

AtkinsRéalis



Part 8 Report

Transport Infrastructure Ireland
Cork City Council

September 2026

5207356DG1342

N40 JUNCTION 1 IMPROVEMENT SCHEME

Notice

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Document history

Document title: Part 8 Report

Document reference: 5207356DG1342

Revision	Purpose description	Originated	Checked	Reviewed	Authorised	Date
0	Draft	RP	RP/CO'C	KB	KB	05/09/2026
1	Issue for Planning	RP	RP/CO'C	KB	KB	30/09/2026

Client signoff

Client	Transport Infrastructure Ireland
Project	N40 Junction 1 Improvement Scheme
Job number	5207356
Client signature/date	



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1. Introduction

Transport Infrastructure Ireland (TII) and Cork City Council has identified the need to undertake improvement works at N40 Junction 1 (Poulavone) to address congestion and road safety issues associated with the existing westbound exit ramp.

The proposed scheme involves the introduction of a signalised teardrop arrangement at either side of the existing dumbbell junction. The objective of the works is to improve the efficiency of the junction and reduce queue lengths on the westbound N40 exit ramp. By managing traffic movements more effectively, the scheme will reduce the likelihood of queues extending back onto the N40 mainline and improve road user safety for westbound motorists.

1.1 Purpose of Report

The purpose of this report is to outline the proposals associated with the project “N40 Junction 1 Improvement Scheme”, in compliance with the requirements of Article 83 of the Planning and Development Regulations 2001-2022 - hereafter referred to as “the Regulations”.

A development carried out by a Local Authority is often referred to as ‘Part 8’ development. This is a reference to Part 8 of the Planning and Development Regulations 2001, as amended, which sets out the procedure for carrying out such developments.

Public consultation is a fundamental element of the 'Part 8' planning application process. This consultation procedure requires that notice of the proposed development be given in an approved newspaper and that a site notice is erected on the land on which the proposed development would be situated.

After the expiration of the period during which submissions or observations may be made, a report is presented to the members of the Council. This report contains, amongst other items, a list of the persons or bodies who made submissions, along with a summary of the issues raised by them and the Chief Executive's response. This report recommends whether or not the proposed development should be proceeded with as proposed or should not be proceeded with.

Following consideration of the Report, the proposed development may be carried out as recommended in the Report, unless the local authority, by resolution, decides to vary or modify the development, otherwise than as recommended in the Report, or decides not to proceed with the development.

1.2 Need for Project

Junction 1 (Poulavone) is a key connection between the N40, the N22, Ballincollig, Curraheen Road and Carrigrohane. The junction was constructed in 2004 and has experienced increasing traffic volumes as the Ballincollig area has grown.

The existing westbound exit ramp from the N40 experiences significant congestion during peak traffic periods. Queues frequently develop on the westbound exit ramp and can extend beyond the slip road onto the N40 hard shoulder. The current slip road layout provides limited space for vehicles to exit the mainline, reduce speed and join queuing traffic safely. This can create conflicts between vehicles exiting the N40 and those continuing along the main carriageway of the N40, reducing overall safety and increasing the risk of rear-end collisions.

To address this safety issue, it is proposed to upgrade the existing junction layout by introducing a signalised teardrop roundabout arrangement. The tear drop layout optimises the performance of the junction by controlling the



flow of traffic around the roundabout and prioritising the traffic on the westbound exit ramp when signals are in operation.

The proposed scheme will have the following benefits:

- Increased road safety for westbound motorists on the N40 and reduced risk of rear-end collisions associated with traffic backing up onto the N40 from the westbound exit ramp.
- Improved junction capacity and overall traffic flow and increased efficiency of traffic movements from the westbound N40 exit ramp
- Reduced queue lengths on the westbound N40 exit ramp

1.3 Structure of Part 8 Documentation

The Part 8 application includes the following documentation listed within Table 1.1 below. Additionally, all documentation is available for review and download on CCC's consultation portal <https://consult.corkcity.ie>.

Table 1.1 Structure of Part 8 Documentation

Item No.	Document Type	Document Name
1	Statutory Particulars	Site Notice Newspaper Notice
2	Drawings	Part 8 Drawings
3	Planning and Environmental Reports	Part 8 Report Screening: Environmental Impact Assessment Screening: Appropriate Assessment



2. Description of Development

2.1 Project Description

The N40 is a key strategic route with 11 junctions along its length, extending from the N22 Ballincollig Bypass, west of Junction 1 to the Jack Lynch Tunnel in the east. N40 Junction 1 is a grade-separated dumbbell-style junction that links the N40 and N22. Constructed in 2004, the junction serves as an important gateway to Ballincollig and provides direct connections to the N22, Curraheen Road and Carrigrohane Road.

