

Kōrero mai Let's talk about improving our waterways

The Draft Ōtākaro-Avon
Stormwater Management Plan

letstalk.ccc.govt.nz

Tell us what you think by
Monday 22 April 2024



How to have your say

We'd like your feedback on the Draft Ōtākaro-Avon Stormwater Management Plan. Submissions can be made until **Monday 22 April 2024**.



Online: **letstalk.ccc.govt.nz**



Email*: **letstalk@ccc.govt.nz**



Deliver to*

Attention: Samantha Smith
Te Hononga Civic Offices
at 53 Hereford Street by
5pm Monday 22 April 2024



Post to*

Freepost 178 (no stamp required)
Attention: Samantha Smith
Christchurch City Council
PO Box 73016
Christchurch 8154

* Please include your full name and postal address. If your feedback is on behalf of a group or organisation, you must include your organisation's name and your role in the organisation.

Please note:

We require your contact details. Your feedback, name and address are provided to decision makers. Your feedback, with name only will be available on our website. However, if requested we will make feedback including contact details, publicly available. If you feel there are reasons why your contact details and/or feedback should be kept confidential, please contact the Engagement Manager by phoning (03) 941 8999 or 0800 800 169.

Talk to the team

If there is a community meeting you would like us to attend, please let us know. You can also phone any time to speak with us directly about this project.

Samantha Smith
Engagement Advisor
03 941 5376
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Read the full draft plan

This is a summarised version of the full Ōtākaro-Avon Draft Stormwater Management Plan, for the purposes of consultation. You can download and read the full draft plan on our website at **letstalk.ccc.govt.nz** or pick up a printed copy at your local Council library or service centre.

What's stormwater?

Stormwater is any water that falls on roads, paths and other hard surfaces. The water picks up pollution from these surfaces and then flows via drains into local waterways. This affects the water quality and health of local streams and rivers.

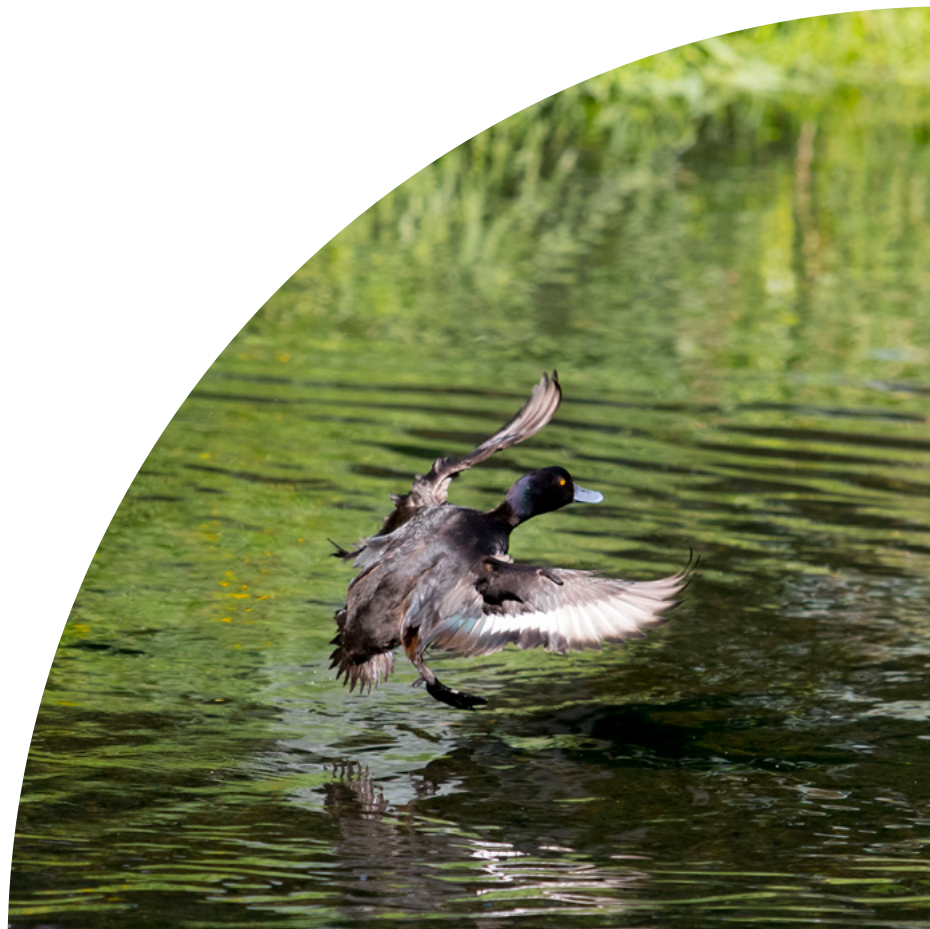
What's a stormwater management plan?

