

## **Appendix F5.1**

### **Longlist Options Sifting**

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Subject	N11/M11 Phase 2 – Initial Option/Alternative Sifting		

## 1 Introduction

### 1.1 Background

In November 2018, Wicklow County Council appointed Arup as Technical Consultants for the delivery of the N11/M11 Junction 4 to Junction 14 Improvement Scheme (hereafter referred to as the N11/M11 Scheme). The N11/M11 Scheme is a transportation project aimed at relieving congestion, improving safety and optimising the efficiency and function of the N11/M11 as a transport corridor.

The N11/M11 Scheme is being progressed in accordance with Transport Infrastructure Ireland’s (TII) Project Management Guidelines (PMGs). These guidelines provide a framework for the management, development and delivery of national road and public transport capital projects. The PMGs divide the evolution and progression of a project into an eight-phase process (Phase 0 – 7 inclusive) as illustrated in Figure 1 below.

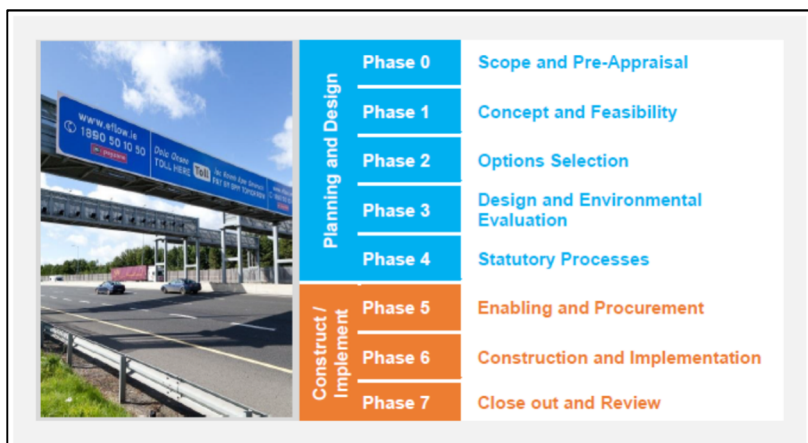


Figure 1: TII Project Phases

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Arup has been appointed to progress the delivery of the project through Phases 1 to 4 of the PMGs. The outcome of the Phase 1 Concept and Feasibility Studies (completed in April 2019) was that a strong justification for the advancement of the project to Phase 2 existed. A number of feasible transportation measures meriting more rigorous assessment were identified, including road improvement options, demand management solutions and public transport alternatives.

## 2 Project Objectives

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The framing of scheme specific objectives was undertaken in accordance with the guidance provided in the TII Project Appraisal Guidelines (PAG) and DTTaS Common Appraisal Framework (CAF). These guidance documents include a recommendation that project objectives are established based on each of the following criteria:

- Economy;
- Safety;
- Environment;
- Accessibility & Social Inclusion;
- Integration; and
- Physical Activity (where applicable).

On the basis of the characteristics of the existing road corridor and responding to the aspirations of national and strategic policy documentation, a series of defined objectives were developed and agreed with all relevant stakeholders. The objectives, which are presented in Table 1 below, are intended to allow a focused assessment of options and alternatives which can be examined both quantitatively and qualitatively against a series of required outcomes.

Table 1: N11/M11 Scheme Objectives

Criteria	Scheme Specific Objective (Refined at Phase 2)
Economy	<ul style="list-style-type: none"><li>• Improve the efficiency of the N11/M11 and manage congestion along the corridor between Junction 4 and Junction 14.</li><li>• Provide the infrastructure to enable transport solutions to move more people more efficiently.</li><li>• To improve the corridor such that it will encourage and support investment, tourism and employment, and enhance the economic prospects within the study area.</li><li>• Improve resilience of the Irish market by improving connectivity to major transport links including Dublin Airport, Dublin Port, Rosslare Europort and the wider European market.</li><li>• Generate positive economic benefits to road users by;<ul style="list-style-type: none"><li>• Reducing journey times; and</li><li>• Improving journey time reliability</li></ul></li></ul>

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Criteria	Scheme Specific Objective (Refined at Phase 2)
Safety	<ul style="list-style-type: none"><li>• To reduce the potential for collisions and severity of collisions through the provision of a safer travelling environment for all road users on the N11/M11 corridor; and</li><li>• To support the Government's Road Safety Strategy.</li></ul>
Environment	<ul style="list-style-type: none"><li>• To provide for more sustainable transport solutions on the N11/M11 corridor, supporting a balance of alternative modes and enabling a reduction in private car dependency and reducing the carbon intensity of travel.; and</li><li>• To manage noise impacts in populated areas</li><li>• To minimise the impact on designated Natura 2000 sites</li><li>• To seek to preserve existing well-established communities, heritage and amenity resources within the study area.</li></ul>
Accessibility and Social Inclusion	<ul style="list-style-type: none"><li>• Provide improved accessibility to and from the Greater Dublin Area (GDA) for the towns along the N11/M11 corridor.</li><li>• Address local connectivity between communities and key facilities, such as employment, education, transport and healthcare, where severed by the presence of the N11/M11 corridor.</li></ul>
Integration	<ul style="list-style-type: none"><li>• To support integration of road based transport with other transport modes within the study area.</li><li>• To align the N11/M11 (E01) with the policy of the TEN-T Comprehensive network by providing a high quality link which will contribute to enhancing social cohesion within Ireland and across the EU.</li><li>• To support the objectives of national, regional and local planning policy, including adopted land use objectives.</li></ul>
Physical Activity	<ul style="list-style-type: none"><li>• To provide safer provision for active travel and promote walking and cycling.</li></ul>

## 3 Phase 2 Option Selection Process

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Having advanced the scheme to Phase 2 (Option Selection), the feasible transportation options identified are now subjected to a rigorous and systematic assessment against a broad range of criteria to evaluate how effectively they deliver on the agreed set of project objectives. This assessment process will be fully documented within and ultimately culminate in the completion of an Option Selection Report at the end of Phase 2, which will recommend the preferred option for the scheme.