The existing westbound exit ramp from the N40 experiences significant congestion during peak travel periods. Traffic queues regularly form on the exit ramp and can extend back towards the N40 mainline. This can create conflicts between vehicles exiting the N40 and those continuing along the main carriageway of the N40, which can affect safety and increase the potential for rear-end collisions.

The proposed design retains the existing dumbbell layout while introducing single-lane teardrop roundabouts on either side of the overbridge. The two roundabouts will operate together as a single junction system, improving traffic movement through the junction by preventing traffic from making direct U-turn movements within the individual roundabouts.

Traffic signals will be installed on the southbound approach across the overbridge and on the westbound exit ramp to manage traffic more effectively and provide a smoother and more reliable flow of vehicles through the junction. The proposed design optimises the performance of the junction by controlling the flow of traffic around the roundabout and prioritising the flow of the traffic from the exit ramp when signals are operating. This minimises congestion and queuing on the exit ramp and reduces the risk of rear-end collision on the N40 mainline. The scheme aims to improve safety, reduce queuing on the exit ramp, and enhance junction performance by prioritising westbound diverging traffic and minimising congestion on the N40.



Figure 2.1 - N40 Poulavone Junction 1 Location Map

2.2 Geometric Alignment (Road Design)

2.2.1 Introduction to TII Standards

The TII's primary function is to provide an integrated approach to the future development and operation of the national roads network and light rail infrastructure throughout Ireland

TII have a suite of technical documentation relating to National Road, Greenway and Light Rail schemes. All documentation for implementation on National Road and Greenway schemes is collectively referred to as TII Publications (Standards).

TII Standards will apply to the N40 as it forms part of the National Primary Road Network.

2.2.2 Speed Limits

As part of the roundabouts rearrangement, the existing speed limits for this section will remain unchanged. No modifications to speed regulations are proposed at this time. The current posted speed limits in the area are as follows:

- Westbound off-ramp and northbound direction (Curraheen approach road): 80 km/h
- Southbound direction (N22): 100 km/h

2.2.3 Visibility & Sightlines

The proposed teardrop layout provides good visibility and sightlines across all approaches. The layout and provision of traffic signals to regulate traffic movements, facilitate a clear line of sight and contribute to the safe, efficient, and smooth operation of traffic.

2.2.4 Horizontal Alignment

As part of the proposed scheme, the existing roundabouts will be modified to form a teardrop-shaped layout. The revised alignment will extend from the edge of the existing central islands towards the centre of the overbridge, creating a smooth and continuous traffic path through each roundabout.

2.2.5 Vertical Alignment

The proposed vertical alignment has been developed to closely match existing ground and road levels wherever possible. This approach supports effective drainage and allows the existing pavement surface to be reused through localised milling and resurfacing works.

2.3 Cross Section and Superelevation (Road Design)

2.3.1 Cross Section

The proposed scheme will modify the existing roundabouts to create a teardrop-shaped layout, with a single traffic lane operating around each roundabout. Carriageway widths will vary between 3.5m and 9.7m, depending on location.



To improve traffic flow and guide vehicles through the junction, road markings will be used to channel traffic movements, with the effective carriageway width reduced to 5.0m on the approach to the overbridge.

The extended island and tear drop shape will be defined by a raised kerb. Existing verge widths are maintained throughout the scheme. The central island has a diameter of approximately 28m.

2.3.2 Crossfall (Superelevation)

The proposed road levels have been carefully designed to tie in with the existing roundabout levels and carriageway edges, which largely remain unchanged. The proposed crossfall complies with TII standards. The crossfall within the teardrop section falls towards the central island at the traffic island connection and falls away from the central island at the overbridge connection. This approach minimises the extent of reconstruction required while ensuring that surface water continues to drain effectively and that vehicles can travel safely and comfortably through the junction.

2.4 Traffic Signs and Road Markings

Traffic signs and road markings will be revised as part of the proposed development to accommodate the upgraded junction layout and ensure the safe movement of all road users. Existing regulatory, warning and directional signs affected by the works will be retained where possible and reinstalled following construction. New signage will be installed where required throughout the proposed works area, particularly at the locations of new traffic signals.

New road markings will be provided throughout the junction, including at the proposed traffic signal locations and on the approaches to the overbridge, to clearly guide traffic through the upgraded layout.

Traffic signs and road markings will be designed in accordance with the Traffic Signs Manual.

