

AUCKLAND STORMWATER CONSENT REVIEW, A SNAPSHOT OF THE PRESENT AND FUTURE

Gemma Chuah, Vanessa Castro (Auckland Council Healthy Waters), Ian Mayhew, Trent Sunich (4Sight Consulting - Part of SLR)

ABSTRACT

Auckland Council's Healthy Waters Department was granted an Auckland-wide stormwater network discharge consent (NDC) in 2019 to manage the diversion and discharge of stormwater runoff from Auckland's existing urban and future urban areas. The consent sought to give effect to the 'integrated stormwater management approach' of the Auckland Unitary Plan (AUP), progressively reduce existing adverse effects while at the same time enabling and facilitating growth and development. The consent also sets a range objectives, outcomes, and targets across a range of stormwater management issues.

An important element of the consent is periodic reviews to report on performance progress and identify key issues and necessary amendments to the consent. This assists in ensuring the consent remains current and relevant over its lifetime as the management of a complex network such as that in Auckland is not static but must necessarily evolve over time as understanding and technology changes.

The first review was undertaken in 2022 and incorporated feedback from iwi, local boards, industry practitioners and the general public. An independent audit of the review was also completed by an independent Technical Reference Group (TRG).

The success of the consent in achieving its outcomes is measured by a range of metrics. The review comprehensively assessed the compliance with the various objectives and targets sought by the consent and made recommendations for actions that will continue to improve the implementation of the consent and its outcomes.

With the consent being granted in 2019, it is too early to see tangible receiving environment change; however, the first review of the consent provided a useful check in to assess the implementation of the consent to date.

Key outcomes of the review are:

- Continued work is required to ensure iwi participation in the consent processes and Healthy Waters' operations, including co-development of cultural monitoring programmes, involvement with updates to stormwater guidance and involvement in physical construction projects.
- Incorporation Te Mauri o te Wai and Te Mana o te Wai into the implementation of the NDC and stormwater management plans needs to continue to be explored.
- In the context of growth, there are challenges for the implementation of integrated stormwater management/water sensitive design and achieving good quality stormwater assets. Process improvements are needed to address stormwater industry concerns around consistency, clarity, efficient approval processes and a 'whole of council approach' to stormwater management for new and redevelopment.

- Avoiding development in floodplains in greenfield areas and reducing flood risk in existing brownfield continues to prove difficult. Flood hazard is influenced by land use decisions and the NDC is only one of the tools to manage it.
- The framework for monitoring and evaluating the performance of the consent is continuing to be established and improved. This includes flood risk, water quality, and ecological indicators and trends.
- Overall good progress is being made towards achieving the outcomes in the consent and compliance with the targets.

We inevitably work in an evolving environment and significant change is on the horizon that will impact on expectations for stormwater management and how it is approached. This includes matters such as: climate change; Three Waters Reform; resource management reform; as well as implementation of the National Policy Statement for Freshwater Management (NPS-FM) and the National Policy Statement on Urban Development (NPS-UD). The NDC will need to continue to evolve to ensure that effective stormwater management will be implemented in Auckland while responding to these changes.

KEYWORDS

Stormwater management planning, integrated stormwater management, asset management, resource consents.

AUTHOR PROFILES

Gemma Chuah is a Principal – Resource Management for Auckland Council Healthy Waters. She has managed the implementation of the Auckland stormwater network discharge consent since 2019, establishing processes across the department and ensuring compliance with consent conditions. This included leading the team undertaking the recent review of the NDC. With a regulatory background providing specialist stormwater expertise into resource consents for over 10 years, Gemma brings in-depth knowledge and insights in stormwater and resource management.

Vanessa Castro is a Senior Specialist – Strategic Programmes for Auckland Council Healthy Waters. She has a regulatory background providing specialist stormwater and wastewater expertise into resource consents and experience in project management, catchment management and policy. Working across a variety of projects and themes, she brings a holistic and integrated view and valuable insights for stormwater and resource management. Vanessa was involved in the recent review of the NDC.

Ian Mayhew is a Technical Director, Policy and Planning, at 4Sight Consulting (part of SLR). He has more than 30 years' experience in local government and consultancy roles and specialises in natural resource management – from both plan development and consent acquisition perspectives. Ian has been integrally involved in stormwater management in Auckland for many years including the development of the AUP provisions for freshwater and stormwater management and leading the acquisition of the Auckland stormwater network discharge consent. Ian also assisted Healthy Waters in the recent review of the NDC.

Trent Sunich is a Principal Environmental Consultant at 4Sight Consulting (part of SLR) with over 20 years of natural resource management experience in stormwater management, integrated catchment management planning, natural resource planning, consent acquisition, surface water quality management and freshwater and marine assessment of environmental effects. Trent was part of the 4Sight team assisting Healthy

Waters to obtain the Auckland Council's stormwater network consent and the subsequent consent review in 2022.

1 OVERVIEW OF NDC REVIEW PROCESS

1.1 CONSENT ESTABLISHMENT

Following the amalgamation of the legacy territorial authorities in the Auckland region to a single unitary authority, Healthy Waters became the holder of more than 100 stormwater network discharge consents. These consents covered a wide age range and content, with some granted in the 1980s and 1990s and now have limited relevance to current stormwater management practices.

In line with the Healthy Waters strategy of operating and developing Auckland's stormwater network and additions to the network (e.g., for greenfield development) consistently across the region, a single Auckland-wide stormwater network discharge consent was sought and granted in 2019.

A key aim of the NDC is to achieve the best overall stormwater management outcomes for the community and natural environment at both a regional and local scale. This includes providing for Auckland's significant on-going growth in a way that incorporates best practice stormwater management, consistent with the requirements of the Auckland Unitary Plan (AUP) and enables simplified and regionally consistent development (connection/vesting) requirements while progressively reducing the adverse effects associated with the existing network.

