

NATURAL ENVIRONMENT ISSUES AND APPROACHES PAPER

1.0 Context

This paper is part of a series of six work stream issues papers to help determine which issues are the most appropriate for inclusion in the Unitary Plan. This Natural Environment Issues and Approaches paper evaluates the need for, and scope of, issues on air, land, water and biodiversity resources to be included within the Unitary Plan. This paper sets out the issues identified through research and preliminary consultation and the broad approaches for dealing with those issues.

This paper does not address the full range of natural environment resource management issues but identifies priority issues which most warrant inclusion.

Explanation:

A paper (the Exclusions Paper) has been prepared and recommends that the regional plan provisions for air be included from the initial notification of the Unitary Plan while land and water resources be excluded. Land and water topics are intrinsically linked to a number of recently enacted national legislative initiatives. In particular the National Policy Statement for Freshwater Management 2011 (NPSFM) will potentially have significant and wide ranging management implications for land and water resources.

As the existing regulatory framework has few limits or targets for freshwater, the NPSFM is a fundamental change to the existing situation. Therefore, the Council will need to undertake a significant amount of new research and analysis before it can give effect to the NPSFM in the Unitary Plan. See section 3.3 below “National Policy Statement Freshwater Management” which further outlines the implications for Council.

However, direction from management seeks an integrated Unitary Plan which encompasses all district and regional functions. Therefore, all air, land, and water functions are to be included in the first iteration of the Unitary Plan. This includes all functions which are affected by the NPSFM.

2.0 Introduction

Auckland’s population growth, high private vehicle usage and urban expansion has placed increasing pressure on the region’s land and water resources, reduced air quality and increased exposure to risk from flooding and land instability. Effective management of air, land, water and biodiversity resources is required not only for Auckland to achieve the Mayor’s goal to be the world’s most liveable city, but also to ensure its environmental, social, economic and cultural well-being.

Air, land, water and biodiversity resources are valued by the community for a number of reasons. Some of these natural and physical resources are important for their high environmental values. Other resources are important for their contribution to the community’s health and safety, while other resources are used for economic, social and cultural development.

The Auckland region’s air, land, water and biodiversity resources are complex and interrelated. Overlaps with other Unitary Plan work streams include the Built Environment, Infrastructure, Rural and Coastal work streams which reflects their interrelated nature and the effects that use and development has on them.

It is also important to consider the special relationship that Maori have with natural and physical resources. Inherent to this relationship are ancestral obligations such as kaitiakitanga to maintain and enhance the mauri of these resources. There is a strong overlap between the Natural Environment work stream and the Natural Heritage work stream which includes tangata whenua considerations. Many of the issues that are of direct relevance to tangata whenua and which overlap with this workstream can be found in the issues report titled 'Treaty of Waitangi'.

3.0 Legislative requirements

The following legislation is relevant to many of the issues presented in this report and therefore warrant a detailed description here. Other legislation specific to certain issues is found within the individual issues sections below.

3.1 Resource Management Act 1991

As a unitary authority, the Auckland Council is responsible for both regional and territorial authority (district) functions under sections 30 and 31 of the RMA 1991 respectively.

Regional functions (s30)

A key function of a regional council is the preparation of objectives, policies, and methods to achieve integrated management of the natural and physical resources of a region (section 30(1) (a)). Regional functions include:

- Soil conservation
- Water quality and quantity (freshwater and seawater)
- Manage discharges to air, water and land
- Maintenance of Indigenous biodiversity
- Marine and freshwater ecosystems
- Natural hazards (avoidance and mitigation)
- Hazardous substances
- Contaminated land (identification and monitoring)
- Activities in the coastal marine area (in conjunction with the Minister of Conservation)
- Introduction of plants into water bodies
- Allocation of natural resources
- Strategic integration of infrastructure with land use

District functions (s31)

Territorial Authorities (or district councils) focus on the integrated management of the effects of land use (section 31(1) (a)) of the RMA. The functions under section 31 include controlling land use effects on:

- Natural and physical resources
- Natural hazards
- Maintenance of indigenous biodiversity
- Land subdivision
- Noise
- The management of hazardous substances and contaminated sites, and
- Activities on the surfaces of rivers and lakes

A copy of sections 30 and 31 of the Resource Management Act 1991 is contained in Attachment 1.

