

DEVELOPMENT OF THE AUCKLAND COUNCIL STORMWATER UNIT IMPLEMENTATION PLAN

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ABSTRACT

Soon after Auckland Council was formed, the Council's Stormwater Unit initiated a cross-council process to draft a Stormwater Unit Implementation Plan (the Plan).

The purpose of the Plan is to guide the Stormwater Unit in its first three years of operation. The draft Plan seeks to provide direction for developing work programmes and investment proposals associated with its substantial stormwater network; guide input to, and ensure alignment with, regional directions and priorities of the emerging Auckland Plan and Long Term Plan; and to facilitate integration with other Units across Auckland Council and Council Controlled Organisations with key roles in achieving stormwater management outcomes.

The draft Plan promotes a more water sensitive, regionally prioritised approach to addressing regional stormwater management issues. It emphasises the need to avoid the mistakes of the past by focusing on land use planning, stormwater catchment planning, and water sensitive design early in new growth, redevelopment and transport planning. The draft Plan guides the Stormwater Unit to focus for the next three years on consolidating and regionalising capability, systems and processes; aligning outcomes and priorities with other key areas of council; and creating strong foundations from which to progress towards the Council's long term vision. The draft Plan is being applied and continues to evolve as Auckland Council establishes its higher level strategic, governance and decision making frameworks.

KEYWORDS

Stormwater management, water sensitive design, flooding, stormwater quality, streams

PRESENTER PROFILE

Nicola Green is a Stormwater Liaison Advisor for Auckland Council's Stormwater Unit. She is responsible for promoting integration of Stormwater Unit and Planning Office programmes and directions. To date, this has included facilitating Stormwater Unit input into the Auckland Plan, Unitary Plan development, Local Area Planning, plan changes and environmental strategy and policy. She also co-ordinated development of the Stormwater Unit's draft Stormwater Unit Implementation Plan. Nicola has a multi-disciplinary background, including science, policy and facilitation/co-ordination

experience. She has an M Sc. (Resource Management) (Hons.) from Lincoln University and has previously worked in regional air, land and coastal policy roles for Wellington Regional Council and Auckland Regional Council. She gained community engagement and sustainable land management experience as Bay of Plenty Regional Co-ordinator for the NZ Landcare Trust. Other experience includes acting as an independent facilitator for Tauranga City Council's Project Steering Group for renewal of their suite of wastewater consents and groundwater and geothermal laboratory work for the Institute of Geological and Nuclear Sciences.

1 INTRODUCTION

On 1 November 2010, seven district councils and the Auckland Regional Council were amalgamated to form Auckland Council (the Council). Within the Council, the Stormwater Unit (the Unit) of 145 staff was formed and given responsibility for planning and managing Auckland's extensive network of natural and built stormwater assets, including approximately 8300 km of streams and channels, and \$2.5 billion worth of built infrastructure (including pipes, detention and treatment devices, outfalls and culverts). The Unit also leads best practice stormwater catchment planning, education and advice for Auckland Council.

The Stormwater Unit and wider Auckland Council now face significant stormwater management issues across the region, including:

- Despite significant investment in stormwater management improvement by legacy councils, several urban coastal receiving environments continue to experience declining environmental quality resulting from stormwater and its contaminants;
- A reliance on infrastructure led stormwater management has placed significant pressure on our urban streams, many of which have been significantly modified to cater for increased flows, with resulting loss of instream values;
- Approximately 7850 homes are subject to flooding and another 7000 exposed to overland flow within the 100 year average return interval (ARI) floodplain, largely due to land use decisions of the past which are costly to address;
- The costs of maintenance to continue to meet current levels of service and achieve the most cost effective use of infrastructure is significant and increases with urban expansion into greenfields areas and increasing percentage of impervious surfaces;
- Auckland will continue to experience significant growth which will require investment in stormwater infrastructure;
- Operations respond to 100-300 call outs per week for problems requiring remedy;
- Combined sewer and wastewater overflow problems are significant in the older parts of the central city and intensification of the central city has the potential to increase them. Decisions will need to be made in partnership with Watercare on the best solution;
- Climate change is likely to exacerbate flooding, coastal inundation and hydrological impacts on streams, the stormwater network and urban areas; and
- Urban and rural land uses affect stormwater quality, quantity and environmental impacts differently, and management of both needs to be integrated to achieve improved community and environmental outcomes.

