



Water Services Authority
Taumata Arowai

National Engineering Design Standards proposal document

August 2026



Contents

Section 1: Overview of the NEDS	3
1.1 What are the NEDS?	3
1.2 Why do we need the NEDS?	4
1.3 The previous government's work on national codes.....	5
Section 2: Sector engagement	6
2.1 We are seeking early sector feedback on the NEDS framework	6
2.2 How to provide your feedback	6
Section 3: The proposed NEDS framework	7
3.1 The common objectives.....	9
3.2 How the codes of practice are structured	10
3.3 The codes could be structured by component or lifecycle activity	11
Section 4: The prioritisation approach	14
4.1 The prioritised approach is our preferred option.....	16
4.2 How we will prioritise the first set of NEDS and codes of practice	16
Section 5: Potential cost savings from the NEDS.....	18
Section 6: Iwi/Māori rights and interests in relation to the NEDS	19
Section 7: Further information and next steps	20
7.1 Further information can be found at our website	20
7.2 Next steps	21

Section 1: Overview of the NEDS

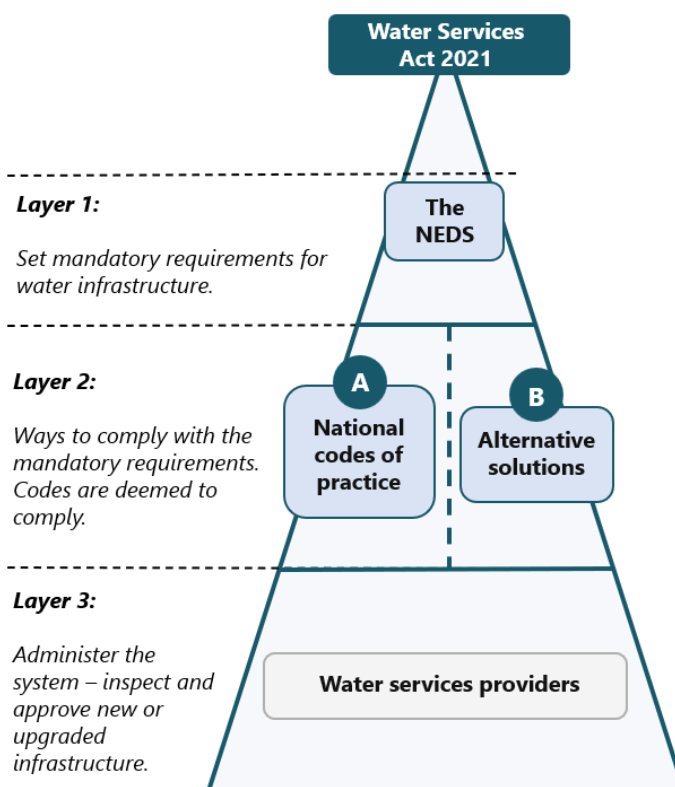
1.1 What are the NEDS?

The Water Services Authority – Taumata Arowai is developing National Engineering Design Standards (NEDS), which is a new national regulatory framework for water infrastructure under the Water Services Act 2021 (Part 3).

Layer 1: Mandatory performance standards

The NEDS will set national performance standards covering the lifecycle of all water services infrastructure – covering the design, construction, operational performance, maintenance and decommissioning of water supply, wastewater and stormwater infrastructure.

Water service providers (councils and water organisations), developers and others such as contractors will be required to comply with the standards when new infrastructure is built, or existing infrastructure is upgraded.



Performance standards focus on what infrastructure must achieve, rather than setting out how exactly those outcomes must be achieved. This will allow water service providers to take flexible design approaches and innovate, as long as they meet the standards.

Layer 2: Ways to comply with the standards

Optional **codes of practice** will provide recognised “deemed-to-comply” pathways, where following a code will enable compliance with the mandatory requirements. Codes of practice can be thought of as “how-to-build” guides that, like an acceptable solution under the Building Code, are a way to comply with the mandatory standards. The codes of practice will include detailed technical specifications, design requirements and engineering guidance.

Water service providers can approve an **alternative solution**, as an alternative to a code of practice. Alternative solutions must fully comply with the mandatory standards and are a

way to ensure that local or innovative ways to build or renew infrastructure can continue as part of the framework.

