



Greater Dublin Drainage Project Addendum

**Environmental Impact Assessment Report Addendum:
Volume 3A Part A of 6**

Chapter 13A Traffic and Transport

Uisce Éireann

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13. Traffic and Transport

13.1 Introduction

As detailed in Chapter 1A (Introduction) in Volume 2A Part A of this Environmental Impact Assessment Report (EIAR) Addendum, we have reviewed Chapter 13 (Traffic and Transport) in Volume 3 Part A of the EIAR submitted with the original 2018 planning application, in the light of:

- Changes to the baseline environment;
- The requirement for updated surveys; and
- Changes to the law, policy, and industry standards and guidance in the intervening period.

Table 13.1 includes a summary of the project elements which were incorporated into the planning design for the Greater Dublin Drainage Project (hereafter referred to as the Proposed Project) following direction at the Oral Hearing in 2019 and the subsequent planning conditions applied to the 2018 planning application submission. A full description is included in Chapter 4A (Description of the Proposed Project) in Volume 2A Part A of the EIAR Addendum. The remaining elements of the Proposed Project included in the 2018 planning application remain unchanged.

Table 13.1: Updated Proposed Project Elements

Updated Element	Outline Description of Updated Element
Ultraviolet (UV) Treatment	<ul style="list-style-type: none"> • UV Treatment is to be included in the treatment process at the proposed wastewater treatment plant (WwTP) in the northern section of the WwTP site. • The UV treatment system will be designed for the expected flows at the plant and will be installed on the final effluent line. UV treatment will be in operation 24 hours a day, 365 days a year. • The UV system will consist of a minimum of three and a maximum of four treatment units located below or partially below ground level with an above-ground Motor Control Centre (MCC) (in a kiosk) along with minor maintenance and control equipment (e.g. shut-off button, frame for supporting, retracting and cleaning of UV lamps etc.).
River Mayne Culvert Extension	<ul style="list-style-type: none"> • Extension of the River Mayne Culvert on the proposed access road to the WwTP by 4m (from 21m to 25m) to cater for the full width of the future north south link road.

This Addendum Chapter should be read in conjunction with Chapter 13 (Traffic and Transport) in Volume 3 Part A of the EIAR submitted with the original 2018 planning application.

Please note that the updated traffic impact assessment of the proposed Regional Biosolids Storage Facility is addressed in Section 13A (Traffic) in Volume 4A Part A of this EIAR Addendum.

Site Locations

There are no changes to the information presented in this Section of the EIAR in the 2018 planning application, as the Proposed Project boundary has not changed. The new elements presented in Table 13.1 sit within the existing boundary brought forward for planning in 2018.

13.2 Methodology

13.2.1 Scoping Process

As scoping is an ongoing process throughout the development of the EIAR, any required updates to the scope of this assessment have been factored into this Addendum Chapter.

There are no changes to the information presented in this Section of the EIAR in the 2018 planning application, in relation to the consultation undertaken, prior to submission of the 2018 planning application.

Following the submission of the application for planning approval for the Proposed Project to An Bord Pleanála (ABP) on 20 June 2018, the application documentation was placed on display during the period 28 June 2018 to 17 August 2018 (a seven week period). Additionally, the application documentation was made available to

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view and download on a dedicated website (www.gddapplication.ie). Prescribed bodies, the general public, landowners and other interested parties were invited to make submissions on:

- The likely effects on the environment of the Proposed Project; and
- The implications of the Proposed Project for proper planning and sustainable development in the area concerned.

Following this consultation period, it came to the attention of the Applicant on 19 July 2018 that in relation to the documents which were lodged with the planning application, some documentation forming part of the EIAR were inadvertently omitted. By agreement with ABP, these documents were placed on display during the period 13 September 2018 to 18 October 2018 (a five-week period) and prescribed bodies, the general public, landowners and other interested parties were invited to make further submissions on the entirety of the planning application until 18 October 2018. A total of 174 submissions / observations were received; comprising 145 from the first consultation period and 29 from the second consultation period.

All submissions were reviewed by Uisce Éireann and the Project Team, and responses were provided in A Response to Submissions Report which was published in January 2019 (Uisce Éireann 2019), including those which specifically related to traffic and transport.

Following an Oral Hearing process, ABP previously made a decision to grant the planning application by Order dated 11 November 2019 under reference number ABP-301908-18 for the Proposed Project. That decision was quashed by Order of the High Court and the case was remitted by that Court to ABP for a fresh determination. Following the remittal Order, ABP decided that given the passage of time since the submission of the original planning application, and in accordance with Section 37F(1)(c) of the Planning and Development Act 2000 (as amended), Uisce Éireann should have the opportunity to update, where appropriate, the EIAR and Natura Impact Statement, and any other information submitted.

In light of this, ABP contacted those who had made a submission as part of the original consultation process in 2018 advising that the case had been reactivated under a new reference number (ABP-312131-21) and invited those interested parties to make any further general submissions / observations on the planning application by 30 September 2022. A total of 16 submissions, four of which included traffic items, were received and have been considered in the updates to the EIAR as part of this Addendum. Where a submission that relates to traffic and transport does not require an update to this Addendum Chapter, but does require further clarification based on the information provided either in the original EIAR submitted as part of the 2018 planning application or the information in this EIAR Addendum, responses will be provided in a new Response to Submissions Report which will be submitted to ABP as a separate report (in line with the process followed for the original 2019 A Response to Submissions Report), following the submission of the Addendum.

13.2.2 Guidelines

This Section of Chapter 13 (Traffic and Transport) in Volume 3 Part A of the EIAR submitted with the original 2018 planning application was reviewed in order to determine if there have been any updates to the legislation and / or guidance governing the assessment of traffic and transport in the intervening period.

The following sections outline the updates and changes to the information presented in this Section of the EIAR in the 2018 planning application.

[Project Appraisal Guidelines for National Roads Unit 5.3 - Travel Demand Projections](#)

Since the submission of the 2018 planning application, Transport Infrastructure Ireland (TII) published updated Project Appraisal Guidelines for National Roads Unit 5.3 – Travel Demand Projects (hereafter referred to as the 2021 TII Guidelines) (TII 2021) in October 2021.

The link-based annual growth rates were updated in the 2021 TII Guidelines, and growth forecasts for the metropolitan area of Dublin are shown in Table 13.2. The derived growth factors were applied to 2022 traffic flows to determine background traffic flows for the assessment years. The traffic count data is included in

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Appendix A13.2 in Volume 3A Part B of this EIAR Addendum. The assessment is split into light vehicles (LVs) and heavy vehicles (HVs).

Table 13.2: Updated Growth Rates

High Sensitivity Growth Rates					
2016-2030		2030-2040		2040-2050	
LV	HV	LV	HV	LV	HV
1.0191	1.0328	1.0087	1.0172	1.0093	1.0256

Fingal Development Plan 2023-2029

Since the submission of the 2018 planning application, Fingal County Council (FCC) have published the Fingal Development Plan 2023-2029 (hereafter referred to as the FDP) (FCC 2023). FCC's policies and objectives are outlined in the FDP, which is underpinned by a strategic vision intended to guide the sustainable future growth of Fingal. At the core of the vision is healthy placemaking, building cohesive and sustainable communities, where the cultural, natural and built environment is protected. A sustainable future for the County will be based on the interdependence of the themes of economic growth, social progress and environmental quality with the aim of increasing the County's self-reliance and resilience. The FDP sets out a number of policies and objectives to promote the continued management of traffic, the protection and enhancement of strategic transport corridors and the efficient movement of freight which are relevant to the Proposed Project. The following new policies and objectives from the FDP relate to traffic and transport:

- Policy CMP32 – *'Prioritise changes to existing roads infrastructure that underpins sustainable development, maintains road safety and network efficiency'*;
- Objective CMO35 – Management of Road Network – *'Work with the TII and other relevant national transport agencies, to protect and enhance the capacity of national routes, to minimise the impacts on the management of the broader network and to support the economic competitiveness of the County'*;
- Objective CMO34 – Strategic Roads Network – *'Maintain and protect the safety, capacity and efficiency of National roads and associated junctions in accordance with the Spatial Planning and National Roads Guidelines for Planning Authorities 2012, the Trans-European Networks (TEN-T) Regulations and with regard to other relevant policy documents, as required'*;
- Objective CMO40 – Management of Regional and Local Road Network – *'Improve, manage and maintain the strategic regional and local road network in the County, in a manner which safeguards the strategic function of the road network'*; and
- Objective CMO45 – Design Manual for Urban Roads and Streets – *'Design new streets and roads within urban areas in accordance with the principles, approaches and standards contained within DMURS.*
 - *Junctions will be designed with corner radii that reduce pedestrian crossing distances to the minimum allowable by DMURS wherever possible.*
 - *The narrowest carriageway widths allowable by DMURS will be the default standard in Fingal wherever possible'.*

Greater Dublin Area Transport Strategy 2022-2042

Since the submission of the 2018 planning application, the National Transport Authority (NTA) have published the Greater Dublin Area Transport Strategy 2022-2042 (hereafter referred to as the GDATS) (NTA 2022a). The new GDATS commits fully to the existing transformative public transport projects including BusConnects, DART+ and MetroLink, as well as LUAS Finglas, LUAS Lucan, LUAS Poolbeg and LUAS Bray.