In addition to these stormwater management issues, the amalgamation created many transitional challenges. There was significant disparity between legacy council approaches across seemingly all areas of the Stormwater Unit function, including asset management systems and databases, connection and design standards, levels of service, environmental information, research and best practice guidance, catchment management planning methodologies, contracts, internal processes and systems. Levels of expenditure were also significantly different across the legacy councils, and need to be brought into a regionally consistent and equitable framework.

The amalgamation provided significant opportunities to rationalise approaches to stormwater management across the region to achieve associated efficiencies, more consistent service, and better regional outcomes. However, rationalization was a significant transitional challenge for the Unit, and continues to be one and a half years after amalgamation.

Immediately following amalgamation, the Stormwater Unit's management team recognised the challenges the Unit faced in regionalising and leading the stormwater management function into the new regime. The management team identified the need to establish cohesive strategic direction and business plans to guide the Unit, particularly while high level strategic direction within the Council was being developed. The management team committed to preparing a draft Stormwater Unit Implementation Plan (the Plan), to:

1. establish the way forward, priorities and work programme for the Stormwater Unit in the first three years of Council, including work required to regionalise the stormwater function, while building towards a longer term vision for stormwater management in the region;
2. engender support and alignment of other parties who have key roles in achieving stormwater management outcomes, given that significant aspects of stormwater management, particularly integrated land use planning, lie outside the direct responsibility of the Unit; and
3. inform and guide Stormwater Unit input into major Council planning programmes that were initiating in short succession with tight timeframes, including the development of the Auckland Plan, Asset Management Plan, Long Term Plan, Local Area Plans, Unitary Plan and core regional strategies.

A draft Implementation Plan was prepared in June 2011, and a final is scheduled for completion after Auckland's first spatial plan (the Auckland Plan) becomes operative (originally December 2011, now April 2012).

The process used to develop the draft Plan, and the directions set by the draft Plan itself, reflect the unique transitional situation in which it was developed and the extent to which stormwater management touches other units within the wider council. The draft Plan has been successful in many respects, even though some aspects require further work.

- This paper highlights some key messages that are likely to be of interest to stormwater managers elsewhere in New Zealand, relating to: the process used to develop the plan;
- key content and directions set by the draft Plan;
- future amendments to improve the Plan;

- how the draft Plan is being applied;
- some overall learnings for the Stormwater Unit..

2 PLAN DEVELOPMENT

2.1 PARTICIPANTS AND PROCESS

When first established, the Council was in a unique organisational situation in that approximately 6000 employees from eight legacy councils and council-owned entities had been reorganised and resituated to work together in a new, unfamiliar and large organizational structure, often in new positions. Working relationships and lines of communication were fundamentally changed and required re-definition and establishment. Technical, historical and organisational knowledge, skills, working relationships and responsibilities relating to stormwater management were spread across council, although the majority lay within the Stormwater Unit.

Effective stormwater management requires an integrated approach that touches many disciplines and areas of Council and CCO functions, including land use planning, environmental policy (coastal, land and freshwater), urban design, research and monitoring, resource consenting, environmental education, asset management, financial planning, and wastewater and transport management. Because of this, a cross-council, inclusive approach was used to develop the draft Plan. Best efforts were made to understand the new structure and functions of council departments, and to include representatives from all areas of Council with a role in stormwater management. One advantage of starting the process early after amalgamation was that people were still establishing in their roles, and were similarly seeking to clarify their functions and relationships across council. There was a high response rate to the invitations to participate.