3.2 New Zealand Coastal Policy Statement 2010

The New Zealand Coastal Policy Statement 2010 (NZCPS) provides policy guidance on the management of the coastal environment. This includes land above the coastal marine area bounded by mean high water springs. The NZCPS has a “protectionist” component whereby it seeks to safeguard the coastal environment and its ecosystems, including marine and intertidal areas, estuaries, dunes and land. It also seeks to preserve the natural character of the coastal environment and protect natural features and landscape values. The NZCPS also has a “use and development” component as it seeks to enable people and communities to provide for their social, economic and cultural wellbeing and their health and safety through subdivision, use, and development. In that regard, it contains specific policy guidance on a range of topics including public open space, ports, renewable energy generation and aquaculture.

Large parts of the Auckland region fall within the coastal environment and the NZCPS will form an important driver for provisions within the Unitary Plan. The Unitary Plan must give effect to the NZCPS.

3.3 National Policy Statement Freshwater Management 2011

The National Policy Statement for Freshwater Management (NPSFM) came into effect on 1 July 2011. The NPSFM seeks to provide clear direction to local authorities to manage freshwater in an integrated and sustainable way while providing for economic growth within set resource use limits. The NPSFM sets objectives and policies that local authorities must give effect to in their regional policy statement, regional and district plans.¹

The NPSFM is required to be fully completed by 31 December 2014 but where the Council is satisfied that this timeframe is impracticable, the Council may implement it by a programme of defined time-limited stages by which it is to be fully implemented by 31 December 2030. A more detailed report on the requirements of the NPSFM and the implications for the Auckland Council is contained in Attachment 2.

The NPSFM places an emphasis on setting limits to govern the allocation of water and the management of water quality. This approach is a fundamental change to the current approach set out in the Auckland Regional Plans (Air, Land and Water; Sediment Control and Farm Dairy Discharges) which implements an activity based approach or the best practicable option².

Considerable new research and analysis is required to classify water bodies and to set limits and targets. This includes:

- classification of all water bodies in the region
- determining agreed values for freshwater

¹ The National Policy Statement Freshwater Management specifically provides direction on these key areas:

- (a) setting and implementing limits for water quantity and quality are central to water management;
- (b) water that is available for ‘out of stream’ use (once limits are set) must be allocated fairly, efficiently, and maximize benefits to the country and local communities;
- (c) better integration of freshwater and land management is provided for;
- (d) outstanding freshwater resources should be protected (including wetlands)
- (e) existing over - allocation (for both water quality and quantity) must be reduced and further over – allocation avoided; and
- (f) Councils should involve iwi and hapu in the management of freshwater and in particular, work with them to identify their values and reflect this in freshwater planning.

² Best practicable option, in relation to a discharge of a contaminant, means the best method for preventing or minimizing the adverse effects on the environment having regard, among other things, to:

- (a) The nature of the discharge and the sensitivity of the receiving environment to adverse effects;
- (b) The financial implications, and the effects on the environment, of that option when compared with other options; and
- (c) The current state of technical knowledge and the likelihood that the option can be successfully applied.

- setting water quality and quantity limits and targets
- developing methods and tools to enable the limits and targets to be met
- developing policy to ensure the integrated management of freshwater, land use and development within catchments.

Policy D1 of the NPSFM outlines Council's requirements in providing for Tangata Whenua roles and interests in the management of freshwater resources. This includes taking reasonable steps to ensure the involvement of iwi and hapu in the identification, reflection and management of tangata whenua values and interests in the management of fresh water and freshwater ecosystems in the region. See the Issues Paper titled 'Treaty of Waitangi' for more information.

3.4 National Policy Statement on Renewable Electricity Generation

The National Policy Statement on Renewable Electricity Generation 2011 (NPSREG) sets out as a matter of national significance under the RMA the benefits of and the need to develop, operate, maintain and upgrade renewable electricity generation activities throughout New Zealand.

The NPSREG directs local authorities to include objectives, policies and methods, which includes rules, in their regional policy statements and regional and district plans to provide for certain renewable electricity generation activities.

3.5 National Policy Statement on Electricity Transmission

This NPS requires Council to give effect to the following matters by 10 April 2012:

- a proactive response to give effect to the objectives and policies in the management and future planning of the national grid
- regional and district policies that encourage early consultation with Transpower NZ Ltd and
- regional plans shall give effect to the NPS where they have direct application to transmission activities e.g. earthworks, air quality and activities in the coastal marine area

3.6 Proposed National Policy Statement on Indigenous Biodiversity

The proposed NPS³ seeks to promote the maintenance of indigenous biodiversity while recognising the rights and responsibilities of landowners and the interests of Māori. While the NPS is only proposed at this point, it is considered good practice to include the direction it has set into the drafting of the Unitary Plan. Note that the proposed NPS does not apply to the Coastal Marine Area or to public conservation land.

The proposed NPS contains a list of areas which are required to be identified in district plans as being significant indigenous vegetation and habitats of indigenous fauna. The