development Plan 2022 Vol. 4. and MD-U-02: "Provision of Services Corridor Link Road, from the Northern Relief Road roundabout to the Water-Rock Road, designed and

constructed in accordance with the DMURS guidance for a Link Street and to a standard which meets the approval of Cork County Council."

The location of this option is zoned with "Residential", "Existing Mixed/General Business/Industrial Uses" and "Green Infrastructure".

Option 8 will have **slightly positive impact** on strategic land-use planning.

4.5. Safety Impacts

4.5.1. Collision & Related Impacts

This sub-criterion assesses each option based on the estimated impacts on vulnerable users namely non-motorised users and motorcyclists. A Level Crossings safety analysis is also considered under this assessment as well as a review of collision statistics.

Collisions were identified on the existing roads using the available RSA collision data which covers the period between 2007 to 2016 as there is no collision data readily available beyond these periods due to GDPR restrictions on the Road Safety Authority.

All options consider access to the depot from the N25 which has a speed limit of 100km/h. Option 4 and option 5 are utilising direct accesses from N25 which has a speed limit of 100 km/h, this increases safety concerns and could lead to more collisions during turning movements. Option 6 is introducing two new accesses from N25 (entry / Exit from and to N25) in an area that already includes 5 direct junctions within 1 km. This increases safety concerns as more turning movements are introduced on a National Road with speed limit of 100 km/h. Option 7 and Option 8 don't propose any direct accesses from N25 which enhances the overall safety of these two options.

Option 1 has active travel infrastructure in town/village centres which are impacted by larger HGV (low-loader) manoeuvres due to the narrow corridors. No active travel facilities on existing infrastructure in proximity to Depot location. There were 6 Minor collisions, 1 Severe collision and 0 Fatal collisions along this option. No level crossings along this route. Option 1 scores Negative impact as this option does not improve safety but rather introduces greater safety concerns due to the interaction of MUs and NMUs as well as this option not mitigating the causes of the existing collisions recorded.

Option 2 has active travel infrastructure through Water-Rock with some sections of the infrastructure being impacted by larger HGV (low-loader) manoeuvres. No active travel facilities on existing infrastructure in proximity to Depot location. There were 4 Minor collisions, 0 Severe collisions and 0 Fatal collision along this option. No level crossings along this route as the Water-Rock Development project will close-off the level-crossing on Castle-Rock Avenue. Option 2 scores Negative impact as this option does not improve safety but rather introduces greater safety concerns due to the interaction of MUs and NMUs as well as this option not mitigating the causes of the existing collisions recorded.

Option 3 has active travel infrastructure through Water-Rock and Middleton with some sections of the infrastructure being impacted by larger HGV (low-loader) manoeuvres. No active travel facilities on existing infrastructure in proximity to Depot location. There were 12 Minor collisions, 1 Severe collision and 1 Fatal collision along this option. No level crossings along this route. Option 3 scores Negative impact as this option does not improve safety but rather introduces greater safety concerns due to the interaction of MUs and NMUs as well as this option not mitigating the causes of the existing collisions recorded.

Option 4 requires online widening works with the incorporation of existing direct & farm accesses along entire route. Direct accesses & Active travel infrastructure interactions generate risk of collisions where visibility

cannot be achieved. There are no active travel facilities on existing infrastructure in proximity to depot location. The wider carriageway allows for larger HGV manoeuvres without impacting vulnerable road users as active travel infrastructure is provided as part of online widening works. There were 2 Minor collisions, 0 Severe collision and 1 Fatal collision (at the N25 junction) along this option. No level crossings along this route. Option 4 scores Slightly Positive Impact as this option improve safety while accommodating the increase HGV traffic rather introduces greater safety concerns due to the interaction of MUs and NMUs as well as this option not mitigating the causes of the existing collisions recorded.

Option 5 is limited to serving the industrial area with access from the N25 junction. No collisions have been observed along the industrial road. However, on the N25 there were 2 Minor Collisions, 0 Severe Collisions and 1 Fatal Collision observed. This Option operates independently and does not have any existing direct & farm accesses along route option. The wider carriageway allows for larger HGV manoeuvres without impacting vulnerable road users. Active travel infrastructure is provided as part of infrastructure upgrades. Some active travel facilities on existing infrastructure. Option 5 scores as Positive Impact.

Option 6 has a direct connection to the depot and does not serve surrounding local network. This option is offline and does not have existing direct & farm accesses. This option introduces a new access onto the N25 which has eleven existing access points within 3km for this location. This introduces greater collision risks along this stretch of the N25. At the Tie-in location to the N25, 3 Minor Collisions, 0 Severe Collisions and 0 Fatal Collisions were observed within the collision data. The introduction of new junctions will not alleviate the safety concerns on the N25 along this location. The wider carriageway allows for larger HGV manoeuvres without impacting vulnerable road users. Active travel infrastructure is provided as part of option. There are no active travel facilities on existing infrastructure along the N25 to connect to thus reducing the NMU interaction with the N25. Option 6 scores as Slightly Positive Impact.

Option 7 is partially offline and utilises the existing Castle-Rock Avenue and Water-Rock Development Road alignment. Access to the N25 is provided via the interchange at Knockgriffin Industrial Park. There are 4 Minor Collisions, 0 Severe Collisions and 0 Fatal Collisions observed for this route. There are no direct accesses from N25 on this option. This option introduces more farm accesses along route. The wider carriageway allows for larger HGV manoeuvres without impacting vulnerable road users. Active travel infrastructure is provided as part of the option. Active travel facilities are present along the Water-Rock Development Road and Northern Relief Road allowing for continuity and connectivity of NMU infrastructure thus providing the necessary segregation. This option proposes two signalised junctions allowing for NMU crossing points. Option 7 scores as Positive Impact.

Option 8 is also partially offline and utilises the existing Castle-Rock Avenue and Water-Rock Development Road alignment. Access to the N25 is provided via the interchange at Knockgriffin Industrial Park. There are 4 Minor Collisions, 0 Severe Collisions and 0 Fatal Collisions observed for this route. There are no direct accesses from N25 on this option. This option introduces more farm accesses along route. The wider carriageway allows for larger HGV manoeuvres without impacting vulnerable road users. Active travel infrastructure is provided as part of the option. Active travel facilities are present along the Water-Rock Development Road and Northern Relief Road allowing for continuity and connectivity of NMU infrastructure thus providing the necessary segregation. This option proposes one signalised junction allowing for NMU crossing points. Option 8 scores as Positive Impact.

4.5.2. Other Safety Impacts

This sub-criterion assesses the alignment of each option based on anti-social behaviour, trips, falls and the integration with local urban infrastructure.

Option 1 utilises existing road network and is running through Cork Road and Carrigane. It introduces HGVs and low-loaders traffic to residential and commercial area which enhances the likelihood of collisions and falls occurring.

Option 2 utilises existing road network and is running through Northern Relief Road, Water-Rock Development Road, L3618 Water-Rock and Ballyrichard More. Similar to option 1, it introduces HGVs and low-loaders traffic to residential area which could potentially lead to collisions and falls.

Option 3 utilises existing road network and is running through Northern Relief Road, Upper Mill Road (R626), L3617 Curragh Road and Ballyrichard More Road. This option introduces HGVs and low-loaders traffic to Broomfield Village which is a medium-density residential area with several private houses' accesses to the north of the village, this could potentially increase the likelihood of collisions occurring close to these accesses or on road sections where the visibility is reduced.

Option 4 requires online widening and introduces HGVs and low-loaders traffic into a residential area along Ballyrichard More Road as well as an active travel infrastructure, this option needs realignment of the current road to avoid direct impact on private residential properties while providing NMU facilities that are separated from traffic. This enhances the safety for non-motorised users and reduce potential interactions with HGVs present on the road. Collisions are still likely to occur on the direct junction from the N25 when performing turning movements on a national road with a speed limit of 100 km/h.

Option 5 introduces HGVs and low-loaders to an industrial area on which HGVs are frequently present, with an upgrade of the existing road to accommodate segregated footways and cycleways, this has the advantage of eliminating interactions and collisions likelihood between HGVs and non-motorised individuals, beyond the industrial area, the remaining section of this option is offline and is running through agriculture fields away from residential properties. It should be noted though that the direct access from N25 to the industrial area could potentially lead to vehicle-to-vehicle collisions when performing turning movements due to the high speed exercised on this national road.

Option 6 introduces additional junction onto the N25 where five junctions already exist over approximately one kilometre and a speed limit of 100 km/h. The implementation of this option in a short section of the N25 where turning movements are already present could enhance the likelihood of collisions happening in the future.

Option 7 provides a continuity from the Water-Rock development road that is offering segregated NMU facilities which increases safety for pedestrians and cyclists, it is running through scattered residential properties at a limited section and goes offline beyond that. Most of this option already incorporates public lighting and do not require any bridges construction which significantly reduces falls and anti-social behaviour likelihoods.

Option 8 is an offline option providing a continuity from the Water-Rock development road that is incorporating segregated NMU facilities. Most of this option already incorporates public lighting and do not require any bridges construction which significantly reduces falls and anti-social behaviour likelihoods.

4.6. Climate Change Impacts

4.6.1. Climate Action Impact

This sub-criterion assesses the options based on CAPEX, OPEX and characterisation of impacts.

Option 1

Operational phase CO₂ emissions will be higher due to increased traffic volume. In operational stage vehicles travel approx. 6.48km.

This option will involve the demolition of an existing bridge (OBY7) and the constructing a new bridge across the railway track and therefore requiring construction materials and subsequent embodied carbon.

Due to the related carbon emissions, this option is scored as '3' on the TAF Impact scoring scale as it'll have 'Slightly Negative Impact'.

Option 2

Operational phase CO₂ emissions will be higher due to increased traffic volume. In operational stage vehicles travel approx. 3.98km.

This option will involve two junction modifications, therefore will require construction materials and subsequent embodied carbon.

Due to the related carbon emissions, this option is scored as '3' on the TAF Impact scoring scale as it'll have 'Slightly Negative Impact'.

Option 3

Operational phase CO₂ emissions will be higher due to increased traffic volume. In operational stage vehicles travel approx. 7.11km resulting in the most embodied carbon resulting from travel out of all the options.

This option will involve road reconstructions, therefore will require construction materials and subsequent embodied carbon.

Due to the related carbon emissions, this option is scored as '3' on the TAF Impact scoring scale as it'll have 'Slightly Negative Impact'.

Option 4

Operational phase CO₂ emissions will be higher due to increased traffic volume. In operational stage vehicles travel approx. 2.83km.

This option will involve widening works at two locations and bridge reconstruction, therefore will require construction materials and subsequent embodied carbon.

Due to the related carbon emissions, this option is scored as '2' on the TAF Impact scoring scale as it'll have 'Negative Impact'.

Option 5

Operational phase CO₂ emissions will be higher due to increased traffic volume. In operational stage vehicles travel approx. 2.12km.

This option will involve widening works and the construction of a new overpass over the railway, therefore will require materials and subsequent embodied carbon.

Due to the related carbon emissions, this option is scored as '2' on the TAF Impact scoring scale as it'll have 'Negative Impact'.

Option 6

Operational phase CO2 emissions will be higher due to increased traffic volume. In operational stage vehicles travel approx. 1.58km.

This option requires two new roundabouts and two bridges to be constructed and widening of the N25 junctions' access into the adjacent field, therefore will require materials and subsequent embodied carbon.

Due to the related carbon emissions, this option is scored as '2' on the TAF Impact scoring scale as it'll have 'Negative Impact'.

Option 7

Operational phase CO2 emissions will be higher due to increased traffic volume. In operational stage vehicles travel approx. 2.83km.

This option requires the offline development of a approx. 1.03km road therefore will require construction materials and subsequent embodied carbon.

This option will involve junction widening works at two locations.

Due to the related carbon emissions, this option is scored as '3' on the TAF Impact scoring scale as it'll have 'Slightly Negative Impact'.

Option 8

Operational phase CO2 emissions will be higher due to increased traffic volume. In operational stage vehicles travel approx. 2.67km.

This option requires the offline development of a approx. 1.37km road therefore will construction materials and subsequent embodied carbon.

Due to the related carbon emissions, this option is scored as '3' on the TAF Impact scoring scale as it'll have 'Slightly Negative Impact'.

4.6.2. Climate Adaption Impact

This sub-criterion assesses the main climate change hazard risk is from flooding.

Option 1

Flood Risk: Existing route traverses coastal and fluvial flood zones. Options will not impact on existing flood impacts, however potential for flooding to impact the access to the proposed depot.

Due to evidence of flood risk, this option is scored as '3' on the TAF Impact scoring scale as it'll have long-term 'Slightly Negative Impact' on resilience and robustness of the transport infrastructure.

Option 2

No indication of Fluvial, Coastal, Groundwater or Pluvial sources of flooding.

Due to no indication of flood risk, this option is scored as '4' on the TAF Impact scoring scale as it'll have 'Neutral Impact' on resilience and robustness of the transport infrastructure.

Option 3

Flood Risk: Existing route traverses coastal and fluvial flood zones. Options will not impact on existing flood impacts, however potential for flooding to impact the access to the proposed depot.

Due to evidence of flood risk, this option is scored as '3' on the TAF Impact scoring scale as it'll have long-term 'Slightly Negative Impact' on resilience and robustness of the transport infrastructure.

Option 4

Flood risk: No indication of Fluvial, Coastal, Groundwater or Pluvial sources of flooding.

Due to no indication of flood risk, this option is scored as '4' on the TAF Impact scoring scale as it'll have 'Neutral Impact' on resilience and robustness of the transport infrastructure.

Option 5

Flood risk: No indication of Fluvial, Coastal, Groundwater or Pluvial sources of flooding. Due to no indication of flood risk, this option is scored as '4' on the TAF Impact scoring scale as it'll have 'Neutral Impact' on resilience and robustness of the transport infrastructure.

Option 6

Flood risk: No indication of Fluvial, Coastal, Groundwater or Pluvial sources of flooding. Due to no indication of flood risk, this option is scored as '4' on the TAF Impact scoring scale as it'll have 'Neutral Impact' on resilience and robustness of the transport infrastructure.

Option 7

Flood risk: No indication of Fluvial, Coastal, Groundwater or Pluvial sources of flooding. Due to no indication of flood risk, this option is scored as '4' on the TAF Impact scoring scale as it'll have 'Neutral Impact' on resilience and robustness of the transport infrastructure.

Option 8

Flood risk: No indication of Fluvial, Coastal, Groundwater or Pluvial sources of flooding. Due to no indication of flood risk, this option is scored as '4' on the TAF Impact scoring scale as it'll have 'Neutral Impact' on resilience and robustness of the transport infrastructure.

4.7. Local Environment Impacts

4.7.1. Water Resources

Option 1

Flood Risk:

Existing route traverses coastal and fluvial flood zones. Options will not impact on existing flood regime, but increased traffic volumes potentially increases receptor exposure to flood hazards. Historic flood events recorded at Turloughs within 2.5 km east and west of the option. Groundwater flooding expected to be seasonal, low probability and localised to karst features, no impact on proposed option anticipated.

Water Quality: 2x crossing of the Tibbottsown_010 RWB. increased traffic volumes potentially impact on Water Quality of Article 7 protected stream.

WFD: No impact on WFD status anticipated.

Do Management option 1 results in **slightly negative Impact** on surface hydrological environment.

Groundwater:

Underlain by Midleton Ground waterbody (a regionally important karstified aquifer). WFD status for GWB is good. Groundwater Vulnerability is 'High'. Replacement of OBY7 creates possibility of accidental chemical pollution during construction phase. No impacts on GWB Quantity QE anticipated. Option 1 Do Management results in **slightly negative impact** on hydrogeological environment.

Option 2

Flood Risk:

No indication of Fluvial, Coastal, or Pluvial sources of flooding. Historic flood events recorded at Turloughs within 2.5 km east and west of the option. Groundwater flooding expected to be seasonal, low probability and localised to karst features, no impact on proposed option anticipated.

Water Quality: No WFD channel crossings and no pathway exists between option and surface waterbodies. No water quality impacts anticipated.

WFD: No impact on WFD status anticipated.

Do Management option 2 results in **neutral impact** on surface hydrological environment.

Groundwater:

Underlain by Midleton Ground waterbody (a regionally important karstified aquifer). WFD status of GWB is good. Groundwater Vulnerability is 'High'. Use of existing infrastructure results in no impacts on GWB Quantity or Chemical QE's anticipated, hence no impact on WFD status likely. Option 2 Do Management results in **neutral impact** on hydrogeological environment.

Option 3

Flood Risk:

Option 3 traverses fluvial flood zone at OBY9B, but road and bridge are above 1% AEP flood level will. Option 3 will not impact existing flood regimes, mechanisms but increased traffic volumes potentially increases receptor exposure, hence flood risk. No indication of Groundwater or Pluvial sources of flooding.

Water Quality: OWENNACURRA_040 (Article 7) RWB crossed twice and OWENNACURRA_030 river waterbody crossing once, Increased traffic volumes on road may impact on water quality.

Do Management option 3 results in **slightly negative impact** on surface hydrological environment.

Groundwater:

Underlain by Midleton Ground waterbody (a regionally important karstified aquifer). WFD status for GWB is good. Groundwater Vulnerability is generally 'High' with small portions of route traversing 'Extreme Vulnerability zones. Use of existing infrastructure results in no impacts on GWB Quantity or Chemical QE's anticipated, hence no impact on WFD status likely. Option 3 Do Management results in **neutral impact** on hydrogeological environment.

Option 4

Flood Risk:

No indication of Fluvial, Coastal, or Pluvial sources of flooding. Historic flood events recorded at Turloughs within 2.5 km east and west of the option. Groundwater flooding expected to be seasonal, low probability and localised to karst features, no impact on proposed option anticipated.

Water Quality: No river crossings along the proposed option,

WFD: No impact on WFD status anticipated.

Do Management option 1 results in slightly negative impact on surface hydrological environment.

Do something option 4 results in **neutral impact**.

Groundwater:

Underlain by Midleton Ground waterbody (a regionally important karstified aquifer). WFD status for GWB is good. Groundwater Vulnerability is 'High'. Replacement of OBY7 creates possibility of accidental chemical pollution during construction phase. No impacts on GWB Quantity QE anticipated. Option 4 Do Something results in **slightly negative impact** on hydrogeological environment.

Option 5

Flood Risk:

No indication of Fluvial, Coastal, or Pluvial sources of flooding. Historic flood events recorded at Turloughs within 2.5 km east and west of the option. Groundwater flooding expected to be seasonal, low probability and localised to karst features, no impact on proposed option anticipated.

Water Quality: No river crossings along the proposed option,

WFD: No impact on WFD status anticipated.

Do something option 5 results in **neutral impact** on surface hydrological environment

Groundwater:

Underlain by Midleton Ground waterbody (a regionally important karstified aquifer). WFD status for GWB is good. Groundwater Vulnerability is generally 'High' with small portions of route traversing 'Extreme Vulnerability zones. Use of existing infrastructure results in no impacts on GWB Quantity or Chemical QE's anticipated, hence no impact on WFD status likely. Option 5 Do Something results in a **neutral impact** on the hydrogeological environment

Option 6

Flood Risk:

No indication of Fluvial, Coastal, or Pluvial sources of flooding. Historic flood events recorded at Turloughs within 2.5 km east and west of the option. Groundwater flooding expected to be seasonal, low probability and localised to karst features, no impact on proposed option anticipated.

Water Quality: No river crossings along the proposed option,

WFD: No impact on WFD status anticipated.

