

5 Natural resources

5.1 Air quality

Background

Auckland's urban areas are the main focus of the Unitary Plan's objectives and policies relating to the management of air quality. This reflects the higher numbers of people that are impacted by sources of air pollution in the urban area. Higher population densities, together with mixed residential, commercial and industrial land uses and the high numbers of vehicles means there needs to be a greater focus on both the management of individual discharges from various sources and the separation of incompatible land uses and activities. There are also industrial processes that cannot avoid discharging contaminants into the air and their operation needs to be recognised and supported. Therefore, their effects need to be managed using suitable control technology, on-site management techniques and by locating such industries in appropriate areas.

Motor vehicles are the largest contributor to air pollution in Auckland. Motor vehicle emissions are very difficult to control or contain, and degraded air quality, as a result, has adverse impacts on human health, ecosystems and amenity values. Location of sensitive activities with respect to transport sources will become increasingly important with a growing population.

Domestic home heating is a large source of emissions in winter and emissions are targeted for improvement, for example by the use of new and more efficient solid fuel burning appliances.

In Auckland's CMA, air discharges are localised and usually temporary in nature. In the rural areas low densities of development do much to provide adequate separation to manage the effects of contaminants on human health and neighbourhood amenity values, provided good on-site management practices are carried out.

Objectives

[rcp/rp]

1. Air quality is maintained in those parts of Auckland that have excellent or good air quality, and air quality is enhanced in those parts of Auckland where it is poor.
2. Air discharges, including PM¹⁰ and PM^{2.5} (particle pollution, or particulate matter), are reduced to protect public health and amenity, and to meet national and Auckland Ambient Air Quality Standards (AAAQS) in Table 1.
3. Human health, amenity values, property and environment are protected from significant adverse effects of air contaminants.
4. Industrial and rural activities are located within appropriate zones, to recognise the benefits of these activities and provide for them, and to avoid adverse effects from air discharges on human health, property and the environment.
5. Incompatible land uses and activities are adequately separated to avoid or minimise adverse effects of air discharges, and reverse sensitivity conflicts are avoided or minimised.
6. Landuse is managed to avoid or mitigate the adverse effects of motor vehicle emissions on people, especially in respect of children's health.

Policies

[rcp/rp]

Human health

1. Protect human health by requiring that air discharges do not cause air quality to exceed the AAAQS in Table 1 for the specified contaminants, and manage the discharge of other contaminants so that the

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adverse effects on human health, including cumulative adverse effects, are minimised.

Domestic indoor fires

2. Manage air discharges from indoor solid fuel burning domestic fires, in urban and future urban areas to prevent domestic fires from causing nuisance to neighbours from odours, particulate matter (PM), fumes, smoke, ash, visible emissions.
3. Manage indoor solid fuel burning domestic fires in rural areas or the CMA so that air discharges do not cause significant adverse effects to people or the environment, including avoiding effects from the discharge of hazardous air pollutants.

Air Quality Amenity

4. Manage the air quality amenity in the CMA and urban areas by:
 - a. avoiding offensive or objectionable odour, dust, particulate, ash, smoke, fumes, overspray and visible emissions
 - b. avoiding any significant adverse effects from industrial or rural activities air discharges
 - c. having adequate separation distances and best management practices for industrial or rural activities
 - d. minimising adverse air quality effects from urban and marine activities.
5. Manage the amenity in rural areas by:
 - a. avoiding offensive or objectionable odour, dust, particulate, ash, smoke, fumes, overspray and visible emissions that are not of a rural nature or character
 - b. allowing for minor and localised degradation of amenity only where the discharge is from a rural activity
 - c. minimising adverse effects of air discharges from rural activities.
6. Manage reduced amenity in the Heavy Industry and Quarry zones in the Unitary Plan and in the Commercial 6 zone, in the Hauraki Gulf Islands section of the Auckland Council District Plan, to support the use and development of that zone by:
 - a. accepting some reduction in air quality amenity in the above zones, provided any discharge to air is minimised and any discharge of hazardous air pollutant does not cause adverse health effects
 - b. requiring adequate separation distances to ensure any air discharges that move beyond reduced amenity areas meet the air quality provisions of the adjacent area
 - c. avoiding activities sensitive to air discharges locating in or adjacent to reduced amenity areas.

Reverse sensitivity and separation distances

7. Maintain adequate separation distances between activities with air discharges and those sensitive to air discharges by:
 - a. encouraging heavy industry that requires an air discharge consent to locate in Heavy Industry zones and be separated by an appropriate distance of at least 500m from zones providing for activities sensitive to air discharges
 - b. not allowing new activities with discharges to air that are likely to have adverse effects to locate in zones where activities sensitive to air discharges are permitted activities, unless it can be shown that adverse effects can be avoided, remedied or mitigated and amenity provisions of the zone are met

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- c. not allowing activities including heavy industry that require air discharge consents to locate in Air Quality Industry Transition overlay, or Light Industry zones, unless it can be shown that adverse effects on activities sensitive to air discharges can be avoided, remedied or mitigated.
8. Avoid industrial air discharges in rural areas and the CMA except where:
- a. the activity is location-specific, such as quarries or localised wastewater treatment facilities
 - b. the activity is significant infrastructure requiring large separation distances that cannot be provided for within urban areas
 - c. the activity is a rural industry.

Air discharges from transport

9. Require applications for land use consent or designation for a high traffic-generating activity to demonstrate that:
- a. Any potential discharges of pollutants to air from vehicles have been assessed using best practice methods such as modelling and monitoring, appropriate to the scale of the discharge and any potential adverse effects
 - b. the combined concentrations of air discharges arising from the activity and background levels will not cause adverse effects on human health or on regional or local air quality, and will meet the AAAQS in Table 1
 - c. easy access to public transport is available so that people have an alternative to private vehicles
 - d. access to and the layout and design of the land use or activity facilitates walking or cycling as a practicable alternative to the use of private motor vehicles for trips to/from the activity.
10. Avoid or minimise adverse effects from motor vehicle emissions on activities sensitive to air discharges by separating these activities from significant motor vehicle emission sources.

Air discharges from outdoor burning

11. Require air discharges from outdoor burning, including odour, dust, smoke, fumes, visible emissions and hazardous air pollutants to be:
- a. avoided in urban and industrial areas and the CMA
 - b. minimised in rural areas.

Managing air quality from individual discharge sources

12. Avoid or minimise air discharges by:
- a. using best management practices
 - b. adopting a precautionary approach where there is uncertainty and a risk of serious effects or irreversible harm to the environment from air discharges
 - c. using best practicable option emissions control at the source of the discharge
 - d. avoiding air discharges that will cause significant adverse effects.
13. Avoid significant adverse effects from air discharges beyond the boundary of the premises where the discharge is occurring, including:
- a. noxious or dangerous effects on human health, property or the environment from hazardous air pollutants
 - b. offensive or objectionable effects on amenity values from odour, dust, particulate matter, smoke, ash, fumes and visible emissions

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- c. overspray effects on human health, property or the environment.
14. Require individual sources of any discharge to air to demonstrate where relevant to the discharge type and reasonably practicable:
- a. low-emission fuels are used
 - b. energy is efficiently used
 - c. best practicable option is used
 - d. fugitive emissions are minimised
 - e. risk and adverse effects on people, property and the environment from hazardous air pollutants are avoided
 - f. the amenity provisions of any zone where the discharge is having an effect are met
 - g. recognised best-practice management and emission control standards are met
 - h. there are adequate separation distances to activities sensitive to air discharges
 - i. significant adverse effects on flora and fauna, particularly where they are food sources or in areas identified as SEAs both on land and in the CMA are avoided.
15. Require large-scale combustion sources with air discharges to:
- a. be assessed on an input energy basis so that emissions from different types of combustion sources and their potential adverse effects can be directly compared
 - b. demonstrate for activities that require discretionary air discharge consent that any adverse effects on aircraft stability and/or safety are avoided.
16. Require waste processes and intensive farming with air discharges to:
- a. internalise adverse odour effects within the premises, or on other land under the control of the same owner or occupier as the activity, unless it can be demonstrated that the amenity provisions of the zone into which the activity discharges can be met
 - b. encourage the reduction, reuse or recycling of waste materials in the process.

Resource consents for air discharges

17. Assess the effects of air discharges from a premise or site, including all activities that require discharge consents, together to generally grant a single air discharge consent per premise or site.
18. Require applications for activities requiring resource consent for air discharges to:
- a. have combined concentrations arising from the air discharge activity and background levels below the AAAQS in Table 1
 - b. show how the amenity provisions of the zone, and any adjacent zone where there are effects from the activity, are met
 - c. assess air discharges using best-practice methods, such as modelling and monitoring, appropriate to the scale of the discharge and any potential adverse effects
 - d. demonstrate best practice management including minimising discharges
 - e. demonstrate that the chosen method and amount of discharge does not have a practicable alternative that causes less adverse effects
 - f. demonstrate that the location of the activity and any discharge is suitable to avoid adverse effects on the environment, health and amenity especially on sensitive activities
 - g. provide details of how the offsets policy will be met, where relevant

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- h. avoid, remedy or mitigate any cumulative adverse effects
- i. demonstrate that any risk to people and property has been adequately avoided or mitigated
- j. demonstrate that adequate separation distances are available for the duration of the consent to ensure that adverse effects on health and amenity of activities sensitive to air discharges are avoided
- k. assess the potential for reverse sensitivity effects to occur.

Monitoring of air quality

- 19. Carry out monitoring of air quality to ensure adverse effects on human health, property or the environment are adequately avoided, remedied or mitigated and air quality meet nationally and internationally accepted standards and protocols.
- 20. Use the FIDOL (frequency, intensity, duration, offensiveness and location) method when determining the adverse effects of odour, dust, smoke, ash, fume, overspray or visible emissions.

Air discharge offsets

- 21. Give effect to the requirements of the National Environmental Standard for Air Quality and to comply with the AAAQS by offsetting new discharges of PM¹⁰ or PM^{2.5} particulate matter that require consent and will discharge into the Auckland airshed. Offsets must:
 - a. be required until the Auckland airshed achieves five years without any breach of the AAAQS for PM¹⁰ or PM^{2.5}
 - b. be for new activities or when emissions from existing consented activities increase
 - c. be calculated on an annual mass emission basis and be offset on a one-to-one annual mass emission basis
 - d. be done as close as practicable to where the effects of the discharge occur
 - e. be for the duration of the consent
 - f. be treated as having the same health effects irrespective of the source of the PM¹⁰ or PM^{2.5}. There will be no consideration of the particulate composition of the source or offset
 - g. be undertaken if ground level concentrations exceed 2.5µg/m³ of PM¹⁰ or if mass emissions from the premises exceed 4t per year of PM¹⁰
 - h. not consider fugitive emissions or precursors for secondary forms of particulate matter
 - i. assume that all total suspended particulate (TSP) is PM¹⁰ unless demonstrated otherwise.

Table 1: Auckland Ambient Air Quality Standards (AAAQS)

[rp/rcp]

Contaminant	Standard	Averaging Time	Number of permissible exceedances per year
Particles less than 10 microns (PM ¹⁰)	50 µg/m ³	24 hour	1
	20 µg/m ³	Annual	0
Particles less than 2.5 microns (PM ^{2.5})	25 µg/m ³	24 hour	0
	10 µg/m ³	Annual	0

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Nitrogen dioxide (NO ₂)	200 µg/m ³	1 hour	9
	100 µg/m ³	24 hour	0
	40 µg/m ³	Annual	0
Carbon monoxide (CO)	10 mg/m ³	8 hours (running mean)	one 8-hour period
	30 mg/m ³	1 hour	0
Sulphur dioxide (SO ₂)	350 µg/m ³	1 hour	9
	570 µg/m ³	1 hour	0
	20 µg/m ³	24 hour	0
Ozone (O ₃)	150 µg/m ³	1 hour	0
	100 µg/m ³	8 hour	0
Lead	0.2 µg/m ³	3 month moving average calculated monthly	0
Benzene	3.6 µg/m ³	Annual	0
Benzo[a]pyrene	0.0003 µg/m ³	Annual	0
1,3-Butadiene	2.4 µg/m ³	Annual	0
Formaldehyde	100 µg/m ³	30 minutes	0
Acetaldehyde	30 µg/m ³	Annual	0
Mercury (inorganic)	0.33 µg/m ³	Annual	0
Mercury (organic)	0.13 µg/m ³	Annual	0
Chromium VI	0.0011 µg/m ³	Annual	0
Chromium metal and Chromium III	0.11 µg/m ³	Annual	0
Arsenic (inorganic)	0.0055 µg/m ³	Annual	0
Arsine	0.055 µg/m ³	Annual	0

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5.2 Earthworks

Background

Earthworks are essential prerequisites for the development of urban land, for the use of rural land for both farming, forestry, mineral extraction and the construction of major infrastructure projects. The management of the adverse effects of earthworks focuses on both large and small disturbance areas, as the cumulative adverse effects from a number of small earthwork sites can be as significant as single large areas of exposed earth.