The GDATS proposes further extensions to the DART network to extend DART services to Kilcock, Sallins and Wicklow, an extension of the M3 Parkway line to Navan and a range of new stations along the network. The GDATS also proposes a range of investments across active travel, bus and demand / traffic management measures. Implementation of the full measures set out in the GDATS aim to reduce greenhouse gas emissions in the Greater Dublin Area (GDA) by approximately 70%.

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Within the GDATS, significant investment is planned for Fingal and particularly as it relates to the corridor connecting Fingal and Dublin City Centre which includes:

- Delivery of MetroLink to Swords and serving Dublin Airport;
- Implementation of the DART Expansion Programme which proposes the provision of high frequency DART services including the electrification of the existing Maynooth and M3 Parkway rail lines and the northern rail line to Drogheda;
- LUAS Greenline Capacity Enhancement including an extension of the LUAS to Finglas;
- Implementation of a Core Bus Network under BusConnects for the Dublin Metropolitan Area and throughout the GDA based on bus radial, orbital and regional routes in the GDA;
- Delivery of the metropolitan cycle network set out in the Greater Dublin Area Cycle Network Plan (NTA 2022b) inclusive of key commuter routes and urban greenways on canal, river and coastal corridors;
- Develop a strategic network of regional level bus and rail-based Park and Ride facilities in the GDA at appropriate locations where the national road network meets, or is in close proximity to, high-capacity bus and rail services; and
- The implementation of demand management measures on the M50 Motorway to ensure that it retains sufficient capacity to fulfil its strategic functions, including freight movement.

[Guidelines on the Information to be Contained in Environmental Impact Assessment Reports](#)

The assessment of the potential effect of the Proposed Project on traffic and transport had previously been undertaken in accordance with the Environmental Protection Agency (EPA) Draft Guidelines on the Information to be Contained in Environmental Impact Assessment Reports (hereafter referred to as the Draft EPA Guidelines) (EPA 2017), which had been drafted to facilitate compliance with Directive 2014/52/EU of the European Parliament and of the Council of 16 April 2014 amending Directive 2011/92/EU on the assessment of the effects of certain public and private projects on the environment (hereafter referred to as the EIA Directive). In 2022, the EPA published an updated set of Guidelines on the Information to be Contained in Environmental Impact Assessment Reports (hereafter referred to as the updated EPA Guidelines) (EPA 2022), which were not significantly different from the Draft EPA Guidelines and which also facilitate compliance with the EIA Directive. The updated EPA Guidelines have been considered as part of this Addendum Chapter, and given the degree of change from the Draft EPA Guidelines, it has been determined to have no material impact on the previous assessment completed as part of the 2018 planning application.

13.2.3 Methodology

The traffic and transport assessment completed for the EIAR in the 2018 planning application utilised Transport Research Laboratory (TRL) computer programs to analyse junctions.

The TRL computer programs included JUNCTION 9 (i.e. PICADY and ARCADY) and OSCADY, which were widely accepted tools used for the capacity and delay analysis of priority, roundabout and signalised junctions.

Since the submission of the 2018 planning application, the software has been updated, and the updated junction assessments are now referred to as JUNCTION 10 (i.e. PICADY and ARCADY).

The TRL OSCADY software has since been omitted. Therefore, an alternative software has been utilised for the signal-controlled junctions. This software is the JCT Consultancy computer program LinSig.

LinSig requires similar input data to PICADY, but also requires the following:

- Basic modelling parameters (usually peak hour traffic counts synthesised over a 90-minute model period);
- Geometric parameters (including lane numbers, widths, visibility, storage provision, etc.);
- Traffic demand data (usually peak hour origin / destination table with composition of heavy goods vehicle (HGV) input);
- Signal phases;

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- Stage sequences; and
- Intergreen split times.

13.2.4 Phasing of the Proposed Project

There are no changes to this Section of the EIAR in the 2018 planning application, in relation to the five phases outlined.

However, as shown in Appendix A13.3 in Volume 3A Part B of this EIAR Addendum, due to the passage of time since the preparation of the original 2018 planning application, the construction programme has been updated. The total Construction Phase will remain as approximately 48 months, including 12 months of commissioning. It is therefore now anticipated that peak traffic will occur for Phase 1 and Phase 2 in 2025, Phase 3 and Phase 4 in 2026 and Phase 5 in 2027. The overall peak traffic will occur in Phase 5 for the Proposed Project and, as such, has been assessed in Section 13.5.5.

Table 13.3 (originally Table 13.1 in this Section of the EIAR in the 2018 planning application) has been updated to show the progression of the previously listed projects since the original submission. An assessment of projects that has since been granted planning since 2018 was also undertaken. It should be noted that none of which have been added to Table 13.3 as the projects were deemed not significant and short-term.

Table 13.3: Consented Developments

Project	Stage of Development	Details
Dublin Airport North Runway	Construction completed.	Dublin Airport North Runway opened on 24 August 2022
Aviation fuel pipeline from Dublin Airport to Dublin Port	Construction partially completed.	The new aviation fuel pipeline is designed to replace the existing road delivery system. Fuel will be pumped from existing tanks within the Port via a new inlet station direct to a new reception station where the pipeline will terminate.
National Sports Campus (NSC)	Campus is currently under development. Developments which are consented but, construction has not started, are the velodrome and the athlete's accommodation.	The majority of the construction of the NSC will have been completed before commencement of construction of the Proposed Project.
Connolly Hospital – Proposed Developments	Construction completed.	National Children's Hospital Satellite Unit in Connolly Hospital opened to patients on 15 November 2021.
Bus Rapid Transit Project from Clongriffin to Tallaght	Rebranded as BusConnects and 12 separate planning applications have been submitted to ABP in 2022 / 2023.	The Bus Rapid Transit Project has since been rebranded as BusConnects. It is noted that 12 schemes have been submitted for planning but no planning has been granted. Therefore there is no certainty in relation to the timing of BusConnects, and as a result, it is not possible to determine if there will be any cumulative impacts.
MetroLink	MetroLink Project was submitted to ABP for planning in September 2022. No decision as of yet.	As outlined in the MetroLink Construction Traffic Management Plan, the construction generated traffic for the assessment area does not extend onto the routes for the Proposed Project. Therefore traffic volumes are deemed negligible when they further distribute onto the Proposed Project routes.
Metro West	Not currently progressing	The most recently available information suggests that the Metro West will not be progressing in the short- to medium-term, and therefore cumulative impacts are not anticipated.
Ringsend WwTP Upgrade Project	Work is currently proceeding.	It is expected that construction of this project will be completed in advance of commencement of construction of the Proposed Project, and as such, it is considered not likely that there will be any crossover with the Proposed Project.
Airport – Clongriffin DART link	Not currently progressing	The most recently available information suggests that the Airport to Clongriffin DART Link will not progress in the short- to medium-term, and cumulative impacts are not anticipated.
Malahide Road Realignment Scheme	Refer to Section 13.2.5	While the Malahide Road Realignment Scheme is still a stated objective of FCC, it is not currently being actively progressed and FCC have no indications when it may proceed.

There are no changes to the conclusion to the review of the consented developments in the updates presented in Table 13.3. In general, minimal potential cumulative impacts on traffic capacity are anticipated because of these projects. The nature of these projects is consistent with development in the Fingal area, and any construction related impacts will be temporary in nature.

Therefore, it has been assumed that any increase in traffic over the time period considered in this EIAR Addendum will be accounted for in background traffic growth factors.

13.2.5 Further Road Improvements

There are no changes to the information provided on the Malahide Road Realignment Scheme in this Section of the EIAR since the 2018 planning application.

13.3 Baseline Environment

The following sections set out the updated baseline environment and reflect the findings of the updated traffic surveys.

13.3.1 Traffic Surveys

As agreed with FCC, in order to determine the updated traffic and transport baseline, the traffic surveys previously undertaken in 2016 were redone in November 2022. The locations of the surveys are unchanged from the 2018 planning application.