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The option selection assessments and reporting structure aligns with the TII PMGs and follows the multi-stage process outlined below:

- Develop an initial **‘long list’ of options and alternatives** that may address the need for intervention and undertake a Multi-Criteria Analysis (MCA) to establish how these options and alternatives respond to the agreed project objectives. This option/alternative sifting exercise is used to inform the feasible options and alternatives taken forward for more detailed assessment.
- **Stage 1 – Preliminary Options Assessment.** A number of feasible options which respond to the transportation problems identified are developed in accordance with TII PAG and a multi-criteria analysis is carried out under the assessment criteria of Engineering, Environment and Economy. Typically, a minimum of 4 distinct options are assessed at this stage, including Do Something and Do Nothing or Do Minimum Options.
- **Stage 2 – Project Appraisal Matrix.** The options advanced from Stage 1 are further evaluated by undertaking a full cost benefit analysis and multi-criteria analysis of the quantifiable and non-quantifiable impacts under the headline criteria of, Economy, Safety, Environment, Accessibility & Social Inclusion, Integration and Physical Activity.
- **Stage 3 – Preferred Option.** After the completion of Stage 2, a preferred option for the project will be selected based on the multi-criteria analysis and a Project Appraisal Balance Sheet (PABS) will be prepared for the preferred option only.

The purpose of this working paper is to document the first step in the above process, i.e. the long list option and alternative sifting.

## 3.1 Development of Options and Alternatives

As outlined in TII PAG Unit 4.0 (*Consideration of Alternatives and Options*), the initial step focussed on drafting a long list of potential options and alternatives that may address the need for intervention. It should be noted that within the context of TII PAG Unit 4.0, an alternative refers to a specific transport mode (road, rail, bus, air etc.) or demand management proposal (fiscal, control, ITS measures etc.) which could address the need for an intervention. An option refers to a specific road-based measure (new route, road upgrade, junction improvements etc.).

Options/alternatives on this initial list were then qualitatively assessed against the stated project objectives to establish, at a fundamental level, if these options/alternatives would respond to the transportation problems identified on the corridor. It should be noted that this initial sifting exercise was undertaken in advance of any detailed transportation modelling, engineering analysis or environmental appraisal and sought primarily to identify potentially viable options/alternatives, or combinations thereof, for more detailed analysis.

It is also acknowledged that the options and alternatives listed for inclusion in the MCA were essentially conceptual ideas to begin with, i.e. options/alternatives are not precisely described at this stage as no prior design work was undertaken to inform the list. Consequently, this high-level appraisal focussed on *likely fit* against objectives and was not a prioritisation exercise. It was not the intention of the sifting exercise to eliminate options/alternatives from further consideration entirely, unless they patently conflicted with the objectives of the scheme.

This initial long list included a Do-Nothing and a Do-Minimum option (i.e. *‘Base Case’* options) and range of Do-Something options/alternatives. The Do-Something options/alternatives were

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developed incrementally from small scale improvements to more significant investments and were grouped under the headings of Public Transport (PT), Demand Management (DM) and Road Improvement (RI).

## 4 Initial List of Options and Alternatives

Numerous options and alternatives can be considered as solutions to the transportation issues along the N11/M11 corridor. The public transport and demand management solutions recommended in the National Transport Authority's (NTA) *Transport Strategy for the Greater Dublin Area 2016 – 2035* (hereafter, the *GDA Strategy*), combined with road-based options, form the basis of the option selection study for the N11/M11 Junction 4 to Junction 14 Improvement Scheme. These combinations may have the potential to deliver on the goals, objectives and specific transportation problems identified in the Project Brief. At the outset of Phase 2, a long list of potential options and alternatives was developed and is presented in Table 2 below.

Table 2: Phase 2 'Long List' of Options and Alternatives

Option / Alternative	Name	Description
<b>Base Case (BC)</b>		
BC1	Do Nothing	No other investment in the transport network within the scheme study area (other than regular maintenance) during the appraisal period.
BC2	Do Minimum	Includes all those transportation projects and services that are committed within the appraisal period of the N11/M11 Scheme.
<b>Public Transport (PT)</b>		
PT1	Do 'GDA' Strategy	Includes the implementation of all elements within the National Transport Authority's (NTA) Transport Strategy for the Greater Dublin Area 2016 – 2035, excluding any road improvements on the N11/M11.
PT2	Rail Line Upgrade	Includes major investments in the south eastern railway line, with increases in service frequency and capacity.
PT3	Enhancement of Bus Services in Study Area	Includes enhancements of existing bus services and provision of new bus services within the study area.
PT4	Bus Lanes / Bus Priority on N11/M11	Includes the provision of dedicated bus priority (e.g. bus lanes) on the N11/M11 (or part thereof).
PT5	Park and Ride Adjacent to N11/M11	Includes the provision of park and ride facilities adjacent to the N11/M11 to encourage modal shift and reduce car dependency.
<b>Demand Management (DM)</b>		
DM1	Tolling	Considers the implementation of tolling as a means of targeting private car trips, managing the capacity