The NDC is structured through a suite of conditions followed by schedules that detail performance requirements through a series of issues-based objectives and outcomes, along with six yearly targets derived from Auckland Council's long-term plan, asset management plan (AMP) performance standards and specific requirements from the resource consent application and process. The key issue areas addressed in the NDC are illustrated in Figure 1 below.



Figure 1: Issues identified in Schedule 2 of the NDC for managing the Auckland stormwater network.

The NDC objectives, outcomes and targets take into account programmes that council:

- directly undertakes to improve water outcomes, such as the upgrade of public infrastructure.
- undertakes indirectly by requiring, influencing, or guiding others in achieving improved outcomes.
- collaborates with others to achieve improved integrated outcomes.

All these types of programmes collectively have been identified as part of the best practicable option for the management of urban stormwater and reflect that effective urban stormwater management is not solely a 'public infrastructure' issue. Instead, it requires an integrated and comprehensive approach across a range of parties, recognising that outcomes can be reliant on assets and development undertaken by others.

1.2 REVIEWS AND REPORTING

The NDC was granted for a 33-year duration, reflecting the value and essential function of the public stormwater network. Given this duration, an important component is regular reporting and review processes. These provide a high level of transparency and seek to ensure the NDC (including its outcomes and performance requirements) remains relevant and aligned to best practice over its duration. This reflects that the management of a complex drainage network such as that in Auckland is not static, but a process that evolves over time due to factors including:

- changes in community priorities that in turn result in changes to council aspirations and priorities.
- improved understanding of network performance, issues and adverse environmental effects and the effectiveness of management responses.
- changes in technology.

To enable change to be incorporated into the NDC, the conditions include a cyclical process of review and reporting to ensure transparency, accountability and continuous improvement as shown in the schematic in Figure 2.

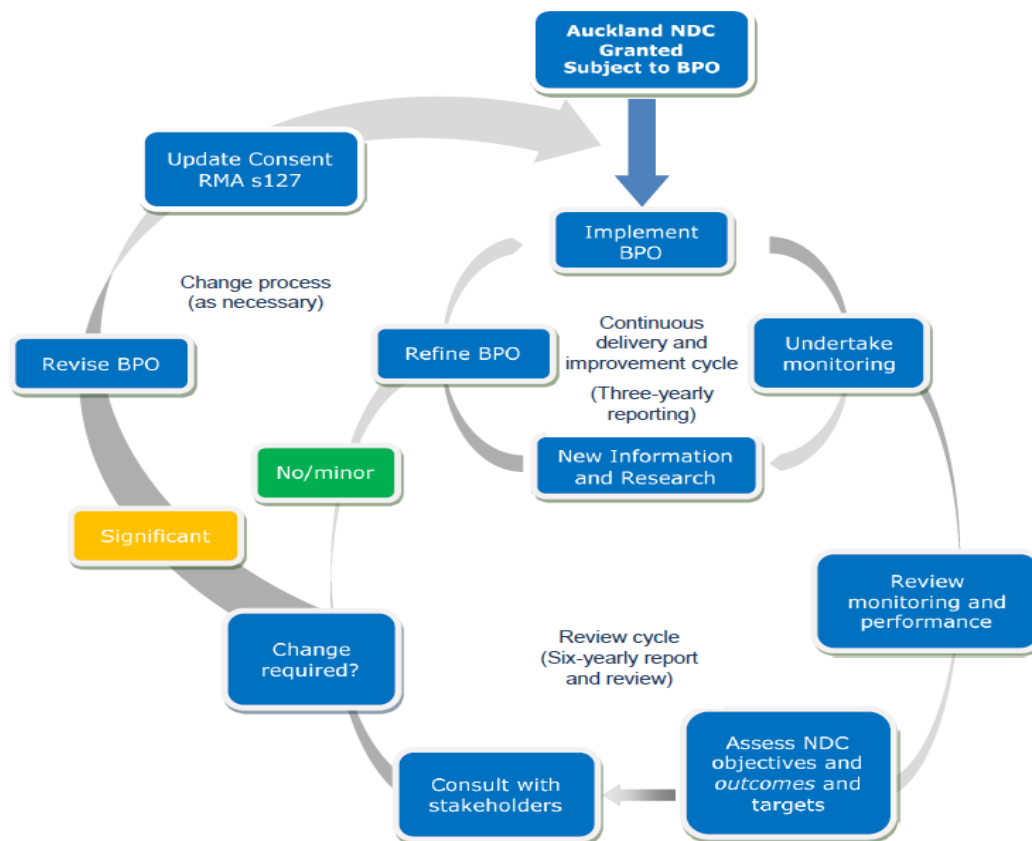


Figure 2: Reporting and review cycles in the consent

Central to this process are:

- The Monitoring and Evaluation Strategy – which guides the assessment of performance and progress against the NDC objectives, outcomes, and targets.
- The Triennial Performance Report (three yearly reporting), which provides updates and details progress against the outcomes and objectives, including key metrics from the Monitoring and Evaluation Strategy.
- The Stormwater Network Discharge Review (6-yearly review), which is an in-depth review of the implementation of the NDC. It includes detailed consideration of the performance of the network and the consent and associated monitoring information and provides an opportunity to assess the best practicable option for managing stormwater and whether changes are required. It incorporates significant engagement with mana whenua and identified stakeholders and provides for input from the general public. It is also subject to a review by an independent Technical Reference Group (TRG) – which is a panel established under the NDC to providing independent review and input into dispute resolution.

The 6-yearly review is timed to be undertaken in advance of the preparation of the Auckland Council's three yearly long-term planning cycle, so as to enable funding to be sought for identified recommendations. As a result, the first 6-yearly review was submitted to the regulatory department of Auckland Council in September 2022, which is year three of the consent, to bring the review process into sync with Auckland Council's LTP cycles. As this first review was undertaken at an early stage in the lifetime of the consent, its primary function was more a 'progress check in and direction calibration' and to get feedback on processes and priorities (and priorities for improvement), rather than demonstrating environmental changes (which are anticipated to occur over a longer timeframe). The outcomes reported in this review are the subject of this paper.

