Uisce Éireann
Irish Water

Report: May 2026

Draft Galway Wastewater Strategy

Non-Technical Summary

Tionscadal Éireann
Project Ireland
2040

6 CLEAN WATER AND SANITATION

Safeguarding our water for our future

Contact details

Web:
www.water.ie

Twitter:
@IWCare

Uisce Éireann
PO Box 860
South City Delivery Office
Cork City

Account information or account enquiries

9am–5.30pm, Mon–Fri:
0818 778 778 or **+353 1 707 2827**

ITRS:
1800 378 378 (for hard of hearing customers)

Water supply queries and emergencies

24 hours a day, 7 days a week

Phone:
0818 778 778 or **+353 1 707 2827**

ITRS:
1800 378 378 (for hard of hearing customers)

Tionscadal Éireann
Project Ireland
2040

Draft Galway Wastewater Strategy	
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1. Executive Summary

Overview of Uisce Éireann and Our Vision

Uisce Éireann, as Ireland's national public water services provider, supplies 1.7 billion litres of drinking water to our customers every day and collects and treats more than 1.2 billion litres of wastewater before we safely return it to the environment. Providing safe, secure and sustainable water services is vital for our society, supporting public health, supporting the delivery of housing and jobs and protecting our environment and precious water resources.

Uisce Éireann is regulated by the economic regulator Commission for Regulation of Utilities (CRU) and the environmental regulator Environmental Protection Agency (EPA). Uisce Éireann's vision is to create a sustainable Ireland where water is respected and protected for all life forms and the planet. We address historical underinvestment through capital investment programmes and infrastructure maintenance. Our 25-year Water Services Strategic Plan outlines objectives and implementation strategies, including the development of a Wastewater Strategy Framework.

Galway Wastewater Strategy study area

The Galway Wastewater Strategy (GWS) study area comprises the Galway Metropolitan Area (GMA), Athenry, and Moycullen. The study area includes Galway city and its suburbs, including six towns and villages. There are four Wastewater Treatment Plants (WWTPs) in the study area Athenry, Moycullen, Claregalway, and Mutton Island, the largest WWTP in the region. Uisce Éireann's wastewater system in the region includes wastewater collection networks that comprise of more than 50 pumping stations and 29 stormwater overflows, the majority of which are located within Galway City.

Galway Wastewater Strategy Need

The Galway Metropolitan Area, Moycullen and Athenry, is experiencing sustained population growth and economic development. This growth places significant demands on wastewater collection networks and treatment plants, particularly within Galway City where the majority of pumping stations and stormwater overflows are located. A wastewater strategy is needed because the existing and aging wastewater system is under increasing pressure from population and commercial growth, regulatory requirements, climate change, and environmental constraints. A strategy is needed to plan upgrades and new infrastructure that are resilient, adaptable and capable of performing under future climate conditions.

Galway Wastewater Strategy Objective

The draft GWS assesses the existing wastewater treatment and network infrastructure in the Galway Metropolitan Area, Athenry, and Moycullen to determine what future investment will be required in the medium and long term, to support sustainable growth, climate resilience and environmental protection and to identify sustainable drainage strategies and solutions for the Study Area.

The draft GWS identifies preferred solutions to improve treatment capacity and network performance, with investments prioritised across three planning horizons: short-term (2040), medium-term (2055), and long-term (2080) to ensure that wastewater services for Galway are resilient, adaptable and fit for purpose over the long term. It assesses the performance of existing infrastructure and identifies the investment needed over the medium and long term to support planned growth, protect the environment and ensure compliance with regulatory requirements. Adequate wastewater infrastructure is essential to support housing delivery, economic development, and sustainable communities in Galway.

Consideration was also given to needs and risks prior to 2040. The strategy's primary objective included identifying sustainable options to address wastewater needs aligned with European and National legislation, supporting economic and population growth, enhancing environmental protection, and improving infrastructure resilience to climate change.

The GWS adopts a strategic approach that incorporates stakeholder needs, supports economic growth, addresses climate change challenges, meets growing population demands, and ensures long-term sustainability. Key considerations included infrastructure capacity, expansion, rationalisation of treatment plants and network enhancements to meet standards.

The GWS aims to protect public health, safeguard the environment, and facilitate population and economic growth. It provides an understanding of investment needs, proposes enhanced treatment capacity, and strengthens infrastructure resilience to climate change, ultimately supporting the region’s long-term development and environmental objectives.

The GWS is a forward-looking plan designed to ensure the long-term sustainability and efficiency of wastewater management in the region and is not intended to function as an operational or project-specific delivery tool but instead establishes a strategic framework to guide the long-term development of wastewater conveyance and treatment infrastructure across the study area. Detailed or concept-level engineering design, statutory planning, and comprehensive economic

appraisal are intentionally deferred to future implementation phases, including the Preliminary Business Case (PBC) stage, in line with the Infrastructure Guidelines.

Our Legal Context

Uisce Éireann plans, develops and operates our water service functions in line with the requirements of prevailing relevant national and European legislation. Some of the most pertinent legislation in the context of the operations covered by this plan include the Water Services Act (and amendments), Water Framework Directive (WFD), Urban Wastewater Treatment Directive (UWWTD) and the recast UWWTD (rUWWTD), EU Bathing Water Directive, and the Wastewater Discharge (Authorisation) Regulations 2007 (as amended), European Communities Environmental Objectives (Surface Water) Regulations 2009, River Basin Management Plan, and the EU Habitats Directive.

Environmental Assessments

UÉ carried out detailed environmental assessments to ensure the Strategy protects the natural environment while supporting sustainable growth across the study area.

UÉ developed this draft GWS applying the requirements of the Strategic Environmental Assessment (SEA) Regulations and the EC Birds and Natural Habitats Regulations. This involved undertaking relevant environmental assessments at each stage of the process, including preparation of an SEA Environmental Report. This report documents the environmental assessment of the draft GWS which examines how the Strategy could affect the environment, including water quality, biodiversity, climate change resilience, recreation and human health, amongst others. This assessment helped identify potential environmental risks at an early stage and ensures that environmental considerations are integrated into decision making throughout the Strategy.

The SEA cumulative effects assessment determined that with mitigation and monitoring measures (which are outlined in the SEA Environmental Report), adverse combined effects during construction of the GWS are unlikely. The SEA cumulative effects assessment also found that many combined effects involving the operational phase of the GWS will have positive environmental effects.

The Natura Impact Statement (NIS) assessed whether the draft Strategy could have potential effects on Natura 2000 sites, which are designated to protect important habitats and species under European legislation. Where any potential risks were identified, measures were incorporated into the Strategy to avoid or reduce these impacts, safeguarding Galway's sensitive coastal and inland environments. The NIS concluded that through incorporating the avoidance and mitigation measures detailed in the NIS, adverse effects on the integrity of European Sites are not anticipated at Plan-level, alone or in-combination with other Plans or Projects.

Mitigation and enhancement measures identified through the environmental assessments are incorporated into the GWS implementation approach (Refer to the Multi Criteria Decision Analysis (MCDA) section in Appendix 5). The proposed monitoring plan in the SEA Environmental Report forms part of the overall monitoring and feedback and review process applied to inform adaptive management, identify the need for changes and inform future iterations of the strategy.

By assessing potential environmental impacts at this stage, the Galway Wastewater Strategy provides a robust framework to support future growth while protecting water quality, biodiversity and the natural environment of the Galway area.

Benefits of the Strategy

The draft GWS provides a clear, long-term framework to ensure that wastewater infrastructure across the study area can sustainably support population growth, environmental protection and economic development. By assessing existing wastewater treatment and network capacity and identifying future investment needs, the strategy delivers the following key benefits:

- **Regulatory compliance**

  Ensures wastewater services are fully aligned with European and national legislation, providing confidence to regulators, stakeholders and communities that Galway's wastewater infrastructure meets statutory requirements.

- **Capacity to support future growth**

  Identifies the wastewater drainage and treatment capacity required to accommodate planned and projected growth in Galway City and County, consistent with Development Plans, the National Planning Framework, the Regional Spatial and Economic Strategy, and long-term development potential up to 2080.

- **Protection and enhancement of the environment**

  Supports the effective management of wastewater to protect receiving waters and sensitive environments, while aligning with the Uisce Éireann Water Services Strategic Plan and the Government of Ireland Water Services Policy Statement.

- **Climate resilience and adaptability**

  Integrates climate change considerations into wastewater planning, ensuring infrastructure solutions are resilient to future climate impacts and capable of adapting to changing environmental conditions.

- **Robust and flexible long-term strategy**

  Develops an adaptable approach that can respond to a range of future population, climate and development scenarios, ensuring the strategy remains effective and relevant over time.

- **Best value, evidence-based solutions**

  Evaluates alternative wastewater solutions and identifies optimum options based on whole life cost, environmental performance and long-term sustainability.

- **Clear and deliverable investment programme**

  Translates strategic recommendations into a prioritised, phased delivery programme of clearly defined projects, providing measurable outcomes and a practical roadmap for implementation.

The GWS seeks to create a resilient, adaptable, and compliant wastewater management system. This approach aims to ensure the long-term sustainability and effectiveness of wastewater services in the study area, protecting public health and safeguarding the environment while supporting economic and population growth for generations to come.

Methodology

The Galway Wastewater Strategy employs a structured methodology aligned with established wastewater management frameworks. Key components of the methodology include:

- Evaluating existing infrastructure to identify current performance and material risks using consistent performance metrics and risk bands
- Projecting growth and its impact on wastewater systems using network and water quality models at discrete horizons to determine needs (2040, 2055, 2080)
- Identifying root causes of risks (with internal subject matter experts) to define needs going into optioneering
- Developing and evaluating strategic options through optioneering, MCDA, and shortlisting of feasible options, with environmental assessment (SEA/AA) applied.

The methodology also emphasises stakeholder engagement, delivered through statutory public consultation, with a second public consultation underway in May, June and July 2026 so the public can review and comment on the draft GWS and associated environmental and ecological reports. The final GWS will be published in Autumn 2026 and it will provide a sustainable roadmap for wastewater management in the Study Area through to 2080.