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Option / Alternative	Name	Description
		of the route and encouraging a shift to more sustainable transport modes.
DM2	Ramp Metering	Access control measure which manages the flow of traffic joining the route at junctions in order to reduce congestion caused by over utilisation during peak periods.
DM3	Managed Road	Includes road corridor-based demand management systems to ensure the efficient operation of the strategic road network. This may include the provision of variable speed limits, incident detection systems and variable message signs.
DM4	Parking Management Measures	Option would consider the implementation of parking management measures such as pricing and supply controls, which would make car use more expensive and less convenient, thereby increasing the relative attractiveness of non-car modes.
<b>Road Improvement (RI)</b>		
RI1	Hard Shoulder Running on N11/M11	A capacity enhancement measure whereby the existing hard shoulder on the N11/M11 would be converted either temporarily or permanently into a traffic running lane.
RI2	N11/M11 Additional Lanes	This would involve the addition of one or more lanes to the existing N11/M11 to provide additional capacity and manage congestion. The option could involve the addition of extra lanes in the northbound or southbound directions, or both. It could also involve the one additional lane in a contraflow system.
RI3	New Offline N11/M11 Route	An entirely new N11/M11 route constructed away from the existing road, designed to meet capacity needs and compliant with current design standards.
RI4	Partial Offline Route with Improved Online Route	An improved N11/M11 corridor combining sections of online upgrade where practicable, with offline sections where potentially more beneficial (e.g. where existing N11/M11 is most deficient)
RI5	N11/M11 Junction Improvements / Access Rationalisation	Improvements to the layouts of existing junctions to address standards compliance issues, achieve consistency in design and improve operational performance. Junction rationalisation would involve the closure of existing sub-standard accesses where feasible.
RI6	N11/M11 Localised Safety Improvements	Localised safety improvements would target specific accident blackspots and sub-standard design elements, without any specific capacity enhancement measures.
RI7	Improvements to Regional / Local Roads / New Parallel Roads Adjacent to N11/M11	Provision of an improved regional and local road infrastructure to better support the strategic N11/M11 route. Option would include enhancements to the existing regional/local road

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Option / Alternative	Name	Description
		network and the development of a parallel road system to remove local trips from the N11/M11 corridor, thereby managing congestion issues.

## 4.1 Option/Alternative Sifting Qualitative Assessment

As noted above, from this initial long list, a sifting exercise was undertaken to assess how each option/alternative responded to the project objectives and to refine, if possible, the overall number taken forward for more detailed appraisal.

This high-level appraisal used the seven-point scale, presented in table 3 below, to score each option/alternative against each objective, ranging from extremely positive to extremely negative.

Table 3: Option/Alternative Sifting Scale

Score	Potential Performance Against Objective
✓✓✓	3 Extremely Positive
✓✓	2 Very Positive
✓	1 Positive
○	0 Neutral
✘	-1 Negative
✘✘	-2 Very Negative
✘✘✘	-3 Extremely Negative

A summary of the qualitative assessment scoring is presented in Table 4 below. A full copy of the complete MCA table is included in Appendix A.



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Table 4: Summary of Option/Alternative MCA