1.3 ENGAGEMENT PROCESSES

A key element of the review was gathering and assessing feedback from a range of parties that have either a direct or in-direct interest in the NDC and stormwater outcomes. A comprehensive approach was taken to designing and implementing the stakeholder and iwi engagement phase which reflected the principles of consultation outlined in the Local Government Act. This included engagement with the parties stipulated in the consent including mana whenua, community and interest groups, industry sector groups, and local boards along with the development of a questionnaire that was published on the Auckland Design Manual website and open to the general public.

In line with Te Tiriti o Waitangi principles, Healthy Waters worked with mana whenua to identify meaningful engagement processes, during which several ways of participating in the review were discussed. This approach was in line with the principles set out in the 'NDC Mana Whenua Engagement Strategy' established as part of the consent. The 6-yearly review was introduced at the Auckland Council Infrastructure & Environmental Services Kaitiaki Forum. Individual hui was considered most appropriate by kaitiaki representatives to express their priorities and concerns in relation to the way stormwater is managed and impacting waterways within their respective rohe/areas. The structure of each of the hui varied for each iwi, depending on how familiar and involved each group were in the early phases of establishing the NDC, as well as on requirements of each iwi. Follow up workshops were also held sharing a variety of information and data with iwi.

With respect to engagement with Local Board, a summary of the draft review was shared with all 21 Local Boards and workshops were held with each Local Board to gather feedback on both the review and stormwater management more generally.

A workshop was held with members of the development community and their consultants to understand their perspective on the NDC implementation and associated interactions with Healthy Waters. The workshop was an in-depth discussion and succinctly highlighted many of the concerns which have been anecdotally shared by those in the industry since the beginning of the NDC. The findings from the engagement are discussed throughout the following sections of this paper.

2 HOW IS THE NDC PERFORMING?

The review found that Healthy Waters is generally tracking well across the targets set out in the NDC (Figure 3) and overall is making progress towards achieving the outcomes and objectives of the consent. Areas of improvement were identified and a range of recommendations made for implementation over the next several years. Key findings of the review included:

- Areas of the greatest progress are those that fall within the direct control of Healthy Waters, as would be expected.
- Incorporation and implementation of Te Mauri o te Wai and Te Mana o te Wai need to be further explored and delivered in practice.
- Ensuring iwi participation in the NDC processes and Healthy Waters' operations will be an ongoing focus.

- There are challenges for the implementation of an integrated stormwater management approach¹/water sensitive design (which is a key facet of stormwater management under the AUP and hence the NDC) and achieving good quality stormwater assets through development and growth.
- Process improvements are needed to address stormwater industry concerns around consistency, clarity, efficient approval processes and a 'whole of council approach' to development and redevelopment. Avoiding development in floodplains in greenfield areas and reducing flood risk in existing brownfield continues to prove difficult. The stormwater consent is only one tool to manage flood hazard risk and is reliant on land use decisions not to further increase risk.
- The framework for monitoring and evaluating the performance of the consent at multiple levels continues to be established and improved. This includes consideration of how best to measure and articulate flood risk as well as water quality, and ecological indicators and trends.
- Coastal Health targets which were not met related to catchpit cleaning and sediment removal which was impacted by the ability to undertake work programs during the covid lockdowns.
- Areas such as asset management showed that the current approach is working well.

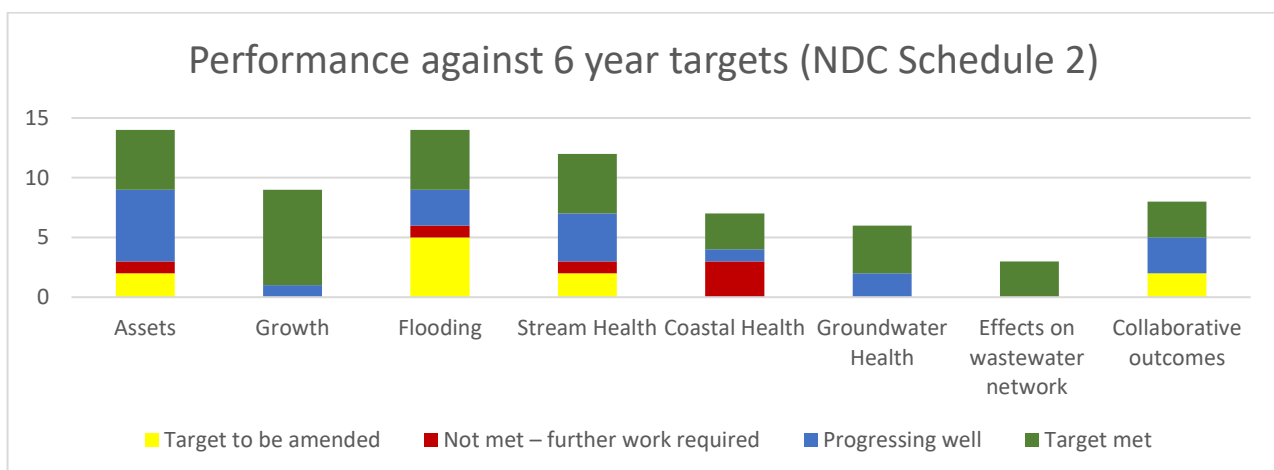


Figure 3. Overall Performance against the 6-year targets set out in Schedule 2 of the NDC.