Layer 3: Water service providers will administer the system

Water service providers will administer the new arrangements by inspecting and approving private developments to ensure they comply with the mandatory standards before they connect with the provider's infrastructure or vest in their ownership. Councils must implement water services bylaws setting out the process for inspection and approval.

Water service providers must also ensure that infrastructure they upgrade or maintain complies with the mandatory standards.

1.2 Why do we need the NEDS?

The NEDS have the potential to result in significant cost savings to water infrastructure that will benefit all stakeholders. The NEDS will support more sustainable water infrastructure and more affordable water services. There is also the potential for significant reductions in uncertainty, duplication, time and cost for water service providers and developers.

Having a consistent national framework will make the planning, design, approvals and construction of water infrastructure more efficient and cost-effective. This is especially important as we know that New Zealand's ageing water infrastructure requires significant investment and upgrading in order to ensure New Zealanders have access to safe, reliable and sustainable water services.

Currently, councils each use their own engineering standards, which has led to a fragmented system with inconsistent requirements across the country. There are currently up to 45 different codes in use across New Zealand. As a result, water infrastructure is designed and built under a range of different local standards.

This fragmented approach creates inefficiencies, inconsistency, duplication, and uncertainty for water service providers, councils, developers, and suppliers. It also makes it difficult to know whether there are consistent public health, environmental performance, resilience, and value-for-money outcomes across the country.

The NEDS will replace this fragmented system and apply a nationally consistent approach to the design, construction, operation, maintenance and decommissioning of water supply, wastewater, and stormwater infrastructure.

More information on how the NEDS will result in cost and time savings can be found in section 5.

1.3 The previous government's work on national codes

The previous government's National Transition Unit (NTU) developed draft national engineering design codes and tested them with the sector. This work paused during the shift to Local Water Done Well.

Since then, changes to the Water Services Act have introduced a requirement for the Authority to set NEDS. The Act now requires the NEDS to set mandatory performance requirements with optional codes of practice.

The NTU draft documents were developed for a different regulatory model. They combined "how to build" guidelines with detailed rules. They are better understood as codes of practice under the current framework.

The NTU drafts are a useful starting point, but they need to be updated to fit the new legislative framework and ensure they apply to water service providers' current context.

Section 2: Sector engagement

2.1 We are seeking early sector feedback on the NEDS framework

We are seeking early input from water service providers, practitioners and organisations working in the water sector as we develop the overall structure for the NEDS framework.

We are seeking your feedback on two key areas:

- 1. The overall framework for the NEDS** – how the standards and codes of practice will be organised.
- 2. The prioritisation approach** – how we will decide which areas to prioritise to develop national standards and codes of practice.

Your early feedback will help inform the policy and technical development of the NEDS. We will keep working with the sector as we develop the technical detail. A technical reference group will provide specialist advice throughout the project.

We plan to undertake public consultation on the draft standards and codes of practice in mid-2027, as required by the Water Services Act. This will provide further opportunity for you to give feedback on the technical detail of the standards and codes.

2.2 How to provide your feedback

Please provide your feedback by 5pm on **Friday 11 September 2026**. You can provide feedback by:

- Completing the online survey at the Citizen Space portal:
korero.taumataarowai.govt.nz/regulatory/neds
- Complete the information about yourself and then attach a document summarising your feedback to the online survey; or
- Sending responses to the questions in the proposal document to:
 - neds@taumataarowai.govt.nz, or
 - via post to Level 2, 10 Brandon Street, PO Box 628, Wellington 6140, New Zealand.

Please include your name, or the name of your organisation, and contact details with your feedback.

If you start responding to the questions in the Citizen Space portal and want to return to it later, select the 'save and come back later' option at the bottom of the page to save progress.

You can get in touch with the Water Services Authority NEDS project team at neds@taumataarowai.govt.nz.

Section 3: The proposed NEDS framework

We are seeking your feedback on the overall framework for the NEDS – how the standards and codes of practice will be structured and organised.