Scheme Objectives	Base Case		Public Transport Alternatives					Demand Management Alternatives				Road Improvement Options								
	BC1	BC2	PT1	PT2	PT3	PT4	PT5	DM1	DM2	DM3	DM4	RI1	RI2	RI3	RI4	RI5	RI6	RI7		
Economy	Improve the efficiency of the N11/M11 and manage congestion along the corridor between Junction 4 and Junction 14.	*** -3 ** -2	✓ 1 ✓✓ 2 ✓✓ 2 ✓✓ 2 ✓ 1	✓ 1 ✓✓ 2 ✓✓ 2 ✓✓ 2 ✓ 1	* -1 ✓ 1 ✓ 1 ✓ 1	✓ 1 ✓✓ 2 ✓✓ 2 ✓✓ 2 ✓ 1	✓ 1 ✓✓ 2 ✓✓ 2 ✓✓ 2 ✓ 1	✓ 1 ✓✓ 2 ✓✓ 2 ✓✓ 2 ✓ 1	✓ 1 ✓✓ 2 ✓✓ 2 ✓✓ 2 ✓ 1	✓ 1 ✓✓ 2 ✓✓ 2 ✓✓ 2 ✓ 1	✓ 1 ✓✓ 2 ✓✓ 2 ✓✓ 2 ✓ 1	✓ 1 ✓✓ 2 ✓✓ 2 ✓✓ 2 ✓ 1	✓ 1 ✓✓ 2 ✓✓ 2 ✓✓ 2 ✓ 1	✓ 1 ✓✓ 2 ✓✓ 2 ✓✓ 2 ✓ 1	✓ 1 ✓✓ 2 ✓✓ 2 ✓✓ 2 ✓ 1	✓ 1 ✓✓ 2 ✓✓ 2 ✓✓ 2 ✓ 1	✓ 1 ✓✓ 2 ✓✓ 2 ✓✓ 2 ✓ 1	✓ 1 ✓✓ 2 ✓✓ 2 ✓✓ 2 ✓ 1	✓ 1 ✓✓ 2 ✓✓ 2 ✓✓ 2 ✓ 1	
	Provide the infrastructure to enable transport solutions to move more people more efficiently.	*** -3 ** -2	✓ 1 ✓✓ 2 ✓✓ 2 ✓✓ 2 ✓✓ 2 ✓ 1	✓ 1 ✓✓ 2 ✓✓ 2 ✓✓ 2 ✓✓ 2 ✓ 1	* -1 ✓ 1 ✓ 1 ✓ 1	✓ 1 ✓✓ 2 ✓✓ 2 ✓✓ 2 ✓✓ 2 ✓ 1	✓ 1 ✓✓ 2 ✓✓ 2 ✓✓ 2 ✓✓ 2 ✓ 1	✓ 1 ✓✓ 2 ✓✓ 2 ✓✓ 2 ✓✓ 2 ✓ 1	✓ 1 ✓✓ 2 ✓✓ 2 ✓✓ 2 ✓✓ 2 ✓ 1	✓ 1 ✓✓ 2 ✓✓ 2 ✓✓ 2 ✓✓ 2 ✓ 1	✓ 1 ✓✓ 2 ✓✓ 2 ✓✓ 2 ✓✓ 2 ✓ 1	✓ 1 ✓✓ 2 ✓✓ 2 ✓✓ 2 ✓✓ 2 ✓ 1	✓ 1 ✓✓ 2 ✓✓ 2 ✓✓ 2 ✓✓ 2 ✓ 1	✓ 1 ✓✓ 2 ✓✓ 2 ✓✓ 2 ✓✓ 2 ✓ 1	✓ 1 ✓✓ 2 ✓✓ 2 ✓✓ 2 ✓✓ 2 ✓ 1	✓ 1 ✓✓ 2 ✓✓ 2 ✓✓ 2 ✓✓ 2 ✓ 1	✓ 1 ✓✓ 2 ✓✓ 2 ✓✓ 2 ✓✓ 2 ✓ 1	✓ 1 ✓✓ 2 ✓✓ 2 ✓✓ 2 ✓✓ 2 ✓ 1	✓ 1 ✓✓ 2 ✓✓ 2 ✓✓ 2 ✓✓ 2 ✓ 1	
	To improve the corridor such that it will encourage and support investment, tourism and employment, and enhance the economic prospects within the study area.	*** -3 ** -2	✓✓ 2 ✓✓ 2 ✓✓ 2 ✓✓ 2 ✓✓ 2 ✓ 1	✓✓ 2 ✓✓ 2 ✓✓ 2 ✓✓ 2 ✓✓ 2 ✓ 1	* -1 ✓ 1 ✓ 1 ✓ 1	✓✓ 2 ✓✓ 2 ✓✓ 2 ✓✓ 2 ✓✓ 2 ✓ 1	✓✓ 2 ✓✓ 2 ✓✓ 2 ✓✓ 2 ✓✓ 2 ✓ 1	✓✓ 2 ✓✓ 2 ✓✓ 2 ✓✓ 2 ✓✓ 2 ✓ 1	✓✓ 2 ✓✓ 2 ✓✓ 2 ✓✓ 2 ✓✓ 2 ✓ 1	✓✓ 2 ✓✓ 2 ✓✓ 2 ✓✓ 2 ✓✓ 2 ✓ 1	✓✓ 2 ✓✓ 2 ✓✓ 2 ✓✓ 2 ✓✓ 2 ✓ 1	✓✓ 2 ✓✓ 2 ✓✓ 2 ✓✓ 2 ✓✓ 2 ✓ 1	✓✓ 2 ✓✓ 2 ✓✓ 2 ✓✓ 2 ✓✓ 2 ✓ 1	✓✓ 2 ✓✓ 2 ✓✓ 2 ✓✓ 2 ✓✓ 2 ✓ 1	✓✓ 2 ✓✓ 2 ✓✓ 2 ✓✓ 2 ✓✓ 2 ✓ 1	✓✓ 2 ✓✓ 2 ✓✓ 2 ✓✓ 2 ✓✓ 2 ✓ 1	✓✓ 2 ✓✓ 2 ✓✓ 2 ✓✓ 2 ✓✓ 2 ✓ 1	✓✓ 2 ✓✓ 2 ✓✓ 2 ✓✓ 2 ✓✓ 2 ✓ 1	✓✓ 2 ✓✓ 2 ✓✓ 2 ✓✓ 2 ✓✓ 2 ✓ 1	✓✓ 2 ✓✓ 2 ✓✓ 2 ✓✓ 2 ✓✓ 2 ✓ 1
	Improve resilience of the Irish market by improving connectivity to major transport links including Dublin Airport, Dublin Port, Rosslare Europort and the wider European market.	*** -3 ** -2	✓ 1 ✓✓ 2 ✓✓ 2 ✓✓ 2 ✓✓ 2 ✓ 1	✓ 1 ✓✓ 2 ✓✓ 2 ✓✓ 2 ✓✓ 2 ✓ 1	* -1 ✓ 1 ✓ 1 ✓ 1	✓ 1 ✓✓ 2 ✓✓ 2 ✓✓ 2 ✓✓ 2 ✓ 1	✓ 1 ✓✓ 2 ✓✓ 2 ✓✓ 2 ✓✓ 2 ✓ 1	✓ 1 ✓✓ 2 ✓✓ 2 ✓✓ 2 ✓✓ 2 ✓ 1	✓ 1 ✓✓ 2 ✓✓ 2 ✓✓ 2 ✓✓ 2 ✓ 1	✓ 1 ✓✓ 2 ✓✓ 2 ✓✓ 2 ✓✓ 2 ✓ 1	✓ 1 ✓✓ 2 ✓✓ 2 ✓✓ 2 ✓✓ 2 ✓ 1	✓ 1 ✓✓ 2 ✓✓ 2 ✓✓ 2 ✓✓ 2 ✓ 1	✓ 1 ✓✓ 2 ✓✓ 2 ✓✓ 2 ✓✓ 2 ✓ 1	✓ 1 ✓✓ 2 ✓✓ 2 ✓✓ 2 ✓✓ 2 ✓ 1	✓ 1 ✓✓ 2 ✓✓ 2 ✓✓ 2 ✓✓ 2 ✓ 1	✓ 1 ✓✓ 2 ✓✓ 2 ✓✓ 2 ✓✓ 2 ✓ 1	✓ 1 ✓✓ 2 ✓✓ 2 ✓✓ 2 ✓✓ 2 ✓ 1	✓ 1 ✓✓ 2 ✓✓ 2 ✓✓ 2 ✓✓ 2 ✓ 1	✓ 1 ✓✓ 2 ✓✓ 2 ✓✓ 2 ✓✓ 2 ✓ 1	✓ 1 ✓✓ 2 ✓✓ 2 ✓✓ 2 ✓✓ 2 ✓ 1