Do something option 6 results in **neutral impact** on surface hydrological environment

Groundwater:

Underlain by Midleton Ground waterbody (a regionally important karstified aquifer). WFD status for GWB is good. Groundwater Vulnerability is generally 'High' with small portions of route traversing 'Extreme Vulnerability zone. Construction of 2 bridges creates possibility of accidental chemical pollution during construction phase. No impacts on GWB Quantity QE anticipated. No impact on GWB Quantity QE

anticipated, No impact on WFD status likely. Option 6 Do Something results in a **slightly negative impact** on the hydrogeological environment

Option 7

Flood Risk:

No indication of Fluvial, Coastal, or Pluvial sources of flooding. Historic flood events recorded at Turloughs within 2.5 km east and west of the option. Groundwater flooding expected to be seasonal, low probability and localised to karst features, no impact on proposed option anticipated.

Water Quality: No river crossings along the proposed option,

WFD: No impact on WFD status anticipated.

Do something option 7 results in **neutral impact** on surface hydrological environment.

Groundwater:

Underlain by Midleton Ground waterbody (a regionally important karsified aquifer). WFD status for GWB is good. Groundwater Vulnerability is 'High'. Use of existing infrastructure results in no impacts on GWB Quantity or Chemical QE's anticipated, hence no impact on WFD status likely. Option 2 Do Management results in **neutral impact** on hydrogeological environment.

Option 8

Flood Risk:

No indication of Fluvial, Coastal, or Pluvial sources of flooding. Historic flood events recorded at Turloughs within 2.5 km east and west of the option. Groundwater flooding expected to be seasonal, low probability and localised to karst features, no impact on proposed option anticipated.

Water Quality: No river crossings along the proposed option,

WFD: No impact on WFD status anticipated.

Do something option 8 results in **neutral impact** on Surface hydrological environment.

Groundwater:

Underlain by Midleton Ground waterbody (a regionally important karsified aquifer). WFD status for GWB is good. Groundwater Vulnerability is 'High'. Use of existing infrastructure results in no impacts on GWB Quantity or Chemical QE's anticipated, hence no impact on WFD status likely. Option 2 Do Management results in **neutral impact** on hydrogeological environment.

4.7.2. Biodiversity

Option 1

Option 1 primarily occurs within the footprint of existing roads but will lead to loss of arable crop and hedgerow habitat where the proposed road connects to the depot site. Option 1 intersects at least 1 hedgerow, which has the potential for habitat loss, including loss of breeding bird habitat, and habitat fragmentation. Cherry laurel (*Prunus laurocerasus*) has been recorded along the northern side of the railway to the east of the existing road bridge 'OBY7' and there is potential for spread of this invasive species during the construction phase. The existing road crosses over the Tibbotstown and Anngrove rivers, both of which are upstream of the Great Island Channel SAC and Cork Harbour SPA. The existing road will not be widened as part of this option and thus there is no potential impacts to any designated site due to the lack of functional

or hydrological connection. Due to the localised nature of the habitat loss and fragmentation associated with this option and the majority of this option within the existing roads footprint, this option is considered to have a **slightly negative impact** on biodiversity.

Option 2

Option 2 primarily occurs within the footprint of existing roads but will lead to loss of arable crop and hedgerow habitat where the proposed road connects to the depot site. Option 2 intersects at least 3 hedgerows, which has the potential for habitat loss, including loss of breeding bird habitat, and habitat fragmentation. Due to the localised nature of the habitat loss and fragmentation associated with this option and the majority of this option within the existing roads footprint, this option is considered to have a **slightly negative impact** on biodiversity.

Option 3

Option 3 primarily occurs within the footprint of existing roads but will lead to loss of arable crop and hedgerow habitat where the proposed road connects to the depot site. Option 3 intersects at least 1 hedgerow, which has the potential for habitat loss, including loss of breeding bird habitat, and habitat fragmentation. The existing road crosses over the Owennacurra and Glenathonacash rivers, both of which are upstream of the Great Island Channel SAC and Cork Harbour SPA. The existing road will not be widened as part of this option and thus there is no potential impacts to any designated site due to the lack of functional or hydrological connection. Due to the localised nature of the habitat loss and fragmentation associated with this option and the majority of this option within the existing roads footprint, this option is considered to have a **slightly negative impact** on biodiversity.

Option 4

Option 4 primarily occurs within the footprint of existing roads but will lead to loss of arable crop and hedgerow habitat where the proposed road connects to the depot site. This option also requires the removal of existing hedgerows to facilitate road widening on the L7642. Option 4 intersects at least 3 additional hedgerows, which has the potential for habitat loss, including loss of breeding bird habitat, and habitat fragmentation. Cherry laurel (*Prunus laurocerasus*) has been recorded along the northern side of the railway to the east of the existing road bridge 'OBY7' and there is potential for spread of this invasive species during the construction phase. Due to the requirement for the removal of a long section of hedgerow and the habitat loss and fragmentation associated with this option compared with Options 1,2 and 3, this option is considered to have a **negative impact** on biodiversity.

Option 5

Much of Option 5 utilises the existing construction compound site on the south side of the railway. However, this option will lead to loss of arable crop and hedgerow habitat. Option 5 intersects at least 6 hedgerows which has the potential for habitat loss, including loss of breeding bird habitat, and habitat fragmentation. Option 5 also runs adjacent to a known badger (*Meles meles*) set in a small area of woodland to the south of the railway line. This option has the potential to result in direct negative impacts to badger., including mortality, habitat loss and disturbance. Due to the proximity of this option to a known badger sett as well as the habitat loss and fragmentation associated with this option compared with Options 1,2, 3 and 4, this option is considered to have a **highly negative impact** on biodiversity.

Option 6

Option 6 will lead to loss of arable crop and hedgerow habitat. This option intersects at least 6 hedgerows, which has the potential for habitat loss, including loss of breeding bird habitat, and habitat fragmentation. Due to the habitat loss and loss of habitat connectivity associated with this option, this option is considered to have a **negative impact** on biodiversity.

Option 7

Option 7 will lead to loss of arable crop and hedgerow habitat. This option intersects at least 12 hedgerows, which has the potential for habitat loss, including loss of breeding bird habitat, and habitat fragmentation. The loss of hedgerow habitat has the potential for loss of breeding bird habitat. Himalayan balsam (*Impatiens glandulifera*), a Third Schedule listed invasive species, has been recorded along the northern side of the railway at Water Rock and there is potential for spread of this invasive species during the construction phase. Due to the level of habitat loss and habitat fragmentation and potential for spread of invasive species associated with this option, this option is considered to have a **highly negative impact** on biodiversity.

Option 8

Option 8 will lead to loss of arable crop and hedgerow habitat and does not utilise any built land areas or existing roads. This option intersects at least 10 hedgerows, which has the potential for habitat loss, including loss of breeding bird habitat, and habitat fragmentation. Due to the level of habitat loss, habitat fragmentation and loss of habitat connectivity associated with this option, this option is considered to have a **highly negative impact** on biodiversity.

4.7.3. Landscape & Visual Quality

Option 1

Option 1 will largely utilise an extensive section of the existing road network, which may lead to direct impacts on roadside trees, hedgerows and boundary features. Although no land take from residential properties is expected there will be extensive indirect impacts on residential receptors along the route through the increase in construction and operational traffic. The historic bridge replacement and construction of a section of new access road from the local road network will introduce new infrastructure with direct impacts on the High Value Landscape designation which covers the site area. There are likely to be significant visual impacts on nearby residential properties as a result of these road and bridge works and the change to a portion of existing rural views. Due to the elevated position of this new road section the effects are likely to be wide ranging, but they will be of lesser significance for more distant receptors.

Changes to occur within Settled Harbour and Estuary (Type 1) which is noted as a landscape character type of very high value and of national importance in the Cork County Draft Landscape Strategy. Nearest scenic routes are S42 and S43; there is no potential for impacts on these scenic routes due to distance and intervening screening.

This option is considered to have a **highly negative impact** on the landscape and visual quality.

Option 2

Option 2 will largely utilise the existing road network, there will be extensive indirect impacts on residential receptors along the route through the increase in construction and operational traffic and potential for impacts on roadside trees, hedgerows and boundary features. There will be junction widening and potential property acquisition of a garden situated to the left of the junction with demolition of the stone wall of the

property. Construction of a section of new access road from the local road network will introduce new infrastructure with direct impacts on the High Value Landscape designation which covers the site area. There are likely to be significant visual impacts on nearby residential properties as a result of these works and the change to a portion of existing rural views. Due to the elevated position of this new road section the effects are likely to be wide ranging, but they will be of lesser significance for more distant receptors.

Changes to occur within Settled Harbour and Estuary (Type 1) which is noted as a landscape character type of very high value and of national importance in the Cork County Draft Landscape Strategy. Nearest scenic routes are S42 and S43; there is no potential for impacts on these scenic routes due to distance and intervening screening.

This option is considered to have a **negative impact** on the landscape and visual quality.

Option 3

Option 3 will largely utilise a very extensive section of the existing road network, there will be extensive indirect impacts on residential receptors along the route through the increase in construction and operational traffic and potential for impacts on roadside trees, hedgerows and boundary features. Construction of a section of new access road from the local road network will introduce new infrastructure with direct impacts on the High Value Landscape designation which covers the site area. There are likely to be significant visual impacts on nearby residential properties as a result of these works and the change to a portion of existing rural views. Due to the elevated position of this new road section the effects are likely to be wide ranging, but they will be of lesser significance for more distant receptors.

Changes to occur within Settled Harbour and Estuary (Type 1) which is noted as a landscape character type of very high value and of national importance in the Cork County Draft Landscape Strategy. This option intersects with Scenic Route S43, and will increase traffic and potentially impact on the scenic qualities of the route.

This option is considered to have a **highly negative impact** on the landscape and visual quality.

Option 4

Option 4 will largely utilise an extensive section of the existing road network, there will be some indirect impacts on residential receptors along the route through the increase in construction and operational traffic and potential for extensive impacts on roadside trees, hedgerows and boundary features, as well as characteristics of a rural lane. The replacement of the historic railway bridge and construction of a section of new access road from the local road network will introduce new infrastructure with direct impacts on the High Value Landscape designation which covers the site area. There are likely to be significant visual impacts on nearby residential properties as a result of these works and the change to a portion of existing rural views. Due to the elevated position of this new road section the effects are likely to be wide ranging, but they will be of lesser significance for more distant receptors.

Changes will occur within Settled Harbour and Estuary (Type 1) which is noted as a landscape character type of very high value and of national importance in the Cork County Draft Landscape Strategy. Nearest scenic routes are S42 and S43; there is no potential for impacts on these scenic routes due to distance and intervening screening.

This option is considered to have a **highly negative impact** on the landscape and visual quality.

Option 5

Option 5 would introduce new road infrastructure including embankments and a bridge into an existing agricultural area. The new structures will alter the local landscape character directly impacting on the High Value Landscape designation. There are likely to be very significant visual impacts on nearby residential properties as a result of these works and the change to a portion of existing rural views from the addition of elevated utilitarian structures, lighting and visual clutter.

Changes will occur within Settled Harbour and Estuary (Type 1) which is noted as a landscape character type of very high value and of national importance in the Cork County Draft Landscape Strategy. Nearest scenic routes are S42 and S43; there is limited potential for impacts on these scenic routes due to distance and intervening screening.

This option is considered to have a **highly negative impact** on the landscape and visual quality.

Option 6

Option 6 would introduce new road infrastructure including embankments and bridges into an existing agricultural area. The new structures will alter the local landscape character directly impacting on the High Value Landscape designation. There are likely to be very significant visual impacts on nearby residential properties as a result of these works and the change to a portion of existing rural views from the addition of elevated utilitarian structures, lighting and visual clutter.

Within Settled Harbour and Estuary (Type 1) which is noted as a landscape character type of very high value and of national importance in the Cork County Draft Landscape Strategy. Nearest scenic routes are S42 and S43; there is limited potential for impacts on these scenic routes due to distance and intervening screening.

This option is considered to have a **highly negative impact** on the landscape and visual quality.

Option 7

This option partially utilises the existing Water-Rock development road as well as an offline section from Castle Rock Avenue, which will require widening to allow large HGV traffic, with impacts on adjacent properties including residential property. There will be direct impacts on garden areas, boundary features, hedgerows and trees. Construction of a section of new access road from the local road network will introduce new infrastructure, partly disrupting the rural fabric and field pattern. However, despite the local impacts on properties and trees, this option will provide a well screened route at low elevation close to the existing railway which will help limit the impacts on the wider High Value Landscape designation covering the site area.

Changes will occur within Settled Harbour and Estuary (Type 1) which is noted as a landscape character type of very high value and of national importance in the Cork County Draft Landscape Strategy. Nearest scenic routes are S42 and S43; no potential for impacts on these scenic routes due to distance and intervening screening.

This option will incorporate active travel measure along the new section of the route as well as upgrading sections of the existing roads. This will help mitigate the severing of the planned alignment of the Interurban Cycle Route by the depot, by facilitating a diversion to an alternative route.

This option is considered to have a **slightly negative impact** on the landscape and visual quality.

Option 8

Option 8 will introduce a section of new road infrastructure across an area of agricultural land resulting in the disruption of the rural fabric and field pattern, with direct impacts on the High Value Landscape designation

which covers the site area. Likely to result in some visual impacts on nearby residential receptors although these will be limited by existing screening in the landscape.

Changes will occur within Settled Harbour and Estuary (Type 1) which is noted as a landscape character type of very high value and of national importance in the Cork County Draft Landscape Strategy. Nearest scenic routes are S42 and S43; no potential for impacts on these scenic routes due to distance and intervening screening.

This option is considered to have a **slightly negative impact** on the landscape and visual quality.

4.7.4. Cultural & Heritage

Option 1

NIAH 20907558 structure approx. 200m north from the option on Main Street and previously recorded discovery SMR CO075-068---- south of this option on Main Street. No direct or indirect impacts on these features.

Parcel of greenfield in the vicinity of the proposed bridge reconstruction works has the potential to contain previously unrecorded archaeological remains that may survive with no surface expression.

Due to the proximity to the protected structures and unrecorded archaeological sites, this option is scored as '3' on the TAF Impact scoring scale as it'll have '**Slightly Negative Impact**'.

Option 2

Potential for direct impact on the parcel of greenfield, as it has the potential to contain previously unrecorded archaeological remains that may survive with no surface expression.

Due to potential for direct impact on unrecorded archaeological sites, this option is scored as '3' on the TAF Impact scoring scale as it'll have '**Slightly Negative Impact**'.

Option 3

There is indirect impact on Ballyedmond Bridge (NIAH 20906515), which Upper Mill Road is crossing.

There is indirect impact on Carrig House (NIAH 20906517), Worker's house (NIAH 20906518) both located approx. 10m east of Upper Mill Road and Cloonmullin house (NIAH 20906519) located approx. 10m west of Upper Mill Road.

Due to indirect impact on the protected structures, this option is scored as '3' on the TAF Impact scoring scale as it'll have '**Slightly Negative Impact**'.

Option 4

There are no recorded or previously unrecorded architectural or archaeological heritage sites in or within the study area of this option and as such, no direct or indirect impacts are anticipated. However, parcel of greenfield, has the potential to contain previously unrecorded archaeological remains that may survive with no surface expression and due to this, the option is rated as slightly negative.

No listed or NIAH structures affected by this site.

Due to potential for direct impact on unrecorded archaeological sites, this option is scored as '3' on the TAF Impact scoring scale as it'll have '**Slightly Negative Impact**'.

Option 5

There are no recorded or previously unrecorded architectural or archaeological heritage sites in or within the study area of this option and as such, no direct or indirect impacts are anticipated. However, parcel of greenfield, has the potential to contain previously unrecorded archaeological remains that may survive with no surface expression and due to this, the option is rated as slightly negative.

No listed or NIAH structures affected by this site.

Due to potential for direct impact on unrecorded archaeological sites, this option is scored as '3' on the TAF Impact scoring scale as it'll have '**Slightly Negative Impact**'.

Option 6

High potential to directly impact a tree ring (SMR CO076-017----) located in a field north of the N25. The road is located inside the SMR Zone.

Potential for direct impact on the parcel of greenfield, as it has the potential to contain previously unrecorded archaeological remains that may survive with no surface expression.

Due to high potential for direct impact on the SMR and potential for direct impact on unrecorded archaeological sites, this option is scored as '2' on the TAF Impact scoring scale as it'll have '**Negative Impact**'.

Option 7

There are no recorded or previously unrecorded architectural or archaeological heritage sites in or within the study area of this option and as such, no direct or indirect impacts are anticipated. However, parcel of greenfield, has the potential to contain previously unrecorded archaeological remains that may survive with no surface expression and due to this, the option is rated as slightly negative.

No listed or NIAH structures affected by this site.

Due to potential for direct impact on unrecorded archaeological sites, this option is scored as '3' on the TAF Impact scoring scale as it'll have '**Slightly Negative Impact**'.

Option 8

There are no recorded or previously unrecorded architectural or archaeological heritage sites in or within the study area of this option and as such, no direct or indirect impacts are anticipated. However, parcel of greenfield, has the potential to contain previously unrecorded archaeological remains that may survive with no surface expression.

No listed or NIAH structures affected by this site.

Due to potential for direct impact on unrecorded archaeological sites, this option is scored as '3' on the TAF Impact scoring scale as it'll have '**Slightly Negative Impact**'.

4.7.5. Noise & Vibration

Option 1

The number of properties within 100m of this access road option are summarised as follows:

0-50m: 116 no. of receptors

50m-100m: 219 no. of receptors

A total of 335 no. receptors are therefore within 100m of the Option 1 access road.

During the construction phase receptors will be impacted by construction noise and vibration associated with the reconstruction of the bridge OBY7, traffic diversions necessitating re-routing traffic and traffic volumes along the local road network. The construction duration of this option is longer than option 2 and 3.

During the operational phase, the volume of traffic will increase along the surrounding road network which passes through the built-up area of Carrigtwohill. In addition to commuter traffic, there will be an increase in HGVs and low-loader vehicles, with the potential to result in a perceptible increase in road traffic noise at noise sensitive locations (NSLs).

On the basis that a number of receptors will be affected by noise and vibration during construction and operation, option 1 scored as '2' on TAF impact scoring having a **'Negative Impact'**.

Option 2

The number of properties within 100m of this access road option are summarised as follows:

0-50m: 34 no. of receptors

50m-100m: 5 no. of receptors

A total of 39 no. receptors are therefore within 100m of the Option 2 access road.

During the construction phase, there will be a requirement for junction widening at the N25 access and at L3617 Curragh Road junction. This will result in diversion of traffic during construction phase with potential for temporary noise impacts along diverted routes.

During the operational phase, the volume of traffic will increase along the surrounding road network which passes through a less built up areas compared to Options 1 and 2. In addition to commuter traffic, there will be an increase in HGVs and low-loader vehicles, with the potential to result in a perceptible increase in road traffic noise at noise sensitive locations (NSLs).

On the basis of the number of receptors will be affected by noise and vibration during construction and operation, option 2 scored as '3' on TAF impact scoring having a **'Slight Negative Impact'**.

Option 3

The number of properties within 100m of this access road option are summarised as follows:

0-50m: 157 no. of receptors

50m-100m: 114 no. of receptors

A total of 271 no. receptors are therefore within 100m of the Option 3 access road.

During the construction phase, there will be a requirement to reconstruct key junctions along the route which will necessitate traffic diversions with potential for temporary noise impacts along diverted routes.