A stormwater management plan sets out the ways in which Christchurch City Council will meet the requirements of its stormwater resource consent, which was granted by Environment Canterbury in 2019. This 25-year resource consent is called the Comprehensive Stormwater Network Discharge Consent (CSNDC). Its purpose is to improve surface and groundwater quality and address problems caused by the nature of stormwater discharged into waterways. It promotes water quality improvements over time in order to meet targets in the Land and Water Regional Plan.

What's the purpose of the Otakaro-Avon Stormwater Management Plan?

The Ōtākaro-Avon Catchment Draft Stormwater Management Plan has three key purposes:

1. To meet the targets under the CSNDC for reducing stormwater contaminants.
2. To describe the ways stormwater discharges will be improved over time to meet environmental objectives.
3. To describe how the Council deals with flooding risks that arise as a result of development.



Compliance and beyond

The aim of the Comprehensive Stormwater Network Discharge Consent (CSNDC) is to limit the adverse effects of stormwater discharges on surface and groundwater quality and quantity. The Consent promotes progressive water quality improvement toward targets in the Land and Water Regional Plan. The Council will work toward achieving these targets through practical options for stormwater quality improvement and peak flow mitigation.

Stormwater Management Plans (SMP) contribute to reducing contamination and demonstrating the ways stormwater discharges will be progressively improved.

