

Dunboyne Link Road Part VIII Report

DUNBOYNE BUSINESS PARK CONNECTION TO R157

M1346-OCSC-XX-XX-RP-C-0003

MEATH COUNTY COUNCIL

PROJECT NO. M1346

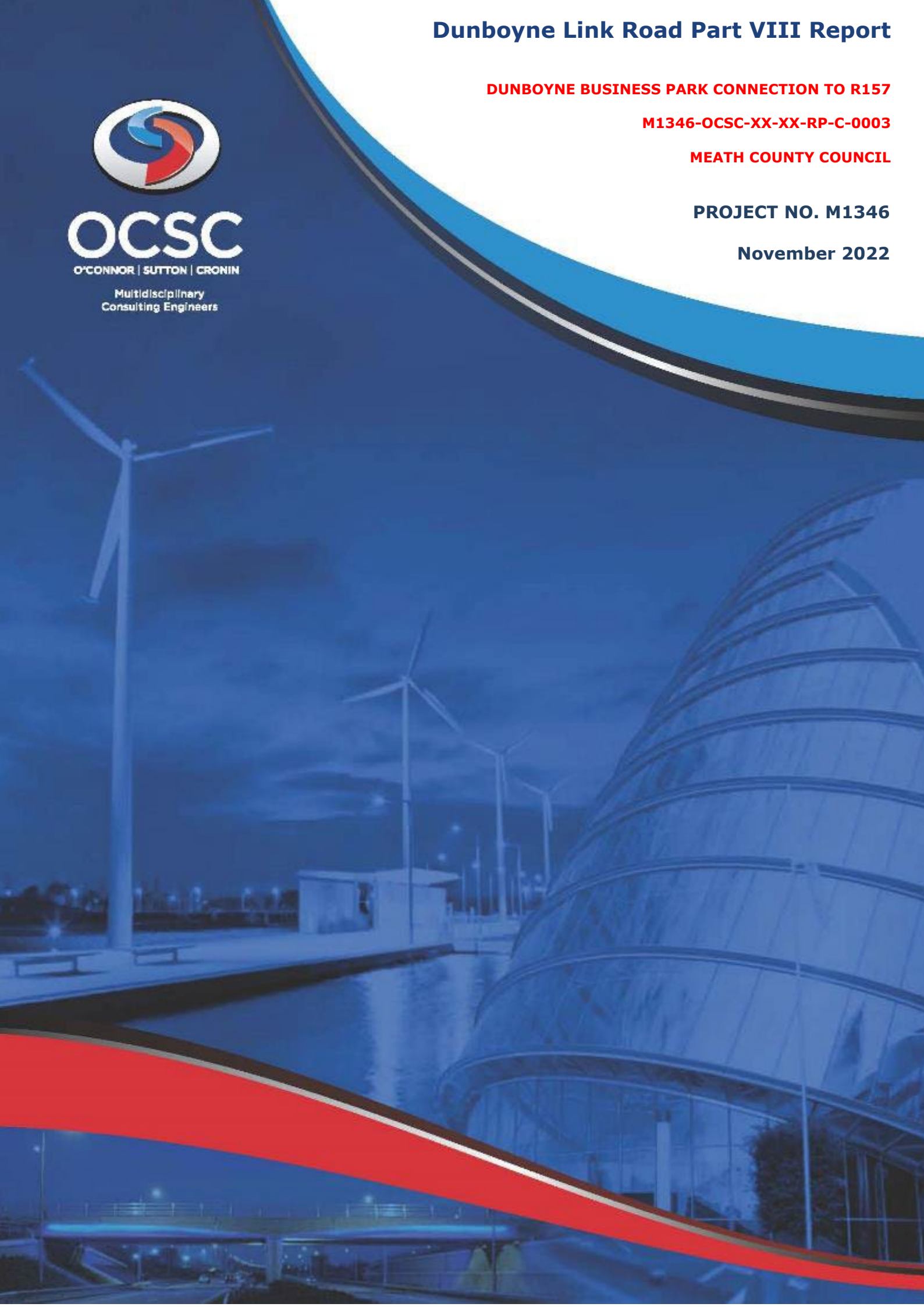
November 2022



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O'CONNOR | SUTTON | CRONIN

Multidisciplinary
Consulting Engineers



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DOCUMENT CONTROL & HISTORY

OCSC Job No.: M1346	Project Code	Originator	Zone Volume	Level	File Type	Role Type	Number	Status / Suitability Code	Revision
	M1346	OCSC	XX	XX	RP	C	0003	S4	P03
Rev.	Status	Authors	Checked	Authorised	Issue Date				
P03	S4	JC	CW	BOR	09/11/22				
P02	S4	JC	CW	BOR	07/10/22				
P01	S2	JC	CW	BOR	23/09/22				