2.5 Traffic Signals

The proposed scheme will introduce traffic signals to control traffic exiting the westbound N40 off-ramp and traffic travelling southbound across the overbridge at the approaches to the new teardrop junction arrangement.

Traffic detection loops will also be installed on the westbound exit ramp, the eastbound exit ramp, the southbound approach on the overbridge, and the Curraheen Road approach. These detectors will enable the traffic signals to respond to actual traffic conditions in real time, allowing signal timings to be adjusted dynamically to improve traffic flow, reduce queuing, and enhance the overall operation of the junction. The system will also facilitate ongoing monitoring of junction performance so that signal phasing can be refined where necessary to achieve the most efficient traffic management.

2.6 Drainage

The proposed scheme will make use of the existing drainage network at N40 Junction 1, with only minor modifications required in the vicinity of the new teardrop roundabout layouts.

At the southern roundabout, the proposed teardrop island will have a limited impact on the existing drainage system. The existing gullies located within the affected area will be removed or decommissioned. Surface water from this area will instead be directed along the kerb lines to new collection points. To accommodate this change, new gullies will be installed and connected to the existing underground drainage network.



The proposed teardrop island at the northern roundabout will not require any alterations to the existing drainage infrastructure, and the current drainage arrangement will continue to operate as existing.

As the proposed works do not increase the amount of paved or impermeable surface within the junction, there will be no increase in the overall volume of surface water entering the drainage system.

2.7 Lighting

The junction is currently illuminated by existing public lighting infrastructure. No changes to the existing lighting arrangements at the junction are proposed as part of the development, and the current level of lighting provision will be maintained.

2.8 Pavement

The proposed teardrop islands will be constructed by extending the existing roundabout central islands and to create the new teardrop layout. Construction of the extended areas will require localised resurfacing of the existing pavement. These works are limited to the areas affected by the proposed teardrop extensions.

The new teardrop islands will be finished with red block paving to match the appearance of the existing roundabout islands, which are also surfaced with red block paving. A transition kerb will be installed between the existing roundabout islands and the proposed teardrop extensions to provide a seamless interface between the existing and new works.

These works will be undertaken at both roundabouts where the proposed teardrop islands are to be constructed.

2.9 Safety Barrier Risk Assessment and Provision

Existing safety barriers are present throughout the scheme extent and will be retained. No alterations to the existing safety barrier system are proposed.

2.10 Land Acquisition

Land acquisition is not required for the proposed works, as all proposed improvements are accommodated within the existing road footprint.

2.11 Traffic Management Construction Methodology

Traffic Management during the construction works will be addressed prior to mobilising onsite. At this stage in the project it is envisaged that the construction works will be undertaken at night.

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3. Planning Policy Compliance

3.1 Introduction

This chapter sets out the sectoral and planning policy context at a national, regional, and local level, demonstrating that the need for the proposed development is consistent with the objectives of these policies especially in terms of providing enhanced safety measure along existing infrastructure.

3.2 National, Regional and Local Strategic Context

The N40 is a key strategic link which seeks to deliver the national, regional and local strategic policy in the Cork Metropolitan Area. The N40 links the southwestern transport corridors and inter-regional routes (including the N22) with the inter-urban transport corridors to Dublin, Waterford and Limerick.

3.2.1 National Policy Context

3.2.1.1 National Planning Framework – Project Ireland 2040

The National Planning Framework (NPF) sets out the Strategic Investment Priorities which includes the national road network to achieve its National Strategic Outcomes (NSO). The NPF seeks to achieve Enhanced Regional Accessibility as a NSO through maintaining the strategic capacity and safety of national roads network including planning for future capacity enhancements and advancing orbital traffic management solutions including the N40 Junction 1 upgrade works.

3.2.1.2 National Development Plan 2021-2030

The National Development Plan outlines the National Roads: Protection and Renewal Scheme which sets out the maintenance of Ireland's existing national road network to a robust and safe standard for users as a key sectoral priority. Significant funding will be provided for capital maintenance works, to maintain and ensure resilience of the existing national road assets and augmented by improving some national road assets to provide greater use by public transport adoption of Intelligent Transport Systems and other measures to improve the efficiency and capacity of the existing road network.

The N40 forms part of the strategic road network serving Cork City and the wider region. Maintaining the safe and efficient operation of this route is essential to supporting regional mobility, economic activity and access to employment, education and services.

3.2.1.3 National Investment Framework for Transport in Ireland (NIFTI)

The National Investment Framework for Transport in Ireland (NIFTI) is the Department of Transport's framework for prioritising future investment in the land transport network to support the delivery of the National Strategic Outcomes. The departments intervention hierarchy sets out four high-level categories of investment to inform intervention decisions.