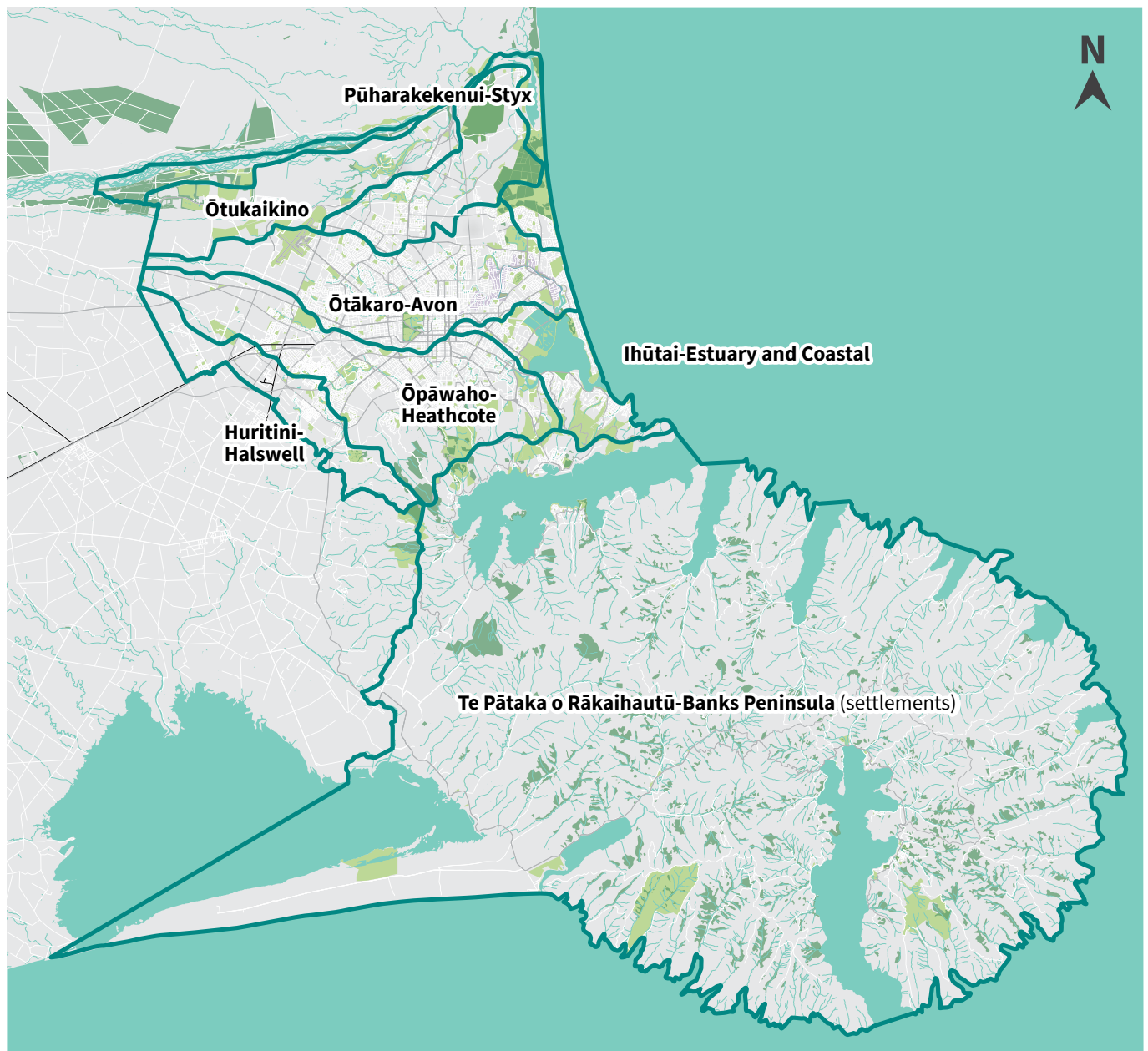
An SMP is given effect through the Council's Long Term Plan (LTP), which is a statutory process. Governance processes under the Local Government Act (LGA) constrain the development and funding of new projects. In general a SMP needs to gain Council approval to fund environmental improvements signalled in the consent.

Work that is being planned under other Council plans such as the Healthy Water Bodies Plan, Surface Water Implementation Plan and Tree Plan are essential parts of working toward a healthy environment.



Coverage

This Stormwater Management Plan is one of seven plans being prepared over the period 2020 to 2024 for the Ōpāwaho-Heathcote, Huritini-Halswell, Ihutai-Estuary and Coastal, and Ōtūkaikino catchments and Settlements of Te Pātaka-o-Rākaihautū-Banks Peninsula, and Ōtākaro-Avon and Pūharakekenui-Styx catchments.



The boundaries of the seven stormwater management catchments within the area covered by the Comprehensive Stormwater Network Discharge Consent.

The Ōtākaro-Avon Catchment

The catchment of the Ōtākaro-Avon River is approximately 8,900 hectares in area. Its headwaters are in Avonhead where springs emerge into streambeds from the unconfined aquifer beneath. The aquifer is fed mostly by seepage from the bed of the Waimakariri River and partly by rainfall to the west of the city.

The catchment is largely residential with commercial areas in the city centre and Riccarton, and industrial zones in Addington and near the airport. Industrial zones, due to greater traffic movements and a higher proportion of galvanised roofs tend to discharge greater contaminant loads into rivers via stormwater runoff. However, the airport treats its stormwater and discharges it into the ground.

The river is very important to the city, being a focal point for many activities in the city centre and an important green corridor from source to sea. Many types of activities occur on and near the river, mostly walking and viewing but including punting and kayaking. Clear water is highly valued as are occasional views of tuna (eel) and trout. Planning is progressing to create a valuable network of wetlands, walking tracks and recreation areas in the Avon River Corridor where thousands of houses were removed after the land was destabilised by earthquakes.

The main issues

Water quality and ecological health

The quality and ecological health of waterways in the Ōtākaro-Avon catchment have declined significantly during 160 years of urban development. Metals in stormwater runoff can harm many species of aquatic life, sediment can smother habitat, and bacteria pose a risk to human health during water activities such as wading or swimming.