In order to determine the magnitude of the updated existing traffic flows, classified Junction Turning Count surveys were carried out at the same eight junctions that were surveyed for the traffic assessment undertaken for the 2018 planning application, as described below. These traffic surveys were carried out by Nationwide Data Collection on 17 November 2022 between 07:00hrs and 19:00hrs. Figure 13.1 (Traffic Assessment Locations) in Volume 5 Part A of the EIAR in the 2018 planning application shows the locations of the Junction Turning Count surveys, which are still as follows:

- Junction 1: Clonshaugh Road four-arm roundabout;
- Junction 2: R139 Road / Clonshaugh Road four-arm roundabout;
- Junction 5: R139 Road / R107 Malahide Road signalised crossroads;
- Junction 8: R106 Coast Road / R123 Moyne Road priority junction;
- Junction 9: R106 Coast Road / Golf Links Road priority junction;
- Junction 10: R106 Coast Road / Station Road three-arm mini-roundabout;
- Junction 11: R843 Snugborough Road / National Aquatic Centre (NAC) signalised priority junction; and
- Junction 12: R843 Snugborough Road / Gated Entrance priority junction.

Three two-way counts were also undertaken at the same three locations that were surveyed for the traffic assessment undertaken for the 2018 planning application, situated along existing roads between junctions to inform the two-way traffic movements. These were:

- Site 3: Clonshaugh Road;
- Site 4: R139 Road; and
- Site 7: R106 Coast Road.

The vehicles were classified as Cars, Light Goods Vehicles (LGVs), Public Services Vehicles (Buses) and HGVs. The traffic count data is included in Appendix A13.2 in Volume 3A Part B of this EIAR Addendum.

As undertaken for an analysis of the junction performance in the 2018 planning application, the raw traffic survey data, which consisted of cars and heavy vehicles, was converted into a common index known as Passenger Car Units (PCUs). This took account of the composition of the different types of vehicles by applying

a factor to all surveyed traffic types. This factoring calculation, in accordance with the prediction of saturation flows for single road junctions controlled by traffic signals (TRL 1986), assumes:

- One car / light vehicle = 1 PCU;
- One heavy vehicle (type OGV1) = 1.5 PCUs;
- One heavy vehicle (type OGV2) = 2.3 PCUs; and
- One bus = 2 PCUs.

13.3.2 Description of Existing Junctions

There are no changes to the descriptions of the existing junctions provided in this Section of the EIAR in the 2018 planning application as the junctions remain unchanged.

13.3.3 Description of Proposed Access and Egress at the Proposed Wastewater Treatment Plant

There are no changes to the proposed access and egress routes at the proposed WwTP, and therefore, this Section of the EIAR in the 2018 planning application remains unchanged.

13.3.4 Description of Access to the Proposed Abbotstown Pumping Station

There are no changes to the proposed access routes to the proposed Abbotstown pumping station, and therefore, this Section of the EIAR in the 2018 planning application remains unchanged.

13.4 Do Nothing Impact

As per this Section of the EIAR in the 2018 planning application, the 'Do Nothing' scenario is still noted as being equivalent to the baseline environment. The updated assessment of the baseline environment / 'Do Nothing' scenario, in the absence of the Proposed Project Construction and Operational Phases, is included in Table 13.4 to Table 13.17.

13.5 Construction Phase Traffic Assessment

There are no changes to the information provided in this Section of the EIAR in the 2018 planning application.

13.5.1 Trip Generation for the Construction Phase

The scale of the updated project elements outlined in Table 13.1, which have been incorporated into the planning design for the Proposed Project, are minor and will not impact the traffic volumes previously assessed. Therefore, the volume of generated traffic remains as outlined in Chapter 13 (Traffic and Transport) in Volume 3 Part A of the EIAR submitted in the 2018 planning application.

13.5.2 Trip Distribution for Construction

The updated project elements outlined in Table 13.1, which have been incorporated into the planning design for the Proposed Project, will not alter the trip distribution outlined in this Section of the EIAR in the 2018 planning application, and therefore, this Section remains unchanged.

13.5.3 Seasonal Adjustment

As per the 2018 planning application, it is sometimes necessary to apply a correction factor to convert the traffic count data into seasonally adjusted traffic flows, to take account of the seasonal variation that is experienced with traffic volumes. TII's Annual Average Daily Traffic (AADT) for each month, over a period of 12 months prior to the date of the updated traffic count data outlined in Section 13.3.1, was examined.

As per this Section of the EIAR in the 2018 planning application, no seasonal adjustment was required.

13.5.4 Traffic Growth

As outlined in Section 13.2.2, TII published the 2021 TII Guidelines (TII 2021) in October 2021.

The background traffic growth factors used in the analysis in this EIAR Addendum were established from the 2021 TII Guidelines. The 2021 TII Guidelines define LVs as cars and LGVs, and HVs as ordinary goods vehicles. As per the 2018 planning application, it was considered appropriate to use the High Growth scenario for the GDA in the analysis.

The applicable growth rates from the 2021 TII Guidelines for the Construction Phase are as follows:

- 1.058 growth factor from 2022 to 2025 for LVs;
- 1.102 growth factor from 2022 to 2025 for HVs;
- 1.079 growth factor from 2022 to 2026 for LVs;
- 1.138 growth factor from 2022 to 2026 for HVs;
- 1.099 growth factor from 2016 to 2027 for LVs; and
- 1.175 growth factor from 2016 to 2027 for HVs.

13.5.5 Construction Phase Assessment

The eight existing junctions outlined in Section 13.3.1 and the two proposed junctions at the proposed WwTP have been analysed for the Construction Phase.

Assessment Years

The performance of the junctions has been analysed for the critical AM and PM peak hours, as determined from the surveyed traffic. The Proposed Project will be broken down into five phases, in terms of assessing construction traffic, with Phases 1 and 2 commencing in 2025; Phase 3 and 4 commencing in 2026; and Phase 5 commencing in 2027. The proposed WwTP will be commissioned, post-construction and pre-operation, in 2029. Phase 5 (2027) has been assessed for this traffic assessment, as this will be the peak phase of construction activity.

13.6 Impact of the Proposed Project – Construction Phase

Traffic generated by the construction of the Proposed Project will primarily consist of traffic related to either delivery of construction materials or removal of excavated material from the site for disposal. Construction staff will also generate trips to and from the construction sites, as outlined in Chapter 13 (Traffic and Transport) in Volume 3 Part A of the EIAR submitted with the original 2018 planning application.

In order to determine the impact of the Proposed Project during the Construction Phase, all junctions assessed in the 2018 planning application were reassessed. A complete set of outputs from JUNCTION 10 are included in Appendix A13.4 in Volume 3A Part B of the EIAR Addendum.

A summary of the results for the roundabout between Clonsaugh Road and the Clayton Hotel Access Roundabout (Junction 1), for the AM peak hour (08:30hrs to 09:30hrs) and PM peak hour (17:15hrs to 18:15hrs) during the Construction Phase is provided in Table 13.4. These peak hours are based on the traffic survey data collected at this junction.

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Table 13.4: JUNCTION 10 Results for Junction 1, Clonshaugh Road – Clayton Hotel Access Roundabout During Construction Phase 5

Junction 1: Clonshaugh Road – Clayton Hotel Access Roundabout									
Year and Time	Arm A – Topaz Service Station		Arm B – Clonshaugh Road (N)		Arm C – Clonshaugh Road (S)		Arm D – Hotel Access		Max Delay (s)
	Ratio of Flow to Capacity (RFC) Value	Max Queue Length	RFC Value	Max Queue Length	RFC Value	Max Queue Length	RFC Value	Max Queue Length	
Existing AM	0.16	1	0.30	1	0.21	1	0.06	1	4.38
Existing PM	0.24	1	0.32	1	0.32	1	0.04	1	5.26
2027 AM No Construction	0.21	1	0.38	1	0.27	1	0.08	1	4.86
2027 PM No Construction	0.28	1	0.35	1	0.34	1	0.05	1	5.66
2027 AM With Construction (Phase 5)	0.22	1	0.38	1	0.27	1	0.08	1	5.17
2027 PM With Construction (Phase 5)	0.28	1	0.41	1	0.34	1	0.05	1	5.66

The summary of performance analysis shown in Table 13.4 indicates that Junction 1 will remain as operating with marginally higher queues and delays in peak hours in 2027, during the final phase of construction.

In comparison with the results in the 2018 planning application, the baseline has increased on average 0.04 in the Ratio of Flow to Capacity Value (RFC) with the queue lengths remaining the same. The impact of the Construction Phase as per the 2018 planning application increases the RFC in Arm B only, with the significance remaining as Negative and Slight.