During the operational phase, the volume of traffic will increase along the surrounding road network. The route passes through built up areas along the R626 Road and individual properties along the local east of the depot site. In addition to commuter traffic, there will be an increase in HGVs and low-loader vehicles, with the potential to result in a perceptible increase in road traffic noise at noise sensitive locations (NSLs).

On the basis that a number of receptors will be affected by noise and vibration during construction and operation, option 3 scored as '2' on TAF impact scoring having a **'Negative Impact'**.

Option 4

The number of properties within 100m of this access road option are summarised as follows:

0-50m: 9 no. of receptors

50m-100m: 6 no. of receptors

A total of 15 no. receptors are therefore within 100m of the Option 4 access road.

During the construction phase, there will be road works along the length of this option involving road widening, reconstruction of bridge OBY7, and junction widening works, the construction period of this option is longer than Option 2 and 3. The location of these works are set back from the majority of the NSLs along this road option.

During the operational phase, the volume of traffic will increase along the L7642 and N25 access road. The route passes through low density area with a small number of individual properties. In addition to commuter traffic, there will be an increase in HGVs and low-loader vehicles, with the potential to result in a perceptible increase in road traffic noise at noise sensitive locations (NSLs).

On the basis that a number of receptors will be affected by noise and vibration during construction and operation, option 4 scored as '3' on TAF impact scoring having a **'Slight Negative Impact'**.

Option 5

The number of properties within 100m of this access road option are summarised as follows:

0-50m: 0 no. of receptors

50m-100m: 1 no. of receptors

A total of 1 no. receptor is therefore within 100m of the Option 5 access road.

During the construction phase, due to the proposed offline construction, road works and the building of a new overpass over the railway the construction period of this option is longer and will require more night time possession compared to Options 1, 2, 3 and 4. The closest NSLs to the bridge overpass are however at distances >300m from this activity and hence, noise levels can be controlled to not generate significant impacts during these temporary works.

During the operational phase, all traffic will travel along the new road which passes 1 NSL within 70m. Given the absence of existing traffic in the vicinity of this property there will be a potential for a slight to moderate noise impact, depending on the volume traffic using the road.

On the basis of the low number of receptors will be affected by noise and vibration during construction and operation, option 5 scored as '3' on TAF impact scoring having a **'Slight Negative Impact'**.

Option 6

The number of properties within 100m of this access road option are summarised as follows:

0-50m: 0 no. of receptors

50m-100m: 3 no. of receptors

A total of 3 no. receptor is therefore within 100m of the Option 6 access road.

During the construction phase, due to the proposed offline construction, the construction of two new roundabouts and two bridges, the construction period of this option is longer and will require more nighttime

possession compared to Options 1, 2, 3, 4 and 5. The closest NSLs to the bridge rail overpass are however at distances >200m.

During the operational phase, all traffic will travel along the new road which will involve an elevated road section on embankment to cross the N25. Given the absence of existing traffic in the vicinity of the rear facades of properties along Caste Rock Avenue, there will be a potential noise impact, depending on the volume traffic using the road and the vertical alignment of the road.

On the basis of the number of receptors will be affected by noise and vibration during construction and operation, option 6 scored as '2' on TAF impact scoring having a **'Negative Impact'**.

Option 7

The number of properties within 100m of this access road option are summarised as follows:

0-50m: 5 no. of receptors

50m-100m: 4 no. of receptors

A total of 9 no. receptor is therefore within 100m of the Option 7 access road.

During the construction phase, due to the junction widening works and the construction of a new road, the construction period for this option is long. The closest NSLs to new road section are residential properties at Castlerock Avenue and Ballyrichard More within 30m of the works.

During the operational phase, all traffic will travel along the new road and the existing roads to join the Northern Relief Road. The closest NSLs to the new section of road are within 30m of this road. Given the absence of existing traffic in the vicinity these properties, there will be a potential for a significant operational noise impact without mitigation, depending on the volume traffic using the road and the vertical alignment of the road.

On the basis of the number of receptors will be affected by noise and vibration during construction and operation, option 7 scored as '1' on TAF impact scoring having a **'Highly Negative Impact'**.

Option 8

The number of properties within 100m of this access road option are summarised as follows:

0-50m: 0 no. of receptors

50m-100m: 3 no. of receptors

A total of 3 no. receptor is therefore within 100m of the Option 8 access road.

During the construction phase, due to the construction of a new road, the construction period for this option is long. The closest NSL to new road section is 1 residential property at Castlerock Avenue within 60m of the works.

During the operational phase, all traffic will travel along the new road to join the Northern Relief Road. The closest NSLs to the new section of road are within 60m of the new road and the additional traffic will pass existing residential dwellings to the north of western end of the Northern Relief Road. There is potential for a moderate operational noise impact, depending on the volume traffic using the road and the vertical alignment of the road.

On the basis that a number of receptors will be affected by noise and vibration during construction and operation, option 8 scored as '2' on TAF impact scoring having a **'Negative Impact'**.

4.7.6. Air Quality

This criterion assesses the level of human exposure to NO_x, PM₁₀, PM₂₅ as a result of operational traffic emissions. On the basis that receptors will be affected by emissions during construction and operation of each option, all options are scored as '3' on TAF impact scoring as they'll have 'Slightly Negative Impact'.

Option 1

0-50m: 116 no. of receptors

50m-100m: 219 no. of receptors

100m – 200m: 339 no. of receptors

200m – 250m: 129 no. of receptors.

Significant operational phase impacts are scoped out based on traffic volumes below TII criteria for detailed assessment. With dust mitigation for construction and operational phases, there is no potential for significant effect on air quality. On the basis that receptors will be affected by some emissions during construction and operation, option scored as '3' on TAF impact scoring having a **'Slightly Negative Impact'**.

Option 2

0-50m: 34 no. of receptors

50m-100m: 5 no. of receptors

100m – 200m: 3 no. of receptors

200m – 250m: 4 no. of receptors.

Significant operational phase impacts are scoped out based on traffic volumes below TII criteria for detailed assessment. With dust mitigation for construction and operational phases, there is no potential for significant effect on air quality. On the basis that receptors will be affected by some emissions during construction and operation, option scored as '3' on TAF impact scoring having a **'Slightly Negative Impact'**.

Option 3

0-50m: 157 no. of receptors

50m-100m: 144 no. of receptors

100m – 200m: 249 no. of receptors

200m – 250m: 164 no. of receptors.

Significant operational phase impacts are scoped out based on traffic volumes below TII criteria for detailed assessment. With dust mitigation for construction and operational phases, there is no potential for significant effect on air quality. On the basis that receptors will be affected by some emissions during construction and operation, option scored as '3' on TAF impact scoring having a **'Slightly Negative Impact'**.

Option 4

0-50m: 9 no. of receptors

50m-100m: 6 no. of receptors

100m – 200m: 8 no. of receptors

200m – 250m: 5 no. of receptors.

Significant operational phase impacts are scoped out based on traffic volumes below TII criteria for detailed assessment. With dust mitigation for construction and operational phases, there is no potential for significant effect on air quality. On the basis that receptors will be affected by some emissions during construction and operation, option scored as '3' on TAF impact scoring having a **'Slightly Negative Impact'**.

Option 5

0-50m: 0 no. of receptors

50m-100m: 1 no. of receptors

100m – 200m: 2 no. of receptors

200m – 250m: 1 no. of receptors.

Significant operational phase impacts are scoped out based on traffic volumes below TII criteria for detailed assessment. With dust mitigation for construction and operational phases, there is no potential for significant effect on air quality. On the basis that receptors will be affected by some emissions during construction and operation, option scored as '3' on TAF impact scoring having a **'Slightly Negative Impact'**.

Option 6

0-50m: 0 no. of receptors

50m-100m: 3 no. of receptors

100m – 200m: 14 no. of receptors

200m – 250m: 3 no. of receptors.

Significant operational phase impacts are scoped out based on traffic volumes below TII criteria for detailed assessment. With dust mitigation for construction and operational phases, there is no potential for significant effect on air quality. On the basis that receptors will be affected by some emissions during construction and operation, option scored as '3' on TAF impact scoring having a **'Slightly Negative Impact'**.

Option 7

0-50m: 5 no. of receptors

50m-100m: 4 no. of receptors

100m – 200m: 21 no. of receptors

200m – 250m: 11 no. of receptors.

Significant operational phase impacts are scoped out based on traffic volumes below TII criteria for detailed assessment. With dust mitigation for construction and operational phases, there is no potential for significant effect on air quality. On the basis that receptors will be affected by some emissions during construction and operation, option scored as '3' on TAF impact scoring having a **'Slightly Negative Impact'**.

Option 8

0-50m: 0 no. of receptors

50m-100m: 3 no. of receptors

100m – 200m: 11 no. of receptors

200m – 250m: 13 no. of receptors.

Significant operational phase impacts are scoped out based on traffic volumes below TII criteria for detailed assessment. With dust mitigation for construction and operational phases, there is no potential for significant effect on air quality. On the basis that receptors will be affected by some emissions during construction and operation, option scored as '3' on TAF impact scoring having a **'Slightly Negative Impact'**.

5. Summary and Recommendations

Table 5.1 presents, in summary, the outcome of the Multi-Criteria Analysis (MCA).

It is recommended that Option 7 be the Emerging Preferred Option, according to the MCA results and related evaluations discussed in this report.

Options 7 and 8 offer the highest score overall. Option 7 is preferred as it scores slightly better under the Local Environment criteria.

Table 5.1 Summary MCA Table of Depot Road Access Options

	Criteria	Option 1		Option 2		Option 3		Option 4		Option 5		Option 6		Option 7		Option 8	
	Sub-Criteria Consolidation																
1	Transport User Benefits and Other Economic Impacts	4 – Neutral Impact	4	4 – Neutral Impact	4	4 – Neutral Impact	4	4 – Neutral Impact	4	5 – Slightly Positive Impact	5	5 – Slightly Positive Impact	5	5 – Slightly Positive Impact	5	5 – Slightly Positive Impact	5
2	Accessibility Impacts	1 – Highly Negative Impact	1	3 – Slightly Negative Impact	3	2 – Negative Impact	2	4 – Neutral Impact	4	5 – Slightly Positive Impact	5	5 – Slightly Positive Impact	5	6 – Positive Impact	6	6 – Positive Impact	6
3	Social Impacts	2 – Negative Impact	2	3 – Slightly Negative Impact	3	2 – Negative Impact	2	5 – Slightly Positive Impact	5	4 – Neutral Impact	4	5 – Slightly Positive Impact	5	6 – Positive Impact	6	6 – Positive Impact	6
4	Land Use Impacts	3 – Slightly Negative Impact	3	3 – Slightly Negative Impact	3	3 – Slightly Negative Impact	3	4 – Neutral Impact	4	4 – Neutral Impact	4	4 – Neutral Impact	4	4 – Neutral Impact	4	4 – Neutral Impact	4
5	Safety Impacts	2 – Negative Impact	2	2 – Negative Impact	2	2 – Negative Impact	2	5 – Slightly Positive Impact	5	6 – Positive Impact	6	4 – Neutral Impact	4	6 – Positive Impact	6	6 – Positive Impact	6
6	Climate Change Impacts	3 – Slightly Negative Impact	3	4 – Neutral Impact	4	3 – Slightly Negative Impact	3	3 – Slightly Negative Impact	3	3 – Slightly Negative Impact	3	3 – Slightly Negative Impact	3	4 – Neutral Impact	4	4 – Neutral Impact	4
7	Local Environment Impacts	3 – Slightly Negative Impact	3	3 – Slightly Negative Impact	3	3 – Slightly Negative Impact	3	3 – Slightly Negative Impact	3	3 – Slightly Negative Impact	3	2 – Negative Impact	2	3 – Slightly Negative Impact	3	2 – Negative Impact	2
	Criteria Consolidation																
	Overall Ranking	3 – Slightly Negative Impact	2.6	3 – Slightly Negative Impact	3.2	3 – Slightly Negative Impact	2.7	4 – Neutral Impact	3.3	4 – Neutral Impact	4.1	4 – Neutral Impact	4.0	5 – Slightly Positive Impact	4.7	5 – Slightly Positive Impact	4.7
	Emerging Preferred Option	No		No		No		No		No		No		Yes		No	

As illustrated in Table 5.1, Option 7 is selected as the Emerging Preferred Option.

- Option 7 scores as Slightly Positive Impact under Transport User Benefits and other Economic Impacts. Under the sub-criterion assessed, this option was scored as Negative Impact for its estimated cost percentage. This option scores positively under Staff and Delivery Access Quality as well as Change of Land Value.
- Under Accessibility Impacts, Option 7 is scored as Positive Impact as the option improvements in infrastructure benefit Ballyadam, Ballyrichard More, Carrigtwohill and Midleton areas. While this option introduces increased HGV traffic along Castle-Rock Avenue, Northern Relief Road and Water-Rock Development Road, it results in minor impacts to residential access to key services and other job locations beyond the depot. The widened carriageway width with provision of active travel facilities allows for improved accessibility into Midleton. There are a short-term accessibility impacts due to the requirement for traffic management during construction.
- Under Social Impacts, Option 7 utilises Water-Rock development road which already incorporates public lighting as well as NMU facilities with segregated cycling infrastructure. This option provides continuity in NMU facilities (both footways and cycle tracks) from the depot to the junction intersecting Northern Relief Road and R907. This option proposes junction signalisation to accommodate NMU crossing facilities at two new locations. This provides improvements in infrastructure that can be benefited and utilised by the current residents as it provides improved NMU segregation which benefits socially disadvantaged households. Option 7 is scored as Positive Impact as a result.
- Under Land Use Impacts, Option 7 scores as Neutral Impact.
 - This option scored as Positive Impact under Change in Quality of Public Realm and Zoned Land as well as Land Use Planning and Spatial Planning;
 - It scored as Slightly Positive Impact under Existing Transport Network and Service Impact;
 - It scored as Highly Negative Impact under Material Assets;
 - It scored as Negative Impact under Built Services (Utilities);
 - It scored as Slightly Negative Impact under Soils and Geology (including Waste);
 - It scored as Neutral Impact under Planning Applications.
- Under Safety Impacts, Option 7 scores as Positive Impact.
 - Under Collisions & Related Impacts, it scores as Positive Impact where it utilises a newly constructed road that has no collisions recorded and built to the required standard while also providing a new offline section with a Wider carriageway which allows for larger HGV manoeuvres and accommodates farm accesses along route option.
 - Under Other Safety Impacts, it scores as Positive Impact as the option allows for larger HGV manoeuvres without impacting vulnerable road users, provides active travel infrastructure provided as part of offline works and provides continuity of NMU facilities in the areas for better connectivity / integration of the Interurban cycle route.
- Under Climate Change Impacts, Option 7 scores as Neutral Impact.
- Under Local Environment Impacts, Option 7 scores as Slightly Positive Impact.
 - This is due to the loss of arable crop and hedgerow habitat where this option intersects at least 12 hedgerows resulting in habitat fragmentation under Biodiversity which scores as Highly Negative Impact;
 - 9 no. receptors will be impacted by construction noise and vibration under Noise and Vibration which also scores as Highly Negative Impact;

- This option scores as Neutral Impact under Water Resources where the option is underlain by Middleton Groundwater body (a regionally important karstified aquifer) with no indication of Fluvial, Coastal, or Pluvial sources of flooding or river crossings from the historic flood events recorded at Turloughs within 2.5 km east and west of the option;
- This option scores as Slightly Negative Impact under the Landscape & Visual Quality, Cultural & Heritage, and Air Quality sub-criteria where the impacts associated are largely dissimilar across the Do-Something Options.

Option 7 has advantages over other options as follows:

- The scale of works associated with Option 7 is smaller than other Do-Something Options. There is no bridge construction associated with this option.
- This option provides for widened carriageway along an existing route with provision for non motorised access.
- The impact on 110kV overhead lines significantly lower for Option 7 than for other options;
- The smaller quantities of earthworks materials associated with Option 7 mean the soils and geology impacts associated with this option are lower than for other options.
- Option 7 facilitates the implementation of planning Cork County Council objectives MD-U-02, 07 and 08.
- Option 7 has Neutral impact on Flood Risk whereas other options are rated more negatively.

Due to the improvements offered by Option 7 under Transport User Benefits and other Economic Impacts, Accessibility Impacts, Social Impacts, Land Use Impacts and Safety Impacts; Option 7 is selected as the Emerging Preferred Option.

Appendix A – Options Summary

DIFFERENTIAL COST FOR EACH OPTION

							Assumptions	
							Inflation (yearly)	Input year
							OPEX 2025	
		% CAPEX +OPEX	CAPEX + OPEX	% CAPEX	CAPEX (2025 price)	OPEX discounted over 60-years		
OPTION 1	Do-Mgmt Option 1	138.46%	€ 6,200,000	138.46%	€ 6,200,000	€ -	€ -	
OPTION 2	Do-Mgmt Option 2	0.00%	€ 2,600,000	0.00%	€ 2,600,000	€ -	€ -	
OPTION 3	Do-Mgmt Option 3	107.69%	€ 5,400,000	107.69%	€ 5,400,000	€ -	€ -	
OPTION 4	Do-Smth - Online Widening Option	1761.54%	€ 48,400,000	1761.54%	€ 48,400,000	€ -	€ -	
OPTION 5	Do-Smth - Offline Option	1623.08%	€ 44,800,000	1623.08%	€ 44,800,000	€ -	€ -	
OPTION 6	Do-Smth - Offline Option	1357.69%	€ 37,900,000	1357.69%	€ 37,900,000	€ -	€ -	
OPTION 7	Do-Smth - Offline Option	1119.23%	€ 31,700,000	1119.23%	€ 31,700,000	€ -	€ -	
OPTION 8	Do-Smth - Offline Option	1103.85%	€ 31,300,000	1103.85%	€ 31,300,000	€ -	€ -	