The proposed framework will contain:

1. **Common objectives:** mandatory high-level outcomes that apply to all three waters infrastructure.
2. Mandatory requirements that are specific to different types of water infrastructure:
 - **Functional requirements** (what the infrastructure must do)
 - **Performance requirements** (the benchmark for deciding whether the functional requirement is met).
3. Compliance pathways – recognised ways of meeting the requirements:
 - **Codes of practice** set out optional deemed-to-comply pathways
 - **Alternative solutions** may be approved by water service providers, but they must meet the mandatory requirements.

Question box 1: The overall NEDS framework

- **Is the proposed NEDS framework clear, practical and usable for the sector?**
What would make it more practical?
- **Do you think this framework will be enduring as the Authority regularly reviews, updates and adds to the standards and codes of practice over time?**

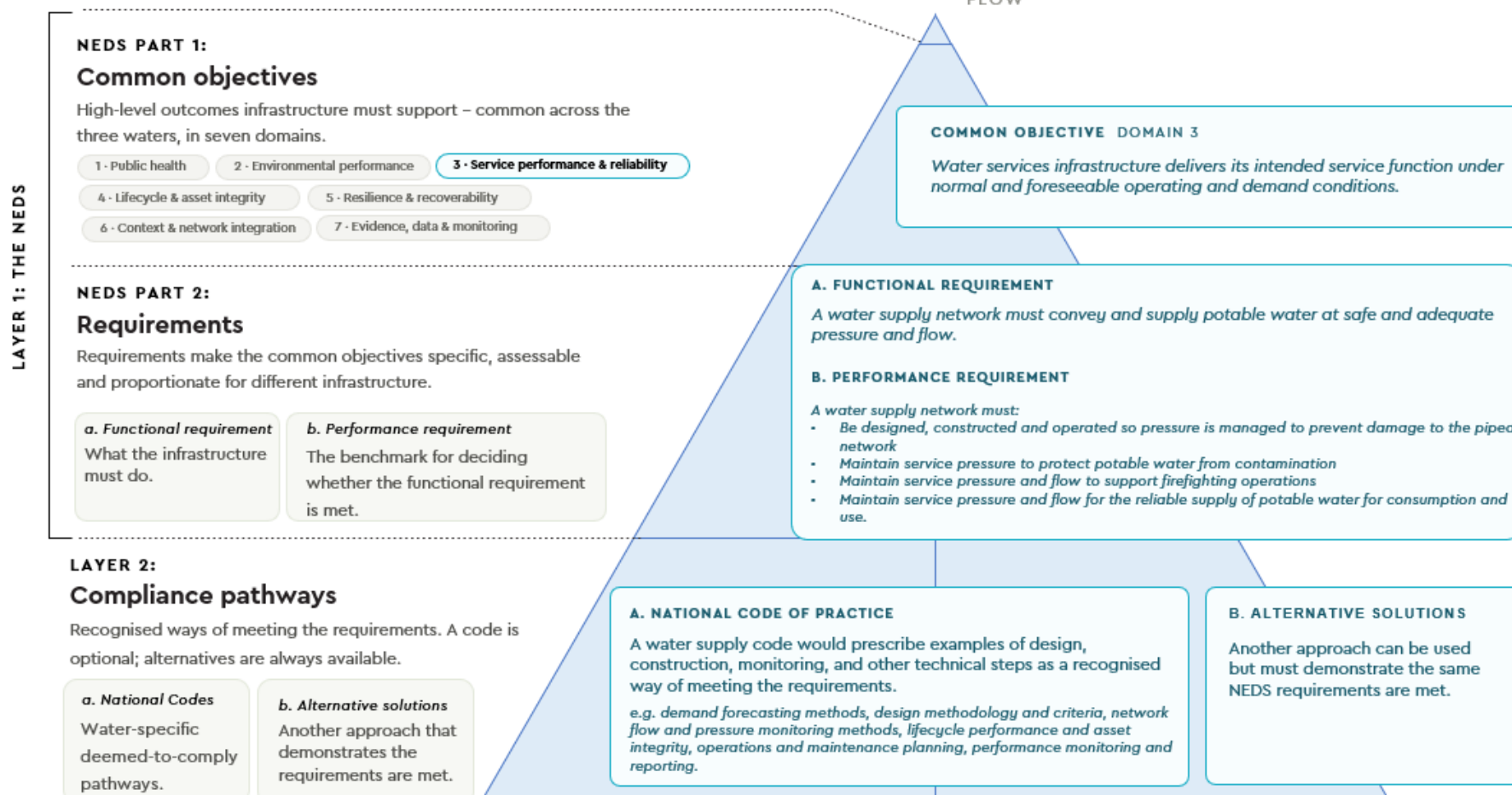
FOUNDATION

The Water Services Act 2021 (Part 3)

The legislation that underpins and enables the NEDS.