Fourteen Technical Working Groups were established, including a total of more than 35 people, focusing on the following topics associated with stormwater management functions:

1. Stormwater strategies and plans
2. Coastal
3. Freshwater
4. Biodiversity/Biosecurity/Natural Heritage
5. Growth and Land Use/Urban Design
6. Infrastructure and Assets
7. Contaminants, sediment and intervention opportunities
8. Flooding
9. Catchment Planning
10. Consents and Compliance
11. Social and Community
12. Statutory and Non-Statutory Tools
13. Funding
14. Statutory Plan Policy Direction

These groups were tasked with identifying the stormwater issues associated with their topic, the evidence base available, key gaps in information and priorities for stormwater management relating to their topic prior to 21 December 2010. The tight timeframe was set to ensure the Unit had some strategic direction in place in time to input into the

discussion draft of the Auckland Plan (Auckland Council, 2011), which was released to the public in March 2011. Given these time constraints, the outputs of each working group were essentially a download of current knowledge, expertise and information base of the specialists present.

An Expert Panel was established to assess and rationalize working group findings, identify areas for further development, guide preparation of the Plan and support alignment across the organization. It consisted of Stormwater Unit managers and representatives of other Units across council (similar to the working groups), Watercare Services and Auckland Transport representatives, and a few external stormwater specialists. A summary of key directions, actions, priorities and issues raised by the Technical Working Groups was presented to and discussed by this Expert Panel in late December 2011, which formed the foundation for drafting the Plan. The Panel then met regularly from February to June 2011 to guide development of the plan.

Feedback on the draft Plan was invited from Technical Working Group members and officers of other areas of council (e.g., Area Spatial Planning, Maori Strategy and Policy) in April. The draft Plan was presented to the Council's Environment and Sustainability Forum in June for feedback, followed by brief presentations to Local Boards during Long Term Plan engagement processes. Further work on accommodating feedback was initiated. However, further amendment and finalization of the Plan is on hold until the Auckland Plan becomes operative, providing the highest level strategic direction with which the Stormwater Unit must align.

2.2 INITIAL FINDINGS

The Technical Working Groups identified information and evidence available to direct the approach and priorities for stormwater management across the region. They also consistently identified some challenges that would need to be addressed by the Plan, including the following:

1. The significant variability between councils in seemingly every system, process and information base the Unit relies upon would require a substantial period of consolidation in addition to continuing business as usual work programmes.
2. There were few globally accepted regional priorities, environmental objectives, or agreed approaches to establishing these. In the short timeframes available, technical working groups could at best provide general principles for identifying regional priorities for stormwater management.
3. The working groups had variable success in finding/accessing information from previous legacy councils. There was heavy dependence on people with historical knowledge, and where these people were absent, information gaps remained. It would take time to search out some of this information from legacy Council information bases and identify gaps.
4. Some consistent directions started to emerge which informed the strategic directions of the Plan summarised in section 3.1 below. These included the need to focus on source control and at source control of contaminants from primary sources (including certain building materials and roads) within a "source to sea", or whole catchment approach; align stormwater management and land use planning and development to avoid further deterioration of coastal and freshwater receiving environments and reduce the creation of flooding problems; work with natural water systems as much as possible rather than simply defaulting to an infrastructure led approach; and to carefully target and prioritise investment where it can most effectively address existing problems.

3 THE STORMWATER UNIT IMPLEMENTATION PLAN

The draft Plan was developed from the foundation of the technical working group findings and ongoing input from the Expert Panel. It was divided into two parts, the first providing context and medium to long term strategic direction for the Unit and the second establishing the short term implementation plan for the next one to three years. Key messages from the Plan are summarized below (Mayhew and Green (Eds.), 2011).

3.1 STRATEGIC DIRECTIONS

The Unit's vision for stormwater management is:

The sustainable management of rainwater and the water cycle; delivering resilient communities and healthy built and natural environments.

The elements of this vision are:

- **Water sensitive planning and development** – manage water as a resource and design our urban areas to work with nature not engineer against it.
- **Protection and enhancement of natural and amenity values of our waterways** – our water environment helps define Auckland's identity and values.
- **Effective prevention and targeted treatment of contaminants** – holistic management of stormwater and contaminants from generation to discharge together with industry and central government.
- **Minimising public health and property impacts from flooding** – reduce flooding where it affects the safety of our communities, and our businesses.