	Generate positive economic benefits to road users: - Reducing Journey Times; and - Improving Journey Time Reliability	*** -3 ** -2	✓ 1 ✓✓ 2 ✓✓ 2 ✓✓ 2 ✓✓ 2 ✓ 1	✓ 1 ✓✓ 2 ✓✓ 2 ✓✓ 2 ✓✓ 2 ✓ 1	* -1 ○ 0 ✓ 1 ✓ 1	✓ 1 ✓✓ 2 ✓✓ 2 ✓✓ 2 ✓✓ 2 ✓ 1	✓ 1 ✓✓ 2 ✓✓ 2 ✓✓ 2 ✓✓ 2 ✓ 1	✓ 1 ✓✓ 2 ✓✓ 2 ✓✓ 2 ✓✓ 2 ✓ 1	✓ 1 ✓✓ 2 ✓✓ 2 ✓✓ 2 ✓✓ 2 ✓ 1	✓ 1 ✓✓ 2 ✓✓ 2 ✓✓ 2 ✓✓ 2 ✓ 1	✓ 1 ✓✓ 2 ✓✓ 2 ✓✓ 2 ✓✓ 2 ✓ 1	✓ 1 ✓✓ 2 ✓✓ 2 ✓✓ 2 ✓✓ 2 ✓ 1	✓ 1 ✓✓ 2 ✓✓ 2 ✓✓ 2 ✓✓ 2 ✓ 1	✓ 1 ✓✓ 2 ✓✓ 2 ✓✓ 2 ✓✓ 2 ✓ 1	✓ 1 ✓✓ 2 ✓✓ 2 ✓✓ 2 ✓✓ 2 ✓ 1	✓ 1 ✓✓ 2 ✓✓ 2 ✓✓ 2 ✓✓ 2 ✓ 1	✓ 1 ✓✓ 2 ✓✓ 2 ✓✓ 2 ✓✓ 2 ✓ 1	✓ 1 ✓✓ 2 ✓✓ 2 ✓✓ 2 ✓✓ 2 ✓ 1	✓ 1 ✓✓ 2 ✓✓ 2 ✓✓ 2 ✓✓ 2 ✓ 1	✓ 1 ✓✓ 2 ✓✓ 2 ✓✓ 2 ✓✓ 2 ✓ 1
<b>Economy Summary</b>	<b>-15</b>	<b>-10</b>	<b>6</b>	<b>10</b>	<b>10</b>	<b>10</b>	<b>5</b>	<b>-5</b>	<b>4</b>	<b>5</b>	<b>5</b>	<b>5</b>	<b>10</b>	<b>15</b>	<b>10</b>	<b>10</b>	<b>0</b>	<b>5</b>		
Safety	To reduce the potential for collisions and severity of collisions through the provision of a safer travelling environment for all road users on the N11/M11 corridor.	*** -3 ** -2	* -1 * -1 * -1 ** -2 * -1	* -1 ○ 0 ✓ 1 ○ 0	* -1 * -1 * -1 ** -2 * -1	* -1 * -1 * -1 ** -2 * -1	* -1 * -1 * -1 ** -2 * -1	* -1 * -1 * -1 ** -2 * -1	* -1 * -1 * -1 ** -2 * -1	* -1 * -1 * -1 ** -2 * -1	* -1 * -1 * -1 ** -2 * -1	** -2 ✓ 1 ✓✓ 3 ✓✓ 2 ✓✓ 2 ✓✓ 2 ✓ 1	** -2 ✓ 1 ✓✓ 3 ✓✓ 2 ✓✓ 2 ✓✓ 2 ✓ 1	** -2 ✓ 1 ✓✓ 3 ✓✓ 2 ✓✓ 2 ✓✓ 2 ✓ 1	** -2 ✓ 1 ✓✓ 3 ✓✓ 2 ✓✓ 2 ✓✓ 2 ✓ 1	** -2 ✓ 1 ✓✓ 3 ✓✓ 2 ✓✓ 2 ✓✓ 2 ✓ 1	** -2 ✓ 1 ✓✓ 3 ✓✓ 2 ✓✓ 2 ✓✓ 2 ✓ 1	** -2 ✓ 1 ✓✓ 3 ✓✓ 2 ✓✓ 2 ✓✓ 2 ✓ 1	** -2 ✓ 1 ✓✓ 3 ✓✓ 2 ✓✓ 2 ✓✓ 2 ✓ 1	
	To support the Government's Road Safety Strategy.	*** -3 ** -2	* -1 * -1 * -1 ** -2 * -1	* -1 ○ 0 ✓ 1 ○ 0	* -1 * -1 * -1 ** -2 * -1	* -1 * -1 * -1 ** -2 * -1	* -1 * -1 * -1 ** -2 * -1	* -1 * -1 * -1 ** -2 * -1	* -1 * -1 * -1 ** -2 * -1	* -1 * -1 * -1 ** -2 * -1	* -1 * -1 * -1 ** -2 * -1	** -2 ✓ 1 ✓✓ 3 ✓✓ 2 ✓✓ 2 ✓✓ 2 ✓ 1	** -2 ✓ 1 ✓✓ 3 ✓✓ 2 ✓✓ 2 ✓✓ 2 ✓ 1	** -2 ✓ 1 ✓✓ 3 ✓✓ 2 ✓✓ 2 ✓✓ 2 ✓ 1	** -2 ✓ 1 ✓✓ 3 ✓✓ 2 ✓✓ 2 ✓✓ 2 ✓ 1	** -2 ✓ 1 ✓✓ 3 ✓✓ 2 ✓✓ 2 ✓✓ 2 ✓ 1	** -2 ✓ 1 ✓✓ 3 ✓✓ 2 ✓✓ 2 ✓✓ 2 ✓ 1	** -2 ✓ 1 ✓✓ 3 ✓✓ 2 ✓✓ 2 ✓✓ 2 ✓ 1	** -2 ✓ 1 ✓✓ 3 ✓✓ 2 ✓✓ 2 ✓✓ 2 ✓ 1	
<b>Safety Summary</b>	<b>-6</b>	<b>-4</b>	<b>-2</b>	<b>-2</b>	<b>-2</b>	<b>-4</b>	<b>-2</b>	<b>-2</b>	<b>0</b>	<b>2</b>	<b>0</b>	<b>-4</b>	<b>2</b>	<b>6</b>	<b>4</b>	<b>4</b>	<b>4</b>	<b>2</b>		