THE PREFERRED NEDS FRAMEWORK WHAT EACH LAYER MEANS

WORKED EXAMPLE WATER SUPPLY SERVICE PRESSURE & FLOW



WHAT FURTHER DEVELOPMENT DECIDES



Which requirements are developed first and where recognised Code pathways are needed.



For requirements, what level of performance is required and which infrastructure must comply.



Whether and how requirements vary based on the role or importance of different infrastructure.

3.1 The common objectives

We propose seven common objectives for water infrastructure:

1. **Public health** – Infrastructure protects public health and safety by managing infrastructure-related pathways to harm, including contamination, unsafe overflows, loss of service, and uncontrolled failure modes.
2. **Environmental protection and performance** – Infrastructure supports environmental outcomes by managing the infrastructure pathways that affect overflows, leakage, discharges, runoff, treatment performance and receiving environments.
3. **Service performance, capacity and reliability** – Infrastructure delivers its intended service function under normal and foreseeable operating and demand conditions.
4. **Lifecycle performance and asset integrity** – Infrastructure retains its required performance over its intended life, including through durability, maintainability, operability, renewability and asset integrity.
5. **Resilience and recoverability** – Infrastructure can withstand, adapt to, recover from, or safely fail under defined shocks and long-term stresses, including natural hazards, climate-related pressures and other disruption events.
6. **Context suitability and network integration** – Infrastructure is suitable for its site and network context and can be constructed, connected, commissioned, vested and integrated in a way that supports required network performance.
7. **Performance evidence, asset data and monitoring** – Performance can be demonstrated, recorded, monitored and improved through consistent evidence, asset data, commissioning information and monitoring requirements.

Question box 2: Common objectives

- **Do you think the proposed common objectives capture the most important outcomes that water infrastructure must support?**
- **Are there any other objectives you think should be included in the NEDS?**

3.2 How the codes of practice are structured

Codes of practice will provide recognised “deemed-to-comply” pathways, where following a code will enable compliance with the mandatory requirements. This is like an acceptable solution under the Building Code.

The codes of practice will provide detailed technical specifications and guidance to enable compliance with the NEDS mandatory standards.

The codes need to be organised in a way that users can navigate. The structure should reflect how designers, developers, contractors, reviewers and water service providers use compliance pathways.

We propose having separate codes for water supply, wastewater and stormwater. Each code would bring together recognised pathways for relevant infrastructure components and activities within that water service.

The codes should avoid unnecessary duplication and be easy to navigate for users. Common material that applies across the three waters, such as asset data, as-built information, commissioning records, evidence templates, standard drawing conventions or common definitions, could be held in one place and referenced across the water-specific codes. This could sit in a common part, schedule, technical standard, shared digital layer or separate code.

3.3 The codes could be structured by component or lifecycle activity

There are options for how the codes of practice are structured. We have considered two main options:

1. **Component-led structure:**

- Code chapters are organised around infrastructure components, such as pipes, pump stations, rising mains, manholes, storage or controls.
- This would be easier for designers, developers and reviewers to navigate because the requirements for a component are located together.

2. **Lifecycle-led structure:**

- Code chapters are organised around lifecycle stages, such as design, construction, commissioning, operation, maintenance, renewal and decommissioning.
- This option provides better process control and assurance but can spread the requirements for one asset across multiple sections.

We are seeking your feedback on which structure would be most practical and easy to use for the sector, or if both would be useful.

The best structure may be different depending on the kind of water infrastructure or focus area. For example, a component-led structure may work well for wastewater pump stations or drinking water storage, while a lifecycle-led structure may be useful for commissioning, handover, asset data or decommissioning requirements that cut across multiple components.