Recommendations

Based on the assessment undertaken as part of the draft GWS, it is recommended that

- a **new Regional Galway East Wastewater Treatment Plant** (WWTP) is progressed to meet the long-term wastewater treatment needs of the study area and to provide sufficient capacity, resilience and environmental protection up to 2080.
- **Enhancements to treatment capacity at Mutton Island (Galway City) and Athenry** Wastewater Treatment Plants in the short term to meet population demands. Works on these plants is planned within the 2040 investment cycle.
- Once the new Regional Galway East plant is commissioned, there will be a **gradual transfer of loads from Mutton Island (Galway City) and Athenry** to reduce loading pressures on the existing plants and manage long term regulatory risk. Mutton Island WWTP will continue to operate at a reduced capacity and Athenry plant will become a pumping station to transfer load to the new Regional Galway East plant.
- Decentralised treatment at **Moycullen and Claregalway Wastewater Treatment Plants will be maintained** with any future upgrades informed by population and economic growth projections.

Galway Wastewater Strategy Infrastructure Upgrade

Uisce Éireann Irish Water

The **STUDY AREA** includes the Galway metropolitan area, Moycullen, and Claregalway in **COUNTY GALWAY**

Challenges
to wastewater Infrastructure

TREATMENT CAPACITY in two of the four treatment plants expected to be exceeded by 2040

ECONOMIC DEVELOPMENT will require a **139%** increase in wastewater treatment capacity

Environmental **PROTECTION**

Climate Change **RESILIENCE**

AGEING Infrastructure

Currently

MUTTON ISLAND (GALWAY CITY) Plant serves the Galway Metropolitan Area

ATHENRY Plant

MOYCULLEN Plant

CLAREGALWAY Plant

WASTEWATER COLLECTED CURRENTLY 160,300PE

Strategy Recommendations

ENHANCEMENTS to treatment capacity at Mutton Island (Galway City) Plant

REDUCE treatment capacity and **ENHANCE** effluent quality in Mutton Island (Galway City) Plant

1 new Regional East Galway wastewater treatment plant

1 new Marine Outfall

ENHANCEMENTS to treatment capacity at Athenry Plant

TRANSFER of load from Galway City East & Athenry to the new plant

DECOMMISSION Athenry Plant

MAINTAIN wastewater treatment capacity at Moycullen and Claregalway Plants

1 new pumping station in Athenry

FUTURE UPGRADES to Moycullen and Claregalway Plants

WASTEWATER COLLECTED 2080 383,300PE

Benefits

Increased treatment **CAPACITY & EFFICIENCY**

Supports future **POPULATION GROWTH & ECONOMIC** development

Proactive **PROJECT PLANNING**

SAFEGUARDING Public Health

ENHANCED Water Quality

Conclusions

The development of the Regional Galway East WWTP will:

- Enable the diversion of wastewater load from the eastern part of Galway City away from the existing Mutton Island WWTP, thereby relieving pressure on existing infrastructure, improving system resilience, and supporting future growth in a sustainable manner.
- Facilitate the decommissioning of the existing Athenry Wastewater Treatment Plant, with wastewater flows from Athenry to be pumped to the new Regional Galway East WWTP, providing a more sustainable, efficient and resilient regional wastewater solution.

To support delivery of the recommended Regional Galway East WWTP, two discharge outfall options are identified for further assessment and consideration.

- **Option 1:** A discharge outfall located in the eastern part of Galway Bay, approximately 3.5 kilometres from the shore.
- **Option 2:** A discharge outfall located in the western part of Galway Bay, approximately 1 kilometre from shore.

Progression of these options to the next stage will enable more detailed assessment, including environmental, technical and deliverability considerations, to inform the identification of a preferred solution.

These options represent the **most viable and robust strategic solutions** identified through the Strategy's optioneering and assessment process. Both outfall options can meet the Strategy's objectives, achieving long-term regulatory compliance, protecting the receiving environment, and providing a resilient wastewater service over the planning horizon.

2. A Vision for Sustainable Wastewater Management and Strategic Long-Term Outcomes

2.1 The Need for a Galway Wastewater Strategy

The Greater Galway area is a key regional growth centre, identified within national and regional planning policy, including the National Planning Framework (NPF) and the Regional Spatial and Economic Strategy (RSES), as a driver of sustainable economic, environmental and social development in the west of Ireland. The Galway Wastewater Strategy (GWS) has been prepared to provide a long term, integrated framework for wastewater infrastructure planning across this strategically important area.

The GWS study area encompasses the Galway Metropolitan Area, including Galway City and its suburbs, together with a number of surrounding towns and villages that are functionally linked to the metropolitan area and its wastewater infrastructure. In total, the study area includes six towns and villages and four wastewater treatment plants, namely Mutton Island (Galway City), Athenry, Claregalway and Moycullen, which together serve the core urban area and its immediate hinterland.

Figure 2-1: Galway Wastewater Strategy Overview

As indicated in Figure 2-**Error! Reference source not found.**1, the wastewater network within the Greater Galway study area extends to approximately 392 km of wastewater network, supported by more than 50 wastewater pumping stations and 29 storm water overflows.

As our population and economy grows, so does the volume of wastewater. We must collect and treat this wastewater so that the treated water can be safely returned to the environment. The purpose of a Wastewater Strategy is to assess wastewater treatment and network infrastructure in a defined geographic area to identify what future investment will be required in the medium and long term. Having adequate wastewater infrastructure is essential to facilitate housing provision and commercial development and to support sustainable growth, while protecting the environment.

Challenges facing the Greater Galway Area in relation to wastewater collection and treatment include:

- Population Growth and Economic Development
- Regulatory Compliance
- Aging infrastructure
- Environmental Protection - pressures on the receiving waters from wastewater discharges.
- Climate change resilience.

2.2 Strategy Aims and Objectives

We have reflected our national priorities in this strategy, to ensure that we support customers, communities, and the wider economy; protects and enhance the natural environment; and deliver resilient, future-ready wastewater services. Based on these requirements, we have identified the following six aims for the GWS, and the objectives to achieve the aims:

1. **Comply with Legislation -** Develop a sustainable wastewater strategy for the GWS study area which ensures compliance with European and National legislation.
2. **Meet Growth Demands –** Identify ways of meeting the current and future growth demands of the GWS study area, considering Development Plans, the National Planning Framework (NPF), Regional Spatial and Economic Strategy (RSES), and anticipated development up to 2080.
3. **Safeguard the environment and protect public health –** Adopt a strategy which protects and enhances the environment and public health, consistent with UÉ Water Services Strategic Plan (WSSP) and the Government of Ireland Water Services Policy Statement (WSPS).
4. **Adapt to Climate Change –** Ensure the strategy is resilient to future changes including the likely effects from climate change.
5. **Adaptable Strategy -** Develop an adaptable strategy that can respond to different future scenarios, ensuring that the strategy remains effective in the long-term.
6. **Develop a delivery programme** – Produce a prioritised delivery programme that translates the GWS recommendations into clearly timed, actionable projects with measurable outcomes.

2.3 Strategy Roadmap

The GWS follows a structured approach aligned with similar wastewater management frameworks such as Water Resource Management Plans (WRMPs) and Drainage and Wastewater Management Plans (DWMPs). The process is summarised in the Figure 2-2.

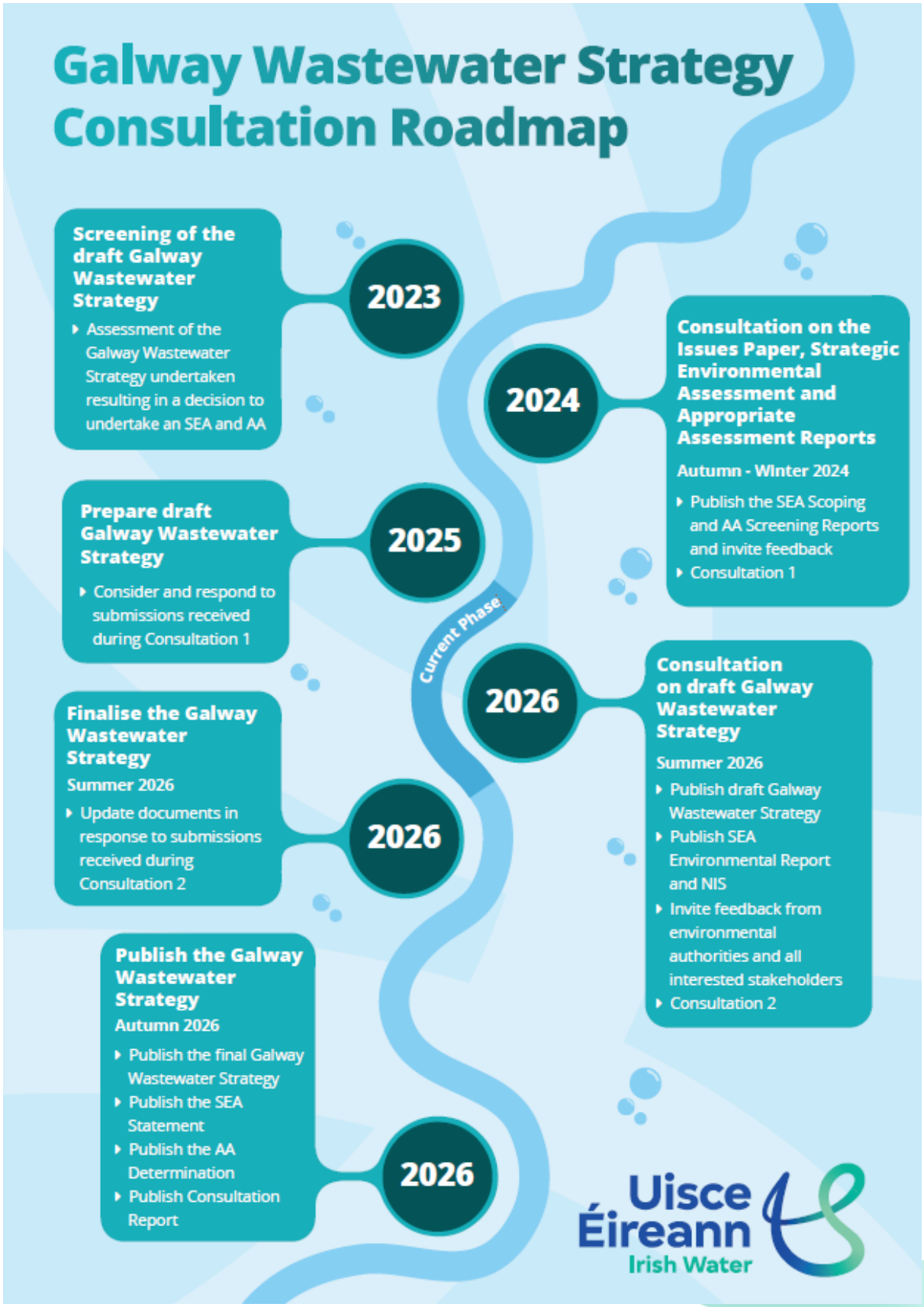


Figure 2-2: Galway Wastewater Strategy Roadmap

2.4 Structure of the Strategy Report and Appendices

This report is a non-technical summary of the GWS document which is supported by a suite of appendices which can be referenced for further detail (as outlined in Figure 2-3). The structure is designed to provide a clear and logical flow of information, ensuring a comprehensive understanding of the GWS.