A summary of the results for the existing roundabout between Clonshaugh Road and the R139 Road (Junction 2) for the AM peak (07:30hrs to 08:30hrs) and PM peak (16:15hrs to 17:15hrs) hours during construction is provided below in Table 13.5.

Table 13.5: JUNCTION 10 Results for Junction 2, R139 Road – Clonshaugh Road Roundabout During Construction Phase 5

Junction 2: R139 Road – Clonshaugh Road Roundabout									
Year and Time	Arm A – Clonshaugh Road		Arm B – R139 Road (E)		Arm C – Gated Access Road		Arm D – R139 Road (W)		Max Delay (s)
	RFC Value	Max Queue Length	RFC Value	Max Queue Length	RFC Value	Max Queue Length	RFC Value	Max Queue Length	
Existing AM	0.55	2	0.95	15	0	0	1.07	94	119.74
Existing PM	0.46	1	1.08	88	0	0	1.04	64	113.81
2027 AM No Construction	0.69	3	1.22	230	0	0	1.34	513	776.14
2027 PM No Construction	0.58	2	1.38	467	0	0	1.39	418	827.27
2027 AM With Construction (Phase 5)	0.71	3	1.23	237	0	0	1.39	610	941.70
2027 PM With Construction (Phase 5)	0.67	2	1.43	543	0	0	1.31	439	998.53

The summary of performance analysis indicates that Junction 2 continues to be over capacity on Arms B and D. Arm C is a private entrance and only used sporadically. During the final stage of construction, there will be a maximum temporary increase of 0.01 RFC in 2027 on Arm A in the PM peak.

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In comparison with the results outlined in the 2018 planning application, the impact of the Construction Phase continues in a similar thread in relation to the difference in RFC with and without the Proposed Project, with the significance remaining as Negative and Slight.

A summary of the results for the proposed exit only on Clonshaugh Road (Junction A) for the AM peak (08:00hrs to 09:00hrs) and PM peak (17:00hrs to 18:00hrs) hours during the Construction Phase is provided below in Table 13.6.

Table 13.6: JUNCTION 10 Results for Proposed Junction A, Clonshaugh Road – Proposed WwTP Priority Junction During Construction Phase 5

Proposed Junction A (Exit Only): Clonshaugh Road – Proposed WwTP Priority Junction							
Year and Time	Arm A – Clonshaugh Road (N)		Arm B – WwTP Exit		Arm C – Clonshaugh Road (S)		Max Delay (s)
	RFC Value	Max Queue Length	RFC Value	Max Queue Length	RFC Value	Max Queue Length	
Existing AM	-	-	0	0	0	0	0
Existing PM	-	-	0	0	0	0	0
2027 AM No Construction	-	-	0	0	0	0	0
2027 PM No Construction	-	-	0	0	0	0	0
2027 AM With Construction (Phase 5)	-	-	0.02	0	0	0	13.89
2027 PM With Construction (Phase 5)	-	-	0.17	1	0	0	9.40

The summary of performance analysis indicates that proposed Junction A will continue to operate with small queues and delays during the peak hours in 2027, during Phase 5 of construction. These delays are expected to occur on the proposed WwTP exit only. There are no expected delays on Clonshaugh Road as vehicles exiting the proposed WwTP will wait for gaps in the traffic, with the significance remaining as Negative and Not Significant.

A summary of the results for the proposed access only on the R139 Road (Junction B) for the AM peak (07:15hrs to 08:00hrs) and PM peak (17:00hrs to 18:00hrs) hours during construction is provided below in Table 13.7.

Table 13.7: JUNCTION 10 Results for Proposed Junction B, R139 Road – Proposed WwTP Priority Junction During Construction Phase 5

Proposed Junction B (Entry Only): R139 Road – Proposed WwTP Priority Junction							
Year and Time	Arm A – R139 Road (W)		Arm B – WwTP Entry		Arm C – R139 Road (E)		Max Delay (s)
	RFC Value	Max Queue Length	RFC Value	Max Queue Length	RFC Value	Max Queue Length	
Existing AM	-	-	0	0	0	0	0
Existing PM	-	-	0	0	0	0	0
2024 AM No Construction	-	-	0	0	0	0	0
2024 PM No Construction	-	-	0	0	0	0	0
2024 AM With Construction (Phase 5)	-	-	0	0	0	0	0
2024 PM With Construction (Phase 5)	-	-	0	0	0	0	0

Junction B is an entry to the proposed WwTP from the R139 Road. Vehicles will only be allowed to turn left into the proposed WwTP from the R139 Road (right-turn in from the R139 Road will be banned). This means that no delays to traffic at this location are expected, with the significance remaining as Neutral and Imperceptible.

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A summary of the results for the existing signalised crossroads between the R139 Road and the R107 Malahide Road (Junction 5) for the AM peak (08:00hrs to 09:00hrs) and PM peak (16:00hrs to 17:00hrs) hours during the Construction Phase is provided below in Table 13.8.

Table 13.8: LINSIG Results for Junction 5, R139 Road – R107 Malahide Road Signalised Junction During Construction Phase 5

Junction 5: R139 Road – R107 Malahide Road Signalised Priority Junction																													
Year and Time	Arm A – R107 Malahide Road (N)						Arm B – R139 Road (E)						Arm C – R107 Malahide Road (S)								Arm D – R139 Road (W)								Total Traffic Delay (pcuHR)
	DOS Value			Max Queue Length			DOS Value			Max Queue Length			DOS Value				Max Queue Length				DOS Value				Max Queue Length				
	Lane 1 (A-B) & (A-C)	Lane 2 (A-C)	Lane 3 (A-D)	Lane 1 (A-B) & (A-C)	Lane 2 (A-C)	Lane 3 (A-D)	Lane 1 (B-C) & (B-D)	Lane 2 (B-D)	Lane 3 (B-A)	Lane 1 (B-C) & (B-D)	Lane 2 (B-D)	Lane 3 (B-A)	Lane 1 (C-D)	Lane 2 (C-A)	Lane 3 (C-A)	Lane 4 (C-B)	Lane 1 (C-D)	Lane 2 (C-A)	Lane 3 (C-A)	Lane 4 (C-B)	Lane 1 (D-A)	Lane 2 (D-B)	Lane 3 (D-B) & (D-C)	Lane 4 (D-C)	Lane 1 (D-A)	Lane 2 (D-B)	Lane 3 (D-B) & (D-C)	Lane 4 (D-C)	
Existing AM	0.826	0.830	0.968	11	12	11	1.024	0.882	0.115	26	17	1	1.019	0.335	0.331	0.918	23	4	4	10	0.691	0.999	0.988	0.953	6	21	18	13	111.2
Existing PM	0.614	0.716	1.039	6	8	18	1.098	1.099	0.143	35	46	1	1.094	0.454	0.451	0.787	42	7	6	10	0.845	1.066	1.063	1.064	9	31	28	24	201.7
2027 AM No Construction	0.957	1.013	1.217	17	26	35	1.286	1.108	0.143	89	61	1	1.288	0.419	0.412	1.239	76	5	5	43	0.883	1.231	1.233	1.228	10	67	63	52	473.6
2027 PM No Construction	0.822	0.931	1.332	8	13	56	1.377	1.379	0.178	93	127	2	1.369	0.565	0.560	0.944	111	9	8	17	1.059	1.326	1.325	1.322	23	85	78	65	616.0
2027 AM With Construction (Phase 5)	0.957	1.013	1.249	17	26	39	1.286	1.108	0.143	89	61	1	1.288	0.419	0.412	1.239	76	5	5	43	1.000	1.231	1.233	1.228	17	67	63	52	483.6
2027 PM With Construction (Phase 5)	0.774	0.876	1.383	8	11	68	1.377	1.379	0.178	93	127	2	1.369	0.565	0.560	0.944	111	9	8	17	1.145	1.399	1.399	1.395	34.0	95.4	87.6	73.1	665.7

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The summary of performance analysis shown in Table 13.8 indicates that Junction 5 is currently over capacity on all arms. During Phase 5 of construction, there will be a potential temporary maximum increase in the PM peak of approximately 0.086 Degree of Saturation (DOS) on Arm D with the significance remaining as Negative and Not Significant.

A summary of the results for the existing priority junction between the R123 Moyne Road and R106 Coast Road (Junction 8) for the AM peak (08:00hrs to 09:00hrs) and PM peak (16:00hrs to 17:00hrs) hours during the Construction Phase is provided below in Table 13.9.