We are considering how we can use online tools to make the NEDS accessible and easy to use. For example, the NEDS could sit in an online document or portal where users can quickly navigate to the information that they need, and structure the information in a way that best works for them – i.e. by component or lifecycle.

Each code should be easy for users to navigate and should clearly show which NEDS requirements it provides a pathway for.

Question box 3: Codes of practice

- **Do you think codes of practice should be structured by component or lifecycle activity? Or both?**
- **Does the proposed structure for the codes of practice reflect how designers, developers, contractors, reviewers and water service providers use compliance pathways?**

TABLE OF CONTENTS (COMPONENT LED SPINE)

Wastewater Example

MANHOLES	PIPES	PUMPS, ETC...
 1 PLANNING AND DESIGN • System/Network Planning & Design for New Infrastructure • Planning: Design life consideration, future growth, risks, resilience • Design: Network components, Safety in Design, Capacity demand, supporting calculations and reports, Design life • Resilience, Natural Hazards – Seismic, Flooding, Resilience etc. • Verification methods	 1 PLANNING AND DESIGN	 1 PLANNING AND DESIGN
 2 CONSTRUCTION AND INSTALLATION • Excavation, trenching • Pipes, pipe laying, bedding surround, backfill • Reinstatement/Restoration	 2 CONSTRUCTION AND INSTALLATION	 2 CONSTRUCTION AND INSTALLATION
 3 COMMISSIONING AND HANDOVER • Testing, commissioning, operation manuals • Certification, warranties, QA documentation • As-builts • Asset data (Data standards) • Verification methods	 3 COMMISSIONING AND HANDOVER	 3 COMMISSIONING AND HANDOVER
 4 OPERATION AND PERFORMANCE INTERFACES • Maintainability (linked to Safety in Design) • Access for operations and maintenance • Network monitoring (flow, effluent quality, depth, velocity) • Mechanical and electrical communications, telemetry	 4 OPERATION AND PERFORMANCE INTERFACES	 4 OPERATION AND PERFORMANCE INTERFACES
 5 END OF LIFE ASSETS/DISPOSAL • Whole of life requirements • Recycle, reuse, disposal options	 5 END OF LIFE ASSETS/DISPOSAL	 5 END OF LIFE ASSETS/DISPOSAL
 6 APPENDICES • Standard drawings • Approved materials/products • Data standards	 6 APPENDICES	 6 APPENDICES

EXAMPLE TABLE OF CONTENTS (LIFECYCLE / ACTIVITY LED SPINE)

Wastewater Example

PART 1 – OBJECTIVES / PERFORMANCE STANDARDS - Performance objectives and outcomes for Water / Wastewater / Stormwater - NEDS performance standards and requirements - Scope, purpose, context and asset lifecycle - Design life, levels of service and criticality - Regulatory and legislative requirements - Performance measures and success criteria	PART 2 – PLANNING & DESIGN - System / Network Planning & Design for New Infrastructure - Planning: Consideration of design life, future growth (greenfield and infill), risks, resilience (seismic, flooding, etc.) - Resilience, Natural Hazards – seismic, geotechnical, flooding, volcanic etc. - Design: Network components, Safety in Design, Capacity demand, Supporting Calculations & Reports, Design Life - Gravity – Pipes, manholes, connections - Pumped – Pipes, pump stations, connections - Mechanical & electrical, communications, telemetry - Compliance and approvals	PART 3 – CONSTRUCTION & INSTALLATION - Excavation, trenching - Pipes, pipe laying, bedding surround, backfill - Trenchless Construction - Manholes - Structures other than manholes, pump stations, chambers – resilience, importance levels, criticality - Reinstatement / restoration - Construction Specifications – Add on Module - Standard Drawings (Standard Drawings for construction acceptance – Add on Module)
PART 4 – COMMISSIONING & HANDOVER - Testing (Compliance and approvals), commissioning, operations manuals - Certification, warranties, QA documentation - As-builts - Data handover - Compliance and approvals	PART 5 – OPERATION & PERFORMANCE INTERFACES - Maintainability (linked to Safety in Design) - Access for Operations and Maintenance - Lifecycle Operations and Maintenance Manuals - Network monitoring (flow, effluent quality, depth, velocity) - Mechanical & electrical, communications, telemetry - SCADA, control systems and operational automation	PART 6 – END OF LIFE ASSETS / DISPOSAL - Whole-of-life consideration of costs and benefits - Recycle, reuse, disposal options
APPENDICES Approved materials	<i>This lifecycle structure provides a consistent framework to guide planning, design, construction, operation, maintenance and renewal of water infrastructure assets.</i>	