The draft GWS assesses the wastewater treatment and network infrastructure in the Galway Metropolitan Area, Athenry, and Moycullen to determine what future investment will be required in the medium and long term, and to identify sustainable drainage strategies and solutions for the Study Area.

The draft GWS identifies preferred solutions to improve treatment capacity and network performance, with investments prioritised across three planning horizons: short-term (2040), medium-term (2055), and long-term (2080).

Figure 2-3: Galway Wastewater Strategy Documentation

2.5 What the Strategy does not do

The GWS has been developed as a high-level, long-term plan. It sets out strategic objectives and future priorities for wastewater infrastructure which will require detailed designs, cost assessments, and further environmental studies for individual projects. This will ensure that local conditions, community input, and planning requirements can be considered in the future.

3. Strategic Challenges

The strategy will address the key challenges and pressures expected to impact our wastewater system and assets over the next 56 years.

3.1 Sustainable Growth

Galway is expected to grow significantly over the coming decades, with more people, new homes, and increased business and industrial activity. To support this growth, wastewater services must be planned and upgraded so they can meet future demand.

If wastewater infrastructure does not keep pace, housing and business developments may be delayed or restricted, which could limit economic growth and reduce Galway's attractiveness as a place to live, work, and invest. Greater Galway is recognised nationally as an important metropolitan area, with a key role in Ireland's long-term economic, social, and environmental development.

The Draft GWS is aligned with national, regional, and local development plans to ensure wastewater services support future housing, employment, and community growth. The strategy looks ahead to 2080, allowing UÉ to plan upgrades early and invest in a phased, cost-effective, and environmentally responsible way. This long-term planning helps protect public health, water quality, and the natural environment.

The Galway Metropolitan Area is not only a major regional hub but is also identified as a key driver of Ireland's economic, environmental, and social development under the National Planning Framework (NPF[1]) and the Regional Spatial and Economic Strategy (RSES[2]) 2020-2032. We have aligned the GWS with these planning frameworks for the Northern and Western Region, and local development plans for Galway City and County. Local plans including the Galway City Development Plan, Galway Metropolitan Area Strategic Plan (MASP), and the Galway County Development Plan have also helped shape the GWS.

More details on our population growth projections are set out in Section 7 and in *Appendix 1 – Managing Growth*.

3.2 Climate Change

Climate change is expected to bring heavier rainfall, rising sea levels, and more frequent storms, as well as hotter, drier summers. These changes can increase pressure on wastewater systems, raising the risk of flooding, storm overflows, and environmental impacts.

Galway's coastal location makes it particularly vulnerable, especially at Mutton IslandWWTP, which is affected by tides and sea-level rise. To plan for these risks, wastewater modelling has been used to assess how the system will perform under different future climate scenarios. This approach helps identify where the system may be most at risk and ensures that proposed upgrades are resilient and effective under future climate conditions up to 2080.

[1] https://www.npf.ie/

[2] https://www.nwra.ie/rses/

3.3 Legislation, Regulation and Policy

We plan, develop and operate our water service functions in line with the requirements of prevailing relevant national and European legislation. The most pertinent legislation in the context of the operations covered by this plan include the Water Services Act (and amendments), Water Framework Directive (WFD), Urban Wastewater Treatment Directive (UWWTD) and the recast UWWTD (rUWWTD), EU Bathing Water Directive, and the Wastewater Discharge (Authorisation) Regulations 2007 (as amended), European Communities Environmental Objectives (Surface Water) Regulations 2009, River Basin Management Plan, and the EU Habitats Directive.

The draft GWS aligns with a diverse range of national, regional, and UÉ strategies and initiatives, as well as broader infrastructure plans for the study area. This alignment ensures that wastewater management infrastructure is integrated within broader planning efforts to support economic growth and environmental sustainability. Key policies and plans considered include but not limited to the National Planning Framework, Regional Spatial and Economic Strategy for the Northern and Western Regional Assembly, Galway City and County Development Plan and the Metropolitan Area Strategic Plan, National Biodiversity Action Plan, Climate Action Plan, and Uisce Éireann's Water Services Strategic Plan 2050.

3.4 Biodiversity

We recognise the urgent need to halt biodiversity loss and to better protect and enhance the natural environment. UÉ carried out detailed environmental assessments to ensure the Strategy protects the natural environment while supporting sustainable growth across the study area.

The GWS is aligned with UÉ's Biodiversity Action Plan which sets out our commitment to delivering water and wastewater infrastructure in a way that protects ecosystems and, where possible, improves biodiversity. The Biodiversity Action Plan also supports national climate objectives by promoting nature-based solutions that help reduce climate impacts, enhance carbon storage, and strengthen ecosystem health. In line with Ireland's commitment to achieving net-zero emissions by 2050, the water sector can contribute by improving energy efficiency, using low-carbon construction methods, and exploring opportunities for renewable energy within wastewater systems. This also includes using nature-based solutions where appropriate, minimising environmental impacts, and monitoring biodiversity outcomes over the life of the strategy.

3.5 Environmental and Ecological

UÉ developed this draft GWS applying the requirements of the Strategic Environmental Assessment (SEA) Regulations and the EC Birds and Natural Habitats Regulations. This involved undertaking relevant environmental assessments at each stage of the process, including preparation of an SEA Environmental Report which documents the environmental assessment of the draft GWS and examines how the Strategy could affect the environment, including water quality, biodiversity, climate change resilience, recreation and human health. This assessment helped identify potential environmental risks at an early stage and ensures that environmental considerations are integrated into decision-making throughout the Strategy.

The SEA scoping and Appropriate Assessment (AA) Screening were consulted on with Public Consultation 1 (PC1), launched in Autumn 2024, which included consultation on the Issues Paper, Strategic Environmental Assessment Environmental Report, and Appropriate Assessment Screening Reports, and responses have been fed into the GWS development and environmental assessment approach.

The Natura Impact Statement (NIS) assessed whether the draft GWS could have potential effects on Natura 2000 sites, which are designated to protect important habitats and species under European legislation. Where any potential risks were identified, measures were incorporated into the Strategy to avoid or reduce these impacts, safeguarding Galway's sensitive coastal and inland environments.

Mitigation and enhancement measures identified through the environmental assessments are incorporated into the GWS implementation approach (Refer to the Multi Criteria Decision Analysis section in Appendix 5). The proposed monitoring plan in the SEA Environmental Report forms part of the overall monitoring and feedback and review process applied to inform adaptive management, identify the need for changes and inform future iterations of the strategy.

By assessing potential environmental impacts at this stage, the draft GWS provides a robust framework to support future growth while protecting water quality, biodiversity, and the natural environment of the Galway area.

For further detail, readers are referred to the *Strategic Environmental Assessment (SEA) Report* and the *Natura Impact Statement (NIS) and Appropriate Assessment (AA) Determination*. These assessments form the evidence base that underpins the GWS commitment to ensuring that wastewater infrastructure development proceeds in a way that protects, and where possible, enhances the natural environment for future generations.

3.6 Economic Conditions

Global events such as wars and pandemics can affect the economy and, in turn, the delivery of water and wastewater services. Economic downturns can limit funding, while supply chain disruption and rising energy costs can affect the availability and cost of materials and chemicals. These events are difficult to predict, but their impacts can be managed.

The Draft Galway Wastewater Strategy uses flexible, adaptive planning to respond to these uncertainties. By planning ahead, monitoring emerging risks, and embedding climate and emissions considerations into decision-making, the strategy helps ensure services remain resilient, affordable, and sustainable over the long term.

4. A Collaborative Strategy with Community & Stakeholder Engagement

Public consultation is a key element in ensuring members of the public and all interested parties have the chance to be part of the development of the GWS. The GWS development process emphasises the importance of public consultation and stakeholder engagement. This collaborative approach ensures transparency, inclusivity, and the incorporation of diverse perspectives in shaping the future of wastewater management in the study area.

The development of the draft GWS involves ongoing engagement with environmental authorities and the public to ensure a transparent, inclusive, and well-informed process. This engagement provides insights and data early in the process, while public consultation helps build understanding and support for wastewater management. The engagement strategy aims to address concerns promptly, promote UÉ's vision, and ensure the GWS reflects the needs of all stakeholders. This engagement has already helped shape the GWS and will continue to guide its implementation in the years ahead.

4.1 Insights from Public Consultation 1

Public Consultation 1, conducted in late 2024, gathered valuable insights from stakeholders, focusing on critical areas such as water quality preservation, environmental protection measures, and the impacts of climate change on wastewater management. This included early screening under the Strategic Environmental Assessment Regulations and Habitats Regulations, ensuring that potential environmental impacts were considered from the outset. The consultation covered a wide range of topics including infrastructure needs, population growth considerations, environmental safeguards, and legislative compliance.

In response to the feedback received, the draft GWS has been developed to address stakeholder priorities and enhance the robustness of wastewater management systems. This adaptive approach demonstrates UÉ's commitment to incorporating community input into its planning process

A detailed summary of the submissions received during PC1, along with our responses and how the feedback has been incorporated into this strategy, is provided in *Public Consultation 1 Responses.*

4.2 Public Consultation 2 and Future Consultation

A second round of public consultation is underway for eight weeks between May and July 2026. We will host an in-person event and a webinar during the consultation period. This phase provides an opportunity for all stakeholders to review and comment on the draft GWS, the Strategic Environment Assessment Report, and the Natura Impact Statement. Statutory stakeholders and relevant government departments will be actively engaged throughout this process.

The final GWS is set to be published in Autumn 2026. Recognising the dynamic nature of environmental and urban development challenges, UÉ has committed to conducting periodic

reviews of the GWS every five years. This approach will ensure that the strategy remains relevant, effective, and adaptable to changing circumstances in the short, medium, and long term.