Environment	To provide for more sustainable transport solutions on the N11/M11 corridor, supporting a balance of alternative modes and enabling a reduction in private car dependency and reducing the carbon intensity of travel.	*** -3 ** -2	✓ 1 ✓✓ 2 ✓✓ 2 ✓✓ 2 ✓✓ 2 ✓ 1	* -1 * -1 ** -2 ✓ 1	*** -3 *** -3 *** -3 ** -2 ** -2 ○ 0 * -1	*** -3 *** -3 *** -3 ** -2 ** -2 ○ 0 * -1	*** -3 *** -3 *** -3 ** -2 ** -2 ○ 0 * -1	*** -3 *** -3 *** -3 ** -2 ** -2 ○ 0 * -1	*** -3 *** -3 *** -3 ** -2 ** -2 ○ 0 * -1	*** -3 *** -3 *** -3 ** -2 ** -2 ○ 0 * -1	*** -3 *** -3 *** -3 ** -2 ** -2 ○ 0 * -1	*** -3 *** -3 *** -3 ** -2 ** -2 ○ 0 * -1	*** -3 *** -3 *** -3 ** -2 ** -2 ○ 0 * -1	*** -3 *** -3 *** -3 ** -2 ** -2 ○ 0 * -1	*** -3 *** -3 *** -3 ** -2 ** -2 ○ 0 * -1	*** -3 *** -3 *** -3 ** -2 ** -2 ○ 0 * -1	*** -3 *** -3 *** -3 ** -2 ** -2 ○ 0 * -1	*** -3 *** -3 *** -3 ** -2 ** -2 ○ 0 * -1	*** -3 *** -3 *** -3 ** -2 ** -2 ○ 0 * -1	
	To manage noise impacts in populated areas	*** -3 *** -3	✓ 1 ✓✓ 2 ✓✓ 2 ✓✓ 2 ✓✓ 2 ✓ 1	** -2 ** -2 * -1 ✓ 1	*** -3 *** -3 *** -3 ** -2 ** -2 ○ 0 * -1	*** -3 *** -3 *** -3 ** -2 ** -2 ○ 0 * -1	*** -3 *** -3 *** -3 ** -2 ** -2 ○ 0 * -1	*** -3 *** -3 *** -3 ** -2 ** -2 ○ 0 * -1	*** -3 *** -3 *** -3 ** -2 ** -2 ○ 0 * -1	*** -3 *** -3 *** -3 ** -2 ** -2 ○ 0 * -1	*** -3 *** -3 *** -3 ** -2 ** -2 ○ 0 * -1	○ 0 ○ 0 * -1 ○ 0 ✓ 1 ○ 0 ○ 0	○ 0 ○ 0 * -1 ○ 0 ✓ 1 ○ 0 ○ 0	○ 0 ○ 0 * -1 ○ 0 ✓ 1 ○ 0 ○ 0	○ 0 ○ 0 * -1 ○ 0 ✓ 1 ○ 0 ○ 0	○ 0 ○ 0 * -1 ○ 0 ✓ 1 ○ 0 ○ 0	○ 0 ○ 0 * -1 ○ 0 ✓ 1 ○ 0 ○ 0	○ 0 ○ 0 * -1 ○ 0 ✓ 1 ○ 0 ○ 0	○ 0 ○ 0 * -1 ○ 0 ✓ 1 ○ 0 ○ 0	
	To minimise the impact on designated Natura 2000 sites	✓✓ 3 ✓✓ 3	○ 0 ○ 0 ○ 0 ○ 0 ○ 0 ○ 0	○ 0 ○ 0 ○ 0 ○ 0 ○ 0 ○ 0	○ 0 ○ 0 ○ 0 ○ 0 ○ 0 ○ 0	○ 0 ○ 0 ○ 0 ○ 0 ○ 0 ○ 0	○ 0 ○ 0 ○ 0 ○ 0 ○ 0 ○ 0	○ 0 ○ 0 ○ 0 ○ 0 ○ 0 ○ 0	○ 0 ○ 0 ○ 0 ○ 0 ○ 0 ○ 0	○ 0 ○ 0 ○ 0 ○ 0 ○ 0 ○ 0	○ 0 ○ 0 ○ 0 ○ 0 ○ 0 ○ 0	○ 0 ○ 0 ○ 0 ○ 0 ○ 0 ○ 0	○ 0 ○ 0 ○ 0 ○ 0 ○ 0 ○ 0	○ 0 ○ 0 ○ 0 ○ 0 ○ 0 ○ 0	○ 0 ○ 0 ○ 0 ○ 0 ○ 0 ○ 0	○ 0 ○ 0 ○ 0 ○ 0 ○ 0 ○ 0	○ 0 ○ 0 ○ 0 ○ 0 ○ 0 ○ 0	○ 0 ○ 0 ○ 0 ○ 0 ○ 0 ○ 0	○ 0 ○ 0 ○ 0 ○ 0 ○ 0 ○ 0	
	To seek to preserve existing well-established communities, heritage and amenity resources within the study area.	○ 0 ✓ 1	✓ 1 ✓ 1 ✓ 1 ✓ 1 ✓ 1 ✓ 1	* -1 * -1 ○ 0 ✓✓ 2	* -1 * -1 * -1 * -1 * -1 * -1	* -1 * -1 * -1 * -1 * -1 * -1	* -1 * -1 * -1 * -1 * -1 * -1	* -1 * -1 * -1 * -1 * -1 * -1	* -1 * -1 * -1 * -1 * -1 * -1	* -1 * -1 * -1 * -1 * -1 * -1	* -1 * -1 * -1 * -1 * -1 * -1	* -1 * -1 * -1 * -1 * -1 * -1	* -1 * -1 * -1 * -1 * -1 * -1	* -1 * -1 * -1 * -1 * -1 * -1	* -1 * -1 * -1 * -1 * -1 * -1	* -1 * -1 * -1 * -1 * -1 * -1	* -1 * -1 * -1 * -1 * -1 * -1	* -1 * -1 * -1 * -1 * -1 * -1	* -1 * -1 * -1 * -1 * -1 * -1	* -1 * -1 * -1 * -1 * -1 * -1
<b>Environment Summary</b>	<b>-3</b>	<b>-1</b>	<b>3</b>	<b>5</b>	<b>5</b>	<b>4</b>	<b>4</b>	<b>-4</b>	<b>-4</b>	<b>-3</b>	<b>4</b>	<b>-4</b>	<b>-5</b>	<b>-5</b>	<b>-3</b>	<b>0</b>	<b>0</b>	<b>0</b>		