The following principles underpin the Plan and should guide all actions of the Stormwater Unit:

- 1. Prevention is better than cure/do not remake the mistakes of the past.** Minimising effects on communities and the environment at the outset is more sustainable and cost effective than trying to fix them after they have occurred. Existing effects are extensive and are expensive (in some cases unaffordable), difficult and require long timeframes to mitigate, and some effects are irreversible.
- 2. Work with natural systems, not against them.** To achieve effective water management we must view water and natural water systems as a resource and work with them (using and protecting natural waterways, flowpaths and floodplains) rather than seeking engineered solutions.
- 3. Focus retrospective effort where we need to and where it can make a difference.** Existing effects are difficult and expensive to reverse once they have occurred. To achieve the best overall outcomes for the environment and community we must focus effort on where it is important to make a difference, in part based on regional prioritisation.
- 4. Council should lead by example.** Auckland Council and its CCOs are the largest stormwater asset owner/operators in the region and we need to lead by example.
- 5. Stormwater management is a partnership.** While the Stormwater Unit is the primary provider and operator of stormwater services and infrastructure, effective

stormwater management involves many parties including other council sections, CCOs, iwi, the community and key stakeholders, developers and industry. Land use and roading/transport planning and implementation, in particular, have a significant impact on stormwater management outcomes.

- 6. Efficient use of public money.** Focus effort and investment to achieve the best outcomes for our community and environment, both for the present and future generations. Ensure integration across council to achieve cost efficiencies and savings and prevent the need for costly retrofitting post development.

3.2 IMPLEMENTATION PLAN – ONE TO THREE YEARS

The focus of the Plan is on the first three years. During this formative period for the Unit and Council as a whole, the aim is to establish a strong foundation for Auckland Council to move forward from. The general approach for the short term (one to three years) is continued service delivery, while at the same time consolidating and regionalising the Unit's delivery of stormwater management and establishing the building blocks necessary to achieve the Unit's long term vision, as follows:

1. Continue to deliver existing investment programmes, based on existing Long Term Plan funding and priorities, where these programmes are likely to be consistent with future directions.
2. Consolidate and regionalise best practice stormwater planning, design, construction and management to build the capability and resilience of the Unit, its systems and processes to move into the future from a position of consolidation rather than fragmentation including:
 - a. Develop a regional best practice toolbox for catchment planning to ensure consistency and efficiency of the catchment planning process resulting in achievable outcomes, tailored to the audience, and recommending pragmatic and fit-for-purpose solutions to prevent or resolve existing and future stormwater issues.
 - b. Develop an asset management system capturing man-made and natural stormwater asset information, and best practice asset management tools to enable quality asset management planning;
 - c. Develop a project delivery process that will ensure stormwater projects are well prepared and coordinated, maximise integration opportunities across the four wellbeings and delivered efficiently to the highest standard;
 - d. Develop regional development connection/design standards to provide a consistent approach to new development and the delivery of stormwater projects;
 - e. Rationalise existing operations and maintenance contracts to achieve consistent levels of service and cost/performance benefits;
 - f. Develop a consistent and rational approach to network resource consents.
3. Align catchment planning priorities with regional environmental, growth and development priorities to enable prompt input (and associated good outcomes) into these processes as they arise.
4. Develop a single, regional asset management plan, with gaps identified, and an action plan to address these gaps.
5. Put in place the building blocks essential for achieving the long term vision:

- a. Pro-actively contributing to Council wide initiatives to establish strategic outcomes for environmental protection and enhancement, growth and (re)development, including the Auckland Plan, Unitary Plan and other Regional Plans, Long Term Plan, Infrastructure Strategy, and Plan Changes;
- b. Assist in developing receiving environment objectives and priorities by contributing technical expertise and information on network performance, contaminant load and fate modelling and other technical aspects;
- c. Assist in developing plan provisions for managing stormwater generation and runoff for new development including contributing to a common understanding of low impact design and how this may be applied in practice.