An independent audit of the review was also completed by the TRG, established as a requirement of the NDC, comprising of a suitably qualified planner and engineer and two representatives with experience in Te Mauri o te Wai. The TRG acknowledged that some aspects of the NDC have yet to be progressed, others require altering and some aspects/targets are no longer relevant and identified areas which they considered require particular attention, including:

- giving effect to Te Mana o te Wai in implementing the NDC and empowering iwi to be active in all parts of stormwater management decision making. Content and direction of the monitoring strategy.
- Managing and reporting flood risk.

¹ A 'integrated stormwater management approach' is terminology adopted in the AUP and is more commonly (and somewhat interchangeably) referred to as water sensitive design in the NDC as this aligns with guidance and other material. The term integrated stormwater management is used in this paper.
Stormwater Conference & Expo 2023

- Managing development and redevelopment and implementing integrated stormwater management.

3 ENABLING TE MAURI O TE WAI AND TE MANA O TE WAI

Both Te Mauri o te Wai and Te Mana o te Wai are important concepts that set a clear direction that the health of water must be prioritised in decision making. Te Mana o te Wai is defined and promoted within the National Policy Statement for Freshwater Management (NPS-FM). The protection and enhancement of Te Marui O Te Wai was identified by iwi during engagement for Auckland's Water Strategy and the NDC. Healthy and connected waterways that provide for Te Mauri o te Wai is identified as one of the primary objectives of the NDC.

While many aspects of the NDC are intended to work towards improving Te Mauri o te Wai, a key aspect is a partnership with 19 mana whenua iwi recognised by Auckland Council in the implementation of the consent. Accordingly, each mana whenua iwi were invited to discuss the NDC implementation thus far and provide their perspective and feedback on the performance and key areas of focus moving forward.

Overall the engagement with mana whenua was positive with the series of hui giving an opportunity to delve deeply into the specific issues for each iwi and further establish relationships to strengthen future engagement. Feedback highlighted a range of concerns and opportunities, including:

- Limited emphasis of Te Mauri O Te Wai and Te Mana o te Wai in the stormwater management plan template, with opportunities to review and co-design the template and solutions for programmes and projects to give better effect to mana whenua cultural values.
- Cultural indicators developed by mana whenua would provide a te ao Māori lens on the health of waterways and help bridge the gap between western and Māori paradigms of quality and health to effectively implement Te Mauri O Te Wai; this includes enabling opportunities for mana whenua to be involved in monitoring their taonga and understanding its health.
- Cumulative effects require more consideration in decision making for development approvals especially for infill housing.
- Improved access to water quality/device monitoring information in their rohe to support mana whenua engagement with developers and other parties.
- Mana whenua want to help uplift the minimum requirements and the values in relation to water quality.
- Identifying ongoing opportunities to work closely together on future programs including Healthy Waters physical construction projects and possible bylaw inspection initiatives.

The TRG built on the feedback from mana whenua and highlighted that there has been a significant effort towards acknowledging and giving effect to Te Mana o te Wai, Te Mauri o te Wai, tikanga, mana whenua values, and other cultural perspectives in the NDC and wider stormwater industry. However, at the same time, it was also the view that mātauranga Maori could be valued and included in a more consistent and authentic manner.

The TRG recommended that a key area of focus to give effect to Te Mauri o te Wai and Te Mana o te Wai is to enable mana whenua to be active in all aspects of stormwater management. Any activity impacting on Te Mauri o te Wai or Te Mana o te Wai needs to appropriately consider mana whenua values and mātauranga. These values and the

appropriate pathways to avoid, remedy or mitigate potential environmental and cultural effects, need to be co-developed in partnership with mana whenua with appropriate for their participation in planning, implementation, and decision making to be successful. Key recommendations include:

- Prioritise and support the development of cultural monitoring by individual mana whenua.
- Develop tools/mechanisms, guided by mana whenua, to determine and reflect the state of mauri in Tamaki Makaurau waterbodies.
- Update, guided by mana whenua, the stormwater management plan template to have a greater emphasis on Te Mauri o te Wai and Te Mana o te Wai.

4 ENABLING GROWTH

4.1 CONTEXT

Auckland is expected to grow to a population of 2.4 million by 2050 (Auckland Plan 2050). The increasing intensification of existing urban areas, as well as expansion of urban areas, needs to be managed to minimise degradation of freshwater and marine receiving environments. Flooding risk to properties can also be exacerbated if development is not well planned.

The best practicable option identified within the consent for growth is a mix of connection requirements for third party development and Healthy Waters led projects and investment – recognising that the majority of new stormwater network constructed each year is that which is vested through private development.

The management of stormwater associated with greenfield and brownfield development is the area where the majority of people interact with the NDC, both internally and externally to Healthy Waters. While this has been in the most part successful, there are many challenges and further improvements are needed to streamline this process and make it more efficient for both Healthy Waters staff and the stormwater industry to successfully enable growth through the implementation of integrated stormwater management and the provision of quality, fit for purpose stormwater infrastructure. The NDC provides for:

- The stormwater diversion from new development and redevelopment can be authorised by the NDC instead of each development needing a separate consent for diversion and discharge under the AUP.
- The establishment of new processes for authorising the diversion of stormwater under the NDC and the relationship of this with the AUP and existing resource consent process (e.g. subdivision).
- Development proposals to be consistent with the Schedule 4 connection requirements including preparation of Stormwater Management Plans (SMP) or the demonstration of consistency with existing SMPs.
- The establishment of new processes for the approval of SMPs.

The scale of growth in the Auckland region is reflected in the number of development approvals and SMP requests. As of the date of the review (1 September 2022), 198 SMPs had been received for review and 93 had been approved and input is provided into between 500-900 requests for specialist input and asset owner approval each year.