DUNBOYNE LINK ROAD - OPTIONS REPORT

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1 INTRODUCTION

1.1 Project Background

This report supports the Part VIII planning application for the Dunboyne Link Road - Dunboyne Business Park connection to R157 scheme.

During the preliminary design stage a Dunboyne Transport Study was completed which recommended the construction of a new section of roadway to connect the existing Dunboyne Ring Road (R157) to the Dunboyne Business Park.

The objectives of the scheme include:

- To provide connectivity between the Dunboyne Business Park and the R157.
- To improve transport connectivity and accessibility within Dunboyne Town.
- To provide connectivity for a revised Dublin Bus route between Dunboyne Town Centre and the M3 Parkway.
- To improve connectivity for pedestrians and cyclists between Dunboyne Town and the M3 Parkway.
- To provide an alternative route for HGVs and reduce the need to travel through Dunboyne Town.
- To provide alternative access to the Business Park and Dunboyne centre.
- To provide a safe environment for Vulnerable Road Users (pedestrians and cyclists).

The Dunboyne Transport Study also referenced the potential future development of the Eastern Distributor Road (EDR) which could connect the western side of Dunboyne town to the R157 via the new section of roadway constructed as part of this scheme.

1.2 Site Overview

The site location is on the north-western side of Dunboyne Town, County Meath as shown in the Figure 1 and Figure 2 below.



Figure 1 - Site location

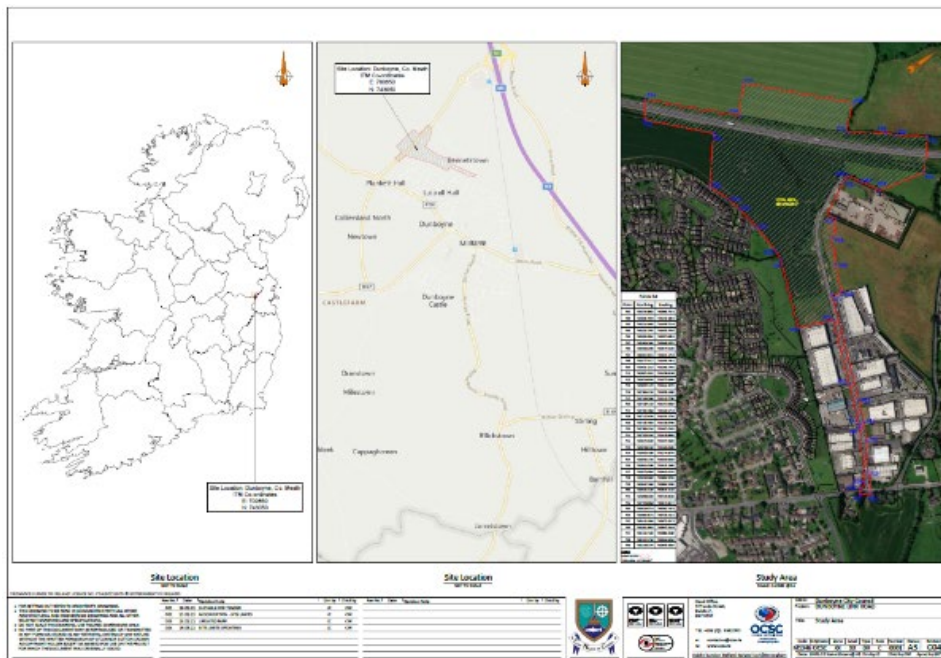


Figure 2 – Study area

2 PLANNING AND DEVELOPMENT CONTEXT

From a review of the Meath County Development Plan 2021-2027 the proposed Dunboyne Business Park connection to R157 is consistent with the planning and development objectives and policies of Meath County Council's Development Plan 2021-2027. As per Volume One: Written Statement of Meath County Council's Development Plan 2021-2027, the following Development Plan Policies and Objectives are relevant to this project:

MOV OBJ 1

To prepare and commence implementation of Local Transport Plans (LTP), in conjunction with the NTA and relevant stakeholders, for Drogheda (in conjunction with Louth County Council as part of the Joint Urban Plan), Ashbourne, Navan, Ratoath, and other settlements where Local Area Plans are undertaken, having regard to the Area Based Transport Assessment Guidance Notes (2019).