Appendix B –MCA Matrix

CACR - MCA - Depot Road Access
Element under Consideration

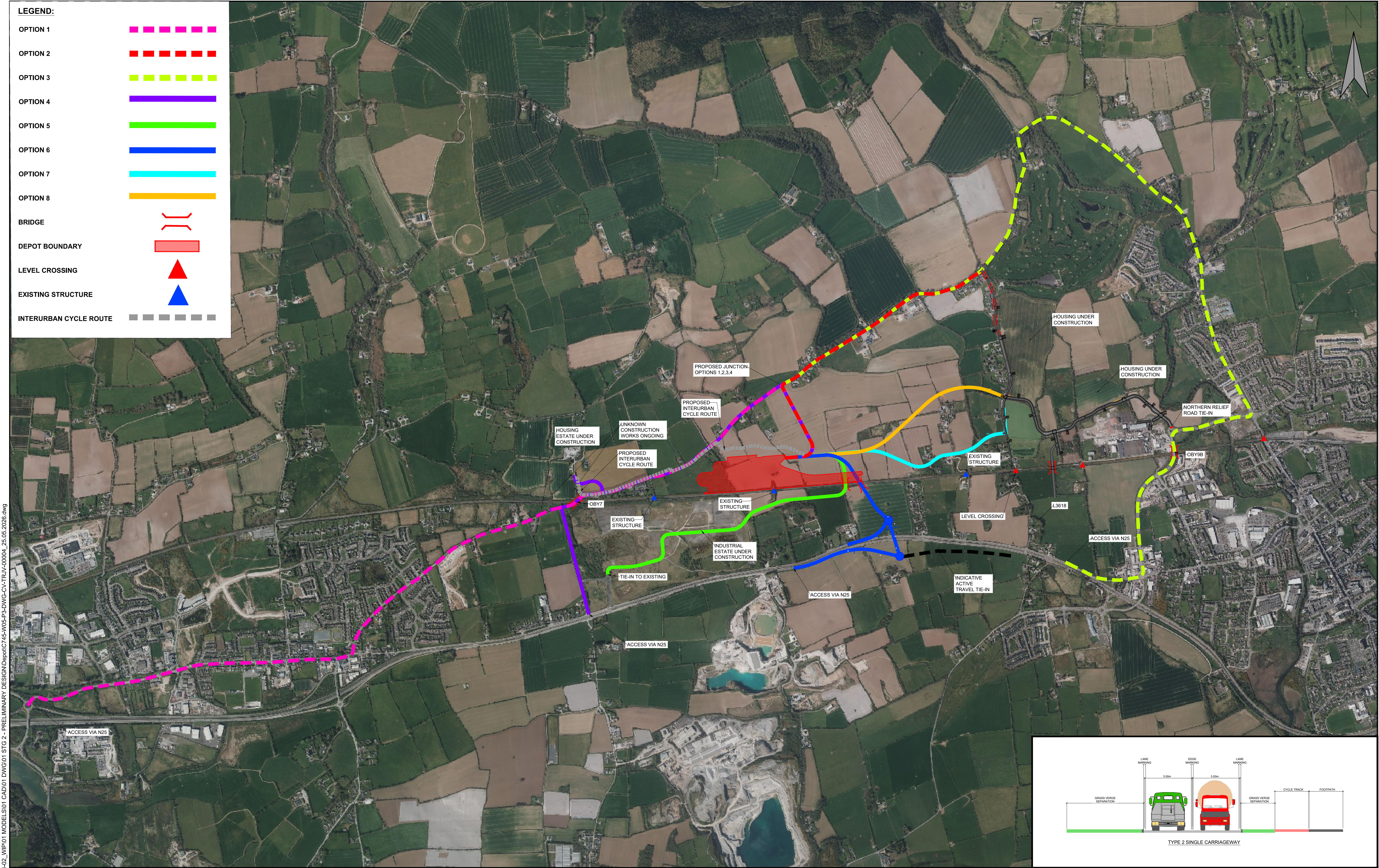
CACR - MCA - Depot Road Access Element under Consideration																		
	Parameter	Criteria	Option 1	Rating	Option 2	Rating	Option 3	Rating	Option 4	Rating	Option 5	Rating	Option 6	Rating	Option 7	Rating	Option 8	Rating
			Do-Management						Do-Something									
			Online Management Option utilising existing roads with access to the depot via connection off Ballyrichard More Road to accommodate low-loaders. Option passes through Carrigwohill centre 5.876km Length Local roads vary in widths with Type 2/3 Single Carriageway road widths Existing NMU facilities available through Middleton Centre Option terminates at N25 interchange tie-in 1 existing bridge over rail (OBY7) reconstruction will be required, several surrounding fields are likely to be impacted due to bridge reconstruction		Online Management Option utilising existing roads with access to the depot via connection off Ballyrichard More Road to accommodate low-loaders. Roundabout access from Northern Relief Road onto L3618 Castle-Rock Avenue 3.978km Length Local roads vary in widths with Type 2/3 Single Carriageway road widths One-way access to N25 interchange Existing NMU facilities available through Middleton Centre One-way access to N25 from raised roundabouts This option utilises existing bridge OBY9B which already incorporates NMU facilities		Online Management Option utilising existing roads with access to the depot via connection off Ballyrichard More Road to accommodate low-loaders. Option passes through Middleton centre 7.103km Length Local roads vary in widths with Type 2/3 Single Carriageway road widths Existing NMU facilities available on Upper Mill Road and through Middleton Centre One-way access to N25 interchange NMU facilities provided for entire road to depot and terminates at N25 Junction tie-in This option utilises existing bridge OBY9B which already incorporates NMU facilities This option utilises existing Ballyedmond Bridge (NIAH 20906515) on Upper Mill Rd		Online Option accommodating low-loaders and wider cross-section for active travel/greenway integration 2.828km Length Type 2 Single Carriageway 2.214km Length Left-in /Left-out access to N25 from L7642/Industrial Access (future access to industrial area) NMU facilities provided for entire road to depot and terminates at N25 Junction tie-in 1 existing bridge over rail (OBY7) reconstruction will be required, several surrounding fields are likely to be impacted due to bridge reconstruction		Partially Offline Option with tie-ins to existing roads also accommodating low-loaders and wider cross-section for active travel/greenway integration 2.822km Length Type 2 Single Carriageway 1.579km Length Type 2 Single Carriageway One-way access to N25 from raised roundabouts NMU facilities only provided on access road to depot and terminates at roundabouts 1 new bridge over rail required 1 new over bridge required		Proposed Offline Option with tie-ins to existing roads also accommodating low-loaders and wider cross-section for active travel/greenway integration 2.822km length Type 2 Single Carriageway 1.579km length Type 2 Single Carriageway One-way access to N25 from raised roundabouts NMU facilities provided on access road to depot and terminates at N25 Junction Tie-in 1 new bridge over rail required		Partially Offline Option with tie-ins to existing roads also accommodating low-loaders and wider cross-section for active travel/greenway integration 2.822km length Type 2 Single Carriageway Roundabout access from Northern Relief Road onto L3618 Castle-Rock Avenue One-way access to N25 interchange This option utilises existing bridge OBY9B which already incorporates NMU facilities NMU facilities provided on access road to depot and terminates at N25 Junction Tie-in 1 new junction required		Partially Offline Option with tie-ins to existing roads also accommodating low-loaders and wider cross-section for active travel/greenway integration 2.665km length Type 2 Single Carriageway Castle-Rock Avenue Roundabout access from Northern Relief Road onto L3618 Castle-Rock Avenue One-way access to N25 interchange This option utilises existing bridge OBY9B which already incorporates NMU facilities NMU facilities provided on access road to depot and terminates at N25 Junction Tie-in 1 junction modification required	
1	Transport User Benefits and Other Economic Impacts	1.1 Staff and Delivery Access Quality	2 – Negative Impact	2	2 – Negative Impact	2	2 – Negative Impact	2	6 – Slightly Positive Impact	5	6 – Positive Impact	6	5 – Slightly Positive Impact	5	6 – Positive Impact	6	6 – Positive Impact	6
			Detour length 5.876km Utilises existing carriageway which does not allow for HGVs to pass each other without stopping Limited facilities for non-motorised users through Carrigwohill centre Requires access through Carrigwohill centre with significant traffic management for lowloader transit		Detour length 3.628km Utilises existing carriageway which does not allow for HGVs to pass each other without stopping No facilities for non-motorised users Requires access through L3618 Water-Rock, Ballyrichard More Road and L3617 Curragh with significant traffic management for lowloader transit		Detour length 7.103km Utilises existing carriageway which does not allow for HGVs to pass each other without stopping Provides facilities for non-motorised users through Middleton centre and sections of Upper Mill Road Requires access through Middleton centre and through L3618 Water-Rock, Ballyrichard More Road, L3617 Curragh & Upper Mill Road with significant traffic management for lowloader transit Option will require alteration of existing infrastructure particularly at junctions within Middleton where central reserves and traffic signals will be impacted		Detour length 2.828km Provides improved access quality with wider 7m carriageway for HGVs to pass each other without stopping Requires online widening of L7642 Utilises L7642 and Ballyrichard Road alignment but requires localised alignment alterations and bridge replacement Provides facilities and segregation for non-motorised users Provides access off eastbound N25 Birch Road with moderate traffic management for HGVs and lowloader transit due to residential accesses off this route option		Offline Detour length 1.131km Provides improved access quality with wider 7m carriageway for HGVs to pass each other without stopping Requires online widening of L7642 Utilises L7642 and industrial estate local road alignment Requires localised alignment alterations in proximity to interconnector site and a new bridge across the rail line Provides facilities and segregation for non-motorised users Provides access off eastbound N25 Birch Road with minimal traffic management for HGVs and lowloader transit		Offline Detour length 1.579km Provides improved access quality with wider 7m carriageway for HGVs to pass each other without stopping Requires online widening of L7642 Utilises L7642 and industrial estate local road alignment Requires localised alignment alterations in proximity to interconnector site and a new bridge across the rail line Provides facilities and segregation for non-motorised users Provides access off eastbound N25 Birch Road with minimal traffic management for HGVs and lowloader transit		Offline Detour length 1.003km Provides improved access quality with wider 7m carriageway for HGVs to pass each other without stopping Requires modification of 1 junction on L3618 Requires online widening of L3618 for 0.280km Provides facilities and segregation for non-motorised users Provides access off eastbound N25 Birch Road with minimal traffic management for HGVs and lowloader transit		Offline Detour length 1.374km Provides improved access quality with wider 7m carriageway for HGVs to pass each other without stopping Requires 1 junction modification on L3618 Utilises L3618 local road alignment Provides facilities and segregation for non-motorised users only along detour length Provides access off eastbound N25 Birch Road with moderate traffic management for HGVs and lowloader transit	
		4 – Neutral Impact	4	4 – Neutral Impact	4	4 – Neutral Impact	4	1 – Highly Negative Impact	1	1 – Highly Negative Impact	1	2 – Negative Impact	2	2 – Negative Impact	2	2 – Negative Impact	2	
		Estimated Capital Cost = 238%		Estimated Capital Cost = 100%		Estimated Capital Cost = 208%		Estimated Capital Cost = 1862%		Estimated Capital Cost = 1723%		Estimated Capital Cost = 1458%		Estimated Capital Cost = 1219%		Estimated Capital Cost = 1204%		
		1.2 CAPEX and OPEX	Estimated Capital Cost represents CAPEX based on: Construction cost Accommodation Works Administration Archaeology and Heritage Surveys: £0 (Using Existing Road network) Traffic Management Land Costs: £0 (Using Existing Road network) Bridge reconstruction required, short term impact on rail and road users during construction		Estimated Capital Cost represents CAPEX based on: Construction cost Accommodation Works Administration Archaeology and Heritage Surveys: £0 (Using Existing Road network) Traffic Management Land Costs: £121520 (One property is impacted to allow for low-loader manoeuvre)		Estimated Capital Cost represents CAPEX based on: Construction cost Accommodation Works Administration Archaeology and Heritage Surveys: £0 (Using Existing Road network) Traffic Management Land Costs: £0 (Using Existing Road network)		Estimated Capital Cost represents CAPEX based on: Construction cost Accommodation Works Administration Archaeology and Heritage Surveys Traffic Management Land Costs Bridge reconstruction required, short term impact on rail and road users during construction Earthworks (Cut - U1 Material) Earthworks (Fill)		Estimated Capital Cost represents CAPEX based on: Construction cost Accommodation Works Administration Archaeology and Heritage Surveys Traffic Management Land Costs 2 Bridges Construction required, short term impact on rail and road users during construction 2 Roundabouts Construction required Earthworks (Cut) Earthworks (Cut - U1 Material) Earthworks (Fill)		Estimated Capital Cost represents CAPEX based on: Construction cost Accommodation Works Administration Archaeology and Heritage Surveys Traffic Management Land Costs Earthworks (Cut) Earthworks (Cut - U1 Material) Earthworks (Fill)		Estimated Capital Cost represents CAPEX based on: Construction cost Accommodation Works Administration Archaeology and Heritage Surveys Traffic Management Land Costs Earthworks (Cut) Earthworks (Cut - U1 Material) Earthworks (Fill)		Estimated Capital Cost represents CAPEX based on: Construction cost Accommodation Works Administration Archaeology and Heritage Surveys Traffic Management Land Costs Earthworks (Cut - U1 Material) Earthworks (Fill)	
		1.3 Change of Land Value	7 – Highly positive Impact	7	7 – Highly positive Impact	7	7 – Highly positive Impact	7	7 – Highly positive Impact	7	7 – Highly positive Impact	7	7 – Highly positive Impact	7	7 – Highly positive Impact	7	7 – Highly positive Impact	7
			The introduction of the CACR service will lead to an increase in property values proximal to the railway. This impact is across the whole of the CACR Network and arises from the delivery of a depot which the access roads are an essential part of. The outcome is independent of site location. The positive impact rating is common for all options.		The introduction of the CACR service will lead to an increase in property values proximal to the railway. This impact is across the whole of the CACR Network and arises from the delivery of a depot which the access roads are an essential part of. The outcome is independent of site location. The positive impact rating is common for all options.		The introduction of the CACR service will lead to an increase in property values proximal to the railway. This impact is across the whole of the CACR Network and arises from the delivery of a depot which the access roads are an essential part of. The outcome is independent of site location. The positive impact rating is common for all options.		The introduction of the CACR service will lead to an increase in property values proximal to the railway. This impact is across the whole of the CACR Network and arises from the delivery of a depot which the access roads are an essential part of. The outcome is independent of site location. The positive impact rating is common for all options.		The introduction of the CACR service will lead to an increase in property values proximal to the railway. This impact is across the whole of the CACR Network and arises from the delivery of a depot which the access roads are an essential part of. The outcome is independent of site location. The positive impact rating is common for all options.		The introduction of the CACR service will lead to an increase in property values proximal to the railway. This impact is across the whole of the CACR Network and arises from the delivery of a depot which the access roads are an essential part of. The outcome is independent of site location. The positive impact rating is common for all options.		The introduction of the CACR service will lead to an increase in property values proximal to the railway. This impact is across the whole of the CACR Network and arises from the delivery of a depot which the access roads are an essential part of. The outcome is independent of site location. The positive impact rating is common for all options.		The introduction of the CACR service will lead to an increase in property values proximal to the railway. This impact is across the whole of the CACR Network and arises from the delivery of a depot which the access roads are an essential part of. The outcome is independent of site location. The positive impact rating is common for all options.	