The major contaminant of Auckland's urban CMA is sediment generated during previous land development. This sediment affects both the quality of coastal water and the amenity and recreational values of popular beaches. Sediment also reduces the biological diversity of urban and rural streams.

Earthworks have direct physical impacts on landforms catchment hydrology and sites of archaeological and heritage value. Given the lengthy history of Māori settlement in Auckland, sites of significance including burial sites are found across Auckland. Procedures are in place for dealing with any human remains found during earthworks. There are also places and areas that have landscape or landform values that are identified in the plan, where earthworks are discouraged.

There are a number of best practice land management techniques that can be used to reduce the amount of sediment entering water bodies during the land development process. These form the basis of the earthworks controls. However even with the use of best practice, it is not possible to prevent all sediment entering water bodies.

Objectives

[rp/dp]

1. Earthworks are undertaken in a manner that protects people and the environment.
2. The risk of natural hazards is not increased by earthworks.

[rp]

3. Sediment generation from earthworks is minimised.

Policies

[rp/dp]

1. Avoid, remedy or mitigate the adverse effects on the values or sites included in the Natural Heritage and Natural Resource overlays in the Unitary Plan.
2. Manage earthworks to:
 - a. retain soil and sediment on the land, and not discharge it to water bodies and coastal water by use of best sediment and erosion control practices
 - b. limit the amount of land being disturbed at any one time, particularly where the soil type, topography and location is likely to result in increased sediment runoff or discharge
 - c. not create or exacerbate the risk of natural hazards
 - d. avoid, remedy or mitigate noise, vibration, odour and other amenity effects, traffic and human health effects
 - e. maintain the cultural and spiritual values of Mana Whenua in terms of land and water quality, preservation of wāhi tapu, and kaimoana gathering
 - f. minimise the loss of sediment during rain events and its subsequent discharge into surface water bodies and coastal water
 - g. require the use of best industry practices and standards for on-site sediment treatment or removal methods relative to the nature and scale of the activity to reduce the amount of sediment

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discharge.

3. Manage earthworks within the 1 per cent AEP floodplain to ensure:
 - a. they do not exacerbate flooding, either at the site or at any location upstream or downstream of the works
 - b. there is no significant permanent reduction of waterway area or loss of flood plain storage.
4. Manage the impact on Mana Whenua cultural heritage that are discovered during development or land use by:
 - a. requiring a protocol for the accidental discovery of kōiwi, archaeology and artefacts of Māori origin
 - b. undertaking appropriate actions in accordance with mātauranga and tikanga Māori
 - c. undertaking appropriate measures to avoid adverse effects. Where adverse effects cannot be avoided, effects are remedied or mitigated.

[rp]

Discharge policies

5. Require any proposal to discharge sediment laden water to a surface water body or to coastal water from the undertaking of earthworks for which resource consent is required, to demonstrate that:
 - a. where the MCI in the receiving river or stream currently meets or exceeds the relevant guideline in Auckland-wide - [Water quality and integrated management](#), Table 1: MCI guidelines for Auckland, the sediment discharge will not result in a long-term deterioration of the MCI
 - b. where the MCI in the receiving river or stream currently does not meet the relevant guideline in Auckland-wide - [Water quality and integrated management](#), Table 1: MCI guidelines for Auckland, the sediment discharge has been minimised to the fullest extent that is reasonably practicable
 - c. the receiving environment is able to assimilate the discharged sediment after reasonable mixing, with any significant adverse effects being avoided, and other effects remedied or mitigated, particularly within areas identified in the Unitary Plan as being sensitive because of their ecological values, including terrestrial, freshwater and coastal ecological values
 - d. any significant adverse effects on the present use of the receiving waters after reasonable mixing have been avoided, and other effects remedied or mitigated, particularly in areas where there is:
 - i. high recreational use
 - ii. relevant initiatives by Mana Whenua, established under regulations relating to the conservation or management of fisheries, including taiāpure, rāhui or whakatupu areas
 - iii. the collection of fish and shellfish for consumption
 - iv. areas of maintenance dredging.

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5.3 Vegetation management

Background

Vegetation cover contributes to a range of ecosystem services such as erosion and sediment control, reducing stormwater flows, protecting or enhancing water quality, enhancing amenity and natural character values, and mitigating natural hazards.

It is important for riparian margins, coastal edges and areas of large contiguous vegetation and enhanced marine environments. Vegetation cover helps maintain Auckland's indigenous biodiversity and marine environments.

Objective

[rp]

1. The ecosystem services and indigenous biological diversity values of vegetation in sensitive environments and areas of contiguous native vegetation cover are recognised and maintained while providing for reasonable use and development.

Policies

[rp]

1. Protect vegetation in sensitive environments including the coast, riparian margins, wetlands and areas prone to natural hazards.
2. Protect areas of contiguous native vegetation cover including extensive areas on land which may be subject to instability and erosion in rural environments.
3. Provide for activities which enhance the ecological integrity and functioning of areas of vegetation including the management and control of plant pests and unwanted organisms.
4. Provide for the operation and routine maintenance of existing activities within areas of existing vegetation.
5. Avoid, remedy or mitigate the adverse effects of vegetation removal on indigenous biological diversity and ecosystem services including soil conservation, water quality and quantity management, and the avoidance and mitigation of natural hazards.
6. Minimise vegetation disturbance from activities, works, accessways and building platforms by assessing alternative locations and methods for the proposed works.
7. Recognise and provide for the management and control of kauri dieback as a means of maintaining indigenous biodiversity.

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5.4 Mineral extraction from land

Background

Land-based mineral extraction only occurs where the mineral resource is found. This means that mineral extraction sites can be found in urban and rural areas. Sites within Auckland's urban areas are historical operations, sometimes with a limited future economic life, as available resources become exhausted. More quarries operate in rural areas or close to the RUB. The expansion of urban Auckland and rural residential living in rural areas means there is competition for access to mineral-rich land. There is also increasing conflict between residential lifestyle expectations and the provision of important mineral resources to meet Auckland's ongoing demands.

Mineral extraction operations or quarries in Auckland can be divided into three types—the first is large-scale operations serving the whole of Auckland. Examples of these are the quarries in the Hunua Ranges and at Drury. There are also smaller scale commercial quarries that provide aggregates to local and sub-regional areas, for example at Waitākere and Wainui. The third type is associated with local farm and forestry quarries, where aggregate is extracted from the property or local areas to provide materials for hard stand areas, tracks and roads.

These different scales of extraction operations are managed in different ways by the Unitary Plan. Significant mineral extraction sites are identified by their own Quarry zone. Provision is made for farm and forestry quarries in particular rural zones, where they are appropriate to the purpose of the zone. Other existing quarry operations are authorised to continue by way of existing use rights or by a resource consent.

Objective

[rp/dp]

1. Mineral extraction from the land occurs in a way that meets industry and users' needs while environmental and amenity values are protected.

Policies

1. Existing and new mineral extraction activities of a significant size and scale are provided for by their inclusion in a Special Purpose Quarry zone and will be managed by the provisions of this zone.

[rp/dp]

2. Significant adverse effects associated with mineral extraction activities must be remedied or mitigated as far as practicable.
3. Require proposals for new mineral extraction activities in rural areas to provide adequate information on the establishment and operation of the activity and demonstrate:
 - a. the size and scale of extraction activities, the expected length of operation and the extent of the market to be served from the extraction site
 - b. the design and layout of the site, the access roads and supporting facilities
 - c. that adequate measures will be used to:
 - i. manage noise, vibration, dust and illumination to maintain amenity values of the surrounding land uses, particularly at nighttime
 - ii. manage adverse effects of traffic generation and maintain traffic safety, particularly measures to manage heavy vehicles entering or exiting the site
 - iii. avoid, remedy or mitigate adverse effects on soil and water quality, including impacts on watercourses within the extraction site and the effects of discharges from the site into the neighbouring environment.
 - iv. maintain land stability
 - v. mitigate significant adverse effects on visual and landscape values

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- vi. protect the values of identified heritage or archaeological sites, buildings, places or areas, along with Mana Whenua values
 - d. options anticipated for the rehabilitation of the site, either by a staged process or at the end of the economic life of the quarry, having regard to the expected life of the mineral extraction site.
4. Require a quarry management plan to be prepared to address operational matters associated with mineral extraction, including management of adverse effects and actions to remedy, mitigate or offset these effects.
 5. Locate buildings and structures associated with mineral extraction activities appropriately, in relation to the site boundaries, and be of an appropriate scale for a rural industry.
 6. Enable the temporary on-site use of the mineral extraction site for ancillary quarry activities, such as crushing and sorting, but avoid the establishment of quasi-industrial zones on or near the mineral extraction site.

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5.5 Cleanfills, managed fills and landfills

Background

Cleanfills, managed fills and landfills support the use and development of land and the disposal of sanitary waste generated by residential, commercial, industrial and rural activities in Auckland. The implementation and use of cleanfills and managed fills will reduce the amount of inert material in landfills to ensure greater waste disposal efficiency in Auckland.

Cleanfills involve the depositing of inert waste materials onto land with no more than minor adverse effects on the environment. Cleanfills provide a cost-effective solution for disposing of that material and can facilitate the re-contouring of land to improve its range of use once the cleanfill operation ceases.

Managed fills involve depositing inert wastes that exceed the natural background level for contaminants and hazardous substances, but where the adverse effects on the environment and human health are still less than minor. Managed fills provide a degree of flexibility for wastes that are not suitable for cleanfill or landfill deposit. Landfills receive municipal and industrial waste. New and closed landfills, while providing an essential service that enables community well-being, do need to be carefully designed and operated in order to avoid adverse effects on the environment.

Objectives

[rp/dp]

1. Cleanfills, managed fills and landfills are located, designed and operated in accordance with best management practices in a way that does not adversely affect the environment, including water and the CMA.
2. Cleanfills are of a scale, location, design and operation that makes them compatible with neighbourhood amenity values.
3. Human health is protected from the adverse effects of new, open or closed cleanfills, managed fills and landfills.
4. Cleanfilling and safe managed filling assists the rehabilitation of exhausted quarries.

Policies

[rp/dp]

New cleanfills, managed fills and landfills

1. Avoid significant adverse effects; and avoid, remedy or mitigate other adverse effects on the environment arising from cleanfills, managed fills and landfills by:
 - a. requiring all accepted waste material disposed of at:
 - i. a cleanfill site to comply with the definition of cleanfill material
 - ii. a managed fill site to comply with the definition of cleanfill material or managed fill material
 - b. avoiding the establishment of cleanfills, managed fills or landfills in, on or adjacent to a lake, river, stream, wetland or the CMA
 - c. avoiding the establishment of cleanfills, managed fills or landfills that require the piping of a river or wetland
 - d. avoiding the establishment of cleanfills, managed fills or landfills in, on or adjacent to areas of ONC, ONF, ONL, HNC and SEAs
 - e. avoiding the placement of cleanfills, managed fills or landfills on land where instability or subsidence of land may occur
 - f. requiring cleanfills, managed fills and landfills to be designed and operated in accordance with industry best management practices and guidelines.