Table 13.9: JUNCTION 10 Results for Junction 8, R123 Moyne Road – R106 Coast Road Priority Junction During Construction Phase 5

Junction 8: R123 Moyne Road – R106 Coast Road Priority Junction							
Year and Time	Arm A – R106 Coast Road (S)		Arm B – R123 Moyne Road		Arm C – R106 Coast Road (N)		Max Delay (s)
	RFC Value	Max Queue Length	RFC Value	Max Queue Length	RFC Value	Max Queue Length	
Existing AM	-	-	1.06	19	0.2	1	194.75
Existing PM	-	-	0.63	2	0.17	1	27.78
2027 AM No Construction	-	-	1.54	99	0.29	1	1073.61
2027 PM No Construction	-	-	0.91	7	0.24	1	99.62
2027 AM With Construction (Phase 5)	-	-	1.56	108	0.29	1	1140.96
2027 PM With Construction (Phase 5)	-	-	0.93	7	0.29	1	106.37

It was previously expected that Junction 8 would be over capacity on Arm B in the AM peak in 2024 (i.e., the previous programmed year for Phase 5 in the 2018 planning application). The updated assessment, as presented in Table 13.9, shows that Arm B in the AM peak was over capacity in 2022.

Arm B is shown to be over capacity in both the AM and PM without construction in 2027. During Phase 5 of construction, there will be a temporary increase of approximately 0.02 RFC in 2027 on Arm B in the AM peak and PM peak. All other arms are expected to operate within capacity, with and without construction traffic, with the overall significance remaining as Negative and Slight.

A summary of the results for the existing priority junction between the R106 Coast Road and Golf Links Road (Junction 9) for the AM peak (08:00hrs to 09:00hrs) and PM peak (15:45hrs to 16:45hrs) hours during the Construction Phase is provided below in Table 13.10.

Table 13.10: JUNCTION 10 Results for Junction 9, R106 Coast Road – Golf Links Road Priority Junction During Construction Phase 5

Junction 9: R106 Coast Road – Golf Links Road Priority Junction							
Year and Time	Arm A – R106 Coast Road (S)		Arm B – Golf Links Road		Arm C – R106 Coast Road (N)		Max Delay (s)
	RFC Value	Max Queue Length	RFC Value	Max Queue Length	RFC Value	Max Queue Length	
Existing AM	-	-	0.12	1	0.16	1	12.71
Existing PM	-	-	0.30	1	0.22	1	12.05
2024 AM No Construction	-	-	0.17	1	0.23	1	16.19
2024 PM No Construction	-	-	0.41	1	0.33	1	16.14
2024 AM With Construction (Phase 5)	-	-	0.17	1	0.28	2	16.47
2024 PM With Construction (Phase 5)	-	-	0.44	1	0.33	1	16.83

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The summary of performance analysis shown in Table 13.10 indicates that Junction 9 will continue to operate well within capacity, with small queues and delays during the peak hours in 2027 during Phase 5 of construction, with the significance remaining as Negative and Not Significant.

A summary of the results for the existing mini-roundabout between the R106 Coast Road and Station Road (Junction 10) for the AM peak (08:00hrs to 09:00hrs) and PM peak (16:00hrs to 17:00hrs) hours during the Construction Phase is provided below in Table 13.11.

Table 13.11: JUNCTION 10 Results for Junction 10, R106 Coast Road – Station Road Mini-Roundabout During Construction Phase 5

Junction 10: R106 Coast Road – Station Road Mini-Roundabout Junction							
Year and Time	Arm A – R106 Coast Road(S)		Arm B – Station Road		Arm C – R106 Coast Road (N)		Max Delay (min)
	RFC Value	Max Queue Length	RFC Value	Max Queue Length	RFC Value	Max Queue Length	
Existing AM	0.98	17	1.10	34	1.18	62	6.61
Existing PM	0.94	11	1.03	20	1.10	37	3.74
2027 AM No Construction	1.00	19	1.11	38	1.19	67	2.045
2027 PM No Construction	0.95	12	1.03	20	1.11	39	3.92
2027 AM with Construction (Phase 5)	1.00	19	1.11	40	1.19	64	6.88
2027 PM with Construction (Phase 5)	0.95	12	1.04	21	1.10	38	3.89

As previously determined, the summary of performance analysis indicates that Junction 10 is currently over capacity on all arms of the junction. The maximum impact would be a potential temporary increase of 0.01 RFC in 2027 on Arm B during the PM peak, with the significance remaining as Neutral and Imperceptible.

A summary of the results for the existing signalised junction between the R843 Snugborough Road and the NAC (Junction 11) for the AM peak (07:15hrs to 08:15hrs) and PM peak (17:15hrs to 18:15hrs) hours during the Construction Phase is provided below in Table 13.12.

Table 13.12: LINSIG Results for Junction 11, R843 Snugborough Road – National Aquatic Centre Signalised Priority Junction During Construction Phase 5

Junction 11: R843 (Snugborough Road) – National Aquatic Centre Signalised Priority Junction													
Year and Time	Arm A – R843 Snugborough Road (N)				Arm B – National Aquatic Centre				Arm C – R843 Snugborough Road (S)				Total Traffic Delay (pcuHR)
	DOS Value		Max Queue Length		DOS Value		Max Queue Length		DOS Value		Max Queue Length		
	Lane 1 (A-B)	Lane 2 (A-C)	Lane 1 (A-B)	Lane 2 (A-C)	Lane 1 (B-C)	Lane 2 (B-A)	Lane 1 (B-C)	Lane 2 (B-A)	Lane 1 (C-A)	Lane 2 (C-B)	Lane 1 (C-A)	Lane 2 (C-B)	
Existing AM	0.128	0.858	1	17	0.374	0.229	1	1	0.705	0.664	15	3	15.2
Existing PM	0.164	1.115	1	60	1.125	0.423	22	2	0.279	1.113	4	16	85.4
2027 AM No Construction	0.160	1.122	1	72	0.458	0.283	2	1	0.890	0.817	24	5	73.0
2027 PM No Construction	0.202	1.403	2	157	1.385	0.519	49	3	0.358	1.371	5	36	229.6
2027 AM With Construction (Phase 5)	0.160	1.125	1	73	0.474	0.283	2	1	0.895	0.886	24	6	75.3
2027 PM With Construction (Phase 5)	0.202	1.411	2	160	1.431	0.519	54	3	0.360	1.378	5	36	237.8

The summary of performance analysis shown in Table 13.12 indicates that Junction 11 presented a DOS below the desirable DOS of 0.90 during the existing AM peak. However, all arms are currently above the desirable DOS of 0.90 in the PM peak. During Phase 5 of construction, there will be a potential temporary maximum increase in the PM peak of approximately 0.046 DOS on Arm B, with the significance remaining as Negative and Slight.

A summary of the results for the existing junction between the R843 Snugborough Road and the existing gateway into the NAC (Junction 12) for the AM peak (07:15hrs to 08:15hrs) and PM peak (16:45hrs to 17:45hrs) hours during construction is provided below in Table 13.13.

Table 13.13: JUNCTION 10 Results for Junction 12, R843 Snugborough Road – Existing Gateway Priority Junction During Construction Phase 5

Junction 12: R843 Snugborough Road – Existing Gateway Priority Junction							
Year and Time	Arm A – R843 Snugborough Road (N)		Arm B – Existing Gateway		Arm C – R843 Snugborough Road (S)		Max Delay (s)
	RFC Value	Max Queue Length	RFC Value	Max Queue Length	RFC Value	Max Queue Length	
Existing AM	-	-	0.0	0	0.01	0	4.41
Existing PM	-	-	0.02	0	0.0	0	11.39
2027 AM No Construction	-	-	0.0	0	0.1	0	4.21
2027 PM No Construction	-	-	0.04	0	0.0	0	14.13
2027 AM With Construction (Phase 5)	-	-	0.0	0	0.1	0	4.21
2027 PM With Construction (Phase 5)	-	-	0.04	0	0.0	0	14.25

The summary of performance analysis shown in Table 13.13 indicates that Junction 12 will remain operating well within capacity, with small queues and delays during the peak hours in 2027 during Phase 5 of construction, with the significance remaining as Neutral and Imperceptible.