Section 4: The prioritisation approach

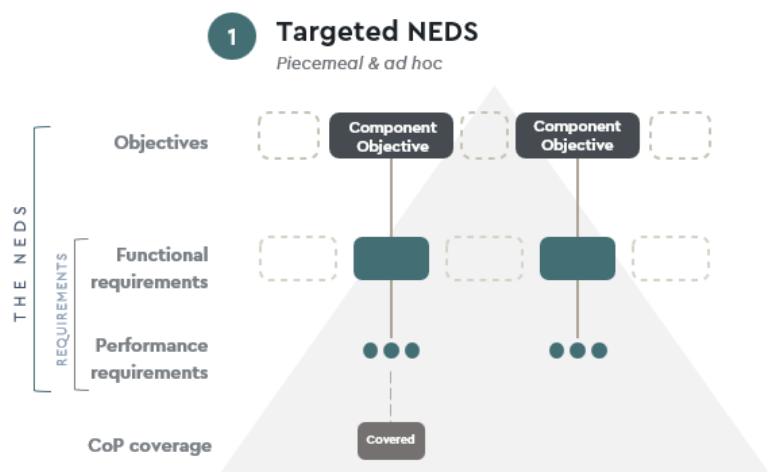
We are considering how to prioritise the first set of national standards and codes of practice – i.e. what we will develop first.

We have considered how we can develop NEDS that will achieve the following objectives:

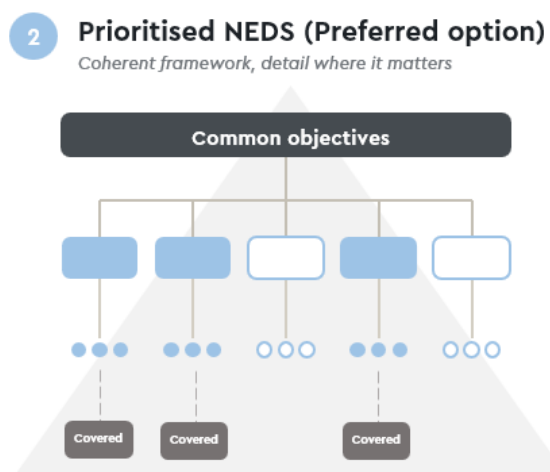
- comply with the Water Services Act
- target areas where there will be the greatest value (and regulatory benefit) in a first tranche of NEDS
- deliver a system that is usable from day one for both developers and water service providers
- support stewardship and staged development, as areas can be developed, updated and expanded over time.

There are three broad options:

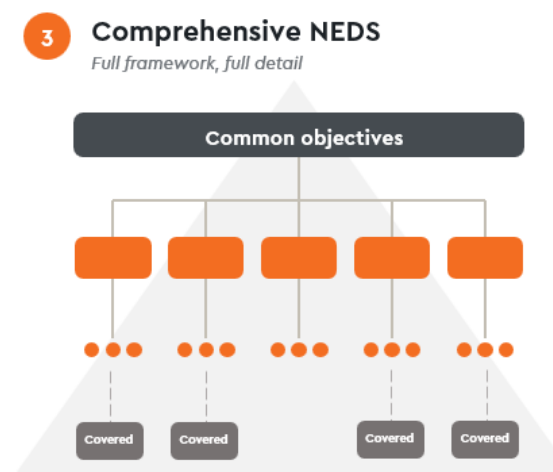
1. **Targeted NEDS:** could be established quickly targeting a small number of selected infrastructure areas. This would be unlikely to provide a complete framework for developers, and would result in ongoing inefficiencies, fragmentation and inconsistency. It would not establish a common performance framework across all water services infrastructure from the outset and would result in a more piecemeal system as further requirements are added.
2. **Prioritised NEDS (our preferred option):** a first tranche of NEDS would establish a coherent national performance framework across the three waters from day one. We would prioritise areas where national direction is expected to add the greatest value and the technical basis is ready for development. This option will provide the best value with a coherent national framework that can be expanded over time.
3. **Comprehensive NEDS:** this “all in” approach would establish a detailed set of NEDS across all areas. This would take significantly longer to develop and would delay benefits to the sector.