4.2 REVIEW FINDINGS

Implementing the connection requirements of the consent has raised several challenges for Healthy Waters in light of the growth related objectives and outcomes of the NDC. These include:

- The relationship and integration with the AUP, resource consent and plan change processes.
- Interpretations of connection requirements - especially where the requirements differ from the existing rules in the AUP.
- The content of SMPs and how to establish a site specific best practicable option efficiently.
- The interpretation of water sensitive design or integrated stormwater management by applicants in greenfield and brownfield development proposals.
- Increasing proportion of small-scale brownfield redevelopment.

SMPs are a key tool in assessing development proposals and suitability for network connection under the NDC. Here the review highlighted the pattern of developments proposing an alternative approach to stormwater management which is subjective to define and justify.

This in part relates to differing interpretations of integrated stormwater management between the development community and Healthy Waters. Industry engagement identified that although there was general agreement as to the value of the principles of integrated stormwater management, site constraints frequently mean it is not possible to incorporate especially at a small scale. Developing a collective understanding of how best integrated stormwater management concepts can be applied especially as part of smaller redevelopments would help.

The process of preparing and approving SMPs was a focus of the industry engagement. Key messages include concerns about inconsistency or a lack of clarity in applying the requirements in Schedule 4 as well as the time it can take to receive approval. Given that the process for approval of SMPs has only been established since the commencement of the NDC it is to be expected that there are still improvements which are needed.

To address this, a number of recommendations are made in the review to improve the process and to work with industry professionals and applicants to obtain appropriate information at the right time to minimise rework and process delay. Improvements are needed to the SMP review and approval process, to develop a collective understanding of how integrated stormwater management concepts can be applied, and improved guidance information in order to reduce differences in interpretation of the connection requirements between applicants and Healthy Waters and to clarify the expectations of the information needed. This need was clearly articulated through the industry engagement.

In their review, the TRG also considered that this is a key area required to 'reduce the gap' in expectations for stormwater management between Council and the stormwater/development industry – recognising that some tension is inevitable.

4.3 EMERGING ISSUES

The NDC anticipated that growth would happen in accordance with the growth strategy and that therefore Healthy Waters would be able to prioritise following this strategy. Since the NDC commenced growth and intensification has not completely followed this pattern. Instead increasing urban density in brownfields means that a greater proportion of development is small scale brownfield redevelopment, and this is set to further increase due to the National Policy Statement on Urban Development (NPS-UD) and the application

of the medium density residential standards across the urban area. Considerable out of sequence greenfield growth is also occurring.

There are significant challenges identified with managing stormwater in brownfield areas. Changing development patterns include increasing small-scale intensification and redevelopment where there is little opportunity for on-site management. Both the NDC and the AUP include minimal stormwater management requirements for developments at this scale. This type of development is already continuing to increase as a result of the NPS-UD. Although each development site can be argued to have a minimal effect individually, the cumulative effect of this changing land use pattern and increased stormwater discharges could be significant.

In order to manage the cumulative effects of this type of development and to meet possible future targets which come from Auckland Council's implementation of the NPS-FM, Healthy Waters will need to re-examine the overall approach to managing stormwater runoff in brownfields areas. The review will need to consider and balance the benefits of at source mitigation as part of land redevelopment, the extent of opportunities available from redevelopment with the scale and distribution of that redevelopment and available opportunities for catchment or sub-catchment scale targeted improvements through publicly funded and communal projects.

Work on this is proceeding in conjunction with the consideration of contaminant specific management driven by the AUP response to the NPS-FM. Decision making will be underpinned by outputs from monitoring and modelling as well as input from industry information including consideration of the relationship between the AUP and NDC. Policy settings in the NDC and AUP need to be informed by the effectiveness of available interventions across a range of contaminants and balanced by alternative opportunities and methods.

Another current and increasing challenge is greenfield development occurring outside of the sequence set out in the Auckland Plan. The integration of the NDC SMP approvals into the plan change process has gradually improved, which enables the management of stormwater to be considered as part of these decisions around future land use. However, much urban development in the Future Urban Zone is occurring through the 'Fast Track'² consenting pathway rather than undertaking plan changes which poses a risk to Healthy Waters ability to achieve the outcomes of the NDC.

The Fast Track pathway is allowing development to occur in a piecemeal way without the benefits or ability to consider catchment scale planning. Further there is limited opportunity to input as asset owner or consider effects at a broader scale.

5 REDUCING THE RISK OF FLOODING

5.1 OVERVIEW OF HEALTHY WATERS PROGRAMMES RELATED TO FLOODING

Healthy Waters carries out a range of functions and activities in managing flood risk, including:

² Colloquially known simply as 'fast track' this refers to applications made to the Environment Protection Authority under the COVID-19 Recovery (Fast-track Consenting) Act 2020.

- Flood hazard identification and risk assessment.
- Supporting community awareness and resilience.
- Advocating for flood resilience during development.
- Maintaining and upgrading stormwater assets.
- Supporting emergency event response.

However, other key management functions fall outside of Healthy Waters' direct influence, most notably: land use planning, emergency response and the responsibility of private property owners to manage their own risk. The management of response to flooding relies on a range of organisations, including across council departments as well as central government organisations, the insurance industry and private property owners.

Responsibilities and tools to manage flood risk are currently under review as result of recent flood events as well as central government reforms (including Three Waters, RMA, building consent and emergency response reforms), as well as from council led reviews of the AUP and other council strategic documents.

Understanding the level of current and future flood risks to property and infrastructure is the first step to efficient flood risk management. Healthy Waters uses its hydraulic model programme to collect, analyse and verify data to better articulate flood risks, and will continue to provide current and reliable data on natural storm related hazards. This programme requires significant investment in expertise, tools and data.

Three types of flood hazards are assessed across the region and displayed in Auckland Council's GeoMaps GIS viewer: overland flow paths, flood prone areas and floodplains. The impact of these flood hazards on people will vary depending on the location and nature of the hazard. For example, overland flow paths are an intentionally designed part of many properties, safely conveying water through the property and away from buildings.