5. Our Approach to the Galway Wastewater Strategy

5.1 Our Approach

The purpose of the draft GWS is to assess and understand what is required to meet the needs for the study area across the planning horizons and identify options to meet those requirements. We assessed each of the four wastewater treatment plants in the study area, considering infrastructure performance, capacity, environmental sensitivity and future growth pressures. This enabled a targeted and evidence-based approach, ensuring that the specific needs, challenges and constraints were clearly understood and addressed through the recommended long-term wastewater solutions.

The draft GWS was developed using a clear, step-by-step process that follows national and international best practice. The approach included:

- Assessing current wastewater networks and treatment infrastructure to identify areas where performance issues and risks exist, using 2025 measured and modelled data.
- Projecting the future wastewater needs of the study area, taking account of population growth and climate change over the short, medium and long term with assessments at 2040, 2055 and 2080.
- Using advanced wastewater network and water-quality modelling to understand how the wastewater system performs over time and how it interacts with the receiving environment.
- Assessing risks to environmental compliance and system performance using consistent performance metrics and a Red–Amber–Green risk-based framework.
- Identifying the underlying causes of current and future risks through detailed analysis and expert input, to clearly define where investment is required.
- Developing and assessing a range of potential solutions through a structured optioneering and multi-criteria assessment process, leading to the identification of preferred strategic approaches and recommendations.
- Developing a shortlist of feasible strategies with a defined planning horizon, taking account of deliverability, alignment with long-term objectives, and integration with existing infrastructure.

The GWS recognises the importance of shorter-term, tactical-level planning which is implemented through the Galway City Drainage Area Plan (DAP). The Galway City DAP operates at a more tactical, asset-level planning scale and will be informed by the strategic direction and preferred options identified within the GWS.

5.2 Our Methodology

Our approach to develop the GWS comprises a structured five-step process designed to guide the development of sustainable, evidence-based, wastewater options for the Study Area. This methodology, illustrated in Figure 5-1, provides a clear and methodical framework for assessing

current and future needs, identifying challenges and opportunities, and prioritising investment decisions that support long-term service resilience and environmental protection.

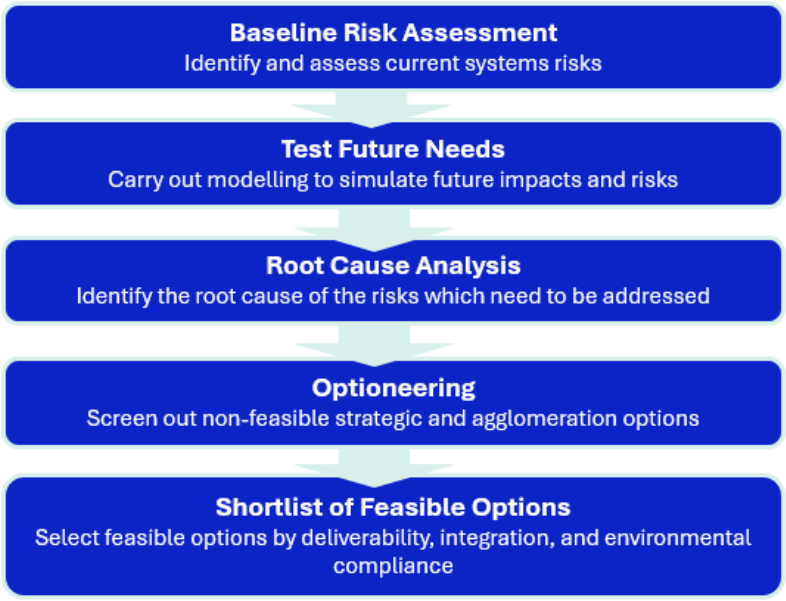


Figure 5-1: GWS Methodology

Key components of the methodology include:

- Evaluating existing infrastructure to identify current performance and material risks using consistent performance metrics and risk bands
- Projecting growth and its impact on wastewater systems using network and water quality models at discrete horizons to determine needs (2040, 2055, 2080)
- Identifying root causes of risks (with internal subject matter experts) to define needs going into optioneering
- Developing and evaluating strategic options through optioneering, MCDA, and shortlisting of feasible options, with environmental assessment (SEA/AA) applied.

The methodology also emphasises stakeholder engagement, delivered through statutory public consultation, with a second public consultation underway in May, June and July 2026 so the public can review and comment on the draft GWS and associated environmental and ecological reports. The final GWS will provide a sustainable roadmap for wastewater management in the Study Area through to 2080.

6. Current Performance Assessment

We identified a range of indicators which identify current and emerging risks at the WWTPs, capacity limitations in the network and environmental risks. Our baseline assessment used current and recent data to inform our baseline view of performance. Our assessment of future risks and performance in the region was based on modelling outputs, which took account of growth and climate change projections (refer to Section 7 in this report).

6.1 Performance Indicators and Risk

Our assessment of performance considered a holistic view of all wastewater assets and their impact on the environment. A series of metrics were used to capture the risks for each agglomeration within the study area. Performance indicators including flood risk, storm water overflows (SWO), environmental performance, Load Risk, Pollution, WWTP Compliance, WWTP Quality Compliance, WFD Status, and River Water Quality were selected based on the availability of data, the suitability of the data as an indicator of performance, and the impact on customers or the environment. They were used for each agglomeration within the GWS to assess the change in risk across the different design horizons.

7. Approach to Modelling

7.1 Network modelling

The Galway City, Athenry and Moycullen hydraulic models have undergone flow monitoring in the network and verification to observed data in order to represent both dry and wet weather flows.

Dry weather flow provides an estimate of the baseline wastewater flow in a sewer system, excluding storm runoff. It acts as a foundational baseline for capacity planning. The modelled dry weather flow considers the anticipated loadings from population data, and the existing modelled trade flows for consented trade effluent and commercial discharge. A constant infiltration component has been used (baseflow) and verified based on data collected in 2019.

Wet Weather flows are generated using modelled rainfall runoff. A 10-year time series rainfall series has been used to carry out SWO spill assessments. A series of summer design rainfall events with return periods of 1m (1 hour duration only), 1y, 2y, 5y, 10y, 20y, 30yr and standard durations of 30, 60, 90, 120, 240, 480 minutes were used.

Tidal ingress can occur to sewer networks due to high water levels in surrounding waterbodies and flow paths into the sewer network. The monitoring data showed signs of tidal ingress into the Galway City sewer network. This study has used the representation of a high tide during wet weather events in line with the analysis undertaken during the Galway City DAP. This represents a conservative approach based on the low likelihood of a high tide occurring at the same time as extreme rainfall events.

More detail is provided in *Appendix 2 - Our Approach To Modelling and Climate Change*.

7.2 Water Quality Modelling

Water quality studies were carried out to understand how wastewater treatment plants and stormwater overflows affect rivers, lakes, and coastal waters. Water quality modelling was undertaken for both freshwater and coastal environments. Four scenarios were assessed: three representing different growth projections and one accounting for the potential impacts of climate change.

The modelling assessed whether treated wastewater discharges meet Water Framework Directive (WFD) standards and, where they do not, what improvements would be needed to protect water quality. This assessment was completed for the discharges from Athenry, Moycullen and the Claregalway agglomerations .

The impact of stormwater overflows was also assessed, focusing on overflows that operate more than 1% of the year. The modelling examined how these intermittent discharges mix with river flows and how water quality changes downstream. This approach helps identify whether rivers and canals can continue to meet environmental standards now and in the future, including under increased growth and climate change conditions.

More detail is provided in *Appendix 2 - Our Approach To Modelling and Climate Change and Appendix 4 - Impact on Water Quality*.

8. Future Needs

8.1 Growth Projections

The GWS aims to ensure that there is adequate wastewater treatment capacity and capability within the study area to meet anticipated growth demand through to the year 2080.To accurately identify future needs we must evaluate future population estimates and incorporate known future commercial demands for each agglomeration within the study area. We have carried out four separate population projections, to estimate the regional loads at WWTP at three key design horizons of 2040, 2055 and 2080. We considered domestic load, commercial load, institutional load and industrial load (more details are set out in *Appendix 1 – Managing Growth)*.

At present, Uisce Éireann does not provide wastewater services to several areas on the outskirts of the Study Area, including Furbogh, Clarinbridge, Craughwell and Kilcolgan, where wastewater treatment is predominantly managed through private septic tanks at individual properties. Projected loads for these areas, which are relatively small in scale compared to other parts of the study area, have been included as a contingency allowance in the GWS option development for infrastructure sizing purposes due to the possibility of future connection to the public wastewater collecting and treatment systems at some point in the future.

The total PE to be treated is estimated to increase to around 383,000 by 2080, refer to Table 8-1.

Table 8-1 Summary of PE per agglomeration and Strategy horizon

Agglomeration	2022 Baseline	2040 Horizon	2055 Horizon	2080 Horizon
Mutton Island (Galway City)	143,800	249,400	335,900	350,200
Athenry	6,600	11,900	13,200	13,800
Claregalway	2,700	5,700	6,400	6,700
Moycullen	2,700	3,900	4,400	4,600
Furbogh	1,400	1,900	2,100	2,200
Clarinbridge	1,200	1,900	2,200	2,300
Craughwell	1,500	2,400	2,700	2,800
Kilcolgan	400	600	700	700
Total	**160,300**	**277,700**	**367,600**	**383,300**

The expansion will mainly be to the east of Galway City (projected as 82%). Refer to Figure 8-1.