Objectives are set for specific infrastructure components. A handful of priority requirements hang off them, each built in full, but the framework is disconnected and ad hoc. Some Code materials are developed but this is limited.



Common objectives that apply to all water services infrastructure are developed. Priority requirements are detailed now; the rest are scoped and ready to fill in over time. Code materials are developed where they provide a strong benefit.



Every common objective and requirement is fully developed. A complete, fully-detailed framework from day one, at the largest initial effort. Code materials for most requirements are developed.

4.1 The prioritised approach is our preferred option

A prioritised NEDS would establish common objectives across water supply, wastewater and stormwater from the outset. These would provide the organising framework for what all water services infrastructure must achieve.

The common objectives would then be translated into clear and assessable requirements. Detailed requirements would be developed first in priority areas.

This option establishes the overall NEDS framework from day one but does not require every possible detailed requirement and code of practice to be developed upfront.

4.2 How we will prioritise the first set of NEDS and codes of practice

We are seeking your feedback on how we will decide which areas to prioritise to develop the first set of standards and codes of practice.

We will first develop a list of possible priority areas. This will draw from:

- the common performance outcomes
- lifecycle points covered by the legislation, including design, construction, connection, commissioning, vesting, operation, maintenance, renewal and decommissioning
- the problems in the current system – such as local variation, approval delays, inconsistent asset acceptance, poor asset information and unclear alternative solution assessment
- coverage of existing local codes of practice, standards and sector practice
- areas where an early code of practice pathway may be needed to make a requirement usable or where it would provide significant benefit.

We will then assess the possible priority areas against two main questions.

Question 1: Would early national direction make a material difference?

This question asks whether a possible priority area should be developed early because national direction would improve outcomes, consistency and efficiency.

The benefit of early national direction is likely to be higher where:

- there are significant consequences if the infrastructure is not performing well
- current local variation is creating material cost, delay, redesign, approval disputes or inconsistent asset acceptance
- a recognised code of practice would materially reduce inconsistency, cost, delay or uncertainty, and case-by-case judgements
- the infrastructure or activity affects high-volume or growth-related activity
- the infrastructure or activity affects public health, environmental protection, service reliability, resilience or long-term asset performance.

Question 2: How quickly can the area be standardised and codified?

This question asks whether a possible priority area is ready to be developed into clear and assessable requirements and codes of practice.

We will consider if:

- the function of the infrastructure is clear, and the relevant infrastructure, activity or lifecycle point can be defined
- evidence and compliance expectations can be specified
- there is a settled technical basis for setting the performance benchmark – i.e. is the engineering practice established, repeatable and well understood
- local inputs can be defined and used consistently.

We will consider the feedback we hear from the sector when making these prioritisation decisions.

We want to create a cohesive national framework that makes sense from the outset and prioritises the areas where we are likely to see the most benefits from standardisation. The previous government's NTU draft codes provide a useful starting point to identify "quick wins" for the sector.

A requirement area may be important but not ready for detailed first-edition development. In those cases, NEDS may need to signal the area, set limited direction, or leave detailed requirements for a later set of standards and codes.

Once the NEDS are in place, the Authority will review the standards and codes of practice regularly to keep them up to date, and consider where new standards or codes may be needed.

Question box 4: The prioritisation approach

- **Do you think the two questions above capture the most important things we should consider when prioritising the first set of NEDS? Is there anything else we should consider?**
- **Looking at the full lifecycle of water supply, wastewater and stormwater infrastructure (from design and construction through to operation, maintenance and decommissioning), what are the areas where you currently see the most challenges and inefficiencies?**
- **Which areas do you think would benefit most from having a consistent national standard and code of practice?**

Section 5: Potential cost savings from the NEDS

The NEDS have the potential to result in significant cost and time savings across the life cycle of water infrastructure.