5.2 KEY POINTS AND RECOMMENDATIONS

The review found that NDC targets related to flood hazard identification in GIS, providing guidance and collaboration are being achieved. However, many of the performance measures set up in the NDC were not able to be measured because of limited data and reliance on a number of actions and organisations outside direct control of the NDC.

Many of the targets also reflect non-financial performance measures set out by the Department of Internal Affairs. This points to the need for a wider review of central government direction and measures in this space. It is anticipated that the water reforms may provide such an opportunity.

Further, appropriate land use decision making is an essential tool in achieving flood resilience. Healthy Waters however are not the ultimately decision maker with respect to where development occurs. While it does actively advocate for resilience during development and despite high level policies in the AUP to not increase risk from flooding, land use decisions are still allowing development within identified flood plains, particularly in brownfield areas. As a result, recommendations of the review had a strong emphasis in advocating the need to avoid and reduce flood risk during urban development.

The TRG review report raised concerns about the inability to report on performance measures that are included in the NDC. TRG considers understanding this is a key aspect of the NDC. In the TRG's opinion, if the current measures are not appropriate then an alternative set of metrics is required *as a priority* to enable the changes in flood risk over time to be identified and communicated. That said, the TRG report supported the increased focus on resilience – both community and through development / redevelopment – as proposed in the NDC Review Report.

Recent significant flood events in January and February 2023 have significantly raised community and political awareness and willingness to take action related to the potential impacts of extreme rainfall. Auckland Council is preparing a Flood Recovery Plan that will bring direction on priorities for working programmes and potentially additional funding.

The key focus of the Recovery Plan is the immediate flood response, focusing on risk, damaged assets and community support and investigating options including infrastructure projects, education and awareness or retreat. Concurrently policy response is being developed. Investigation of changes to policy in response to flooding are part Auckland Council's plan change to implement the medium density residential standards of the NPS-UD but also for part of wider plan review and future plan changes.

6 MONITORING AND EVALUATION STRATEGY

6.1 FRAMEWORK

At the time of the review, the Monitoring Strategy was structured based on assessment against NDC targets. The strategy included operational and management programmes of work that contribute to achieving the objectives and targets, with modelling programme in development and tailored environmental monitoring yet to be scoped.

The review report identified that, considering the complexity of stormwater management, the monitoring strategy should encompass both evaluative and measurable information to better reflect the range of qualitative and quantitative data required to assess the NDC performance.

Through consultation with local boards, stakeholders, mana whenua and the assessment from the TRG it is clear that there are different expectations as to what constitutes good performance and accordingly, what the monitoring programme can or should tell us. The main questions and expectations were:

- What is the effect of stormwater discharges on the environment and communities, with three main aspects – water quality, aquatic ecosystem health and flood hazard extent and risk?
- Are stormwater management strategies resulting in positive or negative outcomes and trends?
- What is the performance of the constructed stormwater network (physical assets such as pipes, catchpits and outfalls)? Are they fit for purpose and well operated and maintained?
- What is the performance of the stormwater consent in enabling growth and delivering good stormwater outcomes? Are the consent processes operating as anticipated?

Questions of this diverse and complex nature necessitate a range of information being collected and considered. Moving forward, the monitoring and evaluation strategy framework will be made of four pillars comprising programmes and projects as shown in Figure 4.