2	Accessibility Impacts	2.1	Impact on Residents	1 – Highly Negative Impact	1	3 – Slightly Negative Impact	3	2 – Negative Impact	2	4 – Neutral Impact	4	5 – Slightly Positive Impact	5	5 – Slightly Positive Impact	5	6 – Positive Impact	6	6 – Positive Impact	6
				Total Population 13494 within 3km Radius of Depot. Impact to Ballyadam, Ballyrichard More, Carrigtohill and Midleton areas. Introduces increased HGV traffic along Ballyrichardmore road and Carrigane Road and Carrigtohill town centre (Main Street) / commercial area. Significant impacts to residents (overall population) access to key services and other job locations beyond the depot. Closer proximity to high density residential area in Carrigtohill. In proximity to recreational amenities. Option temporarily blocks direct access from Ballyrichard More Road to the Carrigtohill United AFC Sports ground during OBYY reconstruction, members of the club who live close to the depot area will need to travel longer routes to reach the stadium. No significant improvements to road infrastructure beyond bridge reconstruction. Long term accessibility impacts due to the requirement for traffic management.	Total Population 13494 within 3km Radius of Depot Impact to Ballyadam, Ballyrichard More, Carrigtohill and Midleton areas Introduces increased HGV traffic along Ballyrichardmore road and Northern Relief Road and Upper Mill Road (One main artery to Midleton centre) Significant impacts to residents (overall population) access to key services and other job locations beyond the depot. Not in proximity to high density residential area in Carrigtohill Not in proximity of sports grounds Sparse residential and agricultural properties along route option Does not pass through commercial area No improvements to road infrastructure Long term accessibility impacts due to the requirement for traffic management	Total Population 13494 within 3km Radius of Depot Impact to Ballyadam, Ballyrichard More, Carrigtohill and Midleton areas Introduces increased HGV traffic along Ballyrichardmore road and Northern Relief Road and Upper Mill Road (One main artery to Midleton centre) Significant impacts to residents (overall population) access to key services and other job locations beyond the depot. Closer proximity to medium density residential area in Carrigtohill Closer proximity to golf course Closer proximity to commercial area No improvements to road infrastructure. Long term accessibility impacts due to the requirement for traffic management	Total Population 13494 within 3km Radius of Depot. Impact to Ballyadam, Ballyrichard More, Carrigtohill and Midleton areas. Introduces increased HGV traffic along Ballyrichardmore road and Carrigane Road and L7642. Minor impacts to residents (overall population) access to key services and other job locations beyond the depot. Not in proximity to high density residential area in Carrigtohill. Sparse residential properties along route option. Does not pass through commercial area. In proximity of sports grounds. Option temporarily blocks direct access from Ballyrichard More Road to the Carrigtohill United AFC Sports ground during OBYY reconstruction, members of the club who live close to the depot area will need to travel longer routes to reach the stadium. Widened carriageway width with provision of active travel facilities. Bridge reconstruction Short term accessibility impacts due to traffic management during construction.	Total Population 13494 within 3km Radius of Depot Impact to Ballyadam, Ballyrichard More, Carrigtohill and Midleton areas Introduces increased HGV traffic along Industrial Road Minor impacts to interconnector site access to key services and other job locations beyond the depot. In proximity of sports grounds but does not impact the area Within industrial area Widened carriageway width with provision of active travel facilities Bridge construction over railway Short term accessibility impacts due to traffic management during construction	Total Population 13494 within 3km Radius of Depot Impact to Ballyadam, Ballyrichard More, Carrigtohill and Midleton areas Introduces increased HGV traffic along N25 Negatively impacts residents access to key services and other job locations via N25 beyond the depot Not in proximity to sports grounds Widened carriageway width with provision of active travel facilities Bridge construction over N25 and Railway Short term accessibility impacts due to traffic management during construction	Total Population 13494 within 3km Radius of Depot Impact to Ballyadam, Ballyrichard More, Carrigtohill and Midleton areas Introduces increased HGV traffic along Castle Rock Avenue, Northern Relief Road and Water-Rock Devt Road Minor impacts to residents (overall population) access to key services and other job locations beyond the depot Not in proximity to sports grounds Widened carriageway width with provision of active travel facilities Short term accessibility impacts due to traffic management during construction	Total Population 13494 within 3km Radius of Depot Impact to Ballyadam, Ballyrichard More, Carrigtohill and Midleton areas Introduces increased HGV traffic along Castle Rock Avenue, Northern Relief Road and Water-Rock Devt Road Minor impacts to residents (overall population) access to key services and other job locations beyond the depot Not in proximity to sports grounds Widened carriageway width with provision of active travel facilities Short term accessibility impacts due to traffic management during construction								
3	Social Impacts	3.1	Social Impacts	2 – Negative Impact	2	3 – Slightly Negative Impact	3	2 – Negative Impact	2	5 – Slightly Positive Impact	5	4 – Neutral Impact	4	5 – Slightly Positive Impact	5	6 – Positive Impact	6	6 – Positive Impact	6
				6-12% of households within 1km of the depot area don't own a car, this implies for all options considered No impact on Socially disadvantaged households as this option is utilizing existing road network without providing any improvements to the existing infrastructure. 6-12% of households within 1km of the depot area don't own a car, this option negatively impact socially disadvantaged households as NMU facilities are disrupted during bridge construction in addition to long term impacts due to HGV's being heavily present, thus further impairing socially disadvantaged groups Option does not provide improve public lighting or segregated facilities	6-12% of households within 1km of the depot area don't own a car, this implies for all options considered No impact on Socially disadvantaged households as this option is utilizing existing road network without providing any improvements to the existing infrastructure. No impact on Socially disadvantaged households as this option is utilizing existing road network without providing any improvements to the existing infrastructure. Option does not provide improve public lighting or segregated facilities	6-12% of households within 1km of the depot area don't own a car, this implies for all options considered No impact on Socially disadvantaged households as this option is utilizing existing road network without providing any improvements to the existing infrastructure. Option does not provide improve public lighting or segregated facilities	6-12% of households within 1km of the depot area don't own a car, this implies for all options considered Active travel facilities provided along this option resulting in improvement for Mobility impaired, physically and intellectually impaired persons. Active travel facilities with separation from motorised traffic provides safer environment for NMUs such as aged, carers Impact on hidden disabilities - Autism, dementia. Impact on lower income groups. Impacts on households without a car. Impact on child supporters, those with strollers. Option provides NMU facilities that connects to recreational facilities (AFC Sports Ground), however, due to OBYY reconstruction, a temporary disturbance to members of this facility is likely to occur. option accommodates provision for public lighting which significantly provides a net positive under gender impacts	6-12% of households within 1km of the depot area don't own a car, this implies for all options considered No impact on Socially disadvantaged households. Active travel facilities provided along this option resulting in improvement for Mobility impaired, physically and intellectually impaired persons. Active travel facilities with separation from motorised traffic provides safer environment for NMUs such as aged, carers Impact on hidden disabilities - Autism, dementia. Impact on lower income groups. Impacts on households without a car. Impact on child supporters, those with strollers. option accommodates provision for public lighting which significantly provides a net positive under gender impacts Option is limited to industrial area, as such, it does not provide further benefits to socially disadvantaged households	6-12% of households within 1km of the depot area don't own a car, this implies for all options considered Option allows for HGVs transit No impact on Socially disadvantaged households. Active travel provision from depot to roundabout, the option offers a potential active travel connection to residents on both sides of the N25 which could benefit impaired groups in the long term.	6-12% of households within 1km of the depot area don't own a car, this implies for all options considered Option allows for HGVs transit Impact on Socially disadvantaged households. Active travel provision from depot to roundabout, the option offers a potential active travel connection to residents on both sides of the N25 which could benefit impaired groups in the long term.	6-12% of households within 1km of the depot area don't own a car, this implies for all options considered Option allows for HGVs transit Impact on Socially disadvantaged households. Active travel provision from depot to roundabout, the option offers a potential active travel connection to residents on both sides of the N25 which could benefit impaired groups in the long term.	6-12% of households within 1km of the depot area don't own a car, this implies for all options considered Option allows for HGVs transit Impact on Socially disadvantaged households. Active travel provision from depot to roundabout, the option offers a potential active travel connection to residents on both sides of the N25 which could benefit impaired groups in the long term.							
4.1	Change in Quality of Public Realm	4.1	Change in Quality of Public Realm	2 – Negative Impact	2	2 – Negative Impact	2	2 – Negative Impact	2	5 – Slightly Positive Impact	5	4 – Neutral Impact	4	5 – Slightly Positive Impact	5	6 – Positive Impact	6	6 – Positive Impact	6
				Existing footpaths on Main Street and Carrigane Road terminate at Elmbury Est within carrigtohill Option does not provide improvements to active travel facilities Option introduces increased HGV traffic in proximity to Sports Ground, commercial area and residential area Poor integration for varying transport modes along local road network as there is no segregation of NMUs and MUs and construction works will impact public areas Interurban cycle route intersects this route option at junction for OBYY reconstruction Poor integration with Interurban cycle route as option does not provide connectivity	Existing footpaths on Northern Relief Road and Water-Rock Devt Road terminate at Castle Rock Ave within Water-Rock Option does not provide improvements to active travel facilities Option introduces increased HGV traffic in proximity to Sports Ground, commercial area and residential area Option not in proximity to public areas Poor integration for varying transport modes along local road network as proposed option does not improve infrastructure where there is no segregation of NMUs and MUs and construction widening works at junctions will impact public areas Interurban cycle route intersects this route option at Castle Rock/Ballyrichard More junction Poor integration with Interurban cycle route as option does not provide connectivity	Existing footpaths on Northern Relief Road and Upper Mill Road terminate at Broomfield Ridge junction within Midleton Option does not provide improvements to active travel facilities Option introduces increased HGV traffic in proximity to residential area and commercial area Option in proximity to golf course Poor integration for varying transport modes along local road network as proposed option does not improve infrastructure where there is no segregation of NMUs and MUs on sections of the route option particularly in proximity to public areas Interurban cycle route intersects this route option at Northern Relief Road roundabout. It utilises existing NMU facilities onwards into Midleton Average integration with Interurban cycle route as option does not provide connectivity	Active travel facilities provided along this option resulting in improvement for Mobility impaired, physically and intellectually impaired persons. Option introduces more HGVs to an industrial site, hence it is not negatively impacting residents	Active travel facilities provided along this option resulting in significant improvement for Mobility impaired, physically and intellectually impaired persons. However, the option offers a potential active travel connection to residents on both sides of the N25 which could benefit impaired groups in the long term.	Active travel facilities provided along this option resulting in significant improvement for Mobility impaired, physically and intellectually impaired persons. Option provides continuous NMU facilities from the depot up to the junction intersecting Northern Relief Road and R907										
4.2	Existing Transport Network and Service Impact:	4.2	Existing Transport Network and Service Impact:	3 – Slightly Negative Impact	3	3 – Slightly Negative Impact	3	3 – Slightly Negative Impact	3	5 – Slightly Positive Impact	5	5 – Slightly Positive Impact	5	5 – Slightly Positive Impact	5	5 – Slightly Positive Impact	5	5 – Slightly Positive Impact	5
				requires OBYY bridge reconstruction to allow for HGVs and low-loaders manoeuvre. This option is anticipated to require significant traffic management (i.e. temporary road closure / diversion of traffic through) as part of the operational sequence during construction There are long-term accessibility impacts due to the requirement for traffic management when HGVs utilise this route option. The local road network impacted includes: Carrigane Road, Ballyrichard More Road and the northern access that's currently connected to the OBYY As the depot severs the planned Interurban Cycle Route, a diversion of the cycle route is required. This option does not provide connectivity for the proposed cycle route as no NMU facilities are provided.	At L3617 Carrugh Road junction, junction widening will be required which will likely require property acquisition for a garden situated to the left of the junction. The stone wall of the property will be impacted and likely require demolishing along with OH divergence works as one electricity pole is located within the left-turn Swept Path for larger HGVs This option does not provide connectivity for the proposed cycle route as no NMU facilities are provided on Castle Rock Avenue Road and Carrugh Road	requires significant traffic management along demolishing and reconstruction of splitter islands and kerbs to allow for low-loaders manoeuvre This option does not provide connectivity for the proposed cycle route	Option provides wider carriageway for HGV transit. Option provides NMU / Active travel facilities. Option provides improved junction access to N25. Option requires reconstruction of the OBYY bridge to allow for HGVs and low-loaders manoeuvre. This option is anticipated to require significant traffic management (i.e. temporary road closure / diversion of traffic through) as part of the operational sequence There are a long-term accessibility impacts due to the requirement for traffic management when HGVs utilise this route option. The local road network impacted includes: Carrigane Road, Ballyrichard More Road and the northern access that's currently connected to the OBYY. As the depot severs the planned Interurban Cycle Route, a diversion of the cycle route is required.	Option provides wider carriageway for HGV transit Option provides NMU / Active travel facilities Option provides tie-in to industrial area As the depot severs the planned Interurban Cycle Route, a diversion of the cycle route is required.	Option provides wider carriageway for HGV transit Option provides NMU / Active travel facilities Option provides improved junction access to N25 As the depot severs the planned Interurban Cycle Route, a diversion of the cycle route is required.										
4.3	Material Assets: Property	4.3	Material Assets: Property	3 – Slightly Negative Impact	3	3 – Slightly Negative Impact	3	3 – Slightly Negative Impact	3	2 – Negative Impact	2	2 – Negative Impact	2	2 – Negative Impact	2	2 – Negative Impact	2	1 – Highly Negative Impact	1
				Direct impacts will involve permanent landtake and farm division on two agricultural properties at Carrigane Td. There will be temporary direct impacts on agricultural lands adjacent to the bridge (OBYY) reconstruction works. On the online section, there may be minor direct impacts to existing property boundaries and field access. There is a significant or greater cumulative impact on one agricultural property due mainly to the landtake impact associated with the Depot site. There are no direct impacts on non-agricultural property.	Direct impacts will involve permanent landtake and farm division on two agricultural properties at Carrigane Td. On the online section, there may be minor direct impacts to existing property boundaries and field access. There is a significant or greater cumulative impact on one agricultural property due mainly to the landtake impact associated with the Depot site. On the online section, there will be a direct impact on one residential property due to permanent landtake from garden outillage and impact on the property boundary. There is no impact on existing access to the property.	Direct impacts will involve permanent landtake and farm division on two agricultural properties at Carrigane Td. On the online section, there may be minor direct impacts to existing property boundaries and field access on agricultural properties. There is a significant or greater cumulative impact on one agricultural property due mainly to the landtake impact associated with the Depot site. There are no direct impacts on non-agricultural property.	On the offline section, direct impacts will involve permanent landtake and farm division on two agricultural properties at Carrigane Td. On the online section, direct impacts will involve permanent landtake for the proposed rail bridge and road realignment. There will be impacts to existing property boundaries and field access on remaining agricultural properties and farm division on one agricultural property due mainly to the landtake impact associated with the Depot site. On the online section, there will be direct impacts on three residential properties due to permanent landtake for road widening. Property impacts will consist of impacts to existing property boundaries and entrances. There will be temporary impacts on property access during the construction phase. There will be a direct impact on one property (currently being developed) due to road widening of the local road (L7642).	Direct impacts will involve permanent landtake on three agricultural properties. There is a significant or greater cumulative impact on one agricultural property due mainly to the landtake impact associated with the Depot site. There will be a direct impact on one commercial property involving the existing internal road network. There may be permanent landtake of existing outillage to provide for road or junction widening and connection to the offline section.	Direct impacts will involve permanent landtake on three agricultural properties and farm division on one agricultural property. There is a significant or greater impact on one agricultural property due mainly to the landtake and farm division impacts. There are no direct impacts on non-agricultural property.										
4.4	Built Services (Utilities)	4.4	Built Services (Utilities)	2 – Negative Impact	2	2 – Negative Impact	2	1 – Highly Negative Impact	1	2 – Negative Impact	2	3 – Slightly Negative Impact	3	3 – Slightly Negative Impact	3	3 – Slightly Negative Impact	3	3 – Slightly Negative Impact	3
				ESB 110 kV impacted 1 times (Depot OHLE/ Railway Impact) ESB 38 kV impacted 1 times (Depot OHLE/ Railway Impact) ESB 38 kV impacted 1 times (Depot OHLE/ Railway Impact) ESB MV impacted 5 times and 1 time Depot OHLE/ Railway Impact ESB LV impacted 8 times	ESB 110 kV impacted 1 times ESB 38 kV impacted 2 times ESB MV impacted 7 times ESB LV impacted 5 times Eir impacted 7 times (some of these possibly being ESB LV) based on desktop study without records being available)	ESB 110 kV impacted 1 times ESB 38 kV impacted 2 times ESB MV impacted 5 times ESB LV impacted 7 times Eir impacted 25 times (some of these possibly being ESB LV) based on desktop study without records being available)	ESB 110 kV impacted 1 times ESB 38 kV impacted 2 times ESB MV impacted 6 times ESB LV impacted 3 times Possibly Eir/ESB LV based on desktop study impacted 1 time SW Drainage impacted 1 time	ESB 110 kV impacted 1 times ESB 38 kV impacted 2 times ESB MV impacted 2 times	ESB 110 kV impacted 3 times ESB 38 kV impacted 1 time ESB MV impacted 4 times										
4	Land Use Impacts	4	Land Use Impacts	3 – Slightly Negative Impact	3	3 – Slightly Negative Impact	3	3 – Slightly Negative Impact	3	3 – Slightly Negative Impact	3	2 – Negative Impact	2	1 – Highly Negative Impact	1	3 – Slightly Negative Impact	3	3 – Slightly Negative Impact	3