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Closed cleanfills, managed fills and landfills

2. Manage the closure of and closed cleanfills, managed fills and landfills by:
 - a. adopting post-closure management and monitoring that is appropriate to the nature and requirements of the site and the type of waste material that was accepted during its operative period
 - b. enabling maintenance and monitoring activities to occur
 - c. ensuring that land use activities or development, both current and future undertaken on the site, do not compromise the site's aftercare.
3. Avoid activities, buildings, structures or works in, on or adjacent to closed sites that:
 - a. compromise the site's structural integrity, including any sealing cap and the containment of fill and leachate
 - b. adversely affect the ability to effectively undertake management and maintenance requirements.

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5.6 Contaminated land

Background

The physical and economic growth of Auckland means that the development and redevelopment of both urban and rural land will require the use of contaminated land, or the management of its off-site effects, to maintain or improve environmental and amenity values. There are a range of management and remediation techniques that are available to enable the use and reuse of contaminated land. These vary from in-situ treatment through to the removal of contaminated material to an appropriate disposal site.

The council is required to manage both the use of land containing elevated levels of contaminants and the discharge of contaminants from land containing elevated levels of contaminants.

The National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health 2012 (NES) applies to assessing and managing the actual or potential adverse effects of contaminants in soil on human health from five land-use activities: subdivision, land-use change, soil disturbance, soil sampling, and removing fuel storage systems. The objective of this NES is to ensure land containing elevated levels of contaminants in soil is appropriately identified and assessed when soil disturbance and/or land development activities take place and, if necessary, managed or remediated to make the land safe for human use.

This NES does not apply to assessing or managing the actual or potential adverse effects of discharges of contaminants on environmental receptors.

Objective

[rp]

1. Land containing elevated levels of contaminants is managed to protect human health and the environment and to enable this land to be used for suitable activities now and in the future.

Policies

[rp]

1. Identify land containing elevated levels of contaminants by:
 - a. requiring a site investigation of land being redeveloped or subdivided, having regard to the potential for contamination from past activities
 - b. recording the details of actual or potentially contaminated land in a public register.
2. Require any proposal to use or develop land containing elevated levels of contaminants to remedy or manage the contaminated land to a level that:
 - a. protects human health to a level appropriate for the proposed land use
 - b. protects the environment to a level appropriate for existing and proposed land uses
 - c. allows contaminants to remain in the ground/groundwater, where it can be demonstrated that the level of residual contamination will not pose a significant adverse effect on human health or the environment
 - d. avoids adverse effects on potable water supplies
 - e. avoids, remedies or mitigates significant adverse effects from contaminated discharges to air, land and water on ecological values, water quality and amenity values.
3. Decisions on the use, development, management or remediation of land containing elevated levels of contaminants must in addition to the matters in Policy 2 above, take into account the following:
 - a. the physical constraints of the site and operational practicalities
 - b. the financial implications of the investigation, remediation, management and monitoring options
 - c. the requirement of the National Environmental Standard for Assessing and Managing

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Contaminants in Soil to Protect Human Health 2012

- d. the provision of a detailed site investigation (contaminated land), remedial action plan (contaminated land), site validation report (contaminated land) and site management plan (contaminated land) that quantifies the adverse effects and the methods to avoid, remedy or mitigate these effects and to undertake monitoring of the site
 - e. the use of best practice contaminated land management for the identification, monitoring and remediation procedures
 - f. adequate measures are in place for the transport, disposal and tracking of soil and other material removed from the site to prevent adverse effects on the environment.
4. When considering Policies 2 and 3 above, the council will have regard to the following documents, where they are relevant to the type of land contamination:
- a. current edition of the Petroleum Guidelines October 2011
 - b. current edition of the Contaminated Land Management Guidelines, No 1, 2 and 5 October 2011.

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5.7 Managing hazardous substances

Background

Hazardous substances include substances defined in the Hazardous Substances and New Organisms Act 1996 (HSNO) and substances with radioactive properties or high biological oxygen demand. Substances fall within the definition if they have certain hazardous properties such as explosiveness, flammability or corrosiveness among other factors. The HSNO and associated regulations set minimum performance standards for the management of these substances. The RMA enables plans to include additional land use controls for the prevention or mitigation of any adverse effects of the storage, use, disposal and transport of hazardous substances. These activities fall within the definition of hazardous facilities. Land use controls may relate to matters such as the location of hazardous facilities, their potential impacts on other land uses and the natural environment, and the transport of hazardous substances that are undertaken as part of the hazardous facility's operation.

Objectives

1. The risks of hazardous facilities to people, property and the environment are minimised to acceptable levels while recognising the benefits of these facilities.

Policies

1. Manage hazardous substances by:
 - a. locating, designing, constructing and managing hazardous facilities to avoid or adequately mitigate adverse effects, including risks, to people, property and the environment
 - b. identifying, assessing and managing cumulative effects of hazardous facilities so they do not increase to unacceptable levels of risk to people, property and the environment
 - c. controlling the transport of hazardous substances as part of a land use activity so adverse effects associated with the transport of hazardous substances on roading infrastructure and other land use activities along transport routes are minimised.
2. Require any proposals for a hazardous facility, for which resource consent is required, to demonstrate how risks to people, property and the environment have been avoided or adequately mitigated.

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5.8 Biosolids

Background

Biosolids are sewage sludges or sewage sludges mixed with other materials that have been treated and stabilised to the extent that they are able to be safely and beneficially applied to land. Biosolids have significant fertilising and soil conditioning properties as a result of the nutrients and organic materials they contain. In addition to natural nutrients, biosolids may also contain pathogens, heavy metals and synthetic organic compounds. They therefore require appropriate management to minimise the risk to public health and the contamination of land, surface and groundwater and the CMA.

The biosolids from many wastewater treatment plants are disposed of in landfills. This involves transport costs and uses valuable space in these landfills. More sophisticated wastewater treatment plants have enabled the production of more highly treated biosolids and more flexibility in their disposal to land. National guidelines provide direction on the grading of biosolids, according to their levels of contamination and stability. This grading system forms the technical basis for how the application of biosolids are managed in the Unitary Plan.

Objective

[rp]

1. The beneficial use of biosolids onto or into land is provided for without having significant adverse effects on water quality, public health, amenity values and the potential future use of the land for urban development.

Policy

[rp]

1. Allow the application of biosolids on or in land where it can be demonstrated that:
 - a. it will not result in significant adverse effects on surface and groundwater quality
 - b. it does not pose a threat to public health in terms of concentrations of nutrients, heavy metals, pathogens and synthetic organic chemicals
 - c. it does not adversely affect any Mana Whenua values associated with the site
 - d. it does not result in more than minor adverse effects to a water supply management area
 - e. there is no offensive or objectionable odour or dust beyond the boundary of the property on which the biosolids are applied
 - f. land used for food production or residential activities is avoided.

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5.9 Industrial and trade activities (ITA)

Background

Industrial or trade activities often involve the use, handling and storage of environmentally hazardous substances as part of their production and operation. Disposal of these waste products normally occurs by discharge to a trade waste sewer or other methods. However unless these activities are appropriately managed hazardous substances can be washed off the site and onto land or into rivers and streams, groundwater systems and coastal waters, often via the public stormwater network, and adversely affect water quality and ecosystem health.

Good on-site management practices are the primary method of minimising the discharge of environmentally hazardous substances and managing the risk of accidental spills.

Objectives

[rp]

1. Environmentally hazardous substances used by ITAs are managed to avoid adverse effects on land and water as far as practicable, or to minimise adverse effects where they cannot be entirely avoided.

Policies

[rp]

1. Prevent or minimise the discharge of environmentally hazardous substances from ITAs onto or into land, water or into the stormwater system by:
 - a. requiring wastewater and other effluent to be discharged to a public trade waste sewer where one is available
 - b. requiring ITAs to have, where appropriate, onsite management systems, processes, containment and treatment.
2. Require measures to be implemented, where environmentally hazardous substances cannot be discharged to a trade waste sewer or contained on site, to minimise adverse effects on land and water including:
 - a. consideration of options and alternatives
 - b. reducing effluent volumes and contaminant concentrations as far as practicable
 - c. applying treatment and other measures having regard to the nature of the discharge and the sensitivity of the receiving environment.
3. Require operation and maintenance regimes to ensure the on-going functioning of any management or treatment measures.

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5.10 Agrichemicals and Vertebrate Toxic Agents (VTAs)

Background

Agrichemicals are used by most primary producers and in many domestic or amenity situations for weed, pest and disease control. When used correctly agrichemicals can make a positive contribution to sustainable land use. People can use agrichemicals provided they do not result in adverse effects on other people, the environment or property and are used safely and responsibly in accordance with best practice. The Unitary Plan's approach to the management of agrichemicals relies on the provisions of the New Zealand Standard for the Management of Agrichemicals (NZS 8409: 2004). Meeting the requirements of this standard will ensure best management approaches to the use, application, storage and disposal of agrichemicals.

VTAs are products that are designed to kill or control vertebrate pests such as rabbits and possums. For managing VTAs, best practice is set out in the HSNO requirements.

Objective

[rp]

1. Human health and the environment are protected from the inappropriate application, handling, transport, storage or disposal of agrichemicals and VTAs.

Policies

[rp]

1. Avoid significant adverse effects, and minimise other adverse effects, from the use of agrichemicals and VTAs including off-target spray drift, handling, storage, transport or disposal by:
 - a. managing their application to prevent adverse effects on or near sensitive areas, including:
 - i. dwellings
 - ii. education facilities
 - iii. marae and papakāinga
 - iv. hospitals and aged care facilities
 - v. amenity areas and public places
 - vi. sources of potable water including roof water collection
 - vii. non target crops, and flora and fauna sensitive to agrichemicals and VTAs
 - viii. v certified organic farms and farms applying for certification
 - ix. freshwater systems, CMA and SEAs
 - b. using where practicable, the least toxic and volatile agrichemical or VTA with the most harmless adjuvant (substance used to improve their performance) suitable for the purpose
 - c. applying agrichemicals and VTAs in accordance with the product's label requirements, including specified rates of application
 - d. using an application method that minimises spray drift, giving particular attention to the:
 - i. type of spray equipment used
 - ii. spray volume and droplet size
 - iii. direction of spraying
 - iv. height of release above the ground
 - v. weather conditions
 - vi. proximity to sensitive areas

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- vii. separation distances
 - e. considering the benefits and costs of alternatives to the use of agrichemicals and VTAs for plant and animal protection.
2. Avoid adverse effects on human health and air, land, water, flora and fauna from off-target spray drift or the application, handling, storage, transport or disposal of agrichemicals

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5.11 Rural production discharges

Background

Farming activities generate various waste products and contaminants that have the potential to pollute rivers, streams and groundwater. Many of the activities which produce these contaminants are essential for the operation of rural production activities. However, these activities can give rise to increased levels of suspended sediment, chemicals, nutrients and bacteria from faecal matter. Some of the most common discharges from rural production activities that need to be managed are the disposal of effluent from dairy sheds and other intensive livestock activities, as well as, leachate from offal holes, silage storage and composted materials.

The application of fertiliser to land is a critical component of a productive farming unit. However, the runoff of fertiliser into rivers and streams is a major contributor to nutrient enrichment in Auckland's rural streams and coastal water. This in turn affects the biological values of the water and can encourage the growth of unwanted aquatic vegetation. Fertiliser contamination of the south Auckland volcanic aquifers is also a matter of concern.

The principal management approach is one that focuses on containing discharges from rural production activities on site, and treating the discharges using appropriate measures. The use of best industry practices for the application of potential contaminants such as fertiliser form the basis for controlling these types of discharges.