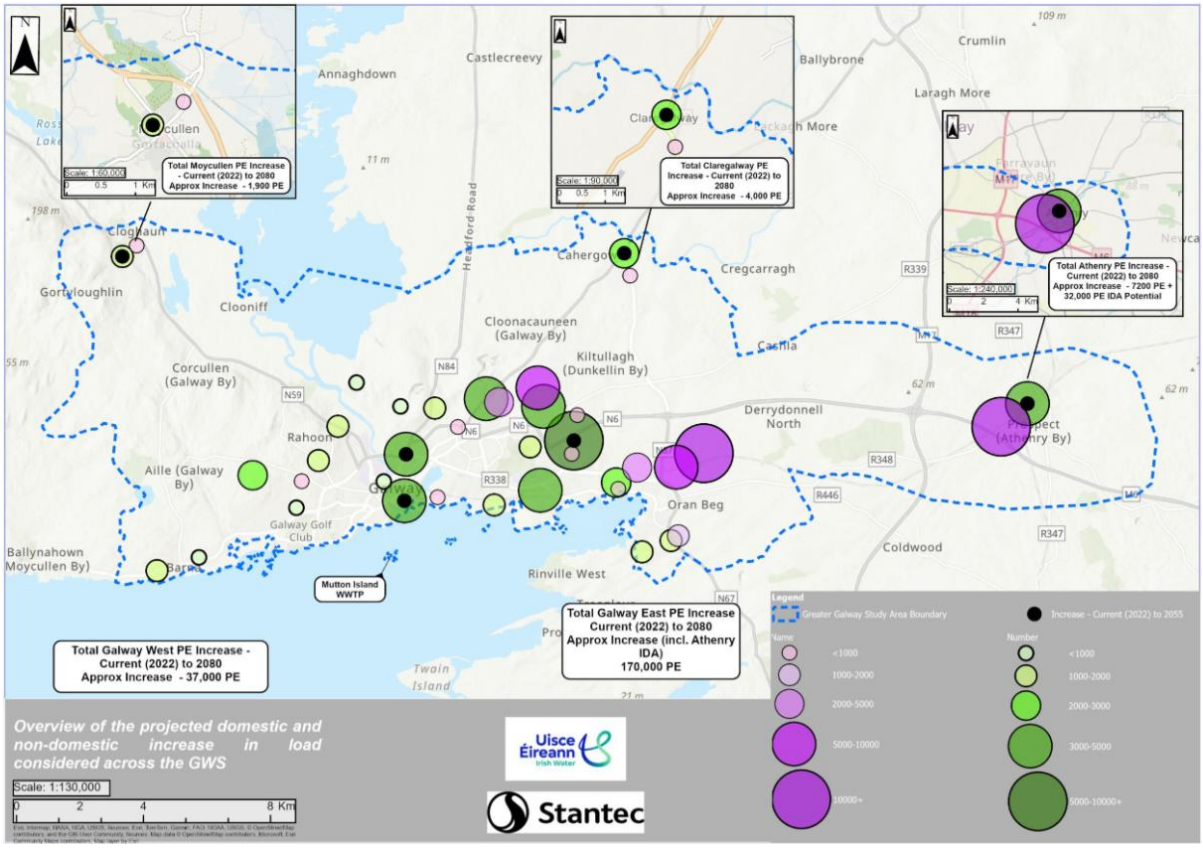


Figure 8-1 Overview of the projected domestic and non-domestic increase in load considered across the GWS

According to upper bound estimates, the analysis suggests that, in the absence of intervention, Mutton Island (serving Galway City, Bearna, and Oranmore) and Athenry are projected to exceed their design capacities by the 2040 design horizon by 46% and 23%, respectively.

Moycullen and Claregalway are anticipated to *marginally* surpass their current design capacities by 8% and 5% by 2055. These latter agglomerations are expected to remain operational through to 2080, contingent upon ongoing monitoring of strategic growth, targeted infrastructure enhancements, and capacity optimisation initiatives to maximise existing assets, pending further detailed modelling and appraisal within the Strategy.

The growth projections show that both Mutton Island (Galway City) and Athenry agglomerations may require significant investment, underscoring the importance of prompt action during the Strategy's option development process.

8.2 Climate Change

We have used the Environmental Protection Agency's (EPA) National Climate Change Risk Assessment (NCCRA)[2] to identify reliable data sources on projected climate conditions in Ireland. The TRANSLATE project[3] developed by Met Éireann, offers a standardized suite of bias-corrected climate projections and services tailored to Ireland and are accessible through Met Éireann's TRANSLATE portal (TRANSLATE Project). The UK Climate Projections 2018 (UKCP18) are used in assessing coastal flood risks and to inform strategies to address potential impacts on coastal infrastructure and habitats in Ireland.

The NCCRA recommends that climate change risk assessments should consider three time horizons throughout the 21st century (2030, 2050 and 2100) and two scenarios of changing concentrations of greenhouse gases, known as Representative Concentration Pathways (RCP). RCPs specify a timeline of evolving atmospheric radiative forcing through to the year 2100, and the NCCRA specifies that RCP4.5 and RCP8.5 should be considered, representing a medium level of emissions and a high level of emissions, respectively.

For the GWS, we used the 2100 projections for our 2080 design horizon and the 2050 projections for our 2055 design horizon for both RCP4.5 and RCP8.5 emission levels. The difference between RCP4.5 and RCP8.5 scenarios remains minor through 2030, indicating that the degree of warming from present day to 2030 is relatively small. Climate change projections were not applied to the 2030 design horizon.

9. Current and Future Performance of the Wastewater System

Historical data from wastewater treatment plants and modelling of the sewer network have been used to understand how the system performs today. The same models were then used to test how the system is likely to perform in the future, taking account of population growth and the effects of climate change.

This analysis helps identify where the current wastewater system does not meet required standards, and where future pressures could create risks to capacity, performance, or environmental compliance. The results are presented by agglomeration, with an overview of the sewer network followed by an assessment of each wastewater treatment plant.

Further detail is provided in *Appendix 3 - Status and Performance of Wastewater System.*

9.1 Wastewater Treatment Plant - Performance

There are four WWTPs in the GWS study area: Mutton Island, Athenry, Moycullen and Claregalway. Each site has been considered individually and assessed. Our assessment of WWTP performance considers the hydraulic and biological constraints at each site alongside current loadings and headroom allowance. We have looked at the peak collected load, dry weather flow (DWF) and the flow to full treatment (FFT) capacity to identify risks relating to the capacity of the works.

We have used the last 5 years of final effluent data to assess the efficacy of the treatment process and how consistently it achieves compliance with ELVs. This helped us identify if any other treatment processes would constrain the ability of the site to achieve the ELVs set out in the discharge licence. We also considered the status of the receiving water and the impact of discharges on WFD classifications.

All WWTPs currently operate within their design capacity. Both capacity and compliance risks have been identified at Mutton Island (Galway City) and Athenry.

More than 90% of the growth within the study area is expected to be treated at **Mutton Island** WWTP. Without intervention, projections indicate that the WWTP will exceed its design capacity (170,000 PE) before 2040, even under the lowest growth projections. Coastal flood risk modelling indicates no significant risk to the WWTP site itself, although the causeway may occasionally be overtopped during storms. Further investigation into coastal flood risk is recommended.

In its current configuration, **Athenry** WWTP has a capability up to 9,500PE as specified in the Annual Environmental Report. If housing development accelerates over the next 15 years at the rate specified in the RSES, the facility's capacity may be exceeded by 2030. The scale of growth poses a risk to the plant's ability to meet its discharge licence requirement. The downstream reach of the River Clarin from the WWTP has 'Poor' WFD status and the flow in the receiving waterbody can be very low on occasions, which raises concerns about future treatment capacity at the site.

Projected growth in the **Claregalway** area indicates that the WWTP will be able to absorb the additional load up to the planning horizon of 2055. Water quality modelling demonstrates that treatment and discharge to the existing location will remain feasible through 2080 using presently

available technologies. Analysis has indicated that the plant would benefit from having more load received at the works, to allow the biological processes to operate more efficiently.

Similarly, the **Moycullen** WWTP is expected to be able to meet growth up to 2055. No flow monitoring is installed at the inlet works to measure total inlet flow, which makes any assessment of flow unreliable. As we monitor growth over the period of the strategy, the WWTP will need to implement a flow measurement system, compliant with industry standards. Water quality modelling demonstrates that treatment and discharge to the existing location will remain feasible through 2080 using presently available technologies.

9.2 Network – Stormwater Overflows (SWOs)

There are 29 SWOs in the GWS study area, 26 are located in Galway City, 2 in Athenry and 1 in Moycullen. As such, our analysis of performance is heavily focused in the Galway City agglomeration.

Overall, Galway City presents significant risks which must be addressed as a priority. The agglomeration has several concerns related to network and treatment performance without any intervention: In relation to current environmental performance criteria, aesthetic issues have been identified and risks associated with nearby recreational waters have been identified. There is also a SWO that operates in dry weather conditions. In future, there are risks related to non-conformance with the non-binding indicative target outlined in Annex V of the rUWWTD.

Athenry is classified as a medium-risk catchment regarding network performance but there is a potential for non-adherence with the non-binding objective outlined in Annex V of the rUWWTD.

Moycullen is classified as a low-risk catchment regarding network performance. Sewer network modelling demonstrates that outlet flows require aesthetic screening, however, the frequency and volume of discharges for all growth scenarios can be considered negligible and therefore does not have any other associated risks.

Claregalway is a fully modern separate sewerage system and therefore does not have any SWOs and any associated risks.

9.3 Network – Flood Risk

Flood risk has been assessed for each sub-catchment in the study area using the baseline model and the 2055 and 2080 growth models. The 2055 model uses the rainfall climate change uplift factor of 20%, and the 2080 model uses an uplift factor of 25%. Flood risk has been assessed using 1-in-20-year return period storms. The analysis reports hydraulic flooding predicted in the sewer network models and does not consider other flooding causes, such as equipment failure.