There has been a failure to meet targets in the Land and Water Regional Plan for the catchment's urban spring-fed rivers across the areas of water quality, sediment quality and ecology. Contaminants of concern include sediment, zinc, copper and E. coli (an

indicator of faecal contamination). Suspended sediment, zinc and copper levels exceed safe levels for sensitive instream life during wet weather, and high levels of the nutrients nitrogen and phosphorus, which can also come from sources other than stormwater, can result in excessive weed growth in waterways.

The key issue for this stormwater management plan is the need to improve surface water quality and the health of waterways in the Ōtākaro-Avon River catchment despite continuing urban development.

Flooding risks

Much of the Ōtākaro-Avon catchment is relatively flat land which either naturally or artificially drains via pipes into streams and the river. Pipe networks are generally designed to keep road carriageways dry in a one in five year rain event. Water can accumulate on streets during rain heavier than this. Some areas are known to be more significantly affected by flooding, usually due to being low-lying or being in the path of overland flow. Mitigation works have alleviated flooding in some of these areas (Mairehau and Flockton Basin) and some areas (Edgware Village, Riccarton west of the railway

line and Rowses Road) are candidates in the Long Term Plan for prioritisation along with other work.

Stopbanks protect riverside land in the east from tidal flooding. Land subsidence and damage to stopbanks during the 2010/11 Canterbury earthquakes increased the flooding risk for some properties along the lower river and adjacent to the residential Red zone. Stopbanks have been temporarily raised and will be permanently relocated within in the Ōtākaro Avon River Corridor as it is developed.

Tangata whenua and cultural values

Values

Water is a taonga (a treasured natural resource) and represents the lifeblood of the environment for tangata whenua. A relationship with the environment is central to Maori creation stories, spiritual belief, and ways to manage resources. Land, water and resources are a statement of identity. In a particular area they relate to a group's origin, history and tribal relationships. The whakapapa of a waterway would determine its use in tohunga (spiritual), waiwhakaheketupapaku (burial sites), waitohi (spiritual use), waimataitai (coastal mix of fresh and salt water, estuaries), waiora (spiritual healing water), and mahinga kai (food gathering).

The maintenance of water quality and quantity is perhaps the greatest resource management issue for tangata whenua.

All waterways are a major feature within the landscape and should remain unmodified. Culturally, all waterways are significant and come together as one. Waterways begin as rain drops and connect together as streams, lakes, estuaries, and wetlands, all leading to the sea.

Ōtākaro Avon River catchment

The cultural health of the Ōtākaro catchment is poor. Food-gathering sites contain high levels of pollution and are considered unsafe for food gathering and, in some cases, unsafe for swimming. The diversity of native plants and trees is very low, and coastal and estuarine sites typically hold only small amounts of native vegetation in the zones near waterways, which are often dominated by exotic species.

Cultural Impact Assessment

Te Ngāi Tūāhuriri Rūnanga chose not to carry out a cultural impact assessment of the Ōtākaro-Avon Stormwater Management Plan. Mahaanui Kurataio will prepare a Position Statement on behalf of Te Ngāi Tūāhuriri Rūnanga, based on the draft SMP. It is not likely that the Position Statement will be ready until June. At that time you can download and read the Position Statement on our website at letstalk.ccc.govt.nz



Controlling the contaminants of stormwater



What we know about sediment

- Construction is a major source
- Road wear and vehicle tyres are believed to be a significant source
- Deposits from the atmosphere (onto roofs and roads) contribute
- Stream-bank erosion contributes to some extent
- Hillside earthworks can be a major source (but not in this catchment)



What we know about copper

- Vehicle brake-pads are the major source of copper
- Copper in rainfall contributes
- Soils are a minor to moderate contributor
- Small changes in the number of copper roofs can affect copper concentrations in stormwater
- Products used to clean roofs and pathways may contribute



What we know about zinc

- Roofs are the source of maybe 65–70%+
- Tyres are the source of maybe 25–30%
- Other zinc-coated steel items (fences, ventilation ducts, poles) may produce 1–5%
- House and garden products such as for moss control are likely to contribute
- Soil contributes to a small extent