Based on evidence from other infrastructure sectors, the NEDS could result in potential cost savings for operational expenditure (OPEX) and capital expenditure (CAPEX) over the life of water services infrastructure such as:

- Planning and design costs: this is the phase where the NEDS are most likely to reduce costs, by standardising requirements and technical solutions. Depending on project complexity, savings could range from 10-40%.
- Acquisition and build costs: the NEDS will provide for more scale opportunities in the production, supply and procurement of infrastructure components. Ongoing savings are likely to be achievable of approximately 5-10%.
- Operations and maintenance: the NEDS will support consistent and efficient maintenance regimes that would reduce the occurrence of unplanned failures and optimise asset condition over the asset's lifetime. Depending on project characteristics, savings could range from 5-20% in OPEX over the life of the infrastructure.
- Renewals, upgrade and disposal: standardisation is likely to deliver the largest cost and productivity benefits for renewals. Based on a typical renewals project, approximately 10% savings could be achieved.

Section 6: Iwi/Māori rights and interests in relation to the NEDS

As a Crown entity, the Water Services Authority must engage early and meaningfully with Māori and understand their interests as part of development of regulatory frameworks like the NEDS. This obligation is imposed under the Water Services Authority – Taumata Arowai Act 2020.

The Authority also has responsibilities to iwi that are imposed under Treaty settlement legislation relating to the Waikato, Waipā, Whanganui and Whangaehu rivers. These Treaty settlements are the primary direction-setting documents for resource management in the river catchments, and the settlement Acts impose obligations on the Authority when exercising functions under its legislation.

The Authority will engage with iwi / Māori organisations, Māori practitioners and specialists, and others who have interests in the proposals throughout the development of the NEDS. The aim of this engagement will be to identify and understand interests in the proposals, such as:

- kaitiakitanga and tikanga practices and how the proposals can support them
- how the NEDS can play a part in protecting and improving public health and the environment, including better outcomes for water bodies, and supporting more resilient and sustainable infrastructure
- how the proposals might affect agreements that are already in place between iwi / Māori and local councils
- understanding how the proposals can support better economic outcomes (for example, lower water charges) for all New Zealanders, including Māori communities
- protecting marae, papakāinga, and wāhi tapū.

We will also engage with iwi whose Treaty settlements impose obligations on the Authority in relation to Waikato, Waipā, Whanganui and Whangaehu rivers to ensure these Treaty settlements are upheld, as well as engaging with Ngāi Tahu.

Section 7: Further information and next steps

7.1 Further information can be found at our website

Further information can be found at the Authority's website:

<https://www.taumataarowai.govt.nz/about-us/what-we-do/national-engineering-design-standards>

You can find the following documents at our website:

- Frequently asked questions and answers.
- The NEDS proposals on a page – this document summarises the key proposals that we are seeking your feedback on.
- How the NEDS fit in the water infrastructure system – this document provides a system overview of how the NEDS fit in the overall regulatory system, including the interface with the Authority's other regulatory tools.

More detail on the work we have done to develop the NEDS framework can also be found at our website. The organisational framework report provides further information on:

- the options we considered for the NEDS framework, how the NEDS and codes of practice are structured, and the prioritisation approach
- cost-benefit analysis that considers the likely impacts of the NEDS across the lifecycle of water infrastructure
- case studies that illustrate the advantages that NEDS and national codes of practice could have over the status quo.

7.2 Next steps

Following the targeted engagement, we will provide an update to the sector and stakeholders we engaged with on the key themes we heard, and the areas we intend to prioritise for the first set of NEDS.

We will continue to work with the sector as we develop the technical detail of the standards and codes of practice.

Public consultation is planned for mid-2027. After consultation, we will refine the standards and codes of practice. We aim to have the standards and codes of practice approved and published in early 2028. The standards will need Cabinet approval.

We are also planning a transition period and support to help the sector understand and apply the NEDS.

Once the standards and codes of practice are in place, we will review them regularly to keep them up to date.

National Engineering Design Standards timeline