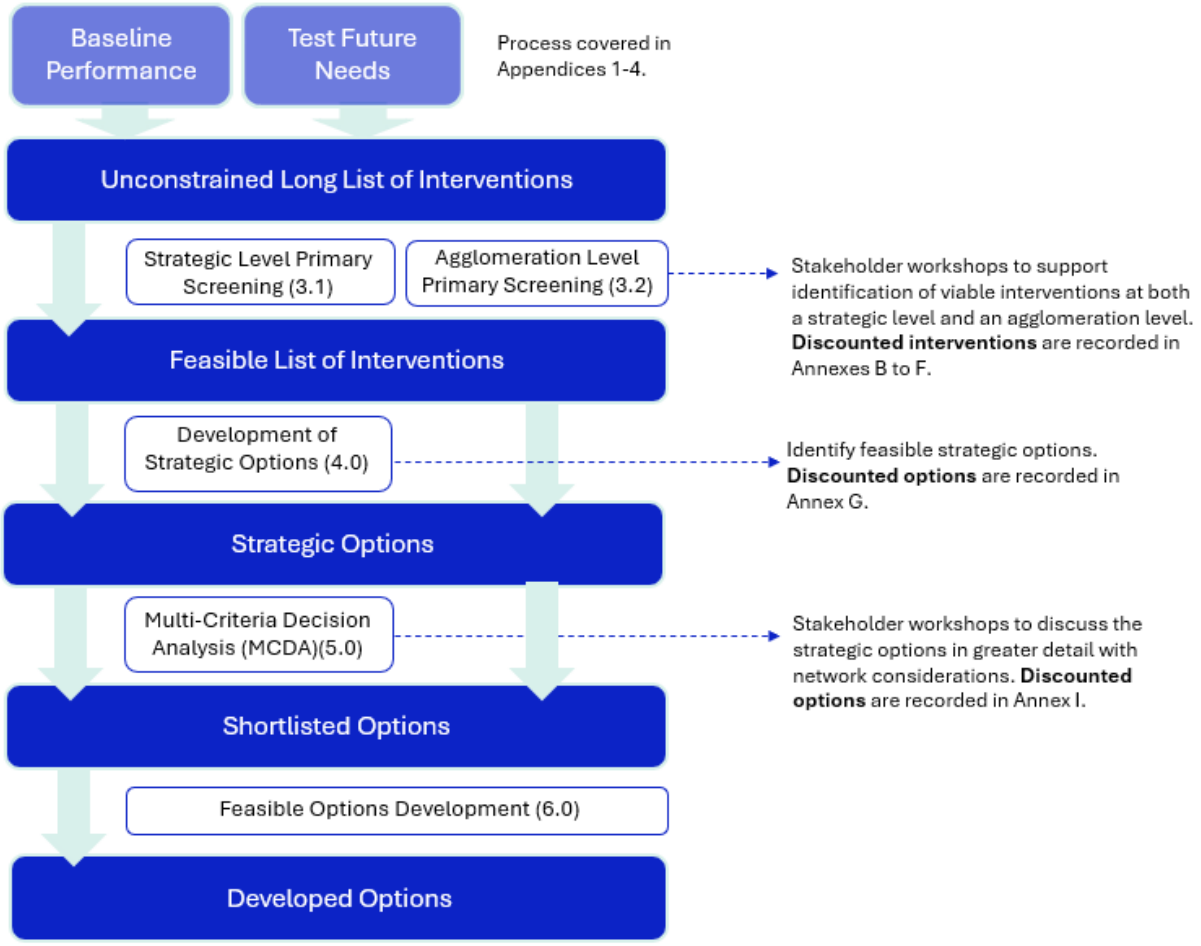
These results show a close correlation between reported flooding and model predicted flood risk which is predominantly in the urban areas of the Galway City agglomeration. There are three sub-catchment areas classified as high in terms of flood risk in the baseline which rises to 12 by 2080. Similarly, there are three sub-catchment areas classified as medium risk in the baseline which rises to five by 2080, and 29 sub-catchment areas deemed to be low risk which reduces to 18 in 2080.

As detailed in *Appendix 2 - Our Approach To Modelling and Climate Change*, there is low confidence provided for the Moycullen agglomeration as no sewer network monitoring was available to assess the distribution of urban runoff in the sewer network which reduces confidence in model predictions for flood risk. This does not impact on the strategic options that have been assessed.

10.Interventions and Strategic Options Development

A summary of the GWS methodology is provided in Section 5, and this section highlights the key processes undertaken during the optioneering and solution development phase. The optioneering process builds on the analysis and modelling set out in the preceding sections (see Figure 10-1). For a more comprehensive description, please refer to *Appendix 5 – Our Approach to Optioneering and Feasible Option Development*.

Figure 10-1: The optioneering process adopted for Galway Wastewater Strategy



The following terminology is used in this, and subsequent sections:

- **Interventions** - are actions that we could be undertaken to address the root cause of an issue. Interventions have the potential to provide a performance improvement (e.g. capacity, compliance, resilience, cost efficiency) or mitigate a risk in the system.
- **Options** - An option may be a combination of interventions assembled into a plan to solve the needs addressed as part of the GWS risk assessment. They provide alternative ways of meeting the GWS objectives and are compared against each other.

Scenarios - a set of external assumptions (such as demographics, climate, regulatory) about the future under which options are tested. They provide context for testing options or interventions. These have largely been tested in Galway Westwater Strategy *Appendices 1-4*.

10.1 Unconstrained Long List of Interventions

From the analysis and modelling undertaken and set out in *Appendices 1-4*, we identified a long list of all possible interventions that could partially or wholly address the identified needs. The list was populated through engagement with internal subject matter experts and stakeholders, and examples taken from good practice and comparable strategies.

Each intervention was categorised under the TOTEX hierarchy (see **Error! Reference source not found.**). The Totex hierarchy structures interventions by whole life cost, from lowest cost to greatest. Lower Totex options focus on eliminating the need for investment, before seeking to optimise or adapt existing assets and only 'fabricating' new assets as a last resort. This approach supports and promotes low carbon development and cost-effective options

The TOTEX hierarchy was used to guide the optioneering process in a balanced manner. Options requiring greater levels of collaboration were not excluded early simply because they appeared more challenging to deliver. Recognising that collaborative options can offer significant long-term benefits; these options were given full consideration alongside more conventional interventions.

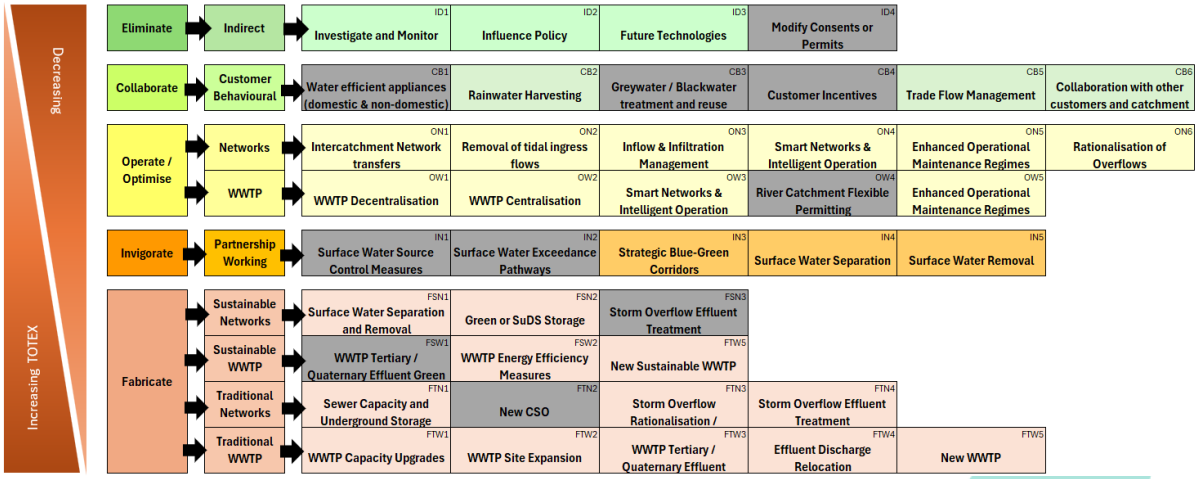


Figure 10-2 TOTEX Intervention Hierarchy with screened out interventions

10.2 Feasible List of Interventions

The long list of interventions underwent primary screening, to remove those options that were not viable for the Galway region. Primary screening was carried out through several workshops, which focused on both the strategic issues and agglomeration-specific problems.

The strategic screening process identified future growth as the main challenge for wastewater services in the region. Overall treatment capacity is not sufficient to support expected population and economic growth over the coming decades. To meet future needs, additional treatment capacity will be required, either through expanding existing wastewater treatment plants or developing a new facility.

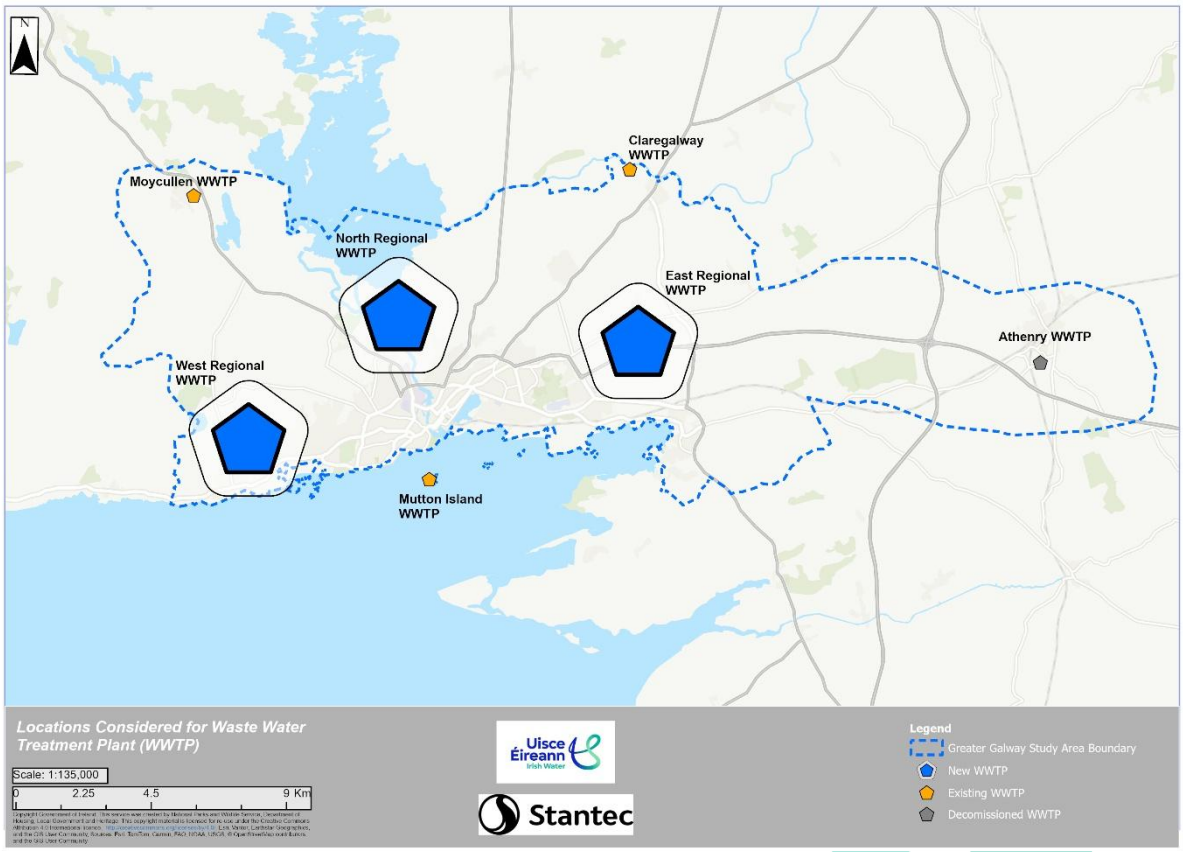
Assessment of existing treatment plants showed that large-scale expansion would be constrained in many locations, particularly due to environmental sensitivities and the potential impacts of increased discharges on local water bodies. As a result, the strategic screening concluded that a new regional wastewater treatment plant would be required.