Scheme Objectives	Base Case		Public Transport Alternatives					Demand Management Alternatives				Road Improvement Options													
	BC1	BC2	PT1	PT2	PT3	PT4	PT5	DM1	DM2	DM3	DM4	RI1	RI2	RI3	RI4	RI5	RI6	RI7							
<b>Accessibility &amp; Social Inclusion</b> Provide improved accessibility to and from the Greater Dublin Area (GDA) for the towns along the N11/M11 corridor. Address local connectivity between communities and key facilities, such as employment, education, transport and healthcare, where severed by the presence of the N11/M11 corridor.	***	-3	**	-2	✓✓	2	✓✓	2	✓✓	2	✓✓	2	✓✓	2	✓✓	2	○	0	✓	1					
	***	-3	**	-2	✓	1	✓	1	✓✓	2	✓✓	2	✓	1	**	-2	*	-1	*	-1	✓✓	2	○	0	✓
<b>Accessibility &amp; Social Inclusion Summary</b>	-6	-4	3	3	4	4	3	-4	0	1	1	-1	0	1	1	4	0	2							
<b>Integration</b> To support integration of road based transport with other transport modes within the study area. To align the N11/M11 (E01) with the policy of the TEN-T Comprehensive network by providing a high quality link which will contribute to enhancing social cohesion within Ireland and across the EU. To support the objectives of national, regional and local planning policy, including adopted land use objectives.	***	-3	**	-2	✓✓	2	✓✓	2	✓✓	2	✓✓	2	✓✓	2	✓✓	2	✓✓	2	○	0	✓	1			
	***	-3	**	-2	○	0	○	0	○	0	✓	1	○	0	**	-2	✓	1	✓	1	○	0	✓	1	
	***	-3	**	-2	✓✓	2	✓✓	3	✓✓	3	✓✓	3	✓✓	3	✓	1	✓✓	2	✓✓	2	*	-1	✓✓	2	
<b>Integration Summary</b>	-9	-6	4	5	5	6	6	-2	1	1	2	1	2	1	3	4	-2	5							
<b>Physical Activity</b> To provide safer provision for active travel and promote walking and cycling.	***	-3	**	-2	✓✓	2	✓✓	2	✓✓	2	✓	1	○	0	**	-2	✓✓	2	✓	1	✓✓	2			
<b>Physical Activity Summary</b>	-3	-2	2	2	2	1	0	-2	-2	-2	2	-3	-2	2	1	2	1	2							
<b>Conclusions &amp; Recommendations</b>	-42	-27	16	23	24	21	16	-19	-1	4	14	-6	7	20	16	24	3	16							
	Remove option from further consideration	Remove option from further consideration	Retain option as likely component of overall solution	Retain option and assess in more detail	Retain option and assess in more detail	Retain option and assess in more detail	Retain option and assess in more detail	Not feasible as standalone measure. Retain to assess as 'add-on' to other options/alternatives	Not feasible as standalone measure. Retain to assess as 'add-on' to other options/alternatives	Not feasible as standalone measure. Retain to assess as 'add-on' to other options/alternatives	Not feasible as standalone measure. Retain to assess as 'add-on' to other options/alternatives	Retain option and assess in more detail	Retain option and assess in more detail	Retain option and assess in more detail	Retain option and assess in more detail	Retain option and assess in more detail	Retain option and assess in more detail								