A LTP was completed for Dunboyne in the form of the Dunboyne Transport Study (compiled by Aecom – October 2018). The strategy provides for and recommends the construction of the connection between the Dunboyne Ring Road (R157) and Dunboyne Business Park. The following objectives are noted within the strategy document:

- *Improve transport connectivity and accessibility within Dunboyne*
- *Improve accessibility to other urban centres and new growth areas outside Dunboyne*
- *Contribute to improved air quality by minimising the growth in traffic levels and congestion*
- *Improve journey time reliability*
- *Make it easier and more attractive to travel by active and public transport modes*

The development of the Dunboyne Link Road Scheme took each of these on board throughout the design process to ensure the delivered scheme on the key objectives.

MOV OBJ 3

To ensure that design for cycle infrastructure for all relevant developments shall be carried out in accordance with the Greater Dublin Area Cycle Network Plan, other relevant design standards or any successors to these documents.

MOV POL 9

To ensure that the design and planning of transport infrastructure and services accords with the principles of sustainable safety, in order that the widest spectrum of needs, including pedestrians, cyclists, the ageing population and those with mobility impairments are taken into account.

The design of the proposed connection between the R157 and the Dunboyne Business Park will be in accordance with the above two objectives and will provide pedestrian and cyclist facilities for the full length of the proposed roadway.

MOV POL 5

To support the extension of the rail network in the County and to actively and strongly pursue a rail line from Dunboyne/M3 Parkway to Navan subject to proper planning and environmental considerations.

MOV POL 13

To promote and support the provision of Park-and-Ride facilities which improve public transport accessibility without exacerbating road congestion at appropriate locations within the County. NTA funded Park & Ride Schemes will be carried in accordance with the recommendations of the Park & Ride Development Office of the NTA.

MOV POL 14

To support the NTA to extend bus routes to the M3 Parkway Train Station in order to deliver a strategic multi modal park and ride facility at this location.

The proposed roadway will comply with the requirements of the three above objectives from the Meath Co Co Development Plan though providing connectivity between the town environs and the M3 Parkway and also providing bus stops in both directions.

3 ALTERNATIVES CONSIDERED

3.1 Alternate Options

As part of the report scope, a total of five options were assessed: four potential "Do-Something" options (1, 2, 3 and 4) to be compared to a "Do Nothing" option. Each of the options was assessed with regard to the following objectives:

- To provide connectivity between the Dunboyne Business Park and the R157.
- To improve transport connectivity and accessibility within Dunboyne Town.
- To provide connectivity for a revised Dublin Bus route between Dunboyne Town Centre and the M3 Parkway.
- To improve connectivity for pedestrians and cyclists between Dunboyne Town and the M3 Parkway.
- To provide an alternative route for HGVs and reduce the need to travel through Dunboyne Town.
- To provide alternative access to the Business Park and Dunboyne centre.
- To provide a safe environment for Vulnerable Road Users (pedestrians and cyclists).

The following is a summary of the Options that were assessed as part of the preliminary design process:

Base case: "Do nothing"

- The base case considered minimum or no modifications. This option is considered unrealistic and is used as a comparison scenario for the multi criteria analysis, as it does not meet the mobility and safety principles to be achieved by the scheme and does not provide a link between the business park and the R157.

Option 1:

- Total of approx. 380m long Link Road alignment and 170m long Thornton Recycling Centre access road;
- Provision of segregated footpaths and raised cycle track on both sides of the carriageway. Raised Cycle Track in line with National Cycle Manual QOS level A / A+;
- Priority junction implementation between the Link Road and R157 that can be easily upgraded to a signalised junction in the future;
- Priority junction implementation between the Link Road and Thornton Recycling Centre access road;
- 9m corner radii due to volume of larger vehicles, in line with DMURS recommendations;
- Off-line bus stops on both sides of the Link Road in line with NTA Guidance and the National Cycle Manual.