4.5	Soils and Geology (incl. Waste)	The site is underlain by Made Ground, Alluvium, Glacial Till and Glacial Sands and Gravels (derived from Devonian Sandstones). The underlying bedrock consists of the Waulsortian Limestone Formation and possibly moves into the Ballysteen Formation at the proposed northern junction. Soil cover anticipated to range between 0-10m. Moderate volume (100-1000m3) of cut anticipated as a part of temporary works, drainage, road alterations and new access road to the depot. Moderate volume (100-1000m3) of engineered fill to backfill behind abutments, improve existing roads and new access road to the depot. The closest geological heritage site 3.9km to the east (Midleton Distillery). This option will have a slightly negative impact on existing soils due to the bridge reconstruction and anticipated volume/extent of earthworks required. Impact partially mitigated through the reuse of soils excavated as a part of new road construction. Opportunity to utilise site-won aggregate from Depot earthwork activities.	The site is underlain by Made Ground, Glacial Till and Glacial Sands and Gravels (derived from Devonian Sandstones). The underlying bedrock consists of the Waulsortian Limestone Formation and the Ballysteen Formation. To the east the route passes through the Cuskiny Member. Soil cover anticipated to range between 0-10m. Moderate volume (100-1000m3) of cut anticipated as a part of temporary works, drainage, road alterations and new access road to the depot. Moderate volume (100-1000m3) of engineered fill to backfill behind abutments, improve existing roads and new access road to the depot. The closest geological heritage site 3.9km to the east (Midleton Distillery). This option will have a slightly negative impact on existing soils due to the anticipated volume/extent of earthworks required. Impact partially mitigated through the reuse of soils excavated as a part of new road construction. Opportunity to utilise site-won aggregate from Depot earthwork activities.	The site is underlain by Made Ground, Alluvium, Glacial Till and Glacial Sands and Gravels (derived from Devonian Sandstones). The underlying bedrock consists of the Waulsortian Limestone Formation and the Ballysteen Formation. To the north the section of the route also passes through the Old Head Sandstone Formation and the Gylfen Formation. Soil cover anticipated to range from 0-5m (deepest towards northwestern end of the route). Moderate volume (100-1000m3) of cut anticipated as a part of temporary works, drainage, road alterations and new access road to the depot. Moderate volume (100-1000m3) of engineered fill to backfill behind abutments, improve existing roads and new access road to the depot. The closest geological heritage site 1km to the east (Midleton Distillery). This option will have a slightly negative impact on existing soils due to the anticipated volume/extent of earthworks required. Impact partially mitigated through the reuse of soils excavated as a part of new road construction. Opportunity to utilise site-won aggregate from Depot earthwork activities.	The site is underlain by Made Ground, and Glacial Till (derived from Devonian Sandstones). The underlying bedrock consists of the Waulsortian Limestone Formation and the Ballysteen Formation. Soil cover anticipated to range between 0-15m. Moderate volume (100-1000m3) of cut anticipated as a part of temporary works, drainage, road alterations and new access road to the depot. Large volume (100-10000m3) of engineered fill to construct abutments, approach embankments, improve existing roads and new access road leading to the depot. The closest geological heritage site 3km to the southeast (Midleton Distillery). This option will have a negative impact on existing soils due to the anticipated volume/extent of earthworks required. Impact partially mitigated through the reuse of soils excavated as a part of new road construction. Opportunity to utilise site-won aggregate from Depot earthwork activities.	The site is underlain by Made Ground, and Glacial Till (derived from Devonian Sandstones). The underlying bedrock consists of the Waulsortian Limestone Formation and the Ballysteen Formation. Soil cover anticipated to range between 0-15m. Moderate volume (100-1000m3) of cut anticipated as a part of temporary works, drainage, road alterations and new access road to the depot. Significant volume (>10000m3) of engineered fill to construct abutments, approach embankments, improve existing roads and new access road leading to the depot. The closest geological heritage site 3km to the southeast (Midleton Distillery). This option will have a slightly negative impact on existing soils due to the anticipated volume/extent of earthworks required. Impact partially mitigated through the reuse of soils excavated as a part of new road construction. Opportunity to utilise site-won aggregate from Depot earthwork activities.	The site is underlain by Made Ground, Glacial Till and Glacial Sands and Gravels (derived from Devonian Sandstones). The underlying bedrock consists of the Waulsortian Limestone Formation and the Ballysteen Formation. Soil cover anticipated to range between 0-15m. Moderate volume (100-1000m3) of cut anticipated as a part of drainage, road alterations and new access road to the depot. Moderate volume (100-1000m3) of engineered fill to improve existing roads, tie-ins and new access road leading to the depot. The closest geological heritage site 1.7km to the southeast (Midleton Distillery). This option will have a slightly negative impact on existing soils due to the anticipated volume/extent of earthworks required. Impact partially mitigated through the reuse of soils excavated as a part of new road construction. Opportunity to utilise site-won aggregate from Depot earthwork activities.	The site is underlain by Made Ground, Glacial Till and Glacial Sands and Gravels (derived from Devonian Sandstones). The underlying bedrock consists of the Waulsortian Limestone Formation. The eastern extent passes through the Cuskiny member and into the Ballysteen Formation. Soil cover anticipated to range between 0-15m. Moderate volume (100-1000m3) of cut anticipated as a part of drainage, road alterations and new access road to the depot. Moderate volume (100-1000m3) of engineered fill to improve existing roads, tie-ins and new access road leading to the depot. The closest geological heritage site 1.7km to the southeast of the depot Option 8 (Midleton Distillery). This option will have a slightly negative impact on existing soils due to the anticipated volume/extent of earthworks required. Impact partially mitigated through the reuse of soils excavated as a part of new road construction. Opportunity to utilise site-won aggregate from Depot earthwork activities.	
		4 – Neutral Impact	4	4 – Neutral Impact	4	4 – Neutral Impact	4	4 – Neutral Impact	4
4.6	Planning Applications	A portion of this option is within the red line Celtic interconnector project boundary extents, involving HVDC underground cabling. Along Carrigane Rd, the proposed route passes an area along Carrigane Road where there is currently active development (Planning Application 217130) entailing the construction of residential units and a separate planning application development entailing new site access and local improvement works to facilitate access to the IDA Ballydamm site (Planning Application 217374). The route also passes the Carrigwilli United AFC Planning Application (254270) for works within the boundary of the football fields. It not anticipated that this option will impact existing planning applications along the route.	A portion of this option is within the red line Celtic interconnector project boundary extents, involving HVDC underground cabling. The proposed route passes the WaterRock development along the L3618 Water Rock Road, Planning Application (225839) (Ingram Homes Limited, Large-scale Residential Development, Ten-year planning permission for 400 residential units to be constructed in a series of phases, a creche and community use unit and ancillary infrastructure, services, and site development works.) as part of the Water-Rock UEA Scheme. It not anticipated that this option will impact existing planning applications along the route.	A portion of this option is within the red line Celtic interconnector project boundary extents, involving HVDC underground cabling. The route utilises a section of the recently constructed Northern Relief Road. The In a part of the WaterRock Urban Expansion Scheme. It not anticipated that this option will impact existing planning applications along the route.	A portion of this option is within the red line Celtic interconnector project boundary extents, involving HVDC underground cabling. The route also passes adjacent to the Carrigwilli United AFC Planning Application (254270) for works within the boundary of the football fields. It not anticipated that this option will impact existing planning applications along the route.	A portion of this option is within the red line Celtic interconnector project boundary extents, involving HVDC underground cabling. It not anticipated that this option will impact existing planning applications along the route.	No recent planning applications within the last 5 year period. It not anticipated that this option will impact existing planning applications along the route.	Permission granted in 2023 for Planning application 217264, EMR Projects Ltd. Development consisting of a mixed use scheme comprising of residential units at Lands of Knockgriffn and Water Rock. The proposed route does not impact this development.	No recent planning applications within the last 5 year period. It not anticipated that this option will impact existing planning applications along the route.
4.7	Zoned Land, Land Use Planning and Spatial Planning	6 – Positive Impact The proposed route is identified within the Metropolitan Cork Strategic Planning Area. This option will support the CACR programme in aligning with European and National policy as well as objectives at a Regional and Local policy level including within the RSES, CMASP, CMATS, AISRR, and the Cork County Development Plan 2028. This option is supported by the following Cork County Development Plan Transport and Mobility (TM) and Climate (CS) Objectives: TM 12-1, TM 12-3, TM 12-6, TM 12-7, CS 2-8, CS 17-1, and CS 17-2. The proposed route utilises existing roads that traverse through the following land use zoning areas: "Industrial", "Industry", "Enterprises", "employment", "Existing Residential/Mixed Residential and Other Uses", "Town Centre/Neighbourhood Centres", "Business and General Employment", and "Existing Mixed/General Business/Industrial Uses". As the route approaches the proposed depot location, this is in unzoned areas. The proposed route is impacting on "Residential", "Green Infrastructure" and "Industry" land use zoning areas.	7 – Highly positive Impact The site is identified within the Metropolitan Cork Strategic Planning Area. This option will support the CACR programme in aligning with European and National policy as well as objectives at a Regional and Local policy level including within the RSES, CMASP, CMATS, AISRR, and the Cork County Development Plan 2028. This option is supported by the following Cork County Development Plan Transport and Mobility (TM) and Climate (CS) Objectives: TM 12-1, TM 12-3, TM 12-6, TM 12-7, CS 2-8, CS 17-1, and CS 17-2. The proposed route utilises existing roads that traverse through the following land use zoning areas: "Industrial", "Industry", "Enterprises", "employment", "Existing Residential/Mixed Residential and Other Uses", "Town Centre/Neighbourhood Centres", "Business and General Employment", and "Existing Mixed/General Business/Industrial Uses". As the route approaches the proposed depot location, this is in unzoned areas. The proposed route is impacting on "Residential", "Green Infrastructure" and "Industry" land use zoning areas.	7 – Highly positive Impact The site is identified within the Metropolitan Cork Strategic Planning Area. This option will support the CACR programme in aligning with European and National policy as well as objectives at a Regional and Local policy level including within the RSES, CMASP, CMATS, AISRR, and the Cork County Development Plan 2028. This option is supported by the following Cork County Development Plan Transport and Mobility (TM) and Climate (CS) Objectives: TM 12-1, TM 12-3, TM 12-6, TM 12-7, CS 2-8, CS 17-1, and CS 17-2. The proposed route utilises existing roads that traverse through the following land use zoning areas: "Industrial", "Industry", "Business and General Employment", "Green Infrastructure" and "Existing Residential/Mixed Residential and Other Uses". The use of the existing roads does not impact the land use zoning policy/objectives for these areas.	8 – Slightly Positive Impact The site is identified within the Metropolitan Cork Strategic Planning Area. This option will support the CACR programme in aligning with European and National policy as well as objectives at a Regional and Local policy level including within the RSES, CMASP, CMATS, AISRR, and the Cork County Development Plan 2028. This option is supported by the following Cork County Development Plan Transport and Mobility (TM) and Climate (CS) Objectives: TM 12-1, TM 12-3, TM 12-6, TM 12-7, CS 2-8, CS 17-1, and CS 17-2. The proposed route is impacting on "Residential", "Green Infrastructure" and "Industry" land use zoning areas.	6 – Positive Impact The site is identified within the Metropolitan Cork Strategic Planning Area. This option will support the CACR programme in aligning with European and National policy as well as objectives at a Regional and Local policy level including within the RSES, CMASP, CMATS, AISRR, and the Cork County Development Plan 2028. This option is supported by the following Cork County Development Plan Transport and Mobility (TM) and Climate (CS) Objectives: TM 12-1, TM 12-3, TM 12-6, TM 12-7, CS 2-8, CS 17-1, and CS 17-2. The section of the proposed access road is zoned as "Industry".	7 – Highly positive Impact The site is identified within the Metropolitan Cork Strategic Planning Area. This option will support the CACR programme in aligning with European and National policy as well as objectives at a Regional and Local policy level including within the RSES, CMASP, CMATS, AISRR, and the Cork County Development Plan 2028. The proposed route of this option is not zoned.	6 – Positive Impact The site is identified within the Metropolitan Cork Strategic Planning Area. This option will support the CACR programme in aligning with European and National policy as well as objectives at a Regional and Local policy level including within the RSES, CMASP, CMATS, AISRR, and the Cork County Development Plan 2028. The proposed route is in proximity of the site boundary of objective MD-C-01 "Provision of a site for a primary school as part of Phase 1 of the Water-Rock Urban Expansion Area", specified in Specific Development Objectives for Midleton in the Cork County Development Plan 2022 Vol. 4. The proposed route is in proximity of the site boundary of objectives MD-C-08 "Ensure this existing road and its junction arrangement with the Water-Rock Road meets appropriate standards upon connection to the upgraded Water-Rock Road (MD-U-07)", MD-U-07 "Upgrading of the Water-Rock Road to Feeder Street Standard, designed and constructed in accordance with the DMURS guidance document to a standard which meets the approval of Cork County Council", designed and construct ed in accordance with the DMURS guidance for a Link Street and to a standard which meets the approval of Cork County Council". The location of this option is zoned with "Existing Mixed/General Business/Industrial Uses" and "Residential" and "Community".	8 – Slightly Positive Impact The site is identified within the Metropolitan Cork Strategic Planning Area. This option will support the CACR programme in aligning with European and National policy as well as objectives at a Regional and Local policy level including within the RSES, CMASP, CMATS, AISRR, and the Cork County Development Plan 2028. The proposed route is in proximity of the site boundary of
5.1	Collisions & Related Impacts	2 – Negative Impact On N25 - WaterRock Development: 4 Minor collisions 0 Severe collisions 0 Fatal collisions Active travel infrastructure in town/village centres impacted by larger HGV (low-loader) manoeuvres No active travel facilities on existing infrastructure in proximity to Depot location	2 – Negative Impact On N25 - WaterRock Development: 4 Minor collisions 0 Severe collisions 0 Fatal collisions Active travel infrastructure in town/village centres impacted by larger HGV (low-loader) manoeuvres No active travel facilities on existing infrastructure in proximity to Depot location	1 – Highly Negative Impact On N25 - WaterRock Development: 12 Minor collisions 1 Severe collision 1 Fatal collision Active travel infrastructure in town/village centres impacted by larger HGV (low-loader) manoeuvres No active travel facilities on existing infrastructure in proximity to Depot location	8 – Slightly Positive Impact On N25 - WaterRock Development: 2 Minor collisions 0 Severe collisions 1 Fatal collisions Option is online requiring incorporation of existing direct & farm accesses along entire route. Direct accesses & Active travel infrastructure interactions generate risk of collisions where visibility cannot be achieved Wider carriageway allows for larger HGV manoeuvres without impacting vulnerable road users Active travel infrastructure provided as part of online widening works No active travel facilities on existing infrastructure in proximity to Depot location	6 – Positive Impact On the industrial road: 0 Minor Collisions 0 Severe Collisions 0 Fatal Collisions On N25 2 Minor Collisions 0 Severe Collisions 1 Fatal Collisions Option is offline and removes majority of existing direct & farm accesses along route. Wider carriageway allows for larger HGV manoeuvres without impacting vulnerable road users Active travel infrastructure provided as part of online widening works No active travel facilities on existing infrastructure in proximity to Depot location	8 – Slightly Positive Impact On N25 3 Minor Collisions 0 Severe Collisions 0 Fatal Collisions Option introduces more accesses onto N25 within a 1km distance Wider carriageway allows for larger HGV manoeuvres without impacting vulnerable road users Active travel infrastructure provided as part of online widening works No active travel facilities on existing infrastructure in proximity to Depot location	6 – Positive Impact On N25 4 Minor Collisions 0 Severe Collisions 0 Fatal Collisions Option is partially offline. No direct accesses from N25 on this option. Option introduces more farm accesses along route. Wider carriageway allows for larger HGV manoeuvres without impacting vulnerable road users Active travel infrastructure provided as part of online widening works No active travel facilities on existing infrastructure in proximity to Depot location	6 – Positive Impact On N25 4 Minor Collisions 0 Severe Collisions 0 Fatal Collisions Option is offline and ties into existing junction. No direct accesses from N25 on this option. Option introduces more farm accesses along route. Wider carriageway allows for larger HGV manoeuvres without impacting vulnerable road users Active travel infrastructure provided as part of online widening works No active travel facilities on existing infrastructure in proximity to Depot location
5.2	Other Safety Impacts	2 – Negative Impact Option introduces HGVs and Low-loader traffic to residential and commercial area Higher risk of trips, falls and collisions when utilising existing road arrangement TII traffic counter for N25 closest to this location indicates AADT of 41867, %HGV of 4.1 and Coverage of 69.3% for 2025	2 – Negative Impact Option introduces HGVs and Low-loader traffic to residential and commercial area Higher risk of trips, falls and collisions when utilising existing road arrangement TII traffic counter for N25 closest to this location indicates AADT of 41867, %HGV of 4.1 and Coverage of 69.3% for 2025	2 – Negative Impact Option introduces HGVs and Low-loader traffic to residential and commercial area Higher risk of trips, falls and collisions when utilising existing road arrangement TII traffic counter for N25 closest to this location indicates AADT of 41867, %HGV of 4.1 and Coverage of 69.3% for 2025	8 – Slightly Positive Impact Option introduces HGVs and Low-loader traffic to residential area Option for Proposed greenway route integration with option TII traffic counter for N25 closest to this location indicates AADT of 41867, %HGV of 4.1 and Coverage of 69.3% for 2025	6 – Positive Impact Option introduces HGVs and Low-loader traffic within industrial area Option introduces HGVs and Low-loader traffic to residential area TII traffic counter for N25 closest to this location indicates AADT of 41867, %HGV of 4.1 and Coverage of 69.3% for 2025	8 – Slightly Negative Impact Option introduces additional junction onto N25 where a speed limit of 120km/h Increased risk of collisions due to access to N25 is being provided utilising road arrangement TII traffic counter for N25 closest to this location indicates AADT of 41867, %HGV of 4.1 and Coverage of 69.3% for 2025	6 – Positive Impact Option introduces HGVs and Low-loader traffic to residential area Option introduces HGVs and Low-loader traffic to residential area TII traffic counter for N25 closest to this location indicates AADT of 41867, %HGV of 4.1 and Coverage of 69.3% for 2025	6 – Positive Impact Option introduces HGVs and Low-loader traffic to residential area Option introduces HGVs and Low-loader traffic to residential area TII traffic counter for N25 closest to this location indicates AADT of 41867, %HGV of 4.1 and Coverage of 69.3% for 2025
6.1	Climate Action Impact	3 – Slightly Negative Impact Operational phase CO2 emissions will be higher due to increased traffic volume. In operational stage vehicles travel approx. 6.48km. This option will involve the demolition of an existing bridge (OB7) and the constructing a new bridge across the railway track, and therefore requiring construction materials and subsequent embodied carbon.	3 – Slightly Negative Impact Operational phase CO2 emissions will be higher due to increased traffic volume. In operational stage vehicles travel approx. 6.48km. This option will involve two junction modifications, therefore will require construction materials and subsequent embodied carbon.	3 – Slightly Negative Impact Operational phase CO2 emissions will be higher due to increased traffic volume. In operational stage vehicles travel approx. 7.11km resulting in the most embodied carbon resulting from travel of all of the options. This option will involve road reconstructions, therefore will require construction materials and subsequent embodied carbon.	2 – Negative Impact Operational phase CO2 emissions will be higher due to increased traffic volume. In operational stage vehicles travel approx. 2.83km. This option will involve widening works at two locations and bridge reconstruction, therefore will require construction materials and subsequent embodied carbon.	2 – Negative Impact Operational phase CO2 emissions will be higher due to increased traffic volume. In operational stage vehicles travel approx. 2.12km. This option will involve widening works and the construction of a new overpass over the railway, therefore will require materials and subsequent embodied carbon.	2 – Negative Impact Operational phase CO2 emissions will be higher due to increased traffic volume. In operational stage vehicles travel approx. 1.58km. This option requires two new roundabouts and two bridges to be constructed and widening of the N25 junctions access into the adjacent field, therefore will require materials and subsequent embodied carbon.	2 – Negative Impact Operational phase CO2 emissions will be higher due to increased traffic volume. In operational stage vehicles travel approx. 2.93km. This option requires the offline development of a approx. 1.003km road therefore will require construction materials and subsequent embodied carbon.	3 – Slightly Negative Impact Operational phase CO2 emissions will be higher due to increased traffic volume. In operational stage vehicles travel approx. 2.67km. This option requires the offline development of a approx. 1.37km road therefore will require construction materials and subsequent embodied carbon.
6.2	Climate Adaption Impact	3 – Slightly Negative Impact Flood Risk: Existing route traverses coastal and fluvial flood zones. Options will not impact on existing flood impacts, however potential for flooding to impact the access to the proposed depot.	4 – Neutral Impact No indication of Fluvial, Coastal, Groundwater or Pluvial sources of flooding.	3 – Slightly Negative Impact Flood Risk: Existing route traverses coastal and fluvial flood zones. Options will not impact on existing flood impacts, however potential for flooding to impact the access to the proposed depot.	4 – Neutral Impact Flood risk: No indication of Fluvial, Coastal, Groundwater or Pluvial sources of flooding.	4 – Neutral Impact Flood risk: No indication of Fluvial, Coastal, Groundwater or Pluvial sources of flooding.	4 – Neutral Impact Flood risk: No indication of Fluvial, Coastal, Groundwater or Pluvial sources of flooding.	4 – Neutral Impact Flood risk: No indication of Fluvial, Coastal, Groundwater or Pluvial sources of flooding.	4 – Neutral Impact Flood risk: No indication of Fluvial, Coastal, Groundwater or Pluvial sources of flooding.
7.1	Biodiversity	3 – Slightly Negative Impact Option 1 primarily occurs within the footprint of existing roads but will lead to loss of arable crop and hedgerow habitat where the proposed road connects to the depot site. Option 1 crosses at least 1 hedgerow, which also has the potential for habitat fragmentation. Cherry laurels have been recorded along the northern side of the railway to the east of the existing roadbridge OB7 and there is potential for spread of this invasive species during the construction phase. There is also potential for some loss of breeding bird habitat in suitable vegetation with this option. The existing road crosses over the Tibbottstown and Annagrove rivers, both of which are upstream of the Great Island Channel SAC and Cork Harbour SPA. The existing road will not be widened as part of this option and thus there is no potential impacts to any designated site due to the lack of functional or hydrological connection. Due to the localised nature of the habitat loss associated with this option and the majority of this option within the existing roads footprint, this option is considered to have a slightly negative impact on biodiversity.	3 – Slightly Negative Impact Option 2 primarily occurs within the footprint of existing roads but will lead to loss of arable crop and hedgerow habitat where the proposed road connects to the depot site. Option 2 crosses at least 3 hedgerows, which also has the potential for habitat fragmentation. There is also potential for some loss of breeding bird habitat in suitable vegetation with this option. The existing road crosses over the Onewannara and Glenathonscah rivers, both of which are upstream of the Great Island Channel SAC and Cork Harbour SPA. The existing road will not be widened as part of this option and thus there is no potential impacts to any designated site due to the lack of functional or hydrological connection. Due to the localised nature of the habitat loss associated with this option and the majority of this option within the existing roads footprint, this option is considered to have a slightly negative impact on biodiversity.	3 – Slightly Negative Impact Option 3 primarily occurs within the footprint of existing roads but will lead to loss of arable crop and hedgerow habitat where the proposed road connects to the depot site. Option 3 crosses at least 1 hedgerow, which also has the potential for habitat fragmentation. There is also potential for some loss of breeding bird habitat in suitable vegetation with this option. The existing road crosses over the Tibbottstown and Annagrove rivers, both of which are upstream of the Great Island Channel SAC and Cork Harbour SPA. The existing road will not be widened as part of this option and thus there is no potential impacts to any designated site due to the lack of functional or hydrological connection. Due to the localised nature of the habitat loss associated with this option and the majority of this option within the existing roads footprint, this option is considered to have a slightly negative impact on biodiversity.	2 – Negative Impact Much of Option 4 occurs within the footprint of existing roads but will lead to loss of arable crop and hedgerow habitat where the proposed road connects to the depot site. This option also requires the removal of existing hedgerows to facilitate road widening on the L1642. Option 4 intersects at least 4 additional hedgerows, which will result in habitat fragmentation. The loss of hedgerow habitat has the potential for loss of breeding bird habitat. Cherry laurel has been recorded along the northern side of the railway to the east of the existing roadbridge OB7 and there is potential for spread of this invasive species during the construction phase. Due to the requirement for the removal of a long section of hedgerow and the habitat loss associated with this option compared with Options 1,2 and 3, this option is considered to have a negative impact on biodiversity.	1 – Highly Negative Impact Option 5 will lead to loss of arable crop and hedgerow habitat. This option intersects at least 12 hedgerows, which will result in much habitat fragmentation and loss of habitat connectivity. The loss of hedgerow habitat has the potential for loss of breeding bird habitat. There is also potential for some loss of breeding bird habitat in suitable vegetation with this option. The existing road crosses over the Tibbottstown and Annagrove rivers, both of which are upstream of the Great Island Channel SAC and Cork Harbour SPA. The existing road will not be widened as part of this option and thus there is no potential impacts to any designated site due to the lack of functional or hydrological connection. Due to the localised nature of the habitat loss associated with this option and the majority of this option within the existing roads footprint, this option is considered to have a slightly negative impact on biodiversity.	2 – Negative Impact Option 6 will lead to loss of arable crop and hedgerow habitat. This option intersects at least 6 hedgerows, which will result in much habitat fragmentation and loss of habitat connectivity. The loss of hedgerow habitat has the potential for loss of breeding bird habitat. There is also potential for some loss of breeding bird habitat in suitable vegetation with this option. The existing road crosses over the Tibbottstown and Annagrove rivers, both of which are upstream of the Great Island Channel SAC and Cork Harbour SPA. The existing road will not be widened as part of this option and thus there is no potential impacts to any designated site due to the lack of functional or hydrological connection. Due to the localised nature of the habitat loss associated with this option and the majority of this option within the existing roads footprint, this option is considered to have a slightly negative impact on biodiversity.	1 – Highly Negative Impact Option 7 will lead to loss of arable crop and hedgerow habitat. This option intersects at least 12 hedgerows, which will result in much habitat fragmentation and loss of habitat connectivity. The loss of hedgerow habitat has the potential for loss of breeding bird habitat. There is also potential for some loss of breeding bird habitat in suitable vegetation with this option. The existing road crosses over the Tibbottstown and Annagrove rivers, both of which are upstream of the Great Island Channel SAC and Cork Harbour SPA. The existing road will not be widened as part of this option and thus there is no potential impacts to any designated site due to the lack of functional or hydrological connection. Due to the localised nature of the habitat loss associated with this option and the majority of this option within the existing roads footprint, this option is considered to have a slightly negative impact on biodiversity.	1 – Highly Negative Impact Option 8 will lead to loss of arable crop and hedgerow habitat. This option intersects at least 10 hedgerows, which will result in habitat fragmentation. The loss of hedgerow habitat has the potential for loss of breeding bird habitat. There is also potential for some loss of breeding bird habitat in suitable vegetation with this option. The existing road crosses over the Tibbottstown and Annagrove rivers, both of which are upstream of the Great Island Channel SAC and Cork Harbour SPA. The existing road will not be widened as part of this option and thus there is no potential impacts to any designated site due to the lack of functional or hydrological connection. Due to the localised nature of the habitat loss associated with this option and the majority of this option within the existing roads footprint, this option is considered to have a slightly negative impact on biodiversity.
		3 – Slightly Negative Impact	4 – Neutral Impact	3 – Slightly Negative Impact	3 – Slightly Negative Impact	4 – Neutral Impact	3 – Slightly Negative Impact	4 – Neutral Impact	3 – Slightly Negative Impact