13.6.1 Conclusion

- The existing Clonsaugh Road / Commercial Access Roundabout (Junction 1) will operate below capacity during the peak Construction Phase;
- The existing R139 Road / Clonsaugh Road Roundabout (Junction 2) is currently operating over capacity. In terms of Phase 5 of construction, a potential temporary maximum increase of 0.01 RFC is expected;
- The proposed Clonsaugh Road exit only (Junction A) is expected to operate below capacity during the Construction Phase;
- The proposed R139 Road entrance only (Junction B) is expected to operate below capacity during the Construction Phase;
- The existing R139 Road / R107 Malahide Road (Junction 5) is currently operating over capacity;
- The existing R123 Moyne Road / R106 Coast Road (Junction 8) was previously expected to be over capacity on Arm B in the AM peak in 2024, the previous programmed year for Phase 5 in the 2018 planning application. The updated assessment shows that Arm B in the AM peak is currently over capacity in 2022. During Phase 5 of construction, there will be a temporary increase of approximately 0.02 RFC in 2027 on Arm B in the AM peak and PM peak.
- The existing R106 Coast Road / Golf Links Road (Junction 9) is expected to operate below capacity during the Construction Phase;
- The existing R106 Coast Road / Station Road mini-roundabout (Junction 10) is currently operating over capacity. It is expected this will remain the case during Phase 5 of construction with a maximum temporary increase in RFC of 0.01 expected;

- The existing R843 Snugborough Road / NAC (Junction 11) is currently operating over capacity. It is expected this will remain the case during Phase 5 of construction, with a maximum temporary increase in DOS of 0.046 expected; and
- The R843 Snugborough Road / existing gateway (Junction 12) is expected to operate below capacity during the Construction Phase.

13.7 Operational Phase Traffic Assessment

13.7.1 Trip Generation for Operational Phase

The previous Greater Dublin Area Transport Strategy 2016-2035 (NTA 2016) was referenced in this Section of the EIAR in the 2018 planning application and the then current percentage of trips utilising the car (71% to 75%) as a mode of transport within the proposed WwTP area were outlined. Based on this percentage, it was predicted that 30% of the proposed WwTP staff will utilise public transport, with the other 70% travelling by car in single occupancy.

As outlined in Section 13.2.2, the updated GDATS (NTA 2022) has since been published by the NTA and states that in 2016, 57.7% of trips were by car. Therefore, the 30% predicted in this Section of the 2018 planning application remains valid (i.e. that 30% of the proposed WwTP staff will utilise public transport).

13.7.2 Trip Distribution for Operational Phase

The updated elements of the Proposed Project outlined in Table 13.1, which have been incorporated into the planning design for the Proposed Project will not alter the trip distribution outlined in this Section of the EIAR in the 2018 planning application, and therefore, this Section remains unchanged.

13.7.3 Seasonal Adjustment

In order to undertake an analysis of the key junctions, it is standard practice to apply a correction factor to convert the traffic count data into seasonally adjusted traffic flows to take account of the seasonal variation that is experienced with traffic volumes. TII's AADT for each month over a period of 12 months, prior to the date of the updated traffic count data outlined in Section 13.3.1, was examined.

As per this Section of the EIAR in the 2018 planning application, no seasonal adjustment was required, as the traffic volumes for both the AM and PM peak flows were above the average peak traffic flows.

13.7.4 Traffic Growth

As outlined in Section 13.2.2, since the submission of the 2018 planning application, TII published the 2021 TII Guidelines (TII 2021) in October 2021.

The background traffic growth factors used in the analysis in this Addendum Chapter were established from the 2021 TII Guidelines, which define LVs as cars and LGVs, and HVs as ordinary goods vehicles. As per the 2018 application, a High Growth rate was utilised for the GDA in the analysis.

The applicable growth rates from the 2021 TII Guidelines for the Operational Phase are:

- 1.142 growth factor from 2022 to 2029 (expected year of opening) for LVs;
- 1.253 growth factor from 2022 to 2029 (expected year of opening) for HVs;
- 1.204 growth factor from 2022 to 2034 (five years beyond year of opening) for LVs;
- 1.387 growth factor from 2022 to 2034 (five years beyond year of opening) for HVs;
- 1.316 growth factor from 2022 to 2044 (15 years beyond year of opening) for LVs; and
- 1.699 growth factor from 2022 to 2044 (15 years beyond year of opening) for HVs.

13.7.5 Operational Phase Assessment

As per the methodology in Section 13.7.1 of Chapter 13 (Traffic and Transport) in Volume 3 Part A of the EIAR in the 2018 planning application, two of the existing junctions mentioned in Section 13.3.1, which have the potential to be impacted during the Operational Phase, and the two proposed junctions at the proposed WwTP, have been reanalysed for the Operational Phase.

Assessment Years

The assessment years are in accordance with the Traffic and Transport Assessment Guidelines (TII 2014) and are the expected year of opening (2029), five years after the year of opening (2034), and the design year (15 years beyond the year of opening) (2044).

13.8 Impact of the Proposed Project – Operational Phase

After completion of the construction works, the traffic generated during the Operational Phase of the Proposed Project will be related to the fleet of trucks removing sludge from the proposed WwTP to the proposed RBSF, and the staff travelling to and from the proposed WwTP and proposed Abbotstown pumping station.

The volume of generated traffic will remain as outlined in Chapter 13 (Traffic and Transport) in Volume 3 Part A of the EIAR submitted with the original 2018 planning application.

All junctions were reassessed utilising the updated baseflow traffic volumes to determine the impact of the Operational Phase of the Proposed Project. A complete set of outputs from JUNCTION 10 are included in Appendix A13.4 in Volume 3A Part B of this EIAR Addendum.

A summary of the results for the existing roundabout between Clonshaugh Road and the Clayton Hotel Access (Junction 1) for the AM peak (08:30hrs to 09:30hrs) and PM peak (17:15hrs to 18:15hrs) hours during the Operational Phase is provided below in Table 13.14.

Table 13.14: JUNCTION 10 Results for Junction 1, Clonshaugh Road – Hotel Access Roundabout During the Operational Phase

Junction 1: Clonshaugh Road – Hotel Access Roundabout									
Year and Time	Arm A – Topaz Service Station		Arm B – Clonshaugh Road (N)		Arm C – Clonshaugh Road (S)		Arm D – Hotel Access		Max Delay (s)
	RFC Value	Max Queue Length (PCU)	RFC Value	Max Queue Length (PCU)	RFC Value	Max Queue Length (PCU)	RFC Value	Max Queue Length (PCU)	
Existing AM	0.17	1	0.31	1	0.19	1	0.06	1	4.4
Existing PM	0.18	1	0.25	1	0.24	1	0.05	1	4.65
2029 AM No Dev	0.20	1	0.36	1	0.22	1	0.07	1	4.68
2029 PM No Dev	0.21	1	0.29	1	0.27	1	0.06	1	5.06
2029 AM With Dev	0.20	1	0.36	1	0.22	1	0.07	1	4.68
2029 PM With Dev	0.21	1	0.31	1	0.27	1	0.06	1	5.06
2034 AM No Dev	0.22	1	0.38	1	0.23	1	0.08	1	4.87
2034 PM No Dev	0.23	1	0.33	1	0.29	1	0.06	1	5.23
2034 AM With Dev	0.22	1	0.39	1	0.23	1	0.08	1	4.87
2034 PM With Dev	0.23	1	0.34	1	0.32	1	0.07	1	5.67
2044 AM No Dev	0.25	1	0.42	1	0.26	1	0.09	1	5.25
2044 PM No Dev	0.26	1	0.34	1	0.32	1	0.07	1	5.67
2044 AM With Dev	0.25	1	0.43	1	0.26	1	0.09	1	5.25
2044 PM With Dev	0.26	1	0.37	1	0.32	1	0.07	1	5.67

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The summary of performance analysis shown in Table 13.14 indicates that Junction 1 will continue to operate within capacity, with and without the Proposed Project, with the significance remaining as Negative and Not Significant.

A summary of the results for the existing roundabout between Clonshaugh Road and the R139 Road (Junction 2) for the AM peak (07:30hrs to 08:30hrs) and PM peak (16:15hrs to 17:15hrs) hours during the Operational Phase is provided below in Table 13.15.