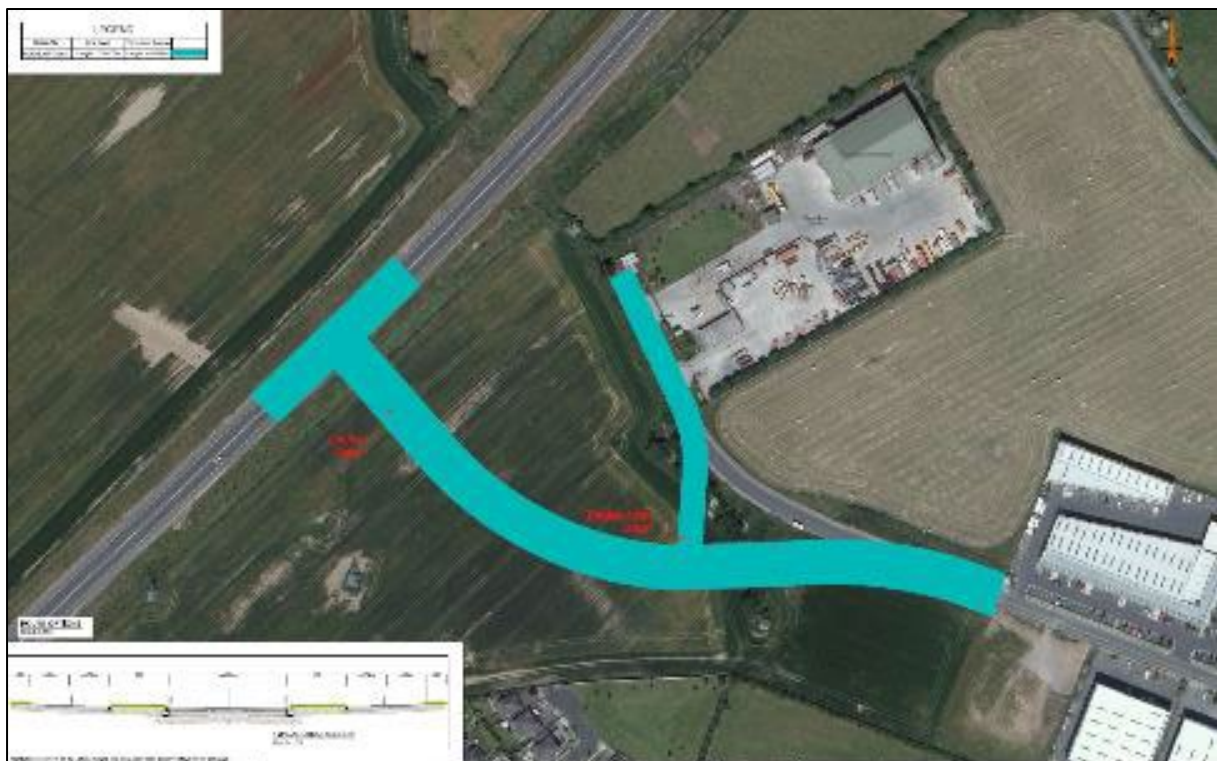


Figure 3 - Option 1 alignment.

Option 2:

- Total of approx. 340m long Link Road alignment and 50m long Thornton Recycling Centre access;
- Provision of segregated footpaths and raised cycle track on both sides of the carriageway. Raised Cycle Track in line with National Cycle Manual QOS level A / A+;
- Priority junction implementation between the Link Road and R157 that can be easily upgraded to a signalised junction in the future;
- Priority junction implementation between the Link Road and Thornton Recycling Centre access road;
- 9m corner radii due to volume of larger vehicles, in line with DMURS recommendations;
- Off-line bus stops on both sides of the Link Road in line with NTA Guidance and the National Cycle Manual.



Figure 4 - Option 2 alignment.

Option 3:

- Total of approx. 335m long Link Road alignment;
- Provision of segregated footpaths and raised cycle track on both sides of the carriageway. Raised Cycle Track in line with National Cycle Manual QOS level A / A+;
- Priority junction implementation between the Link Road and R157 that can be easily upgraded to a signalised junction in the future;
- 9m corner radii due to volume of larger vehicles, in line with DMURS recommendations;
- Off-line bus stops on both sides of the Link Road in line with NTA Guidance and the National Cycle Manual.