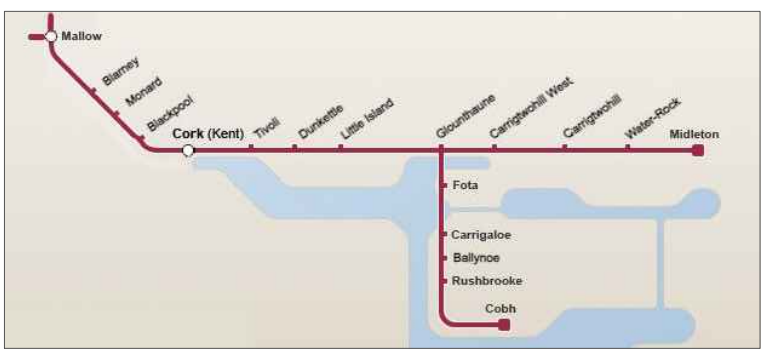
7	Local Environment Impacts	7.2	Water Resources	Flood Risk: Existing route traverses coastal and fluvial flood zones. Options will not impact on existing flood regime, but increased traffic volumes potentially increases receptor exposure to flood hazards. Historic flood events recorded at Turloughs within 2.5 km east and west of the option. Groundwater flooding expected to be seasonal, low probability and localised to karst features, no impact on proposed option anticipated. Water Quality: 2x crossing of the Tibbstown_010 RWB. Increased traffic volumes potentially impact on Water Quality of Article 7 protected stream. WFD: No impact on WFD status anticipated. Do Management option 1 results in slightly negative impact on surface hydrological environment.		Flood Risk: No indication of Fluvial, Coastal, or Pluvial sources of flooding. Historic flood events recorded at Turloughs within 2.5 km east and west of the option. Groundwater flooding expected to be seasonal, low probability and localised to karst features, no impact on proposed option anticipated. Water Quality: No river crossings along the proposed option. WFD: No impact on WFD status anticipated. Do Management option 2 results in Neutral impact on surface hydrological environment.		Flood Risk: Option traverses fluvial flood zone @ OBYB, but road and bridge are above 1% AEP flood level. Option will not impact existing flood regimes, mechanisms but increased traffic volumes potentially increases receptor exposure, hence flood risk. No indication of Groundwater or Pluvial sources of flooding. Water Quality: OWENNACURRA_040 (Article 7) RWB crossed twice & OWENNACURRA_030 river waterbody crossing once. Increased traffic volumes on road may impact on water quality. Do Management option 3 results in Slightly negative impact on surface hydrological environment.		Flood Risk: No indication of Fluvial, Coastal, or Pluvial sources of flooding. Historic flood events recorded at Turloughs within 2.5 km east and west of the option. Groundwater flooding expected to be seasonal, low probability and localised to karst features, no impact on proposed option anticipated. Water Quality: No river crossings along the proposed option. WFD: No impact on WFD status anticipated. Do Management option 1 results in slightly negative impact on surface hydrological environment. Do something option 4 results in neutral impact		Flood Risk: No indication of Fluvial, Coastal, or Pluvial sources of flooding. Historic flood events recorded at Turloughs within 2.5 km east and west of the option. Groundwater flooding expected to be seasonal, low probability and localised to karst features, no impact on proposed option anticipated. Water Quality: No river crossings along the proposed option. WFD: No impact on WFD status anticipated. Do something option 5 results in neutral impact on surface hydrological environment		Flood Risk: No indication of Fluvial, Coastal, or Pluvial sources of flooding. Historic flood events recorded at Turloughs within 2.5 km east and west of the option. Groundwater flooding expected to be seasonal, low probability and localised to karst features, no impact on proposed option anticipated. Water Quality: No river crossings along the proposed option. WFD: No impact on WFD status anticipated. Do something option 6 results in neutral impact on surface hydrological environment		Flood Risk: No indication of Fluvial, Coastal, or Pluvial sources of flooding. Historic flood events recorded at Turloughs within 2.5 km east and west of the option. Groundwater flooding expected to be seasonal, low probability and localised to karst features, no impact on proposed option anticipated. Water Quality: No river crossings along the proposed option. WFD: No impact on WFD status anticipated. Do something option 7 results in Neutral impact on surface hydrological environment		Flood Risk: No indication of Fluvial, Coastal, or Pluvial sources of flooding. Historic flood events recorded at Turloughs within 2.5 km east and west of the option. Groundwater flooding expected to be seasonal, low probability and localised to karst features, no impact on proposed option anticipated. Water Quality: No river crossings along the proposed option. WFD: No impact on WFD status anticipated. Do something option 8 requires more construction compared to Option 7 increasing risk to groundwater underlain by high vulnerability groundwater, elevating the comparative risk levels, and is scored as having a Slightly negative impact on Surface hydrological environment	
	7.3	Landscape & Visual Quality	Option mainly utilises existing road network, with potential direct impacts on roadside vegetation and boundary features. No residential landtake anticipated, though indirect effects expected on nearby receptors due to increased construction and operational traffic. Historic bridge replacement and new access road construction will introduce new infrastructure within High Value Landscape, and will generate wide-ranging visual effects, reducing in significance with distance. Located within Settled Harbour and Estuary (Type 1) landscape of national importance. No predicted effects on Scenic Routes S42 or S43.		Within Settled Harbour and Estuary (Type 1) which is noted as a landscape character type of very high value and of national importance in the Cork County Draft Landscape Strategy. Option follows existing road network with indirect impacts on residential receptors and roadside vegetation. Junction widening requires minor property acquisition and removal of boundary wall. Proposed new access road will introduce additional infrastructure within High Value Landscape, resulting in localised visual change. Elevated sections will create limited distant effects. No predicted effects on Scenic Routes S42 or S43 due to distance and screening.		Within Settled Harbour and Estuary (Type 1) which is noted as a landscape character type of very high value and of national importance in the Cork County Draft Landscape Strategy. Option utilises extensive section of existing road network, with indirect impacts on residential receptors and roadside vegetation from increased traffic. New access road construction introduces additional infrastructure within High Value Landscape, resulting in significant localised visual effects. Route intersects Scenic Route S43, increasing traffic and reducing scenic quality		Within Settled Harbour and Estuary (Type 1) which is noted as a landscape character type of very high value and of national importance in the Cork County Draft Landscape Strategy. Option introduces new road, embankments, and bridge within agricultural setting, directly altering High Value Landscape and rural character. Elevated structures, lighting, and associated infrastructure create substantial visual intrusion. Limited potential for effects on Scenic Routes S42 and S43 due to distance and screening.		Within Settled Harbour and Estuary (Type 1) which is noted as a landscape character type of very high value and of national importance in the Cork County Draft Landscape Strategy. Option involves construction of new roads, bridges, and embankments across agricultural land, directly affecting High Value Landscape and altering local landscape character. Elevated infrastructure results in significant visual impacts on nearby receptors, though Scenic Routes S42 and S43 remain unaffected.		Option partly utilises Water-Rock development road and offline section requiring widening, affecting adjacent properties, vegetation, and trees. New infrastructure partially disrupts rural field pattern but benefits from low elevation, screening and being close to existing railway, reducing wider landscape impacts. Located within Settled Harbour and Estuary (Type 1) landscape of national importance. No predicted impacts on Scenic Routes S42 or S43.		Within Settled Harbour and Estuary (Type 1) which is noted as a landscape character type of very high value and of national importance in the Cork County Draft Landscape Strategy. Option introduces new road through agricultural land, disrupting rural fabric and directly affecting High Value Landscape. Visual impacts on nearby receptors partly limited by existing screening. No predicted impacts on Scenic Routes S42 or S43.				
	7.4	Cultural & Heritage	NAH 20907558 structure approx. 200m north from the option on Main Street and previously recorded discovery SMR CO075-068—south of this option on Main Street. No direct or indirect impacts on these features. Parcel of greenfield in the vicinity of the proposed bridge reconstruction works has the potential to contain previously unrecorded archaeological remains that may survive with no surface expression.		Potential for direct impact on the parcel of greenfield, as it has the potential to contain previously unrecorded archaeological remains that may survive with no surface expression.		There is indirect impact on Ballyedmond Bridge (NAH 20906515), which Upper Mill Road is crossing. There is indirect impact on Carrig House (NAH 20906517), Worker's house (NAH 20906518) both located approx. 10m east of Upper Mill Road and Coomullin house (NAH 20906519) located approx 10m west of Upper Mill Road.		There are no recorded or previously unrecorded architectural or archaeological heritage sites in or within the study area of this option and as such, no direct or indirect impacts are anticipated. However, parcel of greenfield, has the potential to contain previously unrecorded archaeological remains that may survive with no surface expression and due to this, the option is rated as slightly negative. No listed or NAH structures affected by this site.		High potential to directly impact a tree ring (SMR CO076-017—) located in a field north of the NS2. The route is located inside the SMR Zone. Potential for direct impact on the parcel of greenfield, as it has the potential to contain previously unrecorded archaeological remains that may survive with no surface expression.		There are no recorded or previously unrecorded architectural or archaeological heritage sites in or within the study area of this option and as such, no direct or indirect impacts are anticipated. However, parcel of greenfield, has the potential to contain previously unrecorded archaeological remains that may survive with no surface expression and due to this, the option is rated as slightly negative. No listed or NAH structures affected by this site.		There are no recorded or previously unrecorded architectural or archaeological heritage sites in or within the study area of this option and as such, no direct or indirect impacts are anticipated. However, parcel of greenfield, has the potential to contain previously unrecorded archaeological remains that may survive with no surface expression. No listed or NAH structures affected by this site.				
	7.5	Noise & Vibration	A total of 335 no. receptors are within 100m of the Option 1 access road. During the construction phase there will be temporary noise impacts from reconstruction of the bridge OBYT, traffic diversions necessitating re-routing traffic and traffic volumes along the local road network. During the operational phase, the volume of traffic will increase along the surrounding road network which passes through the built up area of Carrigrohilly. In addition to commuter traffic, there will be an increase in HGVs and low-loader vehicles, with the potential to result in a perceptible increase in road traffic noise at noise sensitive locations (NSLs).		A total of 39 no. receptors are within 100m of the Option 2 access road. During the construction phase, there will be impacts from junction widening at the N25 access and at L3617 Curragh Road junction and diversion of traffic potential for temporary noise impacts along diverted routes. During the operational phase, the volume of traffic will increase along the surrounding road network which passes through a less built up areas compared to Options 1 and 2. In addition to commuter traffic, there will be an increase in HGVs and low-loader vehicles along the existing road, with the potential to result in a perceptible increase in road traffic noise at noise sensitive locations (NSLs).		A total of 271 no. receptors are within 100m of the Option 3 access road. During the construction phase, there will be noise impacts during reconstruction of key junctions along the route and traffic diversions with potential for temporary noise impacts along diverted routes. During the operational phase, the volume of traffic will increase along the surrounding road network. The route passes through built up areas along the R626 Road and individual properties along the local east of the depot site. In addition to commuter traffic, there will be an increase in HGVs and low-loader vehicles, with the potential to result in a perceptible increase in road traffic noise at noise sensitive locations (NSLs).		A total of 15 no. receptors are within 100m of the Option 4 access road. During the construction phase, there will be road works along the length of this option involving road widening, reconstruction of bridge OBYT, and junction widening works, the construction period of this option is longer than Option 2 and 3. The location of these works are set back from the majority of the NSLs along this road option. During the operational phase, the volume of traffic will increase along the L7642 and N25 access road. The route passes through low density areas with a small number of individual properties. In addition to commuter traffic, there will be an increase in HGVs and low-loader vehicles, with the potential to result in a perceptible increase in road traffic noise at noise sensitive locations (NSLs).		A total of 1 no. receptor is within 100m of the Option 5 access road. During the construction phase, the construction period of this option is longer and will require more night time possession compared to Options 1, 2, 3 and 4. The closest NSLs to the bridge overpass are however at distances >200m. During the operational phase, all traffic will travel along the new road which will involve an elevated road section on embankment to cross the NS2. Given the absence of existing traffic in the vicinity of this property there will be a potential for a slight to moderate noise impact, depending on the volume traffic using the road.		A total of 3 no. receptor is within 100m of the Option 6 access road. During the construction phase, due to the junction widening works and the construction of a new road, the construction period for this option is long. The closest NSLs to new road section are residential properties at Castlecock Avenue and Ballyrichard More within 30m of the works. During the operational phase, all traffic will travel along the new road and the existing roads to join the Northern Relief Road. The closest NSLs to the new section of road are within 30m of this road. Given the absence of existing traffic in the vicinity these properties, there will be a potential for a significant operational noise impact without mitigation, depending on the volume traffic using the road and the vertical alignment of the road.		A total of 3 no. receptors are within 100m of the Option 8 access road. During the construction phase, due to the construction of a new road, the construction period for this option is long. The closest NSL to new road section is 1 residential property at Castlecock Avenue within 60m of the works. During the operational phase, all traffic will travel along the new road to join the Northern Relief Road. The closest NSLs to the new section of road are within 60m of the new road and the additional traffic will pass existing residential dwellings to the north of western end of the Northern Relief Road. There is potential for a moderate operational noise impact, depending on the volume traffic using the road and the vertical alignment of the road.				
	7.6	Air Quality	0-50m: 116 no. of receptors 50m-100m: 219 no. of receptors 100m – 200m: 339 no. of receptors 200m – 250m: 129 no. of receptors Significant operational phase impacts are scoped out based on traffic volumes below TII criteria for detailed assessment. With dust mitigation for construction and operational phases, there is no potential for significant effect on air quality. On the basis that receptors will be affected by some emissions during construction and operation, option scored as '3' on TAF impact scoring having a 'Slightly Negative Impact		0-50m: 34 no. of receptors 50m-100m: 5 no. of receptors 100m – 200m: 3 no. of receptors 200m – 250m: 4 no. of receptors Significant operational phase impacts are scoped out based on traffic volumes below TII criteria for detailed assessment. With dust mitigation for construction and operational phases, there is no potential for significant effect on air quality. On the basis that receptors will be affected by some emissions during construction and operation, option scored as '3' on TAF impact scoring having a 'Slightly Negative Impact		0-50m: 157 no. of receptors 50m-100m: 144 no. of receptors 100m – 200m: 249 no. of receptors 200m – 250m: 164 no. of receptors Significant operational phase impacts are scoped out based on traffic volumes below TII criteria for detailed assessment. With dust mitigation for construction and operational phases, there is no potential for significant effect on air quality. On the basis that receptors will be affected by some emissions during construction and operation, option scored as '3' on TAF impact scoring having a 'Slightly Negative Impact		0-50m: 9 no. of receptors 50m-100m: 6 no. of receptors 100m – 200m: 8 no. of receptors 200m – 250m: 5 no. of receptors Significant operational phase impacts are scoped out based on traffic volumes below TII criteria for detailed assessment. With dust mitigation for construction and operational phases, there is no potential for significant effect on air quality. On the basis that receptors will be affected by some emissions during construction and operation, option scored as '3' on TAF impact scoring having a 'Slightly Negative Impact		0-50m: 0 no. of receptors 50m-100m: 3 no. of receptors 100m – 200m: 14 no. of receptors 200m – 250m: 3 no. of receptors Significant operational phase impacts are scoped out based on traffic volumes below TII criteria for detailed assessment. With dust mitigation for construction and operational phases, there is no potential for significant effect on air quality. On the basis that receptors will be affected by some emissions during construction and operation, option scored as '3' on TAF impact scoring having a 'Slightly Negative Impact		0-50m: 5 no. of receptors 50m-100m: 4 no. of receptors 100m – 200m: 21 no. of receptors 200m – 250m: 11 no. of receptors Significant operational phase impacts are scoped out based on traffic volumes below TII criteria for detailed assessment. With dust mitigation for construction and operational phases, there is no potential for significant effect on air quality. On the basis that receptors will be affected by some emissions during construction and operation, option scored as '3' on TAF impact scoring having a 'Slightly Negative Impact		0-50m: 0 no. of receptors 50m-100m: 3 no. of receptors 100m – 200m: 11 no. of receptors 200m – 250m: 13 no. of receptors Significant operational phase impacts are scoped out based on traffic volumes below TII criteria for detailed assessment. With dust mitigation for construction and operational phases, there is no potential for significant effect on air quality. On the basis that receptors will be affected by some emissions during construction and operation, option scored as '3' on TAF impact scoring having a 'Slightly Negative Impact				

Appendix C – Option Drawings



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Irish Rail

Date
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Drawn
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Project Title
CORK AREA COMMUTER RAIL PROGRAMME (WP5)