A series of actions were identified to deliver this approach over the next three years. The Unit's ability to achieve these actions, including maintaining current levels of service, stormwater quality improvements and to service growth, is dependent on the level of resourcing allocated through Auckland Council's Long Term Plan 2013-2022. The Unit is also dependent on other areas of Council successfully implementing some actions. One such key area is to establish integrated stormwater management and land use and development provisions in the Unitary Plan under preparation by the Policy and Planning Division.

The Plan has adopted an Order of Outcomes framework (Olsen, 2003; UNEP/GPA, 2006) to support tracking and monitoring of Plan implementation and effectiveness. The Order of Outcomes approach was designed to support the management of complex natural environments and monitor the outcomes of numerous multi-party and many-layered interventions. It defines the sequence and scope of institutional (1st order), behavioral (2nd order) and social/environmental (3rd order) changes and outcomes needed to achieve more visionary and longer-term goal of sustainable resource management (4th order) and works well as a program. The Orders of Outcomes are summarized as follows:

- 1st Order Outcomes:** Enabling conditions that must be in place for higher level outcomes to be achieved;
- 2nd Order Outcomes:** Observable changes in uptake or practice;
- 3rd Order Outcomes:** Measurable positive changes in the social, cultural, environmental and economic state;
- 4th Order Outcomes:** Our vision.

1st, 2nd and 3rd order outcomes are identified to measure progress towards achieving the vision and the high level outcomes that define the 4th order elements of sustainable development and restorative design. Figure 1 below displays the core elements of the Implementation Plan programme within an Order of Outcomes framework, which will support tracking of actions and progress towards its outcomes and vision.



Figure 1: Stormwater Unit Implementation Plan Outcomes Framework (Adapted from Feeney et al., 2007)

3.3 PROGRESSING THE PLAN

During the time that has elapsed since the draft Plan was prepared, the Auckland Plan was prepared for release in April 2012, the Auckland Council's draft Long Term Plan 2012-2022 (Auckland Council, 2012) was prepared and notified for submissions, and an internal draft of Auckland Council Stormwater Asset Management Plan 2012-2032 was prepared. Across the council, officers have advanced their understanding of their roles and priorities within the new structure. In addition, the Stormwater Unit has progressed thinking, relationships with other areas of council and CCOs, and frameworks delivering core functions (e.g., the network discharge consents framework) and some of the consolidation work has advanced.

Given the pace at which these changes are occurring, the Stormwater Unit will need to regularly review and amend the Plan to keep it current. It is expected that generally the vision and guiding principles will remain largely the same, as will the short term focus on consolidation. However, further work will need to be completed to clarify priorities (taking into account Auckland's Development Strategy and actions which will be specified in the Auckland Plan), establish milestones, complete more detailed action planning and a monitoring program to assess the success of the Plan in achieving its short and longer term goals.

3.4 APPLICATION OF THE PLAN

Plan implementation has already progressed to some degree, particularly with respect to raising awareness of stormwater management issues across Council and building support for a strategic, cross council approach. The initiation of cross-council technical working groups so early on served to get many of those key players thinking about stormwater management, contributing to stormwater management directions, and later supporting and applying the strategic directions of the draft Plan. In this sense, the process of developing the Plan had some positive outcomes in itself.

Representatives in other areas of Council including Strategic Planning, Environmental Strategy and Policy, and Stormwater Bylaws have requested the document and shown proactive support for its contents. Generally, the Plan has been positively received.

The strategic direction set by the draft Plan was used by the Stormwater Unit to guide input into Auckland Council's major planning processes and documents including Auckland Plan drafting, Stormwater Asset Management Plan drafting, Long Term Plan drafting and financial planning. For example, high level commitment to water sensitive design and the integration of stormwater management and land use planning was sought through the Auckland Plan. Likewise, financial projections and bids for funding through the Long Term Plan process reflected the intention to address existing flooding and environmental problems in a regionally prioritized way and prevent further creation of problems. The draft Plan now guides the Stormwater Unit's active input into Unitary Plan drafting, with a particular focus on land use controls to manage stormwater flows, quality and flooding, and integrated land development and stormwater planning. Stormwater catchment management planning and consent teams are actively contributing to area planning and plan changes as early as possible in their processes.