Table 13.15: JUNCTION 10 Results for Junction 2, R139 Road – Clonshaugh Road Roundabout During the Operational Phase

Junction 2: R139 Road – Clonshaugh Road Roundabout									
Year and Time	Arm A – Clonshaugh Road		Arm B – R139 Road (E)		Arm C – Gated Access Road		Arm D – R139 Road (W)		Max Delay (s)
	RFC Value	Max Queue Length (PCU)	RFC Value	Max Queue Length (PCU)	RFC Value	Max Queue Length (PCU)	RFC Value	Max Queue Length (PCU)	
Existing AM	0.57	2	1.24	252	0.000	0	1.04	70	465.33
Existing PM	0.46	1	1.33	409	0.000	0	1.04	68	707.58
2029 AM No Dev	0.66	2	1.46	608	0.000	0	1.20	252	1117.30
2029 PM No Dev	0.54	2	1.54	814	0.000	0	1.20	255	1460.69
2029 AM With Dev	0.68	2	1.46	614	0.000	0	1.21	270	1132.38
2029 PM With Dev	0.57	2	1.56	838	0.000	0	1.21	263	1510.99
2034 AM No Dev	0.71	3	1.55	789	0.000	0	1.27	374	1462.61
2034 PM No Dev	0.57	2	1.64	1033	0.000	0	1.27	375	1834.20
2034 AM With Dev	0.72	3	1.56	799	0.000	0	1.28	399	1484.20
2034 PM With Dev	0.60	2	1.66	1057	0.000	0	1.28	387	1889.10
2044 AM No Dev	0.79	4	1.75	1215	0.000	0	1.41	670	2237.40
2044 PM No Dev	0.63	2	1.84	1482	0.000	0	1.41	658	2633.51
2044 AM With Dev	0.80	4	1.76	1221	0.000	0	1.42	698	2257.82
2044 PM With Dev	0.67	2	1.86	1509	0.000	0	1.42	671	2701.14

The summary of performance analysis shown in Table 13.15 indicates that Junction 2 continues to be currently over capacity on Arms B and D, as it was in 2018, which is the R139 Road east and west. There are no delays on Arm C as this is a private gated access with minimal flow. The maximum increase in RFC is expected to be 0.04 on Arm A in the PM peak in 2044, with the significance remaining as Negative and Not Significant.

A summary of the results for the proposed 'exit only' junction on Clonshaugh Road (Junction A) for the AM peak (08:00hrs to 09:00hrs) and PM peak (17:00hrs to 18:00hrs) hours, during the Operational Phase, is provided below in Table 13.16.

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Table 13.16: JUNCTION 10 Results for Proposed Junction A, Clonshaugh Road – Proposed WwTP Priority Junction During the Operational Phase

Proposed Junction A (Exit Only): Clonshaugh Road – Proposed WwTP Priority Junction							
Year and Time	Arm A – Clonshaugh Road (N)		Arm B – Proposed WwTP Exit		Arm C – Clonshaugh Road (S)		Max Delay (s)
	RFC Value	Max Queue Length	RFC Value	Max Queue Length	RFC Value	Max Queue Length	
Existing AM	-	-	0	0	0	0	0
Existing PM	-	-	0	0	0	0	0
2029 AM No Dev	-	-	0	0	0	0	0
2029 PM No Dev	-	-	0	0	0	0	0
2029 AM With Dev	-	-	0.02	0	0	0	10.21
2029 PM With Dev	-	-	0.06	0	0	0	7.99
2034 AM No Dev	-	-	0	0	0	0	0
2034 PM No Dev	-	-	0	0	0	0	0
2034 AM With Dev	-	-	0.02	0	0	0	10.40
2034 PM With Dev	-	-	0.06	0	0	0	8.09
2044 AM No Dev	-	-	0	0	0	0	0
2044 PM No Dev	-	-	0	0	0	0	0
2044 AM With Dev	-	-	0.02	0	0	0	10.81
2044 PM With Dev	-	-	0.06	0	0	0	8.37

As per the 2018 planning application, the summary of performance analysis shown in Table 13.16 indicates that the proposed Junction A will operate with negligible queues and delays during the peak hours in 2044. This is an 'exit only' junction from the proposed WwTP, and owing to very low traffic exiting during peak hours, there are no delays as the vehicles will wait for gaps in the traffic, with the significance remaining as Neutral and Imperceptible.

A summary of the results for the proposed 'entry only' on the R139 Road (Junction B) for the AM peak (08:00hrs to 09:00hrs) and PM peak (17:00hrs to 18:00hrs) hours during the Operational Phase is provided below in Table 13.17.

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Table 13.17: JUNCTION 10 Results for Proposed Junction B, R139 Road – Proposed WwTP Priority Junction During the Operational Phase

Proposed Junction B (Entry Only): R139 Road – Proposed WwTP Priority Junction							
Year and Time	Arm A – R139 Road (W)		Arm B – Proposed WwTP Entry		Arm C – R139 Road (E)		Max Delay (s)
	RFC Value	Max Queue Length	RFC Value	Max Queue Length	RFC Value	Max Queue Length	
Existing AM	-	-	0	0	0	0	0
Existing PM	-	-	0	0	0	0	0
2029 AM No Dev	-	-	0	0	0	0	0
2029 PM No Dev	-	-	0	0	0	0	0
2029 AM With Dev	-	-	0	0	0	0	0
2029 PM With Dev	-	-	0	0	0	0	0
2034 AM No Dev	-	-	0	0	0	0	0
2034 PM No Dev	-	-	0	0	0	0	0
2034 AM With Dev	-	-	0	0	0	0	0
2034 PM With Dev	-	-	0	0	0	0	0
2044 AM No Dev	-	-	0	0	0	0	0
2044 PM No Dev	-	-	0	0	0	0	0
2044 AM With Dev	-	-	0	0	0	0	0
2044 PM With Dev	-	-	0	0	0	0	0

As per the 2018 planning application, the summary of performance analysis shown in Table 13.17 indicates that proposed Junction B will operate without any queues or delays during the peak hours in 2044. This is an 'entry only' junction towards the proposed WwTP from the R139 Road, and as a result, vehicles are only allowed to turn left in from the R139 Road (right-turn in from the R139 Road will be banned). This arrangement is expected to reduce any delays, as reflected in the modelling analysis, with the significance remaining as Negative and Imperceptible.

13.8.1 Conclusion

- The existing Clonsaugh Road / Commercial Access Roundabout (Junction 1) is expected to operate below capacity during the Operational Phase;
- The existing R139 Road / Clonsaugh Road Roundabout (Junction 2) is currently operating over capacity and expected to remain so in the design year of 2044, with a maximum increase of 0.04 in RFC expected during the Operational Phase;
- The proposed Clonsaugh Road exit only (Junction A) is expected to operate below capacity during the Operational Phase; and
- The proposed R139 Road entrance only (Junction B) is expected to operate below capacity during the Operational Phase.

13.9 Do Nothing Scenario

As per the 2018 planning application, the analysis provided in Section 13.5 and Section 13.7, presents the impact of the Proposed Project on each junction analysed. It reflects on the capacity of the junctions, with and without any development, for the complete design horizon. It is observed that Junctions 2, 5, 8, 10 and 11 are currently operating over capacity. As traffic grows, these junctions will experience further capacity issues, with or without the development of the Proposed Project.

13.10 Assessment of the Significance of Traffic Impacts

There are no changes to this Section of the EIAR in the 2018 planning application.

13.10.1 Construction Phase

The analysis outlined in Section 13.2.3 has been reviewed in accordance with the EPA significance criteria (EPA 2022), as shown in Table 13.18.

Table 13.18: Significance of Construction Traffic

Junction	Maximum Increase in Temporary Traffic Flow	Quality and Significance	Probability of Effects	Duration and Frequency
1	Maximum temporary increase in RFC in 2027 is in the PM peak at 17%	Negative and Slight	Likely to increase delay and journey times.	Short-Term as Peak Operations are for one year
2	Maximum temporary increase in RFC in 2027 is in the PM peak at 16%	Negative and Slight	Likely to increase delay and journey times.	Short-Term as Peak Operations are for one year
5	Maximum temporary increase in DOS in 2027 is in the PM peak at 9%	Negative and Not Significant	Likely to increase delay and journey times.	Short-Term as Peak Operations are for one year
8	Maximum temporary increase in RFC in 2027 is in the PM peak at 20%	Negative and Slight	Likely to increase delay and journey times.	Short-Term as Peak Operations are for one year
9	Maximum temporary increase in RFC in 2027 is in the PM peak at 22%	Negative and Not Significant	Likely to increase delay and journey times.	Short-Term as Peak Operations are for one year
10	Maximum temporary increase in RFC in 2027 is in the PM peak at 1%	Neutral and Imperceptible	-	Short-Term as Peak Operations are for one year
11	Maximum temporary increase in DOS in 2027 is in the AM peak at 9%	Negative and Slight	Likely to increase delay and journey times beyond normal traffic growth and patterns.	Short-Term as Peak Operations are for one year
12	No increase in capacity.	Neutral and Imperceptible	-	Short-Term as Peak Operations are for one year
A	Maximum temporary increase in 2027 is in the PM peak at 6%	Negative and Not Significant	Likely to increase delay and journey times.	Short-Term as Peak Operations are for one year
B	No increase in capacity as entry only.	Neutral and Imperceptible	-	Short-Term as Peak Operations are for one year

13.10.2 Operational Phase

The analysis outlined in Section 13.7 has been reviewed in accordance with the EPA significance criteria (EPA 2022), as shown in Table 13.19.