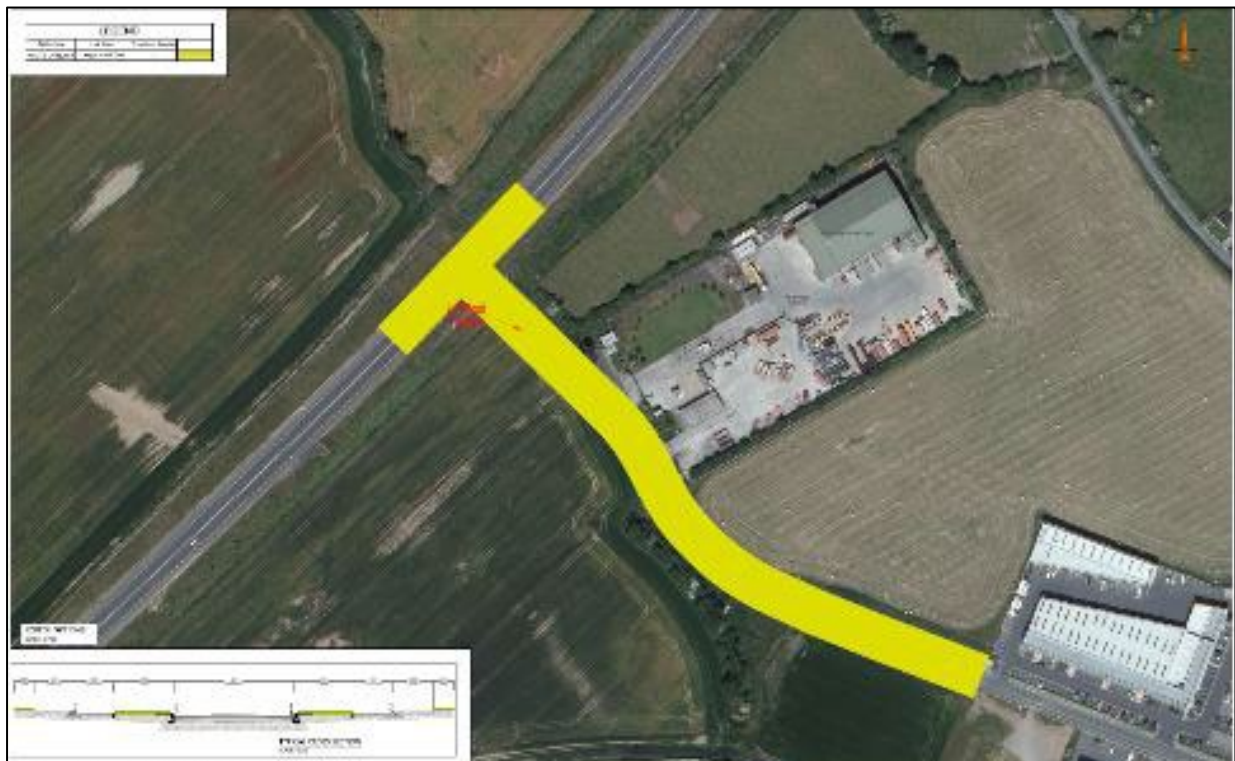


Figure 5 - Option 3 alignment.

Option 4:

- Total of approx. 340m long Link Road alignment;
- Provision of segregated footpaths and raised cycle track on both sides of the carriageway. Raised Cycle Track in line with National Cycle Manual QOS level A / A+;
- Priority junction implementation between the Link Road and R157 that can be easily upgraded to a signalised junction in the future;
- 9m corner radii due to volume of larger vehicles, in line with DMURS recommendations;
- Off-line bus stops on both sides of the Link Road in line with NTA Guidance and the National Cycle Manual.



Figure 6 - Option 4 alignment.