Objective

[rp]

1. Discharges from rural production activities are managed to protect land and water resources.

Policies

[rp]

1. Avoid more than minor adverse effects of discharges from rural production activities on water bodies, aquifers and artificial watercourses.
2. Enable dairy effluent discharges to land provided that discharge systems are designed and operated to minimise overland flow to surface water bodies and leaching of nutrients and other contaminants to groundwater.
3. Enable discharges of fertilisers to land where:
 - a. application is in accordance with best industry practice
 - b. the rate of application does not exceed the assimilative capacity of the soil and its vegetative cover
 - c. the vulnerability of the south Auckland volcanic aquifer to potential groundwater contamination has been considered and any effects are avoided or minimised.
4. Avoid the discharge of contaminants generated from rural production activities directly into water bodies and artificial watercourses.
5. Enable discharges to land that could run overland into water where:
 - a. best industry practice will be used to avoid more than minor effects on land, water bodies and groundwater
 - b. there are no adverse effects on Mana Whenua values associated with freshwater resources, including wāhi tapu, wāhi taonga and mahinga kai
 - c. there are no hazardous substances or human waste/sewage in the discharge
 - d. offal holes, silage storage facilities, and stockpiled and composted vegetative material or animal waste are appropriately sited and constructed

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- e. silage storage facilities are sealed and silage stacks covered
- f. leachate is collected, stored and appropriately disposed of to land or off-site
- g. there is no offensive or objectionable odour or dust beyond the boundary of the property where the contaminants are being discharged.

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5.12 Natural hazards

Background

Auckland is affected by a wide range of natural hazards including those that occur frequently such as flooding (coastal and freshwater) and land instability, and those that occur less frequently including volcanic activity, tsunami, earthquakes, meteorological hazards (cyclones, tornadoes, drought) and fire. The risk that these hazards pose is not just a reflection of the frequency of these events, rather it is made up of a number of factors including the:

- size and nature of the hazard
- likelihood of the hazard occurring;
- exposure and vulnerability of elements at risk (people, buildings, infrastructure).

All of these hazards can affect both property and the environment. Decisions on how to avoid or mitigate them can affect the subject area, neighbouring properties and the wider environment as well as unintentionally exacerbate the risk from natural hazards. The Unitary Plan requires the use of the best information available to identify land which may be subject to natural hazards. This includes hazard maps, hazards registers and commissioned reports held by the council. Maps showing coastal inundation and flooding areas can be found within the non-statutory layer of the Unitary Plan, within the GIS viewer. Where information is incomplete, the Unitary Plan has defined criteria to identify land which may be subject to natural hazards.

A flexible risk-based approach has been taken to manage the risks associated with natural hazards that may not be spatially known, such as land instability. Natural hazard areas that have been mapped are subject to specific regional and district objectives, policies and rules, such as for flooding and coastal inundation. An adaptive management approach has been developed for existing development and infrastructure while a risk avoidance approach is taken for greenfield land development. More restrictive rules may be applied to land that may be affected by multiple hazards.

The risk from some natural hazards, such as low-frequency high-magnitude events like tsunamis and earthquakes, is impractical to address through land use planning as there is little detailed information regarding where and when these events could occur. Instead, the risks from these natural hazards are better addressed through measures put in place by emergency management groups such as Civil Defence. This includes education, warning systems and emergency preparedness. As more information becomes available on these types of natural hazards, it will be added to the council hazard database and used in the evaluation of proposed development and subdivision activities. Earthquake risk to buildings is addressed through structural codes under the provisions of the Building Act 2004.

Potential threats to life and property from bushfires, particularly during the hot dry summer weather also exist. These fires usually occur in rural areas and on land with regenerating indigenous vegetation, but may also occur in urban areas where there are significant pockets of vegetation. However, the type, location and design of land uses and activities can influence the tendency for fire outbreaks and the ability to extinguish them within short timeframes.

This section does not manage the risk of flooding. Refer to Auckland-wide [Flooding](#) objectives and policies and rules.

Objectives

1. Development on land subject to natural hazards only occurs where the risks to people, property and the environment are well managed.
2. Natural features and buffers are used in preference to hard engineering solutions where management of natural hazards is required.

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3. Subdivision and development does not exacerbate the risks from natural hazard or its effects.
4. The risk of bushfire to life and property in existing developments is able to be managed and new subdivision and development is designed and located to avoid bushfire risk.
5. The process of permanent coastal inundation from sea level rise and temporary inundation from storm tide events are managed to minimise risk to people, buildings and infrastructure.

Policies

Natural hazard risk management

1. Classify land that may be subject to natural hazards as being:
 - a. within a horizontal distance of 20m from the top of any cliff with a slope angle steeper than 1 in 3 (18 degrees)
 - b. on any slope with an angle greater than or equal to 1 in 2 (26 degrees)
 - c. at an elevation less than 3m above MHWS if the activity is within 20m of MHWS
 - d. any natural hazard area identified in the councils' natural hazard register, database, GIS viewer or commissioned natural hazard study.
2. Manage subdivision and development on land that may be subject to natural hazards by requiring an engineering assessment to confirm whether the land is or will be subject to erosion, inundation or instability over the next 100 years.
3. Allow subdivision and development of land that is subject to natural hazards only where the proposed activity does not:
 - a. accelerate or exacerbate the natural hazard and/or its potential impacts
 - b. expose vulnerable activities to the adverse effects of natural hazards
 - c. create a risk to human life
 - d. involve the use and storage of hazardous substances in commercial quantities
 - e. increase risk to neighbouring properties.
4. Consider, as part of a risk assessment of proposals to subdivide and develop land that is subject to natural hazards:
 - a. the type, frequency and scale of the natural hazard and whether adverse effects on the development will be temporary or permanent.
 - b. the type of activity being undertaken and its vulnerability to natural hazard events
 - c. the consequences of a natural hazard event in relation to more or less vulnerable activities
 - d. the possible effects on public safety and other property
 - e. any exacerbation of an existing natural hazard or creation of a new natural hazard
 - f. any adverse effects on landscape values
 - g. any adverse effects on public access
 - h. whether any building, structure or activity located on land subject to natural hazards near the coast can be relocated in the event of severe coastal erosion or shoreline retreat
 - i. the ability to use non structural solutions, such as planting or the retention of natural landform buffers to avoid, remedy or mitigate the hazard, rather than hard engineering solutions
 - j. the design and construction of buildings and structures to mitigate the effects of natural hazards, such as raising habitable floor levels

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- k. site layout and management to avoid the adverse effects of natural hazards, including access and exit during a natural hazard event.
5. Consider hard engineering coastal protection works to protect development only where existing natural features, such as sand dunes in coastal hazard areas will not provide protection from the natural hazard present and enhancement of natural defence systems is not practical.
6. Avoid hard engineering solutions in ONCs, HNCs and SEAs. Where it is appropriate for hard engineering solutions to be located in coastal areas, structures must be located as far landward as possible to retain as much natural beach buffer as possible.
7. Avoid the modification, alteration or removal of sand dunes and vegetation on sand dunes for development within an area subject to coastal hazards unless erosion and adverse effects on wider coastal processes such as sediment budgets are avoided or mitigated.
8. Require coastal protection works involving the placement of any material, objects or structures in or on any area located above MHWS to be designed and located to avoid, remedy or mitigate adverse environmental effects including:
 - a. any likely increase in the coastal hazard, including increased rates of erosion, accretion, subsidence or slippage
 - b. undermining of the foundations at the base of the structure
 - c. erosion in front of, behind or around the ends of the structure
 - d. settlement or loss of foundation material
 - e. movement or dislodgement of individual structural elements
 - f. offshore or long-shore loss of sediment from the immediate vicinity
 - g. long-term adverse visual effects on coastal landscape and amenity values.
9. Require proposals to subdivide and develop in natural hazard areas to give effect to coastal and riparian yards for the relevant zone, precinct or overlay. Where there is conflict between the yards and any land identified as being subject to natural hazards, the greater distance shall prevail.
10. Design new residential and commercial subdivision and development in high bushfire risk areas where a threat index above 601 is identified using the National Rural Fire Authority, Wildfire Threat Analysis (WTA) Workbook 2006, to reduce bushfire risk and the need for vegetation removal while making adequate provision for:
 - a. appropriate access and exit for emergency service vehicles
 - b. permanent static or mains reticulated water supply fitted with appropriate coupling for emergency services
 - c. separation from and management of hazardous vegetation having regard to:
 - i. extent of contiguous vegetation
 - ii. vegetation type
 - iii. slope
 - iv. aspect
 - v. the ability to manage understory vegetation on an ongoing basis
 - vi. the biodiversity value of any vegetation that may require removal or management
 - d. design and materials of construction of any building.

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Bushfire risk mitigation

11. Design new residential and commercial subdivision and development in high bushfire risk areas where a threat index above 601 is identified using the National Rural Fire Authority, Wildfire Threat Analysis (WTA) Workbook 2006, to reduce bushfire risk and the need for vegetation removal while making adequate provision for:
 - a. appropriate access and exit for emergency service vehicles
 - b. permanent static or mains reticulated water supply fitted with appropriate coupling for emergency services
 - c. separation from and management of hazardous vegetation having regard to:
 - i. extent of contiguous vegetation
 - ii. vegetation type
 - iii. slope
 - iv. aspect
 - v. the ability to manage understory vegetation on an ongoing basis
 - vi. the biodiversity value of any vegetation that may require removal or management
 - d. design and materials of construction of any building.
12. Avoid new subdivision and development in high bushfire risk areas where the risk of bushfire cannot be adequately mitigated without significant effects on landscape or biodiversity.
13. Provide the ability for existing development in high bushfire risk areas to manage the risk of bushfire through modification to existing buildings and vegetation management where this can be undertaken without significant effects on landscape or biodiversity.

Coastal inundation and sea level rise

14. Require the finished floor levels of:
 - a. new dwellings and habitable rooms of non-dwellings
 - b. substantial additions, modifications or extensions to existing dwellings
 - c. located in coastal inundation areas to be above the mapped 1 per cent AEP coastal storm tide event plus 1m projected sea level rise
15. Avoid subdivision and development in greenfield areas on land affected by coastal inundation, taking account of projected sea level by 2m over 100 years.
16. Allow for the construction of new infrastructure in the 1 per cent AEP coastal inundation plus 2m sea level rise area only where:
 - a. it is functionally required or cannot practically be located elsewhere
 - b. the infrastructure does not increase inundation risk, and
 - c. the infrastructure is designed to withstand 1 per cent AEP coastal inundation events.

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5.13 Flooding

Background

Flood hazards are the most common natural hazard facing Auckland and have significant adverse effects ranging from inconvenience to the public, environmental pollution, damage of infrastructure and property, injury and risk to life. Flood hazards are made worse by increased impervious surfaces and development of flood plains. It is important that the instances of people and buildings being placed at risk of flooding is reduced and existing risks mitigated.

People, property and infrastructure are at risk when they are located in flood plains. In areas which are identified for future urban development, there are opportunities to avoid built development in floodplains. In existing urban areas, risks from flooding need to be managed. Some activities are more resilient to the effects of flooding than others. Flooding of residential areas involves different types of impacts to flooding of industrial areas on human health, safety and the environment.

Some infrastructure has to be located in a floodplain for operational reasons.

Four types of flood hazards are identified and managed:

- Flood plains
- Flood-sensitive areas
- Flood prone areas
- Overland flow paths.

Maps showing these flooding hazards can be found within the non-statutory layer of the Unitary Plan GIS viewer.

Objectives

1. New development vulnerable to the adverse effects of flooding does not occur in areas at risk of flooding.
2. Development or redevelopment necessary in existing flood prone areas is designed and managed to prevent any increase in flood-related risks.