Screening at agglomeration level focused on more local issues within individual towns and communities. Each area has its own network characteristics and challenges, and the screening identified targeted solutions suited to each location. These local assessments were considered alongside the wider strategic decisions, recognising that some local issues depend on the overall regional solution. Detailed development of local options will therefore take place once the strategic approach is confirmed.

10.3 Strategic Options

Based on the identified need for a new WWTP in the region, three areas were considered as feasible options (see Figure 10-3).

Figure 10-3 Possible locations for a new regional WWTP



At this stage of the GWS, broad or indicative locations are sufficient to test long-term options. Identifying the exact location of a new wastewater treatment plant is not required yet and will be considered later through a detailed site-selection process after the strategy is published.

A key factor in identifying suitable locations is access to an appropriate discharge point for treated wastewater. Both coastal and freshwater discharge options were considered. Dispersion modelling to assess the suitability of multiple outfall locations and their potential environmental impacts was assessed. This considered how well receiving waters could safely accommodate treated discharges.

For coastal options, the assessment considered factors such as dilution, water depth, engineering complexity, and environmental and regulatory constraints. Two coastal discharge options were identified for further consideration, one to the east of Galway Bay and one to the west. For freshwater options, most rivers and lakes were found to have limited capacity to receive large discharges. Only the River Corrib was identified as a feasible freshwater option.

Combining the potential treatment locations and discharge options resulted in a number of strategic options. As the choice of location would strongly influence the long-term wastewater strategy for the region, a multi-criteria assessment was carried out to compare the options and understand their different impacts.

At a local level, the screening confirmed that wastewater from Moycullen and Claregalway will continue to be treated at their existing facilities. These treatment plants have sufficient capacity to support growth up to 2055, and their distance from any proposed regional facility makes transferring flows impractical.

10.4 Multi-Criteria Decision Analysis (MCDA)

Each scenario underwent a comparative assessment using MCDA to determine which offer the greatest benefits across a set of pre-defined criteria. Multi-Criteria Decision Analysis (MCDA) is a robust methodology used to identify preferences where the perspectives of multiple stakeholders need to be considered.

Decision matrices were employed during the shortlisting process at workshops to calculate the overall value of each option, enabling the summation and ranking of optimal options. Participants scored each option against the specific criterion in a stepwise fashion. This approach supported the development of a shared understanding and helped facilitate consensus among stakeholders and technical experts. The MCDA process is summarised in Figure **10-4**10-7.

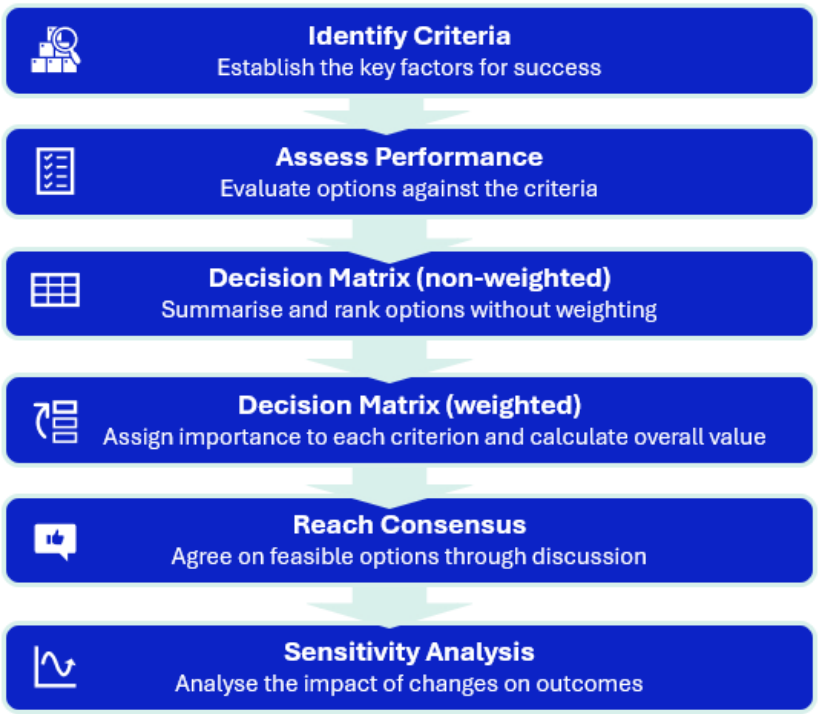


Figure 10-4: Summary of the MCDA process

10.5 MCDA Results

The eastern regional WWTP was seen as a more favourable location due to its proximity to the areas identified for both commercial and domestic growth (82% of growth to the east of the study area). The western and northern sites would require substantial conveyancing across the urban centre from the areas of growth to the treatment centre. The conveyancing needs would be more costly to build but would also have higher operating costs due to pumping requirements.

The northern location was less favourable due to the need for it to be constructed within a highly constrained urban site. The greater density of existing infrastructure, logistics and site access will have a greater impact on local connectivity and accessibility of surrounding areas with broader socio-economic impacts. The northern site is the most convenient location for the River Corrib discharge location, however this was the least favourable discharge location. There was a greater environmental risk identified here due to the proximity of a drinking water source, and concerns regarding public opinion due to it being a high-amenity area and recreational zone.

The scenarios with long sea outfalls were identified as more beneficial than the River Corrib discharge locations due to the greater dilution capacity of the bay. The western outfall was identified as the preferable option due to the shorter length required. The eastern outfall would need to be considerably longer than the western option, and there is a greater environmental risk due to its proximity to Special Areas of Conservation (SAC) and Special Protection Area (SPA).

11.Result of Optioneering

The optioneering process identified one feasible strategic area for developing a new regional WWTP. This new facility would provide the additional capacity needed to support future population and economic growth, while allowing wastewater to be managed in a more centralised and efficient way. The optioneering process also identified two feasible locations for a marine outfall.

The proposed approach would gradually transfer wastewater flows from the existing Mutton Island (Galway City) and Athenry treatment plants to the new regional WWTP. Reducing the load at Mutton Island (Galway City) would improve long-term resilience and help maintain compliance with environmental regulations. At Athenry, transferring flows away from the site would help protect the River Clarin and the surrounding sensitive karst environment.

11.1 Sustainability Considerations

One of the objectives of the GWS is to develop a sustainable strategy that enhances our environment. In response to national and EU climate and sustainability objectives we have considered a range of sustainability areas of focus that are consistent with the broader objectives of our sustainability framework. These measures seek to optimize the environmental performance and energy self-sufficiency of wastewater infrastructure within the region. The sustainability options include renewable energy that would be generated in the new regional WWTP, conversion of biogas into energy, heat recovery, energy efficiency, Circular Economy & Waste Minimisation, and climate adaptation.

11.2 Strategic Environmental Assessment

Strategic Environmental Assessment (SEA) and Appropriate Assessment (AA) have been integrated into the preparation of the draft GWS and have informed the development of the options assessment methodology. At this stage, the SEA is high-level and desk-based, reflecting the strategic nature of the GWS. Environmental impacts and costs will be reviewed in further detail as options progress to project-level development.

The SEA assessed all nine strategic options against the SEA Topics and Strategic Environmental Objectives (SEOs), with emphasis on environmental protection, human health, and long-term sustainability. In parallel, a Multi-Criteria Decision Analysis (MCDA) was undertaken, focusing on engineering feasibility, deliverability, resilience, flexibility, and regulatory risk. Differences in emphasis explain variations between SEA and MCDA outcomes.

The MCDA identified Option 9 (eastern WWTP with eastern outfall) and Option 7 (eastern WWTP with western outfall) as preferred options. SEA assessment confirmed that both options perform satisfactorily across all SEA Topics and are consistent with the SEOs. Both include advanced wastewater treatment, monitoring and energy performance standards required under the rUWWTD by 2045 and provide appropriate solutions for the safe discharge of treated effluent.

The SEA identified marine outfalls to the east and west of Galway Bay as more suitable than river discharge, subject to careful siting and design. The selection of preferred options is supported by

commitments to mitigation, monitoring, and phased implementation, overseen by the Environmental Protection Agency and the Commission for Regulation of Utilities.

12.Implementation of the Strategy

12.1 Recommended Approach to Implementation

It is recommended that the GWS is implemented in a phased manner, aligned with our capital investment planning framework and regulatory oversight from the Commission for Regulation of Utilities (CRU) and the Environmental Protection Agency (EPA). Due to the scale and complexity of the proposed interventions, delivery will span several investment cycles, with total costs expected to exceed €1 billion. Figure 12-1 gives a high-level overview of the Strategy's delivery timeline. The Strategy anticipates a phased delivery aligned with the next three regulatory control periods (RC4 to RC6). This phasing will ensure alignment with the plans being developed under the Galway City Drainage Area Plan (DAP) project.