Table 13.19: Significance of Operation Traffic

Junction	Maximum Increase in Traffic Flow	Quality and Significance	Probability of Effects	Duration and Frequency
1	Maximum increase in RFC in 2044 is in the PM peak at 9%	Negative and Not Significant	Likely to increase delay and journey times.	Long-Term
2	Maximum increase in RFC in 2044 is in the PM peak at 7%	Negative and Not Significant	Likely to increase delay and journey times.	Long-Term
A	No increase in capacity as exit only.	Neutral and Imperceptible	-	Long-Term
B	No increase in capacity as entry only.	Neutral and Imperceptible	-	Long-Term

13.11 Mitigation Measures

13.11.1 Construction Phase Mitigation Measures

Based on the comparative assessment of Construction Phase impacts identified in Chapter 13 (Traffic and Transport) in Volume 3 Part A of the EIAR of the 2018 planning application and the updated assessment for the EIAR Addendum, it is not considered that additional mitigation measures are now required, or that the previously proposed mitigation measures should be altered or removed. Therefore, there are no changes required to the information presented in this Section of the EIAR in the 2018 planning application.

13.11.2 Operational Phase Mitigation Measures

Based on the comparative assessment of Operational Phase impacts identified in Chapter 13 (Traffic and Transport) in Volume 3 Part A of the EIAR of the 2018 planning application and the present day, it is not considered that additional mitigation measures are now required, or that the previously proposed mitigation measures should be altered or removed. Therefore, there are no changes required to the information presented in this Section of the EIAR in the 2018 planning application.

13.11.3 Other Road Issues

Road Safety

There are no changes required to the information presented in this Section of the EIAR in the 2018 planning application. The collision data has not been updated since the submission of the 2018 planning application and has been removed from the public domain.

Unplanned Events

There are no changes required to the information presented in this Section of the EIAR in the 2018 planning application.

Fear, Intimidation and Pedestrian Amenity

There are no changes required to the information presented in this Section of the EIAR in the 2018 planning application.

Severance

There are no changes required to the information presented in this Section of the EIAR in the 2018 planning application.

Parking Provision

As outlined in Section 13.2.2, since the submission of the 2018 planning application, FCC published the FDP (FCC 2023).

The FDP lists standard provisions for car and bicycle parking. However, the requirements for a proposed WwTP are not listed. Therefore, the provision for light industry and industry were considered and are shown in Table 13.20 and Table 13.21, respectively.

Table 13.20: Fingal Bicycle Parking Requirements (FCC 2023)

Bicycle Parking Requirements			
Item	Requirements	Quantity	Spaces
Industry	1 space per 80m ² Gross Floor Area (GFA)	16,047m ²	201

Table 13.21: Fingal Car Parking Requirements (FCC 2023)

Car Parking Requirements			
Item	Requirements	Quantity	Spaces
Industry	1 space per 100m ² GFA	16,047m ²	161

The FDP states that '*in the case of any use not specified above, the Planning Authority will determine the parking requirements on first principles*'. Therefore, the car parking spaces required were assessed on the number of staff and movements in and out of the proposed WwTP site.

The proposed WwTP workforce will comprise a maximum of 40 persons (including external subcontractors, etc.) and the workforce will operate in three shifts, as outlined in the EIAR in the 2018 planning application. As such, the level of car parking required by the FDP would be in excess of the needs of the proposed WwTP. The number of spaces provided has been determined in order to accommodate the maximum number of staff that will be present at the proposed WwTP site at any one time (i.e. two shifts, to allow for crossover) and visitors to the facility. Sixty-six car parking spaces, and cycle parking to allow for a minimum of 10 bicycles, will be provided, as outlined in this Section of the EIAR in the 2018 planning application.

Public Transport

There are no changes to the information presented in this Section of the EIAR since the 2018 planning application.

13.12 Residual Impacts

There are no changes to the information presented in this Section of the EIAR in the 2018 planning application, as there are no other material changes to the previously assessed impacts of the Proposed Project on traffic and transport in Chapter 13 (Traffic and Transport) in Volume 3 Part A of the EIAR of the 2018 planning application.

The remaining residual impacts of the Proposed Project are considered to be the same as presented in this Section of the EIAR in the 2018 planning application.

13.12.1 Conclusion

- The existing Clonsaugh Road / Commercial Access Roundabout (Junction 1) is expected to operate below capacity during the Construction and Operational Phase;
- The existing R139 Road / Clonsaugh Road Roundabout (Junction 2) is currently operating over capacity. In terms of Phase 5 of construction, a potential temporary maximum increase of 0.01 RFC is expected;
- The existing R139 Road / Clonsaugh Road Roundabout (Junction 2) is currently operating over capacity and expected to remain so in the design year of 2044, with a maximum increase of 0.04 in RFC expected during the Operational Phase;
- The proposed Clonsaugh Road exit only (Junction A) is expected to operate below capacity during the Construction and Operational Phase;
- The proposed R139 Road entrance only (Junction B) is expected to operate below capacity during the Construction and Operational Phase;
- The existing R139 Road / R107 Malahide Road (Junction 5) is currently operating over capacity, and this will remain the case during the construction of the Proposed Project;
- The existing R123 Moyne Road / R106 Coast Road (Junction 8) will operate over capacity in 2024 with no construction traffic and will remain over capacity in the design year of 2027. During Phase 5 of construction, the temporary maximum increase of RFC is expected to be 0.02;
- The existing R106 Coast Road / Golf Links Road (Junction 9) will operate below capacity during the construction of the Proposed Project;
- The existing R106 Coast Road / Station Road mini-roundabout (Junction 10) is currently operating over capacity, and this will remain over capacity in the design year of 2027. During Phase 5 of construction, the temporary maximum increase of RFC is expected to be 0.01;
- The existing R843 Snugborough Road / NAC (Junction 11) is currently operating over capacity and will remain so with or without the Proposed Project. During Phase 5 of construction, the temporary maximum increase of DOS is expected to be 0.046;
- The R843 Snugborough Road / Gateway (Junction 12) priority junction will operate below capacity during the Construction Phase; and
- Sufficient parking will be provided to cater for the parking needs of staff and visitors of the Proposed Project.

13.13 Difficulties Encountered in Compiling Information

No difficulties were encountered when compiling information for this Chapter of the EIAR Addendum.

13.14 Oral Hearing

During the 2019 Oral Hearing, further written clarification to questions raised in relation to traffic and transport, was provided in two additional statements, as follows:

- GDD Response to Inspector's Questions Traffic; and
- GDD Response-to Traffic Questions 27 March 2019.

These additional statements (included in Appendix A13.5 in Volume 3A Part B of this EIAR Addendum) provided further clarity on the traffic interaction between the Proposed Project and the proposed Regional Biosolids Storage Facility, and provided a response to roads queries raised on behalf of Gannon Properties and traffic queries raised by Sabrina Joyce Kemper, respectively. The extension of the River Mayne Culvert at the proposed access road to the WwTP, as outlined in Table 13.1, was subsequently imposed as Condition 13 (c) of the permission granted by ABP, since quashed, but understood to be a requirement of ABP and is therefore now included as part of the Proposed Project.

13.15 Conclusion

This Addendum Chapter has considered all updates to elements of the Proposed Project, and updates to the baseline environment, guidance and reference material since the submission of the 2018 planning application. Following consideration, there are no significant changes to the assessment of traffic and transport as a result of any of the updates discussed in this Addendum Chapter.

13.16 References

EPA (2017). Draft Guidelines on Information to be Contained in Environmental Impact Assessment Reports

EPA (2022). Guidelines on Information to be Contained in Environmental Impact Assessment Reports

FCC (2023). Fingal Development Plan 2023-2029

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

NTA (2022a). Greater Dublin Area Transport Strategy 2022-2042

NTA (2022b). Greater Dublin Area Cycle Network Plan

TII (2014). Traffic and Transport Assessment Guidelines

TII (2021). Project Appraisal Guidelines for National Roads Unit 5.3 – Travel Demand Projects

TRL (1986). The prediction of saturation flows for single road junctions controlled by traffic signals

Uisce Éireann (2019). A Response to Submissions Report

Directives and Legislation

Directive 2014/52/EU of the European Parliament and of the Council of 16 April 2014 amending Directive 2011/92/EU on the assessment of the effects of certain public and private projects on the environment.

Planning and Development Act 2000 (as amended)