Policies

Buildings and activities

1. Adopt the 1 per cent AEP floodplain, except for flood-vulnerable infrastructure where the 0.5 per cent AEP floodplain will apply, as the primary scale of flood event when managing development and risk to life and properties.
2. Require activities vulnerable to the effects of flooding due to their permanent occupation, difficulty of exit and limited resilience to flood-related damage, (such as residential, educational and community activities), to locate outside of the 1 per cent AEP floodplains.
3. Require the redevelopment of existing buildings and sites within the 1 per cent AEP floodplains which accommodate activities vulnerable to the adverse effects of flooding to:
 - a. not place more people at risk of flood hazards
 - b. not reduce flood storage or increasing flood levels and velocities
 - c. raise floor levels above flood levels
 - d. keep areas under raised floors free of obstructions
 - e. use water resistant materials and flood-proof utility connections

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- f. provide safer exit from buildings
 - g. provide a flood hazard assessment and mitigation plan.
4. Allow activities that are less vulnerable to the effects of flooding, such as commercial and industrial development, to locate in 1 per cent AEP floodplains within existing urban areas only where that activity does not increase risks to people or property of adverse effects from flooding.
 5. Avoid outside urban areas and areas identified for urban expansion, avoid new vulnerable activities, and limit the size of buildings and structures accommodating less vulnerable activities in the 1 per cent AEP floodplain outside of the RUB, so that flood hazards are not exacerbated.
 6. Avoid locating all forms of vulnerable and less vulnerable activities and buildings in the 1 per cent AEP floodplain, in areas identified for urban expansion; where structure, framework and concept plans have identified flood plains; and major urban redevelopment areas.
 7. Allow passive and active recreational activities and pastoral and horticultural activities to locate in 1 per cent AEP flood plains where these activities do not involve buildings or structures that will block flood flows.
 8. Allow development to locate in flood-sensitive areas only where floor levels have sufficient free board above the 1 per cent AEP flood level to reduce risk of flood damage.
 9. Manage development in flood prone areas so that:
 - a. finished floor levels are above flood prone levels in a 1 per cent AEP event
 - b. the underside of buildings are kept clear of items and uses that may add to flood risks, such as enclosed car parking areas, storage rooms and additions and alternations that create habitable spaces
 - c. in areas where buildings need to be near ground level for customer access, such as town centres, finished floor levels may be below flood prone levels, provided that measures are in place to manage risks to building occupiers, stock and fittings.
 10. Manage fences, storage of materials and goods and car parking in 1 per cent AEP floodplains so they do not exacerbate flood hazards for other activities, upstream or downstream.
 11. Store and contain hazardous substances in 1 per cent AEP floodplains so the integrity of the storage method will not be compromised in a flood event in combination with storm conditions.

Earthworks/vegetation

12. Manage earthworks within the 1 per cent AEP floodplain so:
 - a. they do not exacerbate flooding, either at the site or at any location upstream or downstream of the works
 - b. there is no permanent reduction of waterway area or loss of floodplain storage
 - c. soil compaction, stream bank erosion and damage to streams and riparian areas is avoided where feasible through appropriate construction methodologies and management or is appropriately remediated.
13. Provide for mitigation measures to reduce flood-related effects including but not limited to riparian planting, retaining walls and other forms of stream bank stabilisation, and the reconstruction of culverts and bridges where those measures do not have adverse environmental effects.
14. Enable retention and planting of vegetation cover to enhance amenity, green linkages and ecological values within the 1 per cent AEP floodplain as long as they do not create or exacerbate flooding upstream or downstream or otherwise increase flood hazards.

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Infrastructure

15. Allow for the construction of new infrastructure in the 1 per cent AEP floodplain only where it is functionally required to locate in floodplains or cannot practically be located elsewhere, it does not increase flood risk to people, property and the environment, and it is designed to withstand flood damage.
16. Locate, design and manage significant infrastructure, that are lifeline utilities that must function during a flood event, so continued operation is not disrupted by up to a 0.5 per cent AEP flood event.
17. Enable the construction and maintenance of flood mitigation works to reduce flood risk to people, property, infrastructure and the environment, including stream bank and watercourse enhancement works.
18. Require the maintenance, alteration, replacement and extension of existing infrastructure in floodplains to not increase existing flood risk and to reduce existing flood risk where possible.

Overland flow paths

19. Identify overland flow paths during subdivision, development and redevelopment that can accommodate stormwater flows from 1 per cent AEP storm events.
20. Require overland flow paths to remain unobstructed by development and able to convey storm water runoff safely into the reticulated stormwater network, waterways or to the CMA.
21. Require changes to overland flow paths to retain their capacity to pass stormwater flows safely without causing damage to property or the environment.
22. Avoid building over, and the piping of, overland flow paths. Where piping is unavoidable, such as from placement of infrastructure, ensure an alternative overland flow path with capacity to carry 1 per cent AEP flows is provided to accommodate flows in excess of the capacity of the piped overland flow or reductions in capacity due to blockages or failure of the main flow path.

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5.14 Lakes, rivers, streams and wetland management

Background

The management of the beds of lakes, rivers, streams and wetlands is important for the protection of natural ecological values, for the efficient passage of flood flows and for retaining high water quality. Retaining the natural profile and course of a river or stream, keeping riparian vegetation and fish passage and avoiding sediment generation from bed disturbance supports the retention of freshwater ecosystems in both urban and rural parts of Auckland.

In rural areas bed disturbance from livestock access and the loss of smaller streams, wetlands and lake margins by land drainage and infill are the key factors affecting the quality of lakes, rivers and streams.

In urban Auckland lakes, rivers, streams and wetlands provide an important component for the assimilation and conveyance of stormwater and form part of the overall stormwater network. Streams have also been piped and filled over to reclaim land for urban land development. Throughout Auckland lakes, rivers, streams and wetlands have been modified to accommodate infrastructure such as roads, stormwater and wastewater networks and other utility services.

There is a balance to be struck between the need to provide for the ongoing growth of urban Auckland including, the requirement of significant infrastructure, and the protection, maintenance and enhancement of lakes, rivers, streams and wetlands in both urban and rural areas. It is essential that development occurs in the most environmentally sustainable manner possible, involving greater use of green infrastructure and the retention and enhancement of lakes, rivers, streams and wetlands.

The Unitary Plan identifies a number of areas where the natural values of any lake, river, stream and wetland are higher than elsewhere. These areas are especially vulnerable to the adverse effects of inappropriate subdivision, use and development and require a greater level of protection than lakes, rivers, streams and wetlands generally. These areas include Natural Stream Management areas, Natural Lake Management areas, Urban Lake Management areas, Significant Ecological areas (SEAs) and Wetland Management areas.

The council requires that any adverse effects on lakes, rivers, streams and wetlands are avoided, remedied or mitigated. Where those effects cannot be avoided, remedied or mitigated, it is desirable that offsetting of any adverse effects be provided, where this will better promote the purpose of the RMA. In some circumstances, the existing natural values of a lake, river, stream or wetland so high that offsetting will be inappropriate.

An offset is an action to address any adverse effects of a development or activity on the environment that cannot be avoided, remedied or mitigated by the proposal itself, or by conditions on the consent. Therefore offsetting can be used to protect and conserve environmental values.

However, the council prefers that the adverse effects of activities on the environment are avoided, remedied or mitigated by the proposal itself, or by conditions on consents. In some circumstances, offsetting will be required where on-site remediation or mitigation is not possible, practicable or desirable. Offsets will only be considered after avoidance, remediation and mitigation options have been pursued.

While the RMA defines the term “river” as including streams, the Unitary Plan refers to both “rivers and streams”. Stream is a more common way of describing the smaller watercourses that are characteristic of Auckland. Referring separately to streams clearly alerts landowners to the applicability of provisions to these smaller watercourses.

Objectives

[rp]

1. Auckland's lakes, rivers, streams and wetlands with high natural values are protected from degradation and permanent loss.

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2. Auckland's lakes, rivers, streams and wetlands are restored, maintained and enhanced.
3. Adverse effects on lakes, rivers, streams or wetlands that cannot be avoided, remedied or mitigated are offset in exceptional circumstances, where this will better promote the purpose of the RMA.
4. Structures in, on, under or over the bed of a lake, river, stream and wetland occur where there is a need for the structure to be in that location as opposed to on the land or it is necessary to provide access across a river or stream.
5. Activities in, on, under or over the bed of a lake, river, stream and wetland are managed to minimise adverse effects on the lake, river, stream or wetland.
6. Reclamation and drainage of the bed of a lake, river, stream and wetland is avoided.

Policies

[rp]

General

1. Avoid any adverse effects of activities on lakes, rivers, streams or wetlands within the following overlays:
 - a. Natural Stream Management Areas
 - b. Natural Lake Management Areas
 - c. Urban Lake Management Areas
 - d. SEAs
 - e. Wetland Management Areas.
2. Manage the effects of activities on lakes, rivers, streams or wetlands outside Natural Stream Management Areas, Natural Lake Management Areas, Urban Lake Management areas, Significant Ecological Areas (SEAs) and Wetland Management Areas by:
 - a. avoiding where practicable or otherwise remedying or mitigating any adverse effects on lakes, rivers, streams or wetlands
 - b. where appropriate, restoring and enhancing the lake, river, stream or wetland.
3. Offset any residual or unavoidable adverse effects that are more than minor on lakes, rivers, streams or wetlands through restoration and enhancement actions that:
 - a. are located as close as possible to the subject site or within the same catchment
 - b. are 'like for like'
 - c. achieve no net loss and preferably a net gain in the natural values including ecological function of lakes, rivers, streams or wetlands.
4. Avoid adverse effects of activities on lakes, rivers, streams or wetlands on:
 - a. the mauri of the freshwater environment
 - b. Mana Whenua values in relation to the freshwater environment.
5. Manage the impact on Mana Whenua cultural heritage that is identified prior to, or discovered during, development or land use by:
 - a. complying with the protocol for the accidental discovery of kōiwi, archaeology and artefacts of Māori origin
 - b. undertaking appropriate actions in accordance with mātauranga and tikanga Māori
 - c. undertaking appropriate measures to avoid adverse effects, or where adverse effects cannot be avoided, effects are remedied or mitigated

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Structures and the Diversion of Surface Water

6. Allow the use, erection, reconstruction, placement, alteration, extension, removal, or demolition of any structure or part of any structure in, on, under, or over the bed of a lake, river, stream or wetland, and any associated diversion of water, where:
 - a. there is no reasonable or practicable alternative method or location for undertaking the activity outside the lake, river, stream or wetland, and
 - b. the structure is designed to be the minimum size necessary for its purpose to minimise modification to the bed of a lake, river, stream or wetland; and
 - c. the structure is designed to avoid creating or increasing a hazard; and
 - d. the structure is:
 - i. required as part of an activity designed to restore or enhance the natural values of any lakes, rivers, streams or wetlands and their margins, or any adjacent area of indigenous vegetation or habitat of indigenous fauna; or
 - ii. designed to maintain and/or enhance public access to, over and along any lake, river, stream or wetland and associated margins; or
 - iii. necessary to provide access across a lake, river, stream or wetland; or
 - iv. associated with the provision or maintenance of significant infrastructure; or
 - v. necessary for flood protection and the safeguarding of public health and safety
 - e. the structure avoids adverse effects on Mana Whenua values associated with freshwater resources, including wāhi tapu, wāhi taonga and mahinga kai.

Disturbance and Depositing of any Substance

7. Allow the excavation, drilling, tunnelling or other disturbance, and the depositing of any substance in, on or under the bed of a lake, river, stream or wetland, where:
 - a. there is no reasonable or practicable alternative method or location for undertaking the activity outside the lake, river, stream or wetland; and
 - b. the activity is required:
 - i. as part of an activity designed to restore or enhance the natural values of any lake, river, stream or wetland, or any adjacent area of indigenous vegetation or habitat of indigenous fauna; or
 - ii. to maintain and/or enhance public access to, over and along any lake, river, stream or wetland and associated margins; or
 - iii. to provide for or maintain significant infrastructure; or
 - iv. to restore, maintain or improve access to wharves and jetties or mooring areas, or to maintain the navigation and safety of existing channels; or
 - v. to reduce the risk of occurrence or the potential adverse effects of flooding, erosion, scour or sediment depositing.
 - c. the disturbance avoids adverse effects on Mana Whenua values associated with freshwater resources, including wāhi tapu, wāhi taonga and mahinga kai.