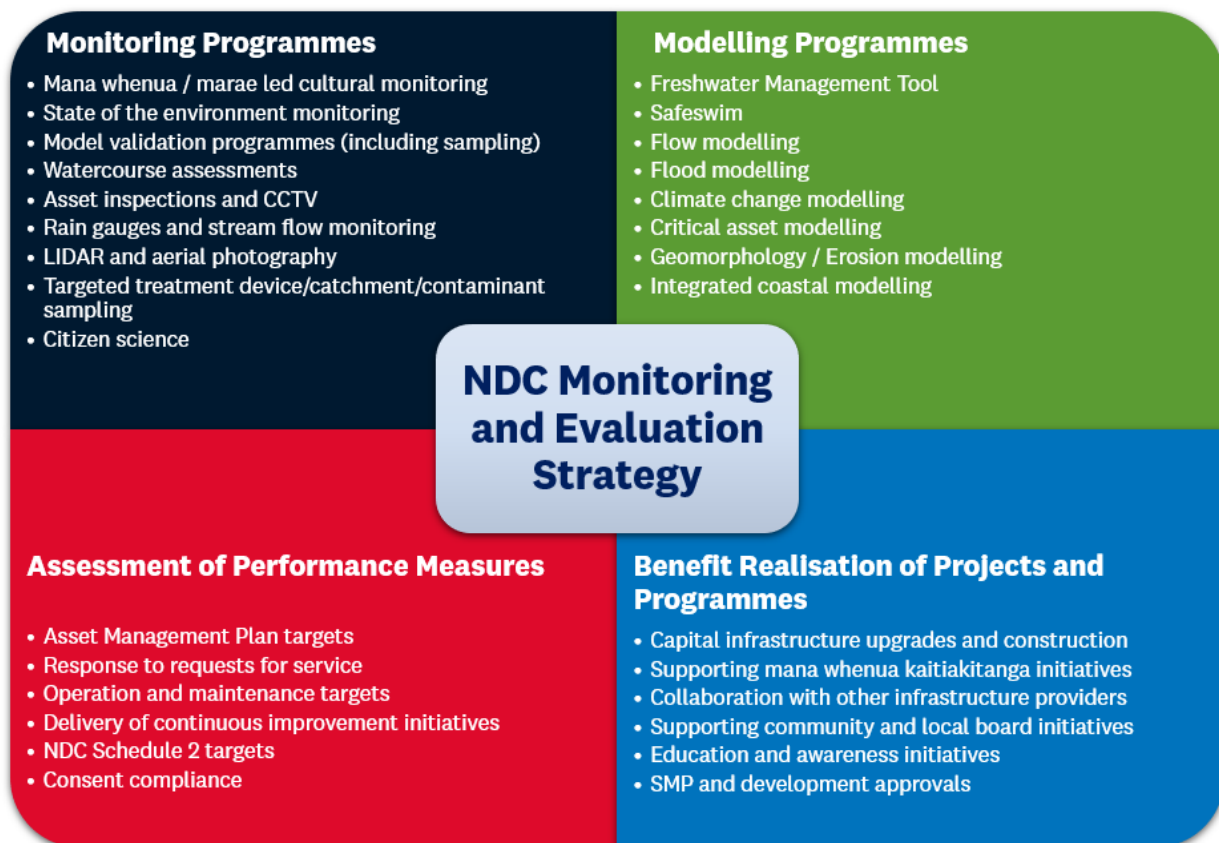


Figure 4. Four pillars of the Monitoring and Evaluation Strategy of the NDC.

6.2 ASSESSMENT OF WATER QUALITY AND STREAM HEALTH

The review utilised available monitoring and modelling assessments for water quality and stream health for the Auckland region, including the State of Environment (SOE) monitoring for streams, coastal areas, and groundwater and the findings of Freshwater Management Tool (FWMT).

The environmental information generated by both these programmes pre-dates the issue of the consent. Therefore, the data will be used as a baseline from which to measure the performance of the NDC moving forward.

Nevertheless, assessing the effect that urban stormwater discharges have on the environment is a complex and long-term task:

- A large number of urban activities and land uses contribute to the generation of stormwater and the contaminants in it and degradation of freshwater and estuarine ecosystems.
- There can be considerable time lags between the adoption of management practices and the detection of improvement in water quality and stream health, which is associated with the time it takes for a practice to be adopted, the time for that practice to produce an effect, and the time for streams or coastal waters to respond to that effect.
- Differences in these processes for different water quality variables can range from years to decades.
- Long-term monitoring may also show a changing response with climate change.

6.3 KEY POINTS AND RECOMENDATIONS

The NDC has been in place for only three years, and therefore, it is too early to identify or measure material changes and trends in the receiving environment. Therefore, the first review focused on setting out the current available State of Environment (SoE) monitoring results and modelling outputs that will be used as a baseline for future evaluation.

In addition, the stormwater network discharges are one of many discharges which enters the environment and therefore relying solely on the SoE results to assess the NDC performance would not be a complete picture. This together with the complexities of monitoring stormwater discharges (e.g., variability on rainfall, quantity of contaminant builds up between rain events, etc) means that a combination of evaluative-qualitative and measurable-quantitative components need to be considered for assessment of NDC performance. As the FWMT continues to develop, modelling outputs will provide valuable insights of cost-effective interventions and alternatives.

The review identified the need to develop and implement targeted monitoring programmes to specifically assess stormwater discharge effects, including intervention effectiveness monitoring and device performance. Additionally, there is a need to explore how best to incorporate modelling alongside monitoring, as well as working with mana whenua mātauranga Māori cultural indicators and including citizen science monitoring findings, to provide a more comprehensive understanding of the environment.

With respect to mātauranga Māori cultural indicators, the aim is that these are developed, delivered, and maintained by local iwi and marae. The aspiration of Healthy Waters is to enable mātauranga Māori specialists to support this work and recognise that the ownership of this works sits with the iwi and marae.

The TRG report considered the information provided was adequate for this initial NDC review; however it is a key area of improvement for future evaluations. The TRG recommended the identification of urban SoE sites (freshwater and near-shore marine) that can provide a representative picture of state of change in receiving environments affected by urban discharges, followed by and expert assessment of state, trends and changes that can be attributed to stormwater and the implementation of the NDC.

One of the key recommendations of the review is to reshape of the Monitoring and Evaluation Strategy to reflect learning from the review reports and ongoing development of the assessment frameworks discussed in the section above, as well as others that may be identified over time.

7 DISCUSSION

The key issue areas of the NDC (assets, growth, flooding, stream health, coastal health, groundwater, wastewater system effects and collaborative outcomes) have many interconnectivities, which emphasises the importance of integration in stormwater management and the assessment of the outcomes that are being achieved through the NDC.

Looking backward, the NDC was conceived, prepared and lodged to meet a number of specific aims to improve stormwater management in Auckland. These aims, and a commentary of the extent to which they have been achieved (or are still valid) is provided below.

- *Provide for the regional planning, operation, renewal, upgrade and on-going development of Auckland's stormwater network to meet development needs, community and mana whenua expectations and prioritise resources and investment so that they are focussed on achieving the best overall outcomes for the community and natural environment at both a regional and local scale.*

The NDC is a move away from the 'catchment-by-catchment' planning approach that had been problematic in identifying priorities for upgrade and development across Auckland's more than 250 catchments. The move to a regional consent allows for a higher-level assessment of priorities and investment directed to regional priority areas. This is embedded in Healthy Waters project prioritisation for capital investment.

- *Progressively reduce adverse effects from the existing network/urban development while ensuring new adverse effects from future development and network expansion are prevented or minimised.*

It is too early to conclude whether the consent has been successful at achieving a reduction in existing environmental effects from the stormwater network as long term environmental improvement may take years and decades to be material.

Despite this we need to continue to take actions towards achieving these goals through both Healthy Waters projects and stormwater management associated with growth and redevelopment. Addressing the cumulative effects of small-scale redevelopment was identified through the review as a particular challenge that needs to be addressed.

- *Facilitate future growth and development under an Auckland-wide consent framework that provides clarity and consistent requirements to land developers who connect to the public stormwater network or whose stormwater infrastructure will ultimately become part of the public network, once it is constructed and vested.*

Growth and development continue to be significant in Auckland, and development (including brownfield re-development) offer the best opportunity to 'get it right' from a stormwater perspective. However, the 6-Year review clearly indicated that there is still a way to go to achieve a consistent and efficiently implemented framework.