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## 4.2 Outcomes of Initial Option/Alternative Sifting

A summary of the initial option/alternative sifting is presented in Table 5 below.

Table 5 Summary of initial sifting outcomes

Option / Alternative	Name	Outcome of Sifting Exercise	
<b>Base Case (BC)</b>			
BC1	Do Nothing	Option Discounted	✘
BC2	Do Minimum	Option Discounted (to be used for comparison purposes only)	✘
<b>Public Transport (PT)</b>			
PT1	Do 'GDA' Strategy	Alternative Retained as Possible Component of Solution	✓
PT2	Rail Line Upgrade	Alternative Retained as Possible Component of Solution	✓
PT3	Enhancement of Bus Services in Study Area	Alternative Retained as Possible Component of Solution (A range of bus service measures combining PT3, PT4 & PT5 to be analysed)	✓
PT4	Bus Lanes / Bus Priority on N11/M11		
PT5	Park and Ride Adjacent to N11/M11		
<b>Demand Management (DM)</b>			
DM1	Tolling	All Demand Management Alternatives not considered feasible as standalone solutions. Retained as possible complimentary measure to other options/alternatives.	✓
DM2	Ramp Metering		
DM3	Managed Road		
DM4	Parking Management Measures		
<b>Road Improvement (RI)</b>			
RI1	Hard Shoulder Running on N11/M11	Retain option and assess in further detail.	✓
RI2	N11/M11 Additional Lanes	Retain option and assess in further detail.	✓
RI3	New Offline N11/M11 Route	Retain option and assess in further detail.	✓
RI4	Partial Offline Route with Improved Online Route	Retain option and assess in further detail.	✓
RI5	N11/M11 Junction Improvements / Access Rationalisation	Retain option and assess in further detail.	✓
RI6	N11/M11 Localised Safety Improvements	Retain option and assess in further detail.	✓
RI7	Improvements to Regional / Local Roads / New Parallel Roads Adjacent to N11/M11	Retain option and assess in further detail.	✓

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The initial sifting exercise has not identified any single preferred option/alternative for the N11/M11 Scheme. Most options/alternatives have the potential to offer benefits to the corridor, although certain options/alternatives clearly only respond positively to certain objectives and not others. Across the various transportation modes and measures considered, the following clear trends emerge from the initial analysis;

- Improvements to the public transport system in the study area (e.g. rail and bus) has significant potential to meet many project objectives, particularly those of an economic and environmental nature, if a high degree of modal shift can be achieved. All public transport alternatives should therefore be retained and assessed in further detail. As part of the next steps, potential rail and bus alternatives will need to be developed and defined in more precise detail, such that the merits of these alternatives against a set of agreed Key Performance Indicators (KPIs) can be more accurately established. Moreover, the development of public transport alternatives will require a degree of inter-agency coordination.
- Improvements to the corridor road network (including elements of the N11/M11 mainline, junctions and accesses and/or supporting regional/local routes) also have significant potential to address the capacity and congestion issues on the corridor. Potential road-based options for the scheme are wide-ranging; including both enhancements to the existing corridor and the option of new offline routes. As with the public transport alternatives, potential road-based concepts will need to be designed and developed to a level of detail enabling systematic appraisal against agreed KPIs. This may involve the amalgamation of certain road-based options into one singular option to be tested and assessed. For example, the option of improving the standard and rationalising the number of junctions (RI5), is likely to necessitate the provision of parallel roads and new linkages (as per option RI7) where existing N11/M11 access is removed. As part of the next step, a concise suite of road improvement measures, incorporating the outcomes of the sifting exercise will be developed and evaluated.
- Even if public transport improvements are adopted; at a minimum, a basic level of road improvement is considered necessary to meet the safety objectives of the scheme.
- Certain road improvement measures alone score less favourably from an environmental perspective and thus may need to be considered in tandem with other measures which align better with environmental objectives.
- The road improvement option of implementing localised safety improvements only (RI6) is not considered to be a standalone solution to the problems on the corridor, as it would not adequately address the major congestion and accessibility issues. This option is nonetheless considered necessary due to the existing safety issues on the corridor and should be amalgamated as an essential component of all other options and alternatives (rather than representing a single option on its own).
- Certain road improvement options do not score highly in the qualitative assessment. For example, the road improvement option of Hard Shoulder Running (RI1) is considered unlikely to meet the safety and physical activity objectives of the scheme as it would remove the existing refuge area used by cyclists and pedestrians and potentially make existing

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accesses more hazardous. However, it is evident that the option offers potential benefits, and rather than discounting following qualitative assessment alone, the engineering feasibility of the option should be assessed in further detail.

- The sifting assessment identified a need to consider both improvements to the existing road, as well as the assessment of new offline route options remote from the existing N11/M11.
- The qualitative assessment indicates that certain demand management measures, such as tolling (DM1) or ramp metering (DM2), would be unlikely to meet the objectives of the scheme as standalone solutions. However, rather than discounting such measures, it is considered that these solutions could add benefit if delivered complimentary to other options and alternatives, e.g. public transport and/or road improvement.
- The demand management alternative of parking management measures (DM4), potentially using pricing and supply controls, aligns positively with many scheme objectives and will also be taken forward. In assessing this alternative in further detail, it is likely that inter-agency coordination on planning and land use objectives within the study area will be required.
- The base case options, i.e. Do-Nothing (BC1) and Do-Minimum (BC2) demonstrably fail to respond positively to the project objectives and as standalone options, they will not address the need for intervention on the corridor. As such, these options will be discounted from further consideration at this stage. Notwithstanding, it should be noted that the performance of the 'Do-Minimum' option against the agreed KPIs will still need to be ascertained, as it will form a baseline option, or 'status quo' option against which all Do-Something options are compared.

## 5 Conclusions and Recommendations

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From the initial sifting exercise, it is evident that only the base case options, i.e. Do-Nothing and Do-Minimum demonstrably fail to respond positively to the project objectives. All other options and alternatives have the potential to fulfil some or many objectives or require more precise definition before this can be determined. What is also evident is that no single option or alternative is considered likely to unanimously achieve all stated objectives. While it should be remembered that this is a high-level assessment of conceptual ideas only, the results point to the likely need to deliver a multi-component, multi-modal solution to achieve the objectives of the N11/M11 Scheme.

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## Appendix A

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**DOCUMENT CHECKING (not mandatory for File Note)**

	Prepared by	Checked by	Approved by
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Signature			