Planting of Plants

8. Allow planting of any plant in, on, or under the bed of a lake, river, stream or wetland where it is suitable for habitat establishment, restoration or enhancement, the maintenance and enhancement of amenity

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values, flood or erosion protection or stormwater runoff control provided it does not create or exacerbate flooding.

9. Encourage the incorporation of Mana Whenua mātauranga, values and tikanga in any planting in, on, or under the bed of a lake, river, stream or wetland.

Reclamation and Drainage

10. Avoid the reclamation and drainage of the bed of lakes, rivers, streams and wetlands, including any extension to existing reclamations or drained areas unless:
 - a. there is no reasonable or practicable alternative method for undertaking the activity outside the lake, river, stream or wetland
 - b. the activity is required:
 - i. as part of an activity designed to restore or enhance the natural values of any lake, river, stream or wetland, any adjacent area of indigenous vegetation or habitats of indigenous fauna; or
 - ii. to provide for or maintain significant infrastructure
 - c. the activity avoids adverse effects on Mana Whenua values associated with freshwater resources, including wāhi tapu, wāhi taonga and mahinga kai.

Stock access to lake, river and stream beds

11. Avoid more than minor adverse effects on water bodies and coastal water from grazing livestock

Note: in terms of Policy 3 above, applicants are encouraged to refer to the Auckland Council Technical Report 2011/009: "Stream Ecological Valuation (SEV): a method for assessing the ecological functions of Auckland Streams" for guidance on how the location and extent of any offset may be calculated and assessed.

Riparian margins

12. Protect and enhance riparian margins of lakes, rivers, streams, and wetlands to:
 - a. support habitats for fish, plant and other aquatic species, particularly in rivers and streams with high ecological values
 - b. maintain and enhance aesthetic, landscape and natural character values of lakes, rivers and streams, and wetlands
 - c. maintain and enhance the contribution of natural freshwater systems to the biodiversity, resilience and integrity of ecosystems
 - d. avoid or mitigate the effects of flooding, surface erosion, stormwater contamination, bank erosion and increased surface water temperature.
13. Acquire land, or protect land through the use of esplanade reserves and esplanade strips, marginal strips, drainage reserves, easements or covenants, alongside streams for public access where appropriate and for water quality, ecological and landscape protection purposes.

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5.15 Water

5.15.1 Water quality and integrated management

Background

Improving the integrated management of freshwater and the use and development of land is an objective of the National Policy Statement for Freshwater Management 2011 (NPSFM). The New Zealand Coastal Policy Statement 2010 similarly seeks to promote the integrated management of natural and physical resources in the coastal environment and activities that affect the coastal environment, including land use activities that affect, or are likely to affect, water quality and marine ecosystems in the coastal environment.

The quality and health of Auckland's freshwater resources is highly variable. This is largely a reflection of the different land use activities in a catchment and past approaches to land development, use and the management of activities.

Water quality and ecosystem health in catchments with a high proportion of indigenous vegetation cover is typically higher than in catchments that support large areas of rural production activities and urban areas with large impervious surfaces and significant stormwater runoff. Providing for further land use and development, while at the same time maintaining a healthy natural environment, is important for the future of Auckland and requires an integrated approach to land and water management.

Freshwater quality and ecosystem health is affected by both point source and diffuse discharges from rural and urban activities. The focus of the Unitary Plan provisions is therefore to avoid effects as far as practicable, particularly in greenfield developments where there are greater opportunities to do so, and to otherwise minimise adverse effects and reduce existing adverse effects where opportunities arise. This approach is consistent with the NPSFM objective to maintain or improve the overall water quality of the region.

The adverse effects of point source discharges are usually managed through the discharge provisions of the RMA, while managing diffuse discharges and urban stormwater runoff requires an approach that spans both discharge and land use controls.

Stormwater and wastewater networks and wastewater treatment plants are essential prerequisites of a safe and healthy urban area.

The extent of the public stormwater network is such that it is not possible to manage discharges at each discharge point, and there is also a practical limitation to managing large volumes of stormwater. Effectively preventing or minimising the adverse effects of stormwater discharges is dependent on managing the land use activities that generate stormwater contaminants and increases in runoff. Reducing stormwater contaminants and flows at source, while not always possible, is generally a more efficient and cost effective method of reducing adverse effects than end of pipe solutions.

Some land use activities have the potential to cause greater effects on freshwater systems than others, and need to be specifically managed, e.g. agricultural use, landfills, contaminated land, earthworks, onsite wastewater management, high contaminant-generating activities and impervious surfaces.

The Unitary Plan provides an overall framework for managing the individual and cumulative adverse effects of activities that affect freshwater systems and coastal waters, by the use of a surface water quality interim guideline and a range of discharge and activity based land use management controls.

A key concern to Mana Whenua is the effects on the mauri of water caused by pollution of a stream, river, catchment or harbour. Degradation of freshwater quality can affect the ability for customary harvest and to provide manaaki (hospitality) due to depletion in, or in some cases the absence of, traditional mahinga kai resources. Modification or destruction of wāhi tapu and wāhi taonga is another potential effect of freshwater

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degradation. The council is committed to recognising Mana Whenua values associated with freshwater and enabling kaitiakitanga.

The interim freshwater quality guideline uses the presence and sensitivity of macroinvertebrates in streams in different land use catchments as a surrogate for a multifactor water quality standard. Experience suggests that if macroinvertebrate health is maintained, other factors including food gathering and recreational values of freshwater are also maintained. This interim guideline will be replaced over the next 10 years by more comprehensive water quality and quantity objectives and limits to be developed in accordance with the NPSFM and subsequently given effect to through the Unitary Plan

Objectives

[rp]

1. Areas of high freshwater quality, ecosystem health, and areas of significant Mana Whenua values are protected from degradation.
2. Areas of degraded water quality and ecosystem health are protected from further degradation and they are enhanced where practicable.
3. The water quality, life supporting capacity and ecosystems of the CMA are protected from further degradation and enhanced where practicable.
4. Development is undertaken in a way that minimises adverse effects on freshwater and coastal marine ecosystems.
5. The mauri of freshwater and the relationship of Mana Whenua with freshwater is recognised and provided for.
6. Mana Whenua values, mātauranga and tikanga are reflected and given sufficient weight in water quality management processes and decision-making.

Policies

[rp]

Surface water quality and ecosystem health interim guidelines

1. Manage the cumulative effects of land use and development and control the discharge of water and contaminants to land and freshwater systems by using the Macroinvertebrate Community Index (MCI) as a measure of freshwater ecosystem health associated with different land uses within catchments.
2. Manage discharges, land use and development and activities that may affect freshwater systems to, as far as practicable:
 - a. maintain water quality, flows, stream channels and their margins and other freshwater values, where the MCI currently meets or exceeds the relevant guideline in Table 1: MCI guideline for Auckland rivers and streams;
 - b. restore or enhance water quality, flows, stream channels and their margins and other freshwater values where the MCI guideline in Table 1: MCI guideline for Auckland rivers and streams are not currently met;
 - c. retain, and where practicable enhance, existing freshwater values where there is a change to an urban land use.

Table 1: MCI guideline for Auckland rivers and streams

Land use	MCI guideline
Native forest	123
Exotic forest	111

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Rural areas	94
Urban areas	68

Note

When assessing the existing MCI in a stream within the reasonable mixing zone of a proposed discharge against the MCI guideline in Table 1 above, standard protocols for semi-quantitative sample collection should be used as described in Protocols for sampling macroinvertebrates in wadeable streams, New Zealand Macroinvertebrate Working Group Report No. 1, Stark, J.D. et al., Prepared for the Ministry for the Environment 2001.

Refer to Appendix 5.6 Macroinvertebrate community index for landuse types.

3. Require freshwater values to be enhanced unless existing intensive land use and development and irreversible modification of stream channels practicably precludes enhancement occurring.

National Policy Statement on Freshwater Management

Note: Policies 4.1 to 4.3 below are required by the NPSFM to be incorporated in regional plan provisions under RMA s. 55 without using the process in schedule 1. They apply until Policies 1 to 3 above and 5 below (which give effect to Policies A1 and A2 of the NPSFM) have become operative.

Policy A4 and direction

4.1 When considering any application for a discharge, the council must have regard to the following matters:

- a. the extent to which the discharge would avoid contamination that will have an adverse effect on the life-supporting capacity of freshwater including on any ecosystem associated with freshwater ; and*
- b. the extent to which it is feasible and dependable that any more than a minor adverse effect on freshwater, and on any ecosystem associated with freshwater, resulting from the discharge would be avoided.*

4.2 This policy applies to the following discharges (including a diffuse discharge by any person or animal):

- a. a new discharge; or*
- b. a change or increase in any discharge - of any contaminant into freshwater, or onto or into land in circumstances that may result in that contaminant (or, as a result of any natural process from the discharge of that contaminant, any other contaminant) entering freshwater.*

4.3 This policy does not apply to any application for consent first lodged before the National Policy Statement for Freshwater Management takes effect on 1 July 2011."

5. Develop catchment specific objectives and limits for freshwater with Mana Whenua through community consultation, scientific research and mātauranga Māori, to replace the MCI guideline and to give effect to the NPSFM.

Integrated management

6. Manage use, development and subdivision of land to:
 - a. protect freshwater systems and coastal waters with high ecological and cultural values from adverse effects as far as practicable
 - b. minimise new adverse effects on freshwater systems and coastal waters, and reduce existing adverse effects where practicable, having regard to the MCI guidelines in Table 1 and other indicators of water quality and ecosystem health.
7. Integrate land development and water management by:

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- a. planning for water infrastructure in areas of new growth or intensification as part of stormwater and wastewater network resource consents
 - b. requiring greenfield development and major redevelopment to be supported by comprehensive and integrated land use and water management planning processes
 - c. aligning all phases of development, from earthworks to final construction, to give effect to Policy 9(b) below.
8. Control land use activities, in conjunction with the management of discharges, to prevent or minimise adverse effects and achieve the objectives for freshwater systems and coastal waters.

Stormwater management

9. Avoid significant adverse effects and remedy or mitigate other adverse effects of stormwater runoff in greenfield areas on freshwater systems and coastal water by:
- a. the adoption of water-sensitive design as a core development approach;
 - b. on-site management and the use of communal devices or facilities to reduce stormwater contaminants, volumes and peak flows and minimise adverse effects, focussing in particular on:
 - i. activities that have the potential to generate high contaminant concentrations and loads
 - ii. managing stormwater runoff to achieve hydrological mitigation equivalent to that required in a Stormwater Management Area Flow - 1 in areas discharging to rivers and streams;
 - iii. minimising the temperature effects of stormwater discharges on rivers and streams where practicable;
 - iv. providing for the management of gross stormwater pollutants, such as litter, in areas where the generation of these may be an issue;
 - c. the provision of public stormwater infrastructure that meets the council's requirements.
 - d. the use of green infrastructure for stormwater management where practicable
10. Minimise new, and reduce the existing, adverse effects of stormwater runoff on communities, freshwater systems and coastal waters from new development, intensification and re-development by:
- a. requiring measures to be adopted to reduce contaminant loads, with a focus on activities that have the potential to generate high contaminant concentrations and loads
 - b. implementing measures to reduce the discharge of gross stormwater pollutants, such as litter, in areas where the generation of these may be an issue
 - c. requiring measures to be adopted to reduce the peak flow rate and volume of stormwater flows:
 - i. within a Stormwater Management Area - Flow;
 - ii. where development exceeds impervious thresholds for the relevant zone;
 - iii. from areas of impervious surface where discharges may give rise to flooding or adversely affect rivers and streams.
 - d. adopting water sensitive design principles and encouraging the restoration of freshwater systems and overland flow paths where practicable
 - e. ensuring intensification is supported by appropriate stormwater infrastructure (including natural assets such as overland flow paths, floodplains and streams).
 - f. adopting the best practicable option for preventing or minimising the adverse effects of stormwater discharges from significant infrastructure including road, rail and the public stormwater network having regard to:

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- i. the Best Practicable Option (BPO) criteria as set out in s. 2 of the RMA
 - ii. integrated land and water management policies in 6 to 8 above
 - iii. the reasonable timeframes over which adverse effects can be prevented or minimised
 - iv. the scale and significance of the adverse effects
 - v. infrastructure investment priorities and the consequence of delaying infrastructural improvements in other areas
 - vi. the ability to prevent or minimise existing adverse effects having regard to the effectiveness and timeframes of other feasible methods, including land use controls
 - vii. opportunities to integrate with other major infrastructural projects or works including renewal and maintenance
 - viii. v the need to maintain and optimise existing public stormwater networks and provide for planned land use and development
 - ix. the operational requirements and space limitations of significant infrastructure.
11. In determining the extent to which adverse effects of stormwater diversions and discharges are prevented or mitigated, particular regard shall be had to:
 - a. the nature, quality, volume and peak flow of the stormwater runoff
 - b. the sensitivity of freshwater systems and coastal waters, including the Hauraki Gulf Marine Park, to the adverse effects of stormwater contaminants and flows
 - c. the potential for the diversion and discharge to create or exacerbate flood risks;
 - d. options to manage stormwater on-site or the use of communal stormwater management measures
 - e. practical limitations in respect of the measures that can be applied.
 12. Ensure the concentration of contaminants in stormwater runoff from new or redeveloped high contaminant-generating activities are managed to levels established to reduce existing and prevent or minimise new adverse effects on water and sediment quality in freshwater systems and coastal waters.
 13. Require stormwater quality controls to be applied to high contaminant generating activities at the time of their construction, initiation on an existing developed site, or site re-development .
 14. Manage activity areas on industrial sites to prevent or minimise contaminated discharges to the stormwater system, freshwater systems or coastal waters in accordance with the ITA provisions in the Unitary Plan.
 15. Require any necessary stormwater quality or flow management to be achieved on-site unless there is a downstream communal device or facility designed to cater for the site's stormwater runoff that will achieve the same or better level of stormwater management performance.
 16. Require land use and development to not exceed impervious area thresholds or, where this is not practicable, to mitigate stormwater hydrology to ensure the adequate functioning and performance of the stormwater network, contribute to retaining and enhancing stream health and values and not increase existing flood risk.

Note: Refer also to Overlay Objectives and Policies: Natural Resources: [Stormwater Management Area - Flow](#)
Ground Soakage

17. Utilise stormwater discharge to ground soakage in areas underlain by shallow or highly permeable aquifers provided that:
 - a. ground soakage is available

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- b. any risk to people and property from land instability or flooding is avoided
 - c. stormwater quality treatment is implemented to minimise effects on the capacity and water quality of the underlying aquifer system.
 - d. discharge to ground soakage is the most effective and sustainable option.
18. Require land use and development and drainage systems within areas underlain by peat soils to provide for stormwater discharge to ground soakage that maintains underlying aquifer water levels and the geotechnical stability of the peat soils.

Wastewater network overflow discharges

19. Avoid increasing the frequency and volume of existing wastewater network overflows or creating new wastewater network overflows by:
- a. requiring new wastewater networks to be designed and constructed in accordance with recognised industry benchmark standards, including being sized to cater for the maximum likely level of land use development within the area to be serviced
 - b. requiring the construction of private wastewater networks that are to be connected to the Watercare network, to meet design standards for new wastewater infrastructure as set out in the Water and Wastewater Code of Practice for Land Development and Subdivision, Watercare Services Limited 2011.
 - c. requiring any new emergency discharges to be managed in accordance with a network operations plan which includes a mitigation plan with clear timeframes.
 - d. designing and locating overflow points in such a way as to minimise nuisance, damage, public health risk and adverse ecological effects.
20. Requiring land use and development discharging into the combined sewer network to:
- a. avoid increasing stormwater flows to the combined sewer network.
 - b. where practicable, reduce stormwater flows from existing impervious areas to the combined sewer network at the time of urban intensification, redevelopment or subdivision
 - c. discharge stormwater from new impervious areas and existing impervious to a separated stormwater system, a natural freshwater system or to coastal water where one of those options is available and the stormwater can be drained by gravity.
21. Minimise the adverse effects of wet weather wastewater network overflows over time by reducing wet weather overflows to an average of no more than two events per discharge location per year, where the stormwater and wastewater networks are separated with priority for:
- a. areas of contact recreation and public use
 - b. receiving environments that are sensitive to the adverse effects of wastewater overflows
 - c. areas with high Māori cultural values.
22. Minimise the adverse effects of dry weather overflows by:
- a. ensuring that the wastewater and combined sewer networks are operated and maintained to minimise the likelihood of dry weather overflows occurring
 - b. adopting response procedures to minimise adverse effects and risks to public health and safety and the environment.

Other Discharges

23. Prevent or minimise the adverse effects from construction, maintenance investigation and other

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activities by:

- a. establishing minimum performance standards for the discharges; or,
- b. where these are not appropriate or unable to be met, having regard to
 - i. the nature, volume and concentration of the contaminants in the discharge
 - ii. the sensitivity of the receiving environment to the contaminants in the discharge
 - iii. other options for the discharge, including reuse or discharge to the trade sewer
 - iv. available measures to reduce contaminant concentrations prior to discharge or otherwise mitigate adverse effects.

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5.15.2 Water quantity, allocation and use

Background

Current demand for water already equals or exceeds availability in some surface water bodies and aquifers in Auckland. Projected future growth is expected to increase competition for freshwater. The first priority for the taking and use of water is for domestic and animal drinking purposes which are allowed by the RMA without the need for any consents. Choices then have to be made about the amount of water available for the municipal water supply, industrial and rural activities, and other users. Choices also have to be made about how much water must be left in lakes, rivers or streams to protect their ecological values, base flows, water quality and amenity values. The small nature of Auckland's streams means that they are particularly vulnerable at times of low flow in summer when water quality can be at its most degraded and when demand is generally at its peak. Abstracting groundwater from aquifers, especially those rural aquifers that are already highly used, can reduce water levels, especially in summer and reduce the flow available to feed springs and streams. These extraction pressures can also lead to salt water intrusion into the aquifer.

The objectives and policies of this section focus on matching Auckland's demand for freshwater, with available surface and groundwater resources and at the same time protecting the life supporting capacity of freshwater. Improved water allocation outcomes are sought that are integrated across a whole catchment or aquifer, support more efficient use of water and reduce wastage.

The NPSFM requires that freshwater objectives are established and environmental flows and or levels set for all freshwater bodies in Auckland. Water allocation guidelines, availability and limits are included in Appendices 5.2 and 5.5 to guide the assessment of applications to take and use surface water from lakes, rivers, streams, springs or wetlands, and take and use groundwater from aquifers. These guidelines will be expanded and updated to meet the requirement of the national policy statement.

The NPSFM also requires the inclusion of interim policies in the Unitary Plan to guide water allocation, until such time as the Unitary Plan's provisions are operative.

Objectives

[rp]

1. Water in surface rivers and groundwater aquifers is available for use while the aquatic values of water are maintained and sustainable yield is not exceeded.
2. Water resources meet current and future water needs.
3. Water resources available for use are managed and allocated in order of priority to maximise the life supporting capacity for people, animals, and economic development.
4. Water resources are managed and allocated to maximise the efficient use of available water.
5. Mana Whenua values are acknowledged in the allocation and use of water.

Policies

[rp]

Priority of water use

1. Manage the allocation of freshwater within the guidelines provided by Appendix 5.2 and 5.5 and give priority to making water available for the following uses (in descending order of priority):
 - a. existing and reasonably foreseeable domestic and municipal water supply and animal drinking water requirements
 - b. existing lawfully established water users
 - c. uses of water for which alternative water sources are unavailable or unsuitable
 - d. all other uses.

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Efficient use

2. Promote the efficient use of freshwater and geothermal water by:
 - a. requiring the amount of water taken and used to be reasonable and justifiable with regard to the intended use, and where appropriate:
 - i. municipal water supplies are justified by way of a water management plan
 - ii. industrial and irrigation supplies implement best practice, in respect of the efficient use of water for that particular activity or industry
 - iii. irrigation takes are limited to a maximum seasonal allocation based on estimated crop water requirements
 - b. requiring consideration of water conservation and thermal efficiency methods
 - c. facilitating the transfer of surface water take permits, provided the transfer is within the same surface water catchment and does not result in site-specific adverse effects
 - d. encourage the shared use and management of water through water user groups or other arrangements where it results in an increased efficiency in the use and allocation of water.

Water allocation guidelines, availabilities and limits

3. Manage the taking and use of surface water from rivers, streams and springs and taking and use of groundwater from aquifers so that:
 - a. the minimum flow and availability guidelines in Table 1 in Appendix 5.2 are not exceeded
 - b. the aquifer availability and groundwater levels in Tables 1 and 2 in Appendix 5.5 are not exceeded

Take and use of water

4. Require proposals to take and use water from lakes, rivers, streams, springs or wetlands to demonstrate that:
 - a. the taking of surface water from any river or stream is within the guideline in Table 1: River and stream minimum flow and availability in Appendix 5.2 except in accordance with Policy 9
 - b. appropriate water levels and downstream flow regimes will be maintained, including:
 - i. low flows in rivers and streams to protect in-stream values
 - ii. flow variability in rivers, streams and springs
 - iii. water levels and flows in wetlands ensure the vegetation and habitat values of the wetland are protected throughout the year
 - iv. water levels in lakes maintain the ecological values and water quality of the lake and its shoreline stability, and enable recreational use
 - v. so that no existing lawfully established taking of water is adversely effected
 - c. the taking of water will be at times of the day or year that will safeguard the identified freshwater values of the water body
 - d. intake structures will be designed, constructed, operated and maintained to avoid adverse effects on biota, including the entrainment and impingement of fish
 - e. there are options for implementing water conservation measures in times of water shortage.
5. Require all proposals for take and use groundwater from any aquifer to demonstrate that:
 - a. the taking is within the water availabilities and levels for the aquifer in Table 1: Aquifer water availabilities and Table 2: Aquifer groundwater levels, in Appendix 5.5 and

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- i. recharge to other aquifers is maintained
 - ii. aquifer consolidation and surface subsidence is avoided
 - b. the taking will avoid, remedy or mitigate adverse effects on surface water flows, including:
 - i. base flow of rivers, streams and springs
 - ii. any river or stream flow requirements
 - c. the taking will avoid, remedy or mitigate adverse effects on terrestrial and freshwater ecosystem habitat
 - d. the taking will not cause saltwater intrusion or any other contamination
 - e. the taking will not cause adverse interference effects on neighbouring bores to the extent their owners are prevented from exercising their lawfully established water takes
 - f. clause e above will not apply in the following circumstances:
 - i. where it is practicably possible to locate the pump intake at a greater depth within the affected bore
 - ii. where it can be demonstrated that the affected bore accesses, or could access, groundwater at a deeper level within the same aquifer, if drilled or cased to a greater depth
 - g. the proposed bore is capable of extracting the quantity of groundwater applied for
 - h. the proposal avoids, remedies or mitigates any ground settlement that may cause distress, including reducing the ability of an existing building or structure to meet the relevant requirements of the Building Act 2004 or the New Zealand Building Code, to existing:
 - i. buildings
 - ii. structures
 - iii. services including roads, pavements, power, gas, electricity, water mains, sewers and fibre optic cables.
6. Consider mitigation options, where there are significant adverse effects on the matters identified in policies 4 and 5 above, including the following:
 - a. consideration of alternative locations, rates and timing of takes for both surface water and groundwater
 - b. use of alternative water supplies
 - c. use of water conservation methods when water shortage conditions apply
 - d. provision for fish passage in rivers and streams
 - e. wetland creation or enhancement of existing wetlands
 - f. riparian planting
 - g. consideration of alternative designs for groundwater dewatering proposals.
7. Require proposals to take and use surface water and groundwater to monitor the effects of the take on the quality and quantity of the water resource to:
 - a. measure and record water use and rate of take
 - b. measure and record water flows and levels
 - c. sample and assess water quality and freshwater ecology
 - d. measure and record the movement of ground, buildings and other structures.