Potential controls

Possible ways to control contaminants

Sediment		
Source	Contribution	Possible mitigation methods
Construction sites	Unknown, mitigated to some extent	Sediment and erosion controls Basins and wetlands
Road works	Usually adequately controlled	Site sediment controls
Atmospheric deposition	Low	Riparian tree cover
Plants (leaves, etc.)	Low (seasonal)	None
Vehicle emissions	Low	Treat road runoff
Visitor activity (stream access)	Medium	Signage
Deposition on roads via vehicles, pedestrians, private property runoff and wind		Bio-filters (Rain Garden, Filterra) Cartridge filters (e.g. Stormfilter™)
		Catchpit filter (e.g. Litta Trap) Street sweeping

Zinc		
Source	Contribution	Possible mitigation methods
Bare galvanised roofs	Many galvanised roofs discharging to waterways in this catchment (High city-wide)	Replace with alternative roofing material (clay tile, non-metal roofs or pre-coated Zn-Al or paint with: Low zinc paint) Downpipe filters (e.g. Storminator by University of Canterbury)
Ageing painted roofs	High city-wide. Could be an issue as new pre-coated roofs age	Replace with alternative roofing material (clay tile, non-metal roofs or pre-coated Zn-Al or paint with: Low zinc paint)
Bare zinc/aluminium roofs	Moderate in this catchment due to limited roof numbers	Paint roofs

Effective and practical
 Reasonably effective and practical
 Questionable effectiveness and practicality

Source	Contribution	Possible mitigation methods
Vehicle tyres	High city-wide.	Treat runoff from busiest roads, carparks and manoeuvring areas using: Wetlands
		Other treatment methods as above
Industrial discharges (inferred from monitoring)	Medium	Industrial site management plan Monitoring discharges Enforcement

Copper

Source	Contribution	Possible mitigation methods
Brake pads	High city-wide	Advocate with NZ Government for legislation change for copper-free brake pads. Copper content of brake pads anticipated to reduce from 2025 following USA legislation
		Educate local auto industry and residents about the value of low/no copper brake pads, noting some low-Cu pads are currently available in NZ market
Particulate deposition on roads		Treat runoff from busiest roads, carparks and manoeuvring areas using wetlands
		Treatment methods as above
Roofs, cladding, spouting and downpipes	Low but increasing	Advocate with NZ Government for legislation on copper cladding. Investigate the feasibility of a District Plan rule to discourage the use of copper claddings.
		Educate residents
		Onsite treatment of the copper stormwater runoff (e.g. copper sculpture filters thought grass prior to entering SW system, or retrofit planter box to treat runoff)
		Transparent sealer applied to copper surfaces

Pathogens/ bacteria

Source	Contribution	Possible mitigation methods
Ducks and geese	Major bacteria source	Reduce water fowl numbers. Would need to be implemented outside the SMP. CCC not empowered by the consent to control waterfowl
Wastewater overflows	Major	CCC Wastewater team are actively reducing wastewater overflow with controls such as renewals, capacity upgrades, reduction of vented manhole and code of practice guidelines.
Dog access	Unknown	Signage and education

Other organic material

Source	Contribution	Possible mitigation methods
Ducks and geese	Moderate source	Reduce water fowl numbers. Would need to be implemented outside the SMP. CCC not empowered by the consent to control waterfowl
Leaf litter and grass clipping	Significant source	Minor effect

Industrial discharges

Source	Contribution	Possible mitigation methods
Deliberate spills or poorly controlled sites	Unknown	Regulation, monitoring and enforcement

Polynuclear aromatic hydrocarbons

Source	Contribution	Possible mitigation methods
(Old) coal tar street surfaces.	Unknown	Encapsulation. Removal.
Combustion	Likely low	Monitor

Effective and practical
 Reasonably effective and practical
 Questionable effectiveness and practicality

Nitrate and nitrite

Source	Contribution	Possible Mitigation Methods
Probable agricultural sources (via groundwater)	Moderate	Investigate sources Education and enforcement
Fertiliser	Believed low	Education

Phosphate

Source	Contribution	Possible Mitigation Methods
Industrial sources	Few	Enforcement
Fertiliser	Believed to be a minor source	Education
Leaf litter and grass clipping	Unknown contribution	Education

What we're going to do

Stormwater from new development is usually managed in detention basins which both limit discharge increases and serve as treatment facilities. Based on modelling, environmental drivers and tangata whenua values, and considering best practicable options, the first six contaminant load reduction options below will be implemented in this catchment.