3.2 Assessment of the Options

There were 6 main criteria under which the options were assessed and given a scoring. The main criteria are listed in Table 1 below:

Main Criteria:	Sub Criteria:
Economy	Transport Efficiency and Effectiveness
	Wider Economic Impact
	Transport Reliability and Quality
Safety	Collision Reduction
	Security
Environment	Air quality
	Noise and Vibration
	Landscape and Visual Qty
	Biodiversity
	Cultural, Archaeological, Architectural Heritage
	Land Use
	Water Resources
Accessibility and social inclusion	Vulnerable groups
	Deprived areas
Integration	Transport Integration
	Land Use Integration
	Geographic Integration
	Integration with other Government Policies
Physical Activity	Health Benefits

Table 1 - Main Criteria and Sub Criteria

A score value of between 1 and 7 was provided for each option against the main criteria. The range of scoring was determined by the level of impact of each option under the respective main criteria against the Do-Nothing option:

- 1 – Major or highly negative impact compared to the baseline
- 2 – Moderately negative impact compared to the baseline
- 3 – Minor negative impact compared to the baseline
- 4 – No significant impact or neutral
- 5 – Minor or slightly positive impact compared to the baseline
- 6 – Moderately positive impact compared to the baseline
- 7 – Major or highly positive impact compared to the baseline.

3.3 Preferred Option

Option 2 achieved the highest marks totalling 94 marks. Table 2 below is an extract from the Options Report completed for the scheme and shows the Multi-Criteria Analysis that scores Option 2 with the highest marks.

Appraisal Criteria	Appraisal Sub-Criteria	"Do Nothing"	Option 1	Option 2	Option 3	Option 4	Preferred Option
Economy	Transport Efficiency and Effectiveness	4	6	6	5	5	6
	Wider Economic Impact	4	5	5	5	5	5
	Transport Reliability and Quality	4	6	6	5	5	6
Safety	Collision Reduction	4	6	6	5	5	6
	Security	4	5	5	5	5	5
Environment	Air quality	4	5	5	5	5	5
	Noise and Vibration	4	5	5	5	5	5
	Landscape and Visual Qty	4	4	4	3	4	4
	Biodiversity	4	4	4	4	4	4
	Cultural, Archaeological , Architectural Heritage	4	4	4	4	4	4
	Land Use	4	3	4	4	5	4
	Water Resources	4	4	4	4	4	4
Accessibility and social inclusion	Vulnerable groups	4	5	5	5	5	5
	Deprived Areas	4	4	4	4	4	4
Integration	Transport Integration	4	6	6	5	5	6
	Land Use Integration	4	3	5	4	5	5
	Geographic Integration	4	4	5	4	4	5
	Integration with other Government Policies	4	5	5	5	5	5
Physical Activity	Health Benefits	4	6	6	6	5	6
Total:		76	90	94	87	89	94

Table 2 – Multi-Criteria Analysis

As can be seen above Options 2 scored the highest (or joint highest) on each section of comparison (Economy, Safety, Environment, Accessibility and Social Inclusion, Integration and Physical Activity).

The elements which clearly separated the option from the alternatives was Economy and Integration. All options provided connectivity and elements of

pedestrian and cyclist facilities however option 2 completed this objective while minimising land take and providing a more economically advantageous design.

The completed Options Report was issued to Meath County Council who ratified the selection of the preferred option – Option 2.

4 CONSULTATION

4.1 Statutory Bodies

As part of the Feasibility Design, Options Selection and Preliminary Design regular meetings were held with Meath County Council (the Client). These meetings consisted of progress updates, highlighting any issues that arose and discussing potential solutions or variations to the design. There have been no issues in relation to the works to date.

As part of the planning process for this project, the project proposals including scheme drawings will be available for public inspection at the offices of the Meath County Council.

4.2 Affected Landowners

Preliminary meetings and discussions have been held between Meath County Council and directly affected landowners

4.3 Affected Stakeholders

Preliminary discussions have taken place with some of the potentially effected stakeholders including, but not limited to, the following:

- Dunboyne Business Park Property Management Company
- Thornton Recycling Facility and Civic Amenity Centre
- An Garda Síochána
- Bus Éireann

5 EXTENT OF PROPOSED WORKS

5.1 Existing Site Layout

The proposed scheme includes for a new section of connecting roadway between the Dunboyne Business Park and the existing Dunboyne Ring Road (R157). Currently the Dunboyne Business Park is only accessible from the Navan Road on the north side of the town however the new 340m section of roadway will provide access from the R157. The existing speed limit on the R157 is 80km/hr and is 50km/hr within the business park.