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8. Manage water availability, where water allocation exceeds or is close to exceeding the guidelines in Table 1: River and Stream Minimum Flow and Table 2: Aquifer Groundwater Levels in Appendix 5.5 by:
 - a. not granting new consent applications to take water
 - b. reducing existing takes over time by:
 - i. encouraging voluntary reductions in water allocations
 - ii. reviewing existing consents to align water allocations to the actual historical use of water
 - c. reviews of existing allocations under b(ii) above must not apply to takes for municipal water supply, where a water management plan demonstrates a necessary increase in abstraction to cater for planned urban growth
 - d. reviewing existing consents to require the efficient use of water.
9. Allow takes that exceed the guidelines in Table 1 Appendix 5.2 when the river or stream flow is greater than the median flow, provided the total take does not exceed 10 per cent of the flow in the river or stream at the time of abstraction, and natural flow variability is maintained.

National Policy Statement on Freshwater Management

Note: Policies 10.1 to 10.3 below are required by the NPSFM to be incorporated in regional plan provisions under RMA s. 55 without using the process in schedule 1. They apply until provisions that give effect to NPSFM Policies B1 to B6 have become operative.

Policy B7 and direction

10.1. *"When considering any application the council must have regard to the following matters:*

- a. *the extent to which the change would adversely affect safeguarding the life-supporting capacity of fresh water and of any associated ecosystem and*
- b. *the extent to which it is feasible and dependable that any adverse effect on the life-supporting capacity of freshwater and of any associated ecosystem resulting from the change would be avoided.*

10.2. *This policy applies to:*

- a. *any new activity and*
- b. *any change in the character, intensity or scale of any established activity – that involves any taking, using, damming or diverting of freshwater or draining of any wetland which is likely to result in any more than minor adverse change in the natural variability of flows or level of any fresh water, compared to that which immediately preceded the commencement of the new activity or the change in the established activity (or in the case of a change in an intermittent or seasonal activity, compared to that on the last occasion on which the activity was carried out).*

10.3 *This policy does not apply to any application for consent first lodged before the National Policy Statement for Freshwater Management takes effect on 1 July 2011."*

11. Develop catchment specific limits for freshwater quantity with Mana Whenua, through community consultation, scientific research and mātauranga Māori.

Comprehensive reviews of consents

12. Require resource consents granted to take, use or dam water and to discharge contaminants to land or freshwater to be for a duration and include a condition setting the review date(s) of the consent, that will enable the concurrent processing or review of all consents/replacement applications, as a basis for a comprehensive and integrated assessment of water quality and water quantity issues in the catchment and/or aquifer system.

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Damming of surface water

13. Encourage the off-stream damming of water in preference to the damming of rivers or streams.
14. Avoid damming water in Natural Lake, Wetland and Natural Stream Management Areas other than:
 - a. where these areas are in a Water Supply Management Area and the damming is necessary for municipal water supply
 - b. the dam is necessary for the protection or maintenance of the natural values of the management area and there are no practicable alternative methods to achieve this protection.
15. Require proposals to dam a river to demonstrate that:
 - a. adverse effects on fish passage are avoided or remedied, where native fish and/or habitats actually or potentially exist upstream
 - b. appropriate water levels and downstream flow regimes will be maintained, including:
 - i. low flows in rivers and streams to protect in stream values
 - ii. downstream flow variability
 - iii. water levels and flows in wetlands to protect vegetation and habitat values of the wetland throughout the year
 - iv. water levels in lakes to protect the ecological values and water quality of the lake, maintain shoreline stability and enable recreational use
 - c. existing lawfully established upstream and downstream water uses are not adversely affected by the damming proposal, including those allowed by s. 14 (3) (b) of the RMA
 - d. Mana Whenua values associated with the wetland, lake or river are identified and the effect of the proposal on these are assessed and taken into account
 - e. the design, construction, operation and maintenance of the dam avoids significant adverse effects and remedies or mitigates other effects on:
 - i. flooding
 - ii. bank or bed erosion or aggregation
 - iii. drainage of any property
 - iv. land instability
 - v. people and communities
 - vi. the habitat of fauna or flora, including wetlands, either upstream or downstream of the dam
 - vii. catchment conditions arising from the scale, location or number of dams in the catchment
 - viii. risk of dam failure.
 - f. if applicable, recognise the Vision and Strategy for the Waikato River in Schedule 2 of the Waikato-Tainui Raupatu Claims (Waikato River) Settlement Act 2010.
16. Require proposals for new, change or replacement applications to dam a river or stream or dam water with an off-stream dam to undertake monitoring of a type and scale appropriate for the activity, including:
 - a. inspection of dam embankments and spillways
 - b. measurement and recording of embankment internal water levels and pressures; or
 - c. sampling and assessment of water quality and freshwater biota in on-stream dams.

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Surface water diversions

17. Require proposals to divert surface water to demonstrate the diversion will avoid significant adverse effects and remedy or mitigate other adverse effects including those on:
 - a. existing lawfully established surface water takes including those allowed by s. 14 (3) (b) of the RMA
 - b. existing buildings, structures and services
 - c. existing flood hazard risks
 - d. river bank stability
 - e. scheduled historic heritage places or scheduled sites and places of significance to Mana Whenua
 - f. people and communities.

Diversion of groundwater

18. Require proposals to divert groundwater, in addition to the matters addressed in policy 5 and 6 above, to ensure that:
 - a. the proposal avoids, remedies or mitigates any adverse effects on:
 - i. scheduled historic heritage places and scheduled sites and places of significance to Mana Whenua
 - ii. people and communities
 - b. the groundwater diversion does not cause or exacerbate any flooding
 - c. monitoring has been incorporated where appropriate, including:
 - i. measurement and recording of water levels and pressures
 - ii. measurement and recording of the movement of ground, buildings and other structures
 - d. mitigation has been incorporated where appropriate including:
 - i. minimising the period where the excavation is open/unsealed
 - ii. use of low permeability perimeter walls and floors
 - iii. use of temporary and permanent systems to retain the excavation
 - iv. re-injection of water to maintain groundwater pressures.

Drilling holes and bores

19. Require proposals to drill holes or bores to demonstrate that the location, design and construction:
 - a. complies with the New Zealand Standard on the Environmental Standard for Drilling of Soil and Rock (NZS 4411:2001)
 - b. prevents contaminants from entering an aquifer
 - c. prevents cross-contamination between aquifers with different pressure, water quality or temperature
 - d. prevents leakage of groundwater to waste
 - e. avoids the destruction, damage or modification of any scheduled historic heritage place or scheduled sites and places of significance to Mana Whenua
 - f. avoids disturbance of wetlands.

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5.16 On-site wastewater

Background

Septic tanks and small package treatment plants are the most common mechanisms for treating and disposing of wastewater where there is no reticulated wastewater network. These systems have a mixed history of success in Auckland, with examples of older systems failing and sewage leaching onto land or into land or water.

A range of package treatment plants are available that can treat wastewater effluent to a high quality which reduces potential adverse effects on the receiving environment.

However, the growing number of permanent residents in the un-reticulated areas of Auckland, and the increased density of houses and other premises, places a strain on the receiving soils capabilities to assimilate wastewater, and can lead to human, environmental health, and amenity issues. These issues can be managed through the careful assessment of a site's soil and groundwater condition and the appropriate design, operation and regular maintenance of the on-site wastewater system.

Objective

[rp]

1. Land-based disposal of treated wastewater from on-site wastewater systems is undertaken in a manner that protects the environment, public health and amenity.
2. Significant adverse effects on groundwater and surface water quality, public health and amenity arising from on-site wastewater systems servicing single or multiple sites are avoided.

Policies

[rp]

1. Enable on-site wastewater treatment and disposal where:
 - a. there is no community, municipal or decentralised wastewater treatment system available, or it is not practicable to connect into one of these systems
 - b. the on-site wastewater treatment results in a discharge that is of a quality and volume that avoids significant adverse effects on groundwater and surface water quality, public health and amenity.
2. Require proposals for on-site wastewater treatment and disposal resource consents to demonstrate that:
 - a. significant adverse effects on public and environmental health, water quality and amenity values are avoided and other adverse effects remedied or mitigated
 - b. an assessment of the site conditions has been undertaken
 - c. the design of the on-site wastewater system and the proposed volume of discharge will minimise the level of contaminants to the greatest extent practicable
 - d. Mana Whenua concerns relating to the potential adverse effects of the on-site wastewater discharge have been identified and addressed.

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5.17 Genetically modified organisms

Background

The outdoor use of GMOs has the potential to cause adverse effects on the environment, economy and social and cultural wellbeing. The objectives and policies seek to protect the community and receiving environment from risk associated with any GMO activity. The application of a precautionary approach to the outdoor use, storage, cultivation, harvesting, processing or transportation of GMOs in Auckland means that:

- The release of a GMO is prohibited (this is to avoid the risk that significant adverse environmental effects will arise, including adverse effects on the economy, community and/or Mana Whenua resources and cultural heritage values); and
- Outdoor field trialling of a GMO (with prior approval of the EPA) is a discretionary activity.

Pastoral farming, dairying, horticulture and forestry are important land uses in Auckland and are significant contributors to the local and regional economy. Aquaculture is also a growing primary industry in New Zealand. Therefore there are a range of outdoor GMOs that GMO developers could consider using in Auckland, including GM food crops, trees, animals, aquaculture products and pharma crops. The potential for adverse effects, including accidental contamination, resulting from the outdoor use of GMOs poses a risk to the community and environment. By specifying classes of GMOs and applying standards to the outdoor use of GMOs, the risks associated with their use, storage, cultivation, harvesting, processing or transportation can be reduced.

Within Auckland, this will involve managing and limiting the outdoor use of GMOs. Further, rules and controls will be used to mitigate any adverse effects associated with contamination by GMOs beyond the subject site, thereby reducing the risks to the community, environment and economy. Accidental or unintentional migration of GMOs that result in GMO contamination and subsequent clean up and remediation can be expensive. The council therefore requires a GMO operator to meet all potential costs associated with the activity and will secure long term financial accountability through appropriate standards and bonding requirements.

The EPA is not obligated to set monitoring requirements as a part of its approval process, and can only require monitoring where it is relevant to assessing environmental risk. Under s.35 of the RMA, council has a duty to monitor, which can be expensive. Requiring a GMO operator to meet the costs of monitoring, via consent conditions, ensures the costs are met by the activity operator.

Objective

[rcp/dp]

1. The environment, including people and communities and their social, economic and cultural well being and health and safety, is protected from potential adverse effects associated with the outdoor use, storage, cultivation, harvesting, processing or transportation of GMOs.

Policies

[rcp/dp]

1. Adopt a precautionary approach by prohibiting the general release of a GMO, and by making outdoor field trialling of a GMO a discretionary activity
2. Require the holder of a resource consent granted for the outdoor field trialling of a GMO is financially accountable (to the extent possible) for any adverse effects associated with the activity, including clean-up costs and remediation, including via the use of bonds.
3. Require outdoor field trialling of GMOs to avoid, as far as can reasonably be achieved, risk to the environment from the use, storage, cultivation, harvesting, processing or transportation of a GMO.
4. Require all monitoring costs to be met by the consent holder.
5. Ensure the outdoor use of GMOs does not result in migration of GMOs beyond the area designated by:
 - a. Adequate site design, construction and management techniques

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- b. Preventing the escape of GMOs from transporting vehicles or vessels
 - c. Ensuring all heritable material is removed upon the conclusion of the activity.
 - d. Ensuring any financial liability is the responsibility of the operator carrying out the activity.
6. Adopt an adaptive approach to the management of the outdoor use, storage, cultivation, harvesting, processing or transportation of a GMO through periodic reviews of these plan provisions, particularly if new information on the benefits and/or adverse effects of a GMO activity becomes available.
7. Require where appropriate, more stringent measures than those required under the provisions of the HSNO Act to manage potential risks.