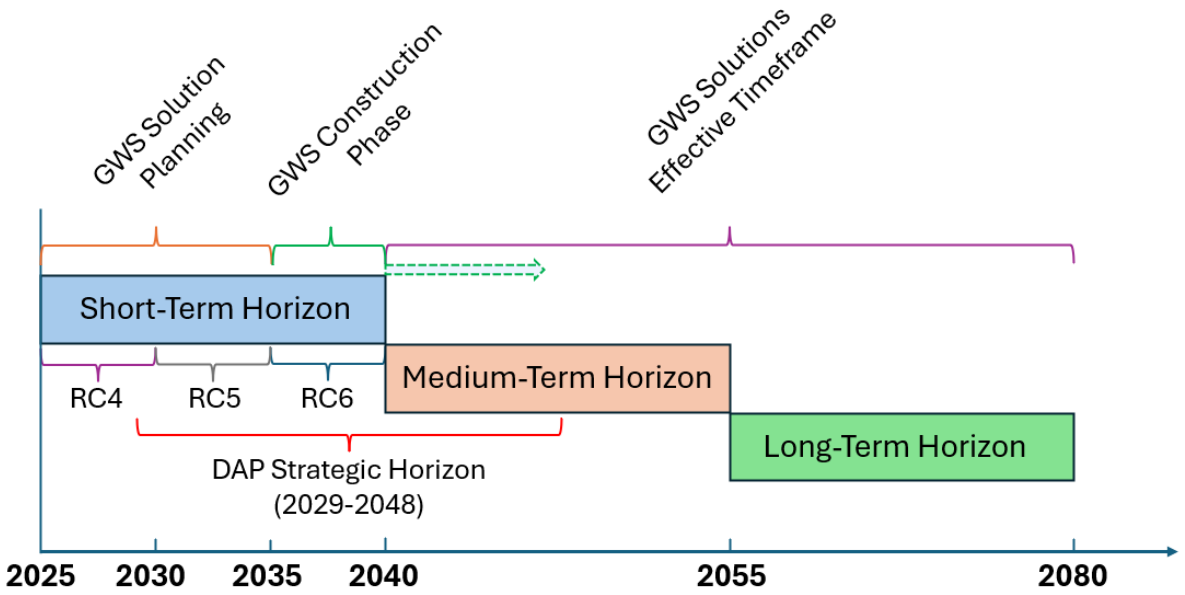


Figure 12-1: High-Level Strategy Horizon Timeline

12.2 Adaptive Planning

Given the dynamic and evolving nature of climate change, environmental legislation, and technological innovation, it is important that the GWS can remain adaptable to changes. Adaptive pathways have been identified as part of the Strategy's framework and align with objectives of the Water Services Strategic Plan.

As adaptive pathways approach provides flexibility and will help us to manage uncertainty over long-term planning horizons. The adaptive pathway will identify decision points and sequence interventions to accommodate changes in knowledge, regulation, or societal needs, while maintaining strategic coherence.

The GWS will remain a living document—capable of evolving in step with changing conditions and continuing to deliver long-term environmental, social, and economic benefits. This will help to create flexible and robust strategies over time, avoiding premature decisions or maladaptation. This and future iterations of this document should be considered in the continual evolution of the GWS.

13. Monitoring and Evaluation

13.1 How will the Strategy be Monitored?

The GWS will be monitored through a robust framework of Key Performance Indicators (KPIs), data collection, and reporting mechanisms to ensure the effectiveness of wastewater management. The KPIs will focus on:

- **Regulatory Compliance**: Measuring adherence to Urban Wastewater Treatment Directive (UWWTD) and Water Framework Directive (WFD) standards.
- **Ambient Water Quality Monitoring:** Ensuring that no deterioration of water quality occurs as part of RBMP monitoring.
- **Network Performance:** Monitoring stormwater overflow event frequency and sewer network capacity to prevent flooding risks.
- **Treatment Efficiency**: Evaluating WWTP removal efficiency in line with UWWTD requirements and licencing provision.
- **Annual Environmental Reports**: Monitor WWTP performance annually against environmental licence conditions to track any deterioration in performance.

The monitoring plan is a requirement under the SEA regulations to provide a basis of identifying significant environmental effects during the implementation of the plan. This is required to review the predicted impacts of the draft GWS, and the adequacy of the mitigation measures recommended so that additional mitigation can be applied if required. Performance against the monitoring plan targets will also inform the next cycle Wastewater Strategy Plan and SEA process.

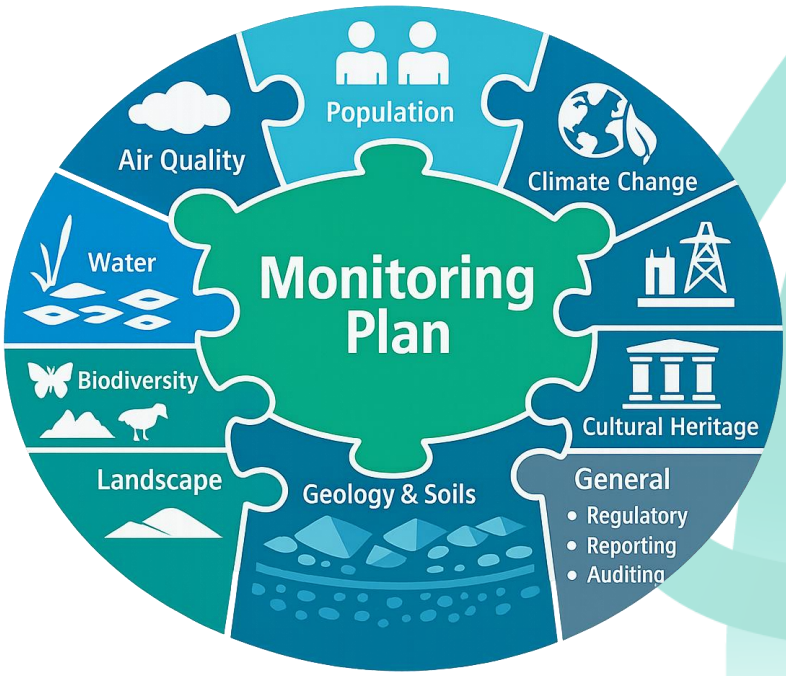


Figure 13-1: SEA Objectives Requiring General Mitigation Measures

The monitoring plan covers the integration of environmental and sustainability considerations throughout implementation of the draft GWS and the options development methodology. It also provides a framework for future long-term monitoring. In most cases, more detailed baseline collection and project studies will be required to confirm the significance of environmental effects and ensure appropriate mitigation is included as part of the scheme designs.

A draft Monitoring Plan is provided in the *SEA Environmental Report* and will be updated following consultation. It will form part of the SEA statement to be published with the Final Strategy.

13.2 Tracking Progress

To ensure the long-term effectiveness of the strategy, progress will be reviewed on a six-year cycle, in alignment with the Water Framework Directive's River Basin Management Planning cycle and the proposed review timelines under the recast Urban Wastewater Treatment Directive

It is recommended that population projections be regularly reviewed and updated alongside Strategy revisions, ensuring alignment with emerging data and enabling the timely incorporation of adaptive pathways as necessary

13.3 Key Risks and Mitigation Strategies

The delivery of the Galway Wastewater Strategy (GWS) is subject to a range of technical, financial, environmental and regulatory risks. The projects that implement elements of the Strategy will require robust, proportionate and adaptive risk management processes as they progress through site selection, statutory planning, design, procurement and construction. Effective risk identification, mitigation and monitoring at each project stage will be essential to ensure deliverability, regulatory compliance and alignment with the long-term objectives of the Strategy.

This approach will rely on integrated mitigation strategies, early stakeholder engagement, and contingency planning. The following outlines a representative sample of key risks associated with a project of the GWS's scale and complexity, along with proposed mitigation measures.

Managing these risks effectively will require a proactive, systems-based approach that allows for ongoing review, adaptation, and collaboration across regulatory, financial, and community stakeholders. Embedding resilience into the Strategy from the outset - guided by frameworks such as the 4 R's (Robustness, Redundancy, Resourcefulness, Rapidity) - will ensure that GWS investments are future-proofed, sustainable, and responsive to evolving challenges.

14. Conclusion

14.1 Recommendations

Based on the assessment undertaken as part of the draft GWS, it is recommended that

- **a new Regional Galway East Wastewater Treatment Plant (WWTP**) is progressed to meet the long-term wastewater treatment needs of the study area and to provide sufficient capacity, resilience and environmental protection up to 2080.
- **Enhancements to treatment capacity at Mutton Island (Galway City) and Athenry** Wastewater Treatment Plants in the short term to meet population demands. Works on these plants is planned within the 2040 investment cycle.
- Once the new Regional Galway East plant is commissioned, there will be a gradual **transfer of loads from Mutton Island (Galway City) and Athenry** to reduce loading pressures on the existing plants, protect the environment, and manage long term regulatory risk. Mutton Island WWTP will continue to operate at a reduced capacity and the Athenry plant will become a pumping station to transfer load to the new Regional Galway East WWTP.
- **Treatment at Moycullen and Claregalway Wastewater Treatment Plants** will be maintained with future upgrades informed by population and economic growth projections.

The new Regional Galway East WWTP will need to be initiated in the short-term to address emerging capacity and compliance pressures and this will include a full site selection and environmental assessment process. The facility will be designed on a modular basis, enabling phased expansion to accommodate future growth, with an ultimate treatment capacity of up to 400,000 population equivalent (PE), by 2080. Over this period, the PE in the study area is projected to increase from 160,300 to 383,300. The proposed infrastructure would provide wastewater treatment capacity equivalent to that required for approximately 82,500 additional houses.

The development of the Regional Galway East WWTP will:

- Enable the diversion of wastewater load from the eastern part of Galway City away from the existing Mutton Island WWTP, thereby relieving pressure on existing infrastructure, improving system resilience, and supporting future growth in a sustainable manner.
- Facilitate the decommissioning of the existing Athenry Wastewater Treatment Plant, with wastewater flows from Athenry to be pumped to the new Regional Galway East WWTP, providing a more sustainable, efficient and resilient regional wastewater solution.

To support delivery of the recommended Regional Galway East WWTP, two discharge outfall options are identified for further assessment and consideration.

- **Option 1:** A discharge outfall located in the eastern part of Galway Bay, approximately 3.5 kilometres from the shore.
- **Option 2:** A discharge outfall located in the western part of Galway Bay, approximately 1 kilometre from shore.

Progression of these options to the next stage will enable more detailed assessment, including environmental, technical and deliverability considerations, to inform the identification of a preferred solution.

These options represent the **most viable and robust strategic solutions** identified through the Strategy's optioneering and assessment process. Both options can meet the Strategy's objectives, achieving long-term regulatory compliance, protecting the receiving environment, and providing a resilient wastewater service to 2080.

Figure 14-1 Galway Wastewater Strategy Infogrpahic

14.2 Next Steps

1. **Post-Consultation (PC2) Stakeholder Responses and Integration**

   The consultation phase (PC2) will gather formal feedback from a broad range of stakeholders. This phase will play a critical role in ensuring the final Strategy is inclusive, transparent, and responsive to local needs. The feedback will be reviewed and used to inform the next iteration of the Strategy.

2. **Finalisation of the Strategy Document**

   Following consultation and refinement, the final GWS will be published. This will provide a clear and actionable roadmap for implementation and ensure continued alignment with regulatory and environmental policy frameworks. Ensure that Key Performance Indicators (KPIs) are appropriate to support transparent monitoring and evaluation of the Strategy as we move forward. The Strategy's final publication will also be accompanied by the Strategic Environmental Assessment (SEA) Determination and the Natura Impact Statement (NIS), completing the required environmental assessments.