1. All new residential roofs are expected to be coated (i.e. painted) or non-steel (normal practice)
2. This SMP proposes to treat stormwater from four sub-catchments; Addington, Lower Riccarton, and Upper and Middle Dudley Creek. Addington and Lower Riccarton are to be treated via biofilters in which stormwater is pumped through natural media like bark and peat. Stormwater in Dudley Creek will be treated through wetlands in Cranford Basin.
3. Stormwater generated from hardstanding areas within new industrial allotments to be pre-treated using an approved gross pollutant trap (GPT), vegetated swale or other proprietary pre-treatment device.
4. Erosion and sediment control on development and construction sites.
5. Auditing high-risk industrial sites and working with occupiers to remediate contaminated stormwater discharges.
6. Working with community groups and the public to educate the community about the effects of and mitigation of stormwater contaminants.

Source control options such as roof painting could be desirable but at present are not within the Council's powers under the Local Government Act.

Our goals



1. Control sediment discharges

Our goals are:

- 1.1. To ensure the quality of stormwater from all new development sites or re-development sites is treated to best practice.
- 1.2. To construct all stormwater treatment facilities according to best practice.
- 1.3. To ensure sediment from 95% of consented construction activities on the flat is treated to best practice by 2025.
- 1.4. To analyse options for carrying out street sweeping, sump cleaning, and diversion to wastewater trials in 2021–25 (Schedule 4b and d).

Recommended for further consideration

- 1.5. Road sediment is reduced by a best practicable option determined by the results of street sweeping, sump cleaning and alternative treatment trials (Schedule 4c, f, g and h).



2. Control zinc contaminants

Our goals are:

- 2.1 All stormwater treatment facilities constructed and complying to best practice.
- 2.2 To investigate zinc mitigation measures and carry out cost/benefit analyses toward identifying their effectiveness as best practicable options by 2025.
- 2.3 To consult key stakeholders and identify a long-term zinc strategy consistent with current technologies.
- 2.4 The Council collaborates with local and regional government in a joint submission to central government seeking national measures and industry standards to reduce the discharge of building and vehicle contaminants.

Recommended for further consideration

- 2.5 The Council engages in research and trials into means of trapping roof-sourced zinc on site.
- 2.6 The Council adopts a zinc limitation strategy based on identified best practicable options.



3. Control copper contaminants

Our goals are:

- 3.1 The Council consults with the government, through the Ministry for the Environment, about legislation to limit the copper content in vehicle brake pads.
- 3.2 The Council does not permit stormwater discharges into the network from unprotected copper cladding, spouting or downpipes.
- 3.3 The Council will investigate the feasibility of a district plan rule to discourage the use of copper claddings.



4. Control industrial site contaminants

Our goals are:

- 4.1 By 2025 a database of industrial sites considered to be medium or high risk is compiled, based on the best available information
- 4.2 High risk industrial sites are audited by the approved procedure under the CSNDC



5. Engagement and education

Our goals are:

- 5.1 By 2025 the Council will be working with community groups to engage with the public to educate participants about current stormwater practice and enable the public to take action to stop contaminants at source.
- 5.2 By 2025 the Council will be engaging regularly with the Ministry for the Environment to collaborate on contaminant reduction initiatives.



6. Manage flooding

Our goals are:

- 6.1 The quantity of stormwater from all new development sites or re-development sites will be attenuated to at least the minimum standard in the SMP.
- 6.2 To improve our knowledge of flood levels through development of accurate models.
- 6.3 Protection for property will continue to be achieved through controls on development and controls on new floor levels.

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