The proposed N40 Junction Improvement Scheme project aligns with the intervention hierarchy by maximising the value of the network through optimising its use by upgrading subject area within the existing N40 boundary.



3.2.2 Regional Policy Context

3.2.2.1 Regional, Spatial and Economic Strategy

The Regional Spatial and Economic Strategy (RSES) for the Southern Region promotes the delivery of infrastructure that supports sustainable growth within the Cork Metropolitan Area. The RSES recognises the importance of safeguarding the strategic transport network and improving connectivity to support continued population and economic growth.

The proposed N40 Junction 1 Improvement Scheme will improve network performance at a key junction on the N40 and the N22 and will contribute to the efficient movement of people and goods throughout the metropolitan area.

3.2.3 Local Policy Context

3.2.3.1 Cork City Development Plan

The Cork City Development Plan outlines the N40 Demand Management Study under the Transport and Mobility objectives for Cork City, which recognises that the future traffic demand on the N40 will need to be managed efficiently to avoid the route acting as a constraint on development in the Cork Metropolitan Area. The study identified a number of proposed interventions under the broad headings including:

- Integrated Land use and Transportation
- Targeted Upgrades
- Smart Motorway Interventions
- Alternative Complementary Routes
- Fiscal Measures

The N40 Junction 1 proposed scheme is consistent with the objectives of the Development Plan as it represents a targeted improvement to existing transport infrastructure that will increase junction capacity, improve traffic flow and enhance road safety without resulting in significant changes to the existing transport corridor.

3.2.3.2 Cork Metropolitan Area Transport Strategy

The Cork Metropolitan Area Transport Strategy (CMATS) provides a long-term framework for the development of transport infrastructure within Cork Metropolitan Area. CMATS identifies the need to optimise the performance of the existing road network while supporting sustainable travel patterns and future development.

The proposed N40 Junction 1 upgrade aligns with the objectives of CMATS by addressing a known congestion point on the strategic road network, improving operational performance and enhancing road safety.

3.3 Compliance with Planning Policy

The proposed N40 Junction 1 upgrade is consistent with the objectives of relevant national, regional and local planning and transportation policies. The scheme will improve the operation and safety of an existing strategic junction, reduce congestion and queue lengths on the westbound exit ramp, and support the continued growth of Ballincollig and the wider Cork Metropolitan Area.



4. Supporting Assessments

4.1 Appropriate Assessment

An Appropriate Assessment (AA) Screening was undertaken to assess the potential effects of the proposed N40 Junction 1 Improvement Scheme on nearby Natura 2000 sites, having regard to their conservation objectives and relevant environmental legislation. The assessment considered the potential impacts of the proposed works both alone and in combination with other plans and projects.

The screening concluded that the proposed scheme is not likely to have significant effects on any Natura 2000 site, either individually or in combination with other developments.

4.2 Environmental Impact Assessment

An EIA Screening Assessment was undertaken in accordance with the Planning and Development Regulations 2001 to 2025. The assessment considered the likely environmental effects of the proposed scheme, both individually and in combination with other developments in the surrounding area.

The assessment concluded that, due to the limited scale and nature of the proposed works, no significant adverse effects on the environment are likely to occur. Temporary impacts during construction, such as noise, vibration and dust, are expected to be minor and short-term in nature. No significant effects were identified in relation to biodiversity, water resources, traffic, archaeological heritage or cultural heritage assets.

Overall, the screening assessment determined that the proposed scheme is not likely to have significant effects on the environment .



5. Conclusion

The proposed improvement works at N40 Junction 1 (Poulavone) will address existing operational and road safety issues associated with the N40 westbound exit ramp. The current arrangement experiences congestion during peak periods, resulting in traffic queues that can extend onto the N40 hard shoulder and create an increased risk of collisions.

The introduction of a signalised teardrop roundabout arrangement will improve the efficiency of traffic movements through the junction, increase its capacity and reduce queue lengths on the westbound exit ramp. By reducing the likelihood of traffic backing up onto the N40 mainline, the scheme will enhance road safety for motorists.

Appropriate Assessment (AA) Screening and Environmental Impact Assessment (EIA) Screening determinations have been carried out in relation to any potential impacts the project may have on Special Protection Areas, Natura 2000 sites, and the environment in general. The findings of the screening exercises noted that no significant effects on any Natura 2000 sites are likely and there will be no real likelihood of significant effects on the environment arising from the proposed development.

In conclusion, the proposed scheme is consistent with proper planning and sustainable development of the area.



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