It is evident from the 6-Yearly review that the Council and industry need to be more closely aligned in the implementation of the principles of integrated stormwater management practices and the translation into development proposals. The review identified a range of recommendations to improve processes and information in relation to growth and development and to narrow the gap in expectations between Healthy Waters and developers.

- *Replace the many, different consent and other authorisations that currently exist across the region with a single resource consent to simplify requirements and enable current best practice to be implemented.*

While the NDC is a large and complex consent, it has enabled a range of existing consents and associated stormwater requirements to be reviewed, updated and applied via a spatial layer that enables prospective development to identify stormwater requirements. This rationalising and refreshing of requirements have been a significant benefit of the NDC.

- *Establish monitoring and regular review processes to enable achievements and progress to be monitored and reported and provide for processes of continuous*

improvement and adaptive management to respond to inevitable changes in the statutory framework, technology, knowledge and community priorities.

As we have discussed above, the NDC includes nested reviews to enable a stocktake of the current implementation. The review highlighted the need to better evaluate and articulate the state of the environment and answer the key questions of interest to the community, mana whenua and stakeholders as to the state and health of our rivers, estuaries and harbours, using both traditional and mātauranga maori measures, and are they becoming less or more impacted.

It is too early for the implementation of the consent to signal a major change in direction and this is more likely to be driven by major legislative change, including the Auckland Council's future freshwater planning framework and water reforms.

8 OTHER PRESSURES AND INFLUENCES

Growth, urban intensification, and climate change will increase pressures on the stormwater system and will affect the management of the stormwater network. In addition, there is significant change coming to the water industry over the next three years and this will require Healthy Waters to review priorities and practices including those within the NDC.

Organisational transformation as a result of the Three Waters Reform may result in opportunities for greater collaboration and efficiencies as well as for funding and prioritisation. However, it may come with changes in scope of responsibilities and direction for the new Three Waters Entity and with that risk of achieving the integrated and holistic approach to managing stormwater, which necessitates a management and development approach that extends beyond the constructed network.

Over the lifetime of a long duration consent it is to be expected that budget availability will fluctuate in response to outside factors. This has been particularly apparent over the past three years as the Council grapples with the effects of covid and recession. Investment in infrastructure is a long-term commitment but short term fluctuations in available budgets and budget properties results in continuous review and reprioritisation of project timing and direction. Alignment of the NDC outcomes with LTP process is crucial to continued investment and is a key aspect of the review process and is critical to ensure that available budget is aligned with management and improvement priorities.

The resource management reform packages will bring a change in the ways in which land use and development is managed and the overarching framework for how this will be assessed. It will likely be some time before the new plans are in place in Auckland. Changes to the AUP which will have an impact on the management of stormwater include those in response to the NPS-FM and NPS-UD. In particular the introduction of water quality limits as part of the implementation of the NPS-FM will necessitate reassessing the requirements for stormwater management, both at a network and site scale.

There is also a current focus on implementing and incorporating Te Mauri o Te Wai into all aspects of Healthy Waters work and the critical work of responding to climate change. The objectives of the NDC will be used to influence, support and respond to all of these changes, and it is also likely that the changes will result in the need to update and revise the NDC, possibly significantly, once established.

9 WHAT NEXT?

The review concluded with a series of recommendations for each issue section. These recommendations ranged in scope and duration. In the short-term existing programs of work will continue and process improvements are being undertaken. There is an understandable focus on flood recovery and taking the opportunity offered by political momentum to make improvements in this space.

There are many uncertainties in the medium and long term due to major policy reforms, national direction and plan changes. There are also important tools and models developed that have the potential to transform management understanding and prioritisation. Combined, those will provide future direction for the NDC.

In terms of growth and new development, the current requirements will continue to be implemented. Improvements to processes, templates and consistency are recommended and will be implemented in the short-term. However, the biggest challenges lie in fundamental differences and conceptual approaches to stormwater management. Challenges to the determination of acceptable effects of development remains, which are harder to resolve. There is a fundamental tension between housing demand/affordability and improved stormwater management and environmental outcomes (including reducing existing effects) and natural hazards.

Responsibility lies not only with Healthy Waters to improve its processes, but also other parties, stakeholders and the wider stormwater industry to work together to achieve necessary development and redevelopment efficiently while improving stormwater management outcomes.

10 CONCLUSION

The NDC is a significant and complex consent – reflecting the scale of the stormwater network in Auckland, and the complexities of its development and management. This was the first comprehensive review of the NDC since it was granted in 2019.

The review has found that Healthy Waters is meeting the majority of the six-year targets and overall is making progress towards achieving the NDC outcomes and objectives. At the same time, the review highlights a number of improvements across a range of aspects, from better recognising Te Mana o te Wai and Te Mauri o te Wai and engaging mana whenua in the consent through to refining the approach to monitoring and improving the efficiency and effectiveness of development approval processes. These are intended to be a focus in the short term, to improve the functionality and outcomes delivered through the NDC.

In the longer term, significant legislative change, local implementation of the NPS-FM and three waters reform is anticipated, and these will have significant implications for the NDC. These will be addressed in future reviews.

ACKNOWLEDGEMENTS

Members of the Healthy Water NDC review team, Technical Review Group and participants of the 6-yearly review engagement.

REFERENCES

Auckland Plan 2050. Available at: <https://www.aucklandcouncil.govt.nz/plans-projects-policies-reports-bylaws/our-plans-strategies/auckland-plan/Pages/default.aspx>

Healthy Waters Stormwater Network Discharge Consent 6-Yearly Review (2022). Available at: <https://content.aucklanddesignmanual.co.nz/regulations/technical-guidance/ndc/Documents/ndc-review-report.pdf>