The existing roadway width is approximately 11m which consists of 7m carriageway lanes and 2m footpaths on either side. Due to the number of buildings there is several accesses/entrances along the road on the first 425m from the junction with Navan Road. However, just after this section there are large greenfield sites on either side along the route. The road ends just after the Thorntons Recycling centre.



Figure 7 - Green areas along the route.

5.2 Proposed Works Extents

The proposed development will, as previously described within the report, comply with the objectives of the Local Area Plans and the Dunboyne Transport Study and provide enhanced facilities for all users including, but not limited to, the following:

Alignment / Route

The selected alignment / route provides a connection between the existing Dunboyne Business Park and the R157. The alignment within the business park begins to deviate from the existing just west of the Gecko Facility and thus provides a new connection to Thornton Recycling Facility and Civic Amenity Centre from the new alignment. The design for the alignment has been completed in accordance with design standards including DMURS and TII Design Standards.

Footpaths / Cycle Lanes

The proposed scheme will provide off-road pedestrian and cycle facilities on both sides of the roadway. The scheme endeavours to provide segregated facilities where possible and connects to the existing infrastructure at both the western and eastern tie-ins. The design was completed in accordance with design standards including DMURs and NCM.

Public Lighting

The proposed scheme will provide street lighting on both sides of the roadway. The design will be completed in accordance with design standards including Meath County Council Public Lighting Technical Specification & Requirements.

Drainage / Attenuation

The proposed scheme will comply with the relevant design standards in terms of drainage design. The scheme provides for an attenuation pond and petrol interceptor that will connect to the existing storm water network within the business park.

Vehicle Restraint System

The proposed scheme will modify the existing vehicle restraint system along the R157 as the proposed junction will intersect the existing system. This design will be developed through the detailed design process.



Figure 8 – Photomontage: Dunboyne Business Park Road – Before and After View

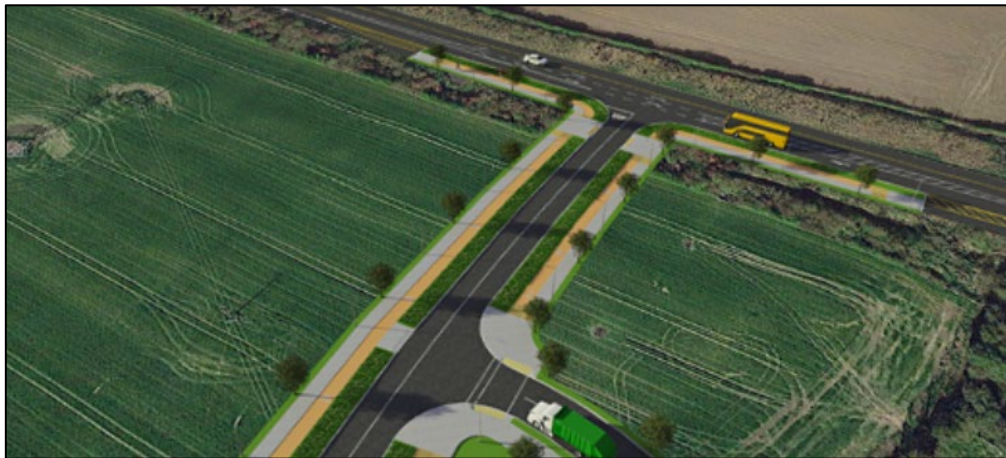


Figure 9 - Photomontage: Dunboyne Business Park - Before and After View



Figure 10 - Photomontage: R157 - Before and After View



Figure 11 - Photomontage: Thorntons Access - Before and After View

5.3 Construction Methodology

All construction activities will be controlled within the construction site. Materials, waste handling and storage will be within confines of the site. Temporary traffic management will be put in place.

All traffic management proposals will be agreed with the local authority in advance of the works being carried out.

Adequate warning signs will be on display to illustrate the required personal protective equipment (PPE) and risks associated with the works.

The site is located between the Dunboyne Business Park and the R157. Access to the project will be from the junction between the Business Park Road and Navan Road. It will be imperative that access is maintained to all properties, businesses and lands during the construction stage of the project.

