

DRAFT DISTRICT PLAN

Topic summary:

STORMWATER

KEY OUTCOMES

- *Great urban areas*
- *Leveraging our natural and built heritage*
- *Premier regional park for Ahuriri Estuary*
- *Regional approach to industry*



INTRODUCTION

Improved management of stormwater is a key priority for Napier City Council. The Draft District Plan includes a new chapter to help better manage stormwater for new developments without solely relying on network solutions, or unduly constraining opportunities for additional growth to occur.

The purpose of the stormwater chapter is to manage both the quantity and quality of stormwater discharges into the Napier City Council stormwater network. This will help achieve the strategic objectives relating to integration of land use and infrastructure planning, minimise flooding risk across the city, and together with the stormwater bylaw, reduce effects on the receiving environments including Ahuriri Estuary and the coast.

MOVING FORWARD / OUR APPROACH

Key components of the Draft District Plan approach to managing stormwater include:

- Requiring onsite stormwater detention/retention, and stormwater management plans for developments in areas with identified capacity issues;
- Protecting the function (direction and capacity) of overland flow paths;
- Managing stormwater quality from high-traffic roads and large car parks, and treating water to reduce heavy metal load in stormwater entering Council's network;
- Restricting the use of inert and toxic materials and paints on roofs;
- Encouraging low-impact design for subdivisions, new buildings in the City Centre, Town Centre and Mixed Use zones, and for multi-unit residential developments through new assessment criteria.

KEY ISSUES AND CHANGES

The major changes in relation to stormwater in the Draft District Plan are:

PROVIDING FOR GROWTH OF THE CITY WHILE RECOGNISING CONSTRAINTS IN THE STORMWATER NETWORK

Background

Napier has a number of challenges in managing stormwater. The topography of the city we see today is generally flat, so requires 75% of the city's stormwater to be pumped. The capacity of the stormwater network provided at each stage of Napier's development was not designed for significant infill. As the city has evolved, impervious areas have increased. In addition, some parts of Napier were developed with a low level of service, meaning that they are designed for accommodating regular weather patterns only, and do not have capacity to withstand significant rainfall events.

An additional challenge is that the projected impacts of climate change in the Hawkes' Bay region include increased frequency and severity of high intensity rainfall events. Our capacity constraints will likely result in more frequent flooding if there is no intervention.

The 2021-2031 Long Term Plan and accompanying 30-year infrastructure strategy dedicates significant investment to a range of stormwater projects. One such project allows stormwater to be detained during significant flood events, so that the impacts of flooding on private property are alleviated. Planning is also underway to treat the city's stormwater for improved water quality at Lagoon Farm, prior to discharge into the Ahuriri Estuary.

The key District Plan outcome of "A Premier Park for Ahuriri Estuary" is supported by a new dedicated stormwater and ecology zone that has been created to enable these objectives.

Providing for urban growth

The city is continuing to grow. Intensification of our existing urban areas will be one key method to increase housing supply and to meet the needs of our communities. Some areas that are otherwise desirable for intensification (as indicated in the draft Spatial Picture) do not currently have capacity in the stormwater network to accommodate additional runoff during storm events. The District Plan needs to enable growth to meet demand, while also managing potential effects on public health and safety from increased flooding risks if stormwater isn't appropriately managed.

Relying solely on network upgrades will not manage this tension. It is very costly to retrospectively improve the capacity of the reticulated network throughout the whole city for high-intensity but low-frequency rainfall events. A more cost-efficient solution is to require low-impact design and onsite detention, particularly in constrained areas.

Proposed approach

The Draft District Plan proposes establishing three Stormwater Management Areas across the city. The boundaries of these areas have been determined by a network-wide stormwater model that looks at the existing capacity of pipes and open drains, projected growth in each area, and the potential for increased high intensity rainfall events as a result of climate change. The stormwater model is currently in a draft form and will continue to be refined ahead of the proposed District Plan.

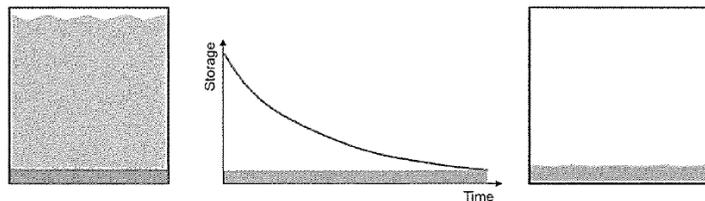
The management areas have different rules as follows (refer to the attached map for location of each area):

Stormwater Management Area 1

These areas do not have significant capacity constraints. Development can occur in accordance with the zone (including impervious area limits) without any onsite mitigation (see SW-R5).

Stormwater Management Area 2

These areas have some capacity constraints, particularly when taking into account anticipated growth. Development can occur provided onsite retention (onsite discharge to ground or onsite water reuse) and detention (temporary onsite storage) is provided (see SW-R5(2)). This reduces demand on the stormwater network by slowing down the rate at which runoff enters the system, as shown below.