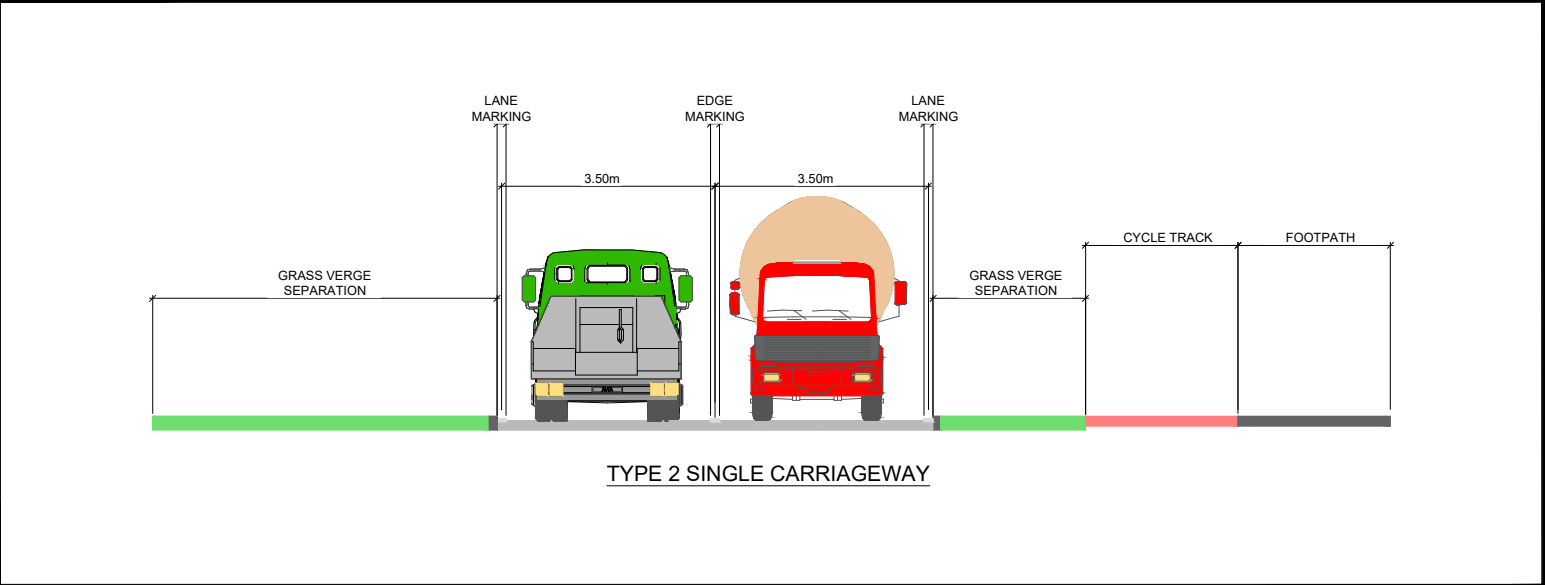
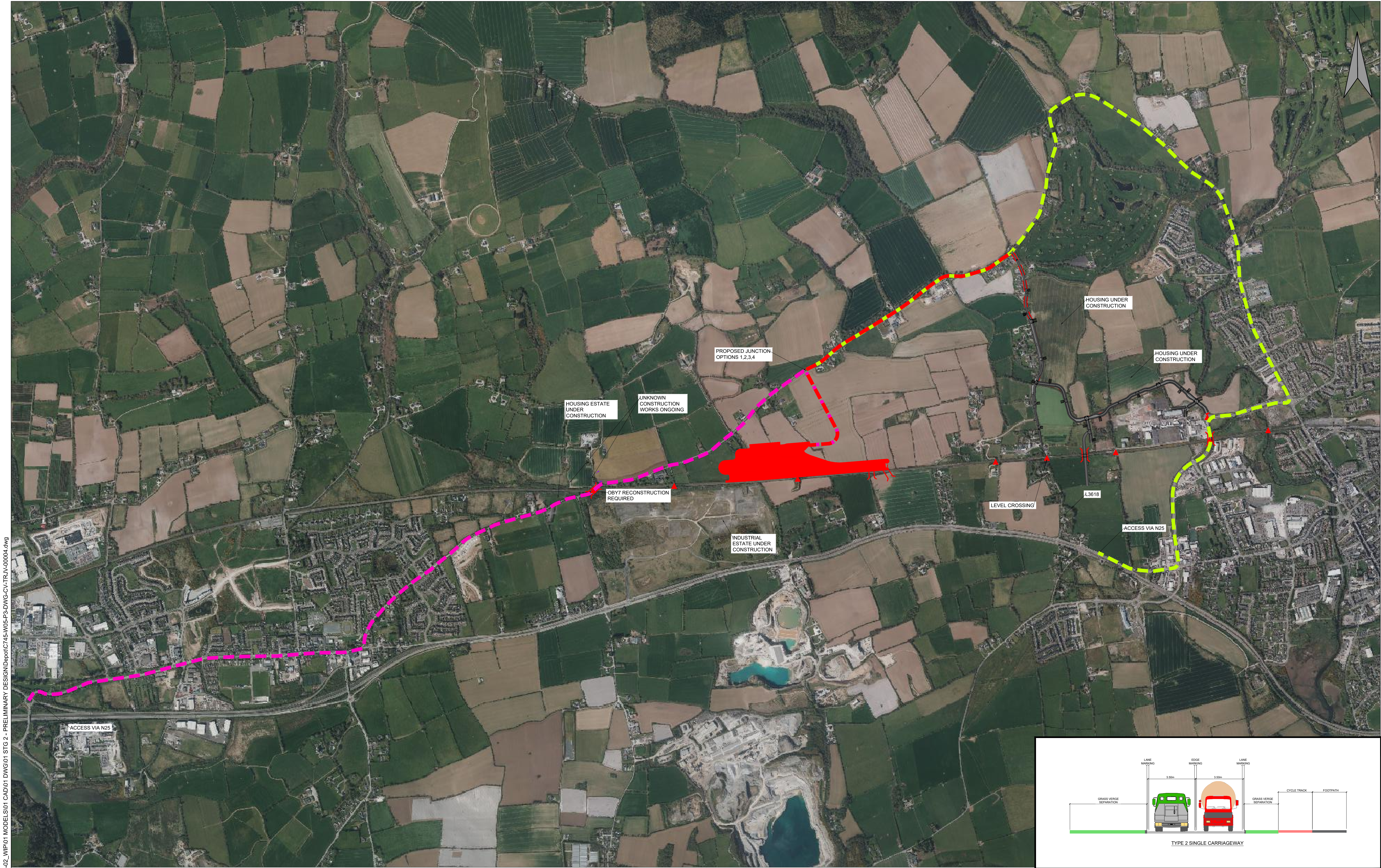
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Drawing File Name
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Version
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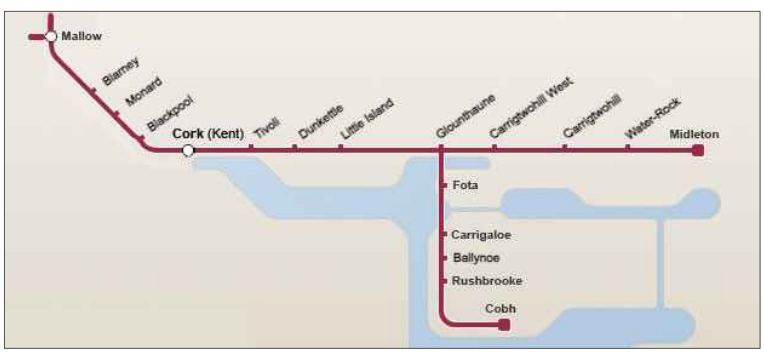
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Project Title
CORK AREA COMMUTER RAIL PROGRAMME (WP5)

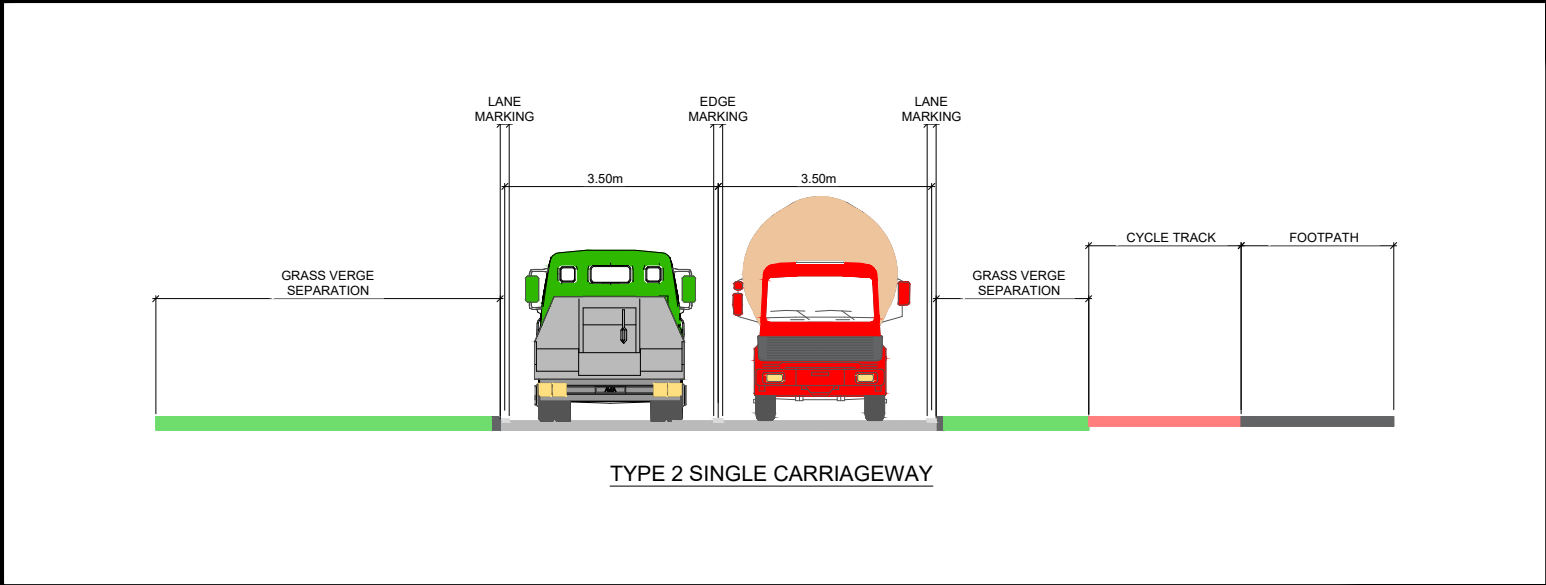
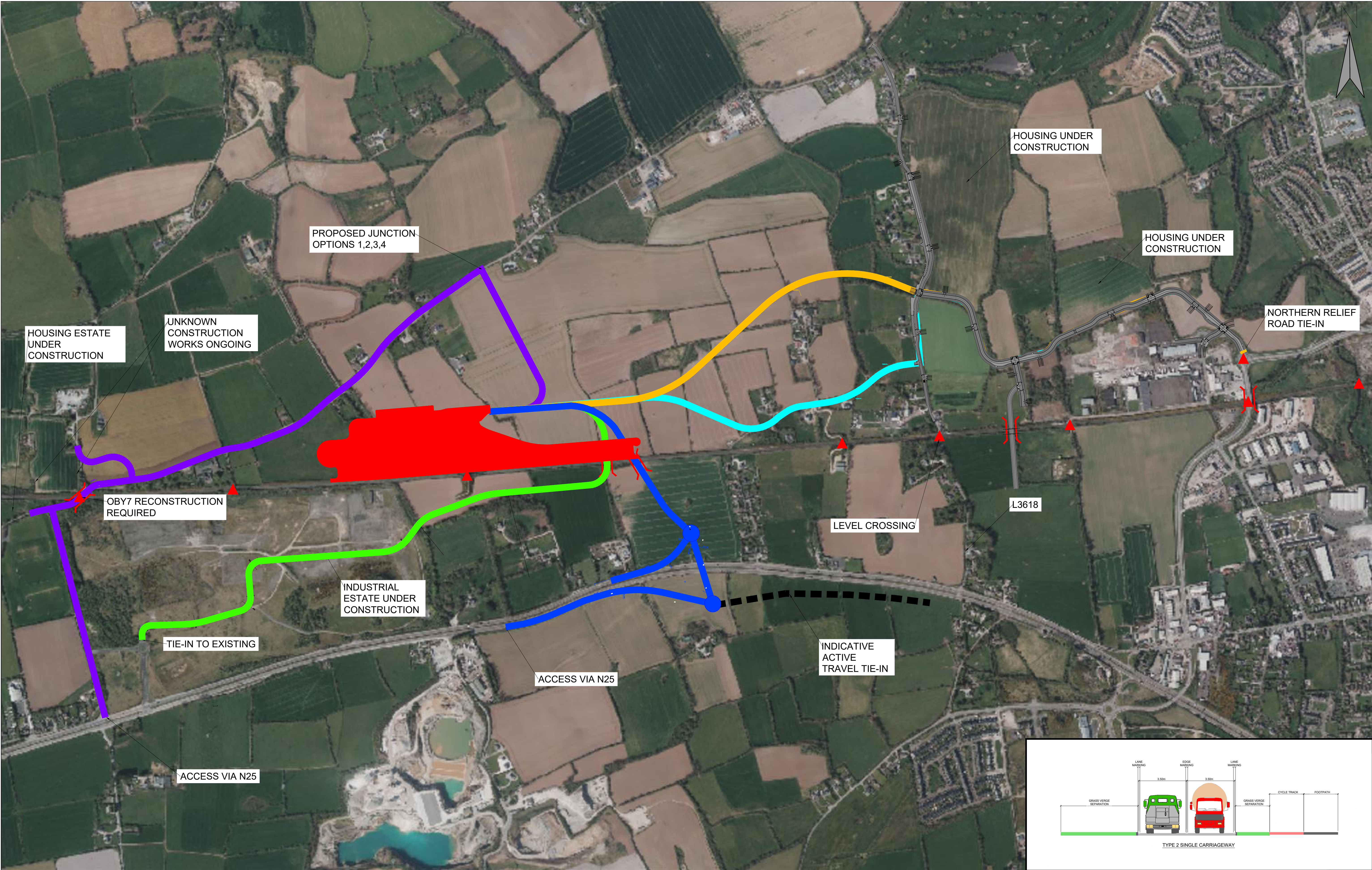
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Drawing File Name
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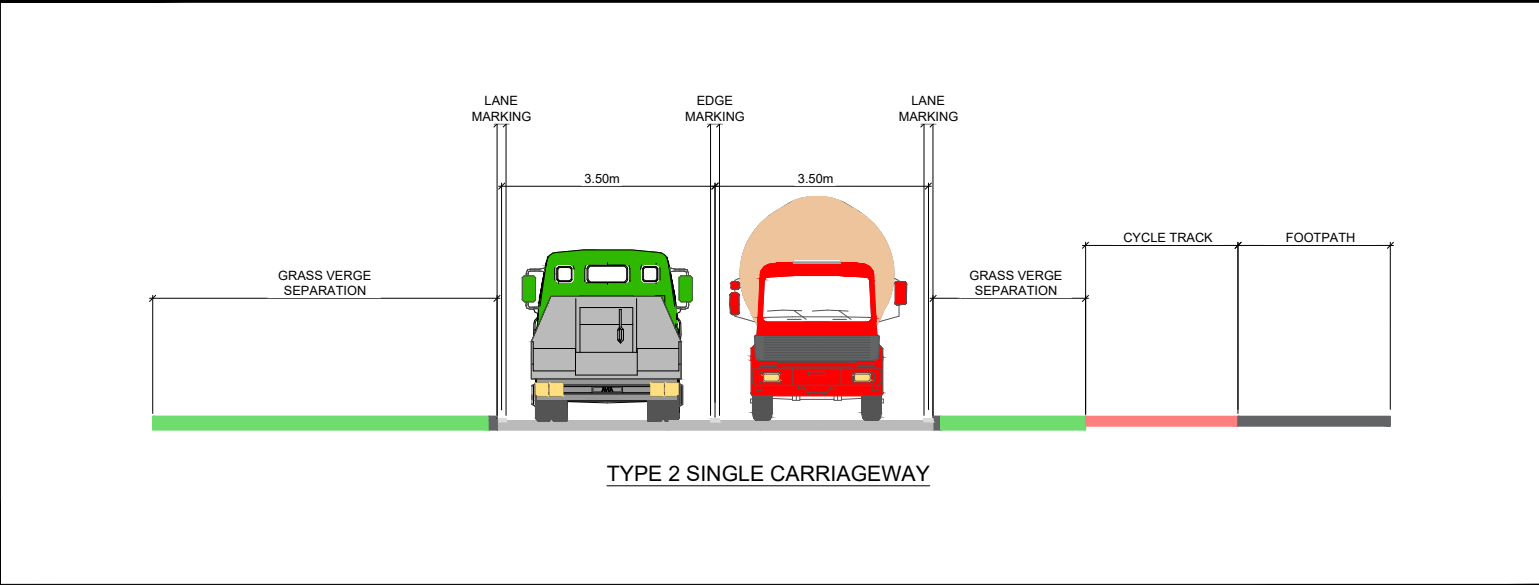
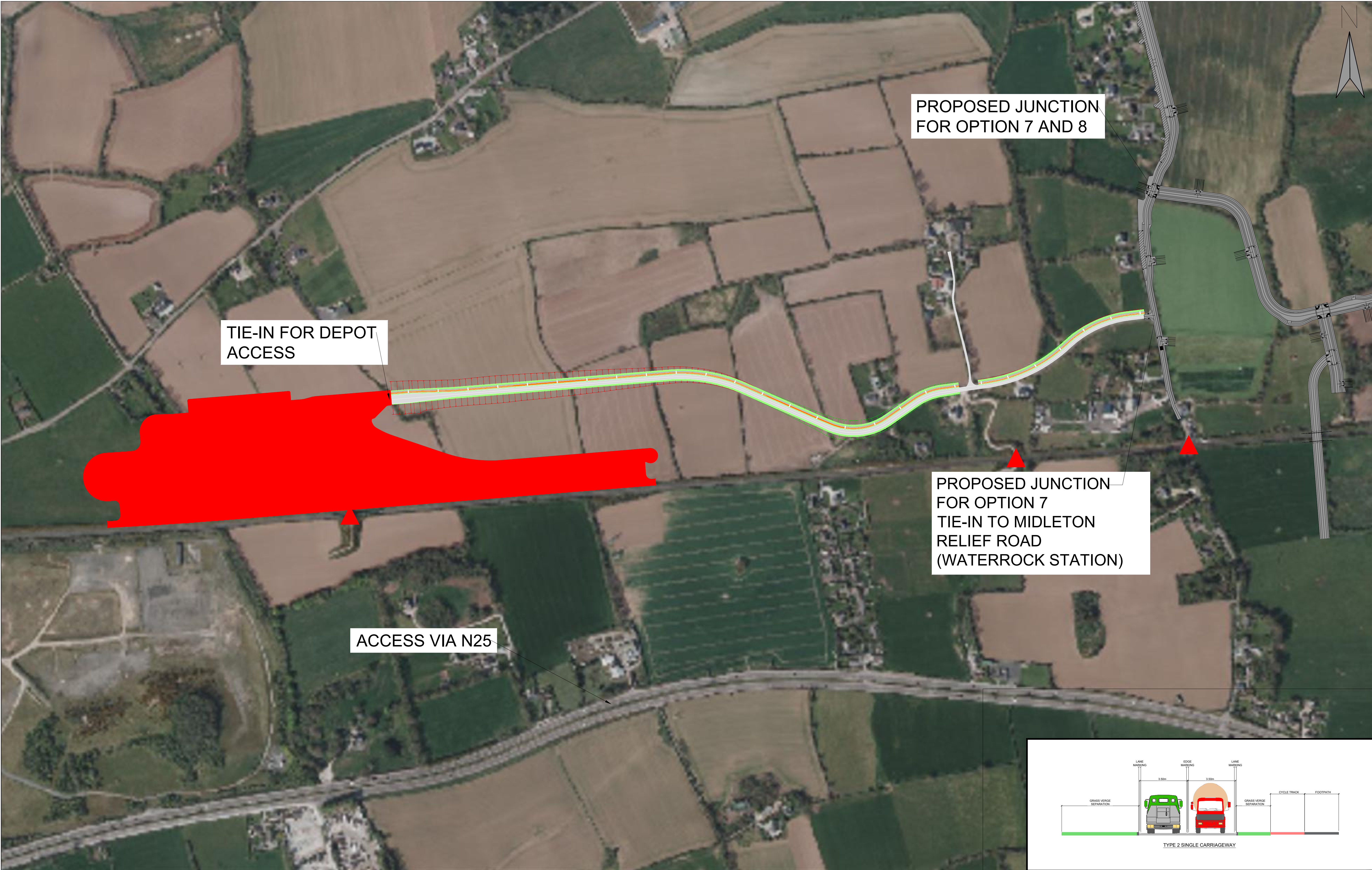
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DEPOT ACCESS ROADS (OPTION 4,5,6,7,8 PLAN)

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SUPPORTS & CONSULTANTS

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Project Title	CORK AREA COMMUTER RAIL PROGRAMME (WP5)		
Drawing Title	DEPOT ACCESS ROAD (PREFERRED OPTION PLAN)		
Drawing File Name	C745-W05-P3-DWG-CV-TRJV-00004	Version	P01
Status	DR		

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