The Construction of the Dunboyne Link Project will require one main site compound for the duration of the Construction works. A suitable location for the Compound will be identified and chosen by Meath County Council within a close proximity to the site.

6 IMPACT OF PROPOSED WORKS

An Appropriate Assessment Screening Report (AA), Ecological Impact Assessment Report (EciAR), EIAR Screening Assessment, Heritage Assessment and Junction Options Assessment Report have been prepared in relation to the Dunboyne Link Road Scheme.

6.1 Appropriate Assessment Screening Report

The conclusion of the AA Screening Report states the following:

This stage 1 screening for AA of the proposed link road between Dunboyne Business Park and the R157 including junctions, footpaths, bus stop and parking facilities, public lighting, and service duct provision shows that implementation of the proposed project is not foreseen to have any likely significant effects on any European site.

The nearest European site or qualifying habitat features is located 6.1 kilometres from the site. The AA screening process has considered potential effects which may arise during the construction and operational phases as a result of the implementation of the project.

Through an assessment of the pathways for effects and an evaluation of the project characteristics, taking account of the processes involved and the distance of separation from European sites, it has been evaluated that there are no likely significant adverse effects on the qualifying interests, special conservation interest, or the conservation objectives of any designated European site. The ecological integrity of the European sites is not foreseen to be significantly affected by the project.

Given the nature of the development, its scale, and the existing localised and temporary nature of the construction effects identified as potential sources, the proposed development will not lead to a significant in-combination effect with any other plans or projects.

It is concluded that the project is not foreseen to give rise to any significant adverse effects on any designated European sites, alone or in combination with other plans or projects. This evaluation is made in view of the conservation

objectives of the habitats or species for which these sites have been designated. Consequently, a Stage Two is not required for the project.

6.2 Ecological Impact Assessment Report (EcIAR)

The screening decision of the Impact Assessment Report states the following:

The proposed construction of a link road connecting Dunboyne Business Park and the R157 will have no significant impacts on the immediate vicinity or on protected areas such as SACs and SPAs. There will be a permanent loss of some habitat within the site, but as these habitats are commonly occurring and widespread habitats in the area, their loss will not be significant.

6.3 Environmental Impact Assessment Report

The conclusion of the Environmental Impact Assessment Report states the following:

Based on the nature, scale, and location of the proposed project, by itself and in combination with other plans and projects, it is considered that the overall impact on the receiving environment will be low.

Therefore, it is not considered that an EIA is required at this time.

6.4 Heritage Assessment

The conclusion of the Heritage Assessment completed by Meath County Council states the following:

Given the proximity of archaeological remains in the area, it is recommended that the site is subject to advance archaeological trial trench testing to an area of approximately 12% of the site area. Should archaeological remains be found then they should be assessed for significance and then, if appropriate, subject to archaeological rescue excavation under Licence.

It is therefore advised that, prior to commencement of the Construction Stage, that an archaeological investigation is completed within the sections of roadway to be constructed in green field lands.

6.5 Junction Options Assessment Report

The conclusion of the Junction Options Assessment Report states the following in relation to the proposed junction post completion of the Eastern Distributor Roadway (EDR):

The analysis for this junction considered the following layouts:

- *Priority Controlled*
- *Roundabout*
- *Signal Controlled*

From the results it is evident that the priority-controlled and roundabout configurations will lead to excessive delays and demand readily exceeding capacity. The best solution for this junction would a signalised configuration with a short right-turn lane implemented by means of a ghost island to remove right-turning vehicles from the R157 through traffic stream. This configuration will also provide some spare capacity for future traffic growth.

Prior to the construction of the Eastern Distributor Road the use of a Priority Junction is deemed to have sufficient capacity to cater for current traffic demand. The junction will be designed in such a manner that when and if demand dictates the junction can be altered to provide a fully signalised junction.



APPENDIX A. EXISTING LAYOUT DRAWINGS



APPENDIX B. PROPOSED LAYOUT DRAWINGS



APPENDIX C. AA SCREENING REPORT



APPENDIX D. ECOLOGICAL IMPACT ASSESSMENT REPORT



APPENDIX E. ENVIRONMENTAL IMPACT ASSESSMENT REPORT



APPENDIX F. HERITAGE ASSESSMENT



APPENDIX G. JUNCTION OPTIONS ASSESSMENT REPORT



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