For design purposes, it is assumed that total retention and detention volumes from the design storm are stacked in the device

Detention volumes are released over 24 hours

After 24 hours, only the retention volume is left in the device (to be infiltrated into the surrounding soils or used on-site)

The size of the tank is expected to be sufficient to meet the requirements of both retention and detention as follows (see SWT-S1):

- Retention of 10mm rainfall runoff depth for the impervious area for which hydrology mitigation is required (i.e. the new and any redeveloped impervious area that increases runoff)
- Detention and drain-down period of 24 hours for the difference between the pre-development and post-development runoff volumes from the 10% Annual Exceedance Probability (AEP), 24-hour rainfall event set out in the Code of Practice.

For Napier, the 10%AEP, 24-hour rainfall event depth is currently 139mm. Not all of this would be absorbed on a grassed site, and different types of impervious materials will generate different levels of runoff. It will be necessary to calculate the difference in runoff between the pre-development and post-development situation. Napier City Council will develop a stormwater calculator to assist in working out onsite detention requirements for a development. However, until this is done, applicants will need to engage an engineer to calculate the pre- and post-development runoff volumes, or alternatively contact Council's development engineer for advice.

Stormwater detention tanks for a typical residential house range in cost from around \$3,500 to \$6,500, depending on size and design (plumbing costs additional). Detention tanks come in a range of options including slimline versions that can be installed alongside a building's wall, and underground tanks.

Stormwater Management Area 3

Stormwater generated from these areas may exacerbate existing flooding risks and/or generate contamination due to the land use in those areas (e.g. industrial). Additional stormwater generation in these areas therefore needs to be carefully managed. New and redeveloped impervious areas will trigger the need for a Stormwater Management Plan. A controlled activity resource consent will mean that there is certainty that the additional impervious area will be allowed (provided the maximum impervious limit for the zone/precinct is not exceeded). An assessment process on how stormwater will be managed will be required. This will include consideration of (see SW-AC1):

- Public health and safety, in particular risk of flooding from the increased runoff at that location;
- Network efficiency, including whether the proposed mitigation will help ensure the stormwater network operates effectively (having regard to any proposed upgrades);
- Cumulative effects from growth anticipated across the area;

- Potential effects of stormwater contamination on the ultimate receiving environment for the catchment (generally the Ahuriri Estuary for Napier).

Stormwater detention and/or treatment devices may be required to ensure stormwater is appropriately managed for development in Stormwater Management Area 3.

STORMWATER QUALITY AND EFFECTS ON RECEIVING ENVIRONMENTS

The increased prevalence of impervious areas changes many aspects of the land and can significantly impact receiving environments. Urban activities, particularly earthworks, industry and traffic, lead to the build-up of sediments and contaminants that make their way into the stormwater system during rain events. Impervious areas result in more runoff volume and increased velocity which can cause erosion and habitat degradation in streambeds and banks, resulting in negative impacts downstream.

For Napier, most stormwater is discharged to the Ahuriri Estuary. This estuary has significant natural, cultural and recreational values that are impacted by degradation of water quality. Urban runoff is one key contributor to water quality issues in the estuary. Unmanaged growth and development will likely result in further degradation.

The Draft District Plan rules work alongside the stormwater bylaw to reduce contamination of runoff entering the network. This will assist Napier City Council in meeting the conditions of its stormwater network discharge consent.

Requirements include:

- Treatment of stormwater runoff from carparks of more than 20 car parks (see SW-R1);
- Treatment of stormwater runoff from new or redeveloped roads or state highways designed to accommodate more than 5,000 vehicles per day (see SW-R2);

- All new roofing materials should be inert or painted with non-metal based paint (see SW-S2);
- Low-impact design criteria, including consideration of potential contamination, to apply to subdivisions, new buildings in the City Centre, Town Centre and Mixed Use zones, and multi-unit residential consents (see SW-AC2);
- The Pandora and Onekawa Industrial areas are located in Stormwater Management Area 3 and are subject to the stormwater management plan requirements outlined above.

PROTECTING THE FUNCTION OF OVERLAND FLOW PATHS

Not all peak flood events will be fully contained by the stormwater network, even when detention is used. Overland flow paths enable additional stormwater to flow through the city and not build up in areas that may cause flooding to buildings. In Napier, roads have been designed to accommodate overland flows. Sometimes they also flow through private property. New development that blocks overland flow paths can exacerbate flooding for neighbouring properties.

The Draft District Plan proposes to manage this by requiring that (see SW-R3):

1. The existing entry and exit point of overland flow paths through the site is maintained;
2. The building, structure or earthworks will not decrease the capacity of the overland flow path entering the site, or increase the volume of overland flow path exiting the site.

This rule complements Building Act requirements and ensures that overland flow paths are considered at the initial design phase of a development.