There are some key gaps the Unit is working to address, such as establishing a framework for different scales and purposes of catchment management planning within the Unit and across Council. Establishing regional environmental objectives or priorities is another area requiring further work, which will be strongly influenced by pending implementation of the National Policy Statement – Freshwater Management 2011 (New Zealand Government, 2011) and the finalization of the Auckland Plan.

4 LEARNINGS

The Unit has taken some valuable learnings from the process of developing the Draft Plan, which may be relevant to stormwater managers throughout New Zealand, as summarized below.

- The Stormwater Unit is committed to providing a centre of excellence and leadership for best practice stormwater management in Auckland, which started with defining and championing a consistent direction within the Council, in alignment with Council's higher level strategic directions and priorities.
- It is critical to identify those parties with roles and functions relating to stormwater management and invest time in keeping abreast of and engaged in priority work programmes that affect stormwater management. Early and ongoing inclusion of those parties builds awareness of and commitment to the outcomes of the Plan, and a more robust Plan.
- While the plan development process focused on internal processes, participation and relationships, reflecting its preparation in the formative stage of Council's development, the Plan recognizes that that stormwater is a partnership. Wider inter-agency and stakeholder engagement, co-ordination and involvement will form an important component of successful Plan implementation.
- The Plan identified a clear need for integrated stormwater management and land use planning and development to prevent creation of new stormwater management problems, and address existing ones in a prioritized way. The Stormwater Unit will seek early and ongoing involvement in land use planning processes. Alignment of catchment planning priorities with regional environmental, growth and development priorities will enable prompt input (and associated good outcomes) into these processes as they arise.
- Setting region-wide priorities to ensure targeted investment of limited resources to achieve best possible outcomes for stormwater management is critical. However, there also needs to be a balance between regional priority and local service.
- Amalgamation offers a significant opportunity to consolidate and regionalize best practice stormwater management, but it will take time. Record keeping and systems management become particularly important when historical information is required. Successful retrieval of information, systems and processes from legacy councils has depended on how well they were recorded and stored, and finding people who worked with and understood them.
- A rigorous but simple system of monitoring and evaluation of progress towards ultimate sustainable management outcomes needs to be included in the Plan as it is developed.

5 CONCLUSIONS

The preparation of a draft Stormwater Unit Implementation Plan soon after Auckland Council was established, has served very well in providing consistent direction and guidance for stormwater management across the many council programmes occurring in the first year of Council. It has also assisted officers within the young organization to clarify roles, responsibilities and key relationships for stormwater management. An inclusive approach has been very important for establishing relationships, trust and understanding across the Council that are valuable for stormwater management and should continue (for example, in the form of stormwater reference groups or working groups as needed).

The success of the Plan in achieving positive stormwater management outcomes will be revealed in time. In particular, the degree to which the Unit is able to establish the necessary provisions needed in Auckland's spatial plan, Unitary Plan and Long Term Plan to give effect to the vision and principles of the Plan will be a key determinant.

Considerable gains can be made by rationalizing and streamlining stormwater management across the region, but again it will take time. Defining and implementing best practice across all Stormwater Unit functions will be an ongoing process. The first 18 months of the new unitary authority have been times of rapid change and high demand on staff.

It is expected that the Plan will need further revision and completion shortly and then at three yearly intervals going forward. However, the strategic directions set by the Plan, the vision, principles and outcomes should remain generally constant as they are based on a long history of research, evidence and current knowledge of stormwater practitioners and legacy councils in the Auckland Region. They establish a clear intent to move away from historical approaches that rely heavily on built infrastructure and response to problems, towards more water sensitive approaches to the land use and development that will support Auckland's growth to avoid and minimise adverse environmental effects. The Stormwater Unit Implementation Plan depicts the Stormwater Unit's commitment to making Auckland the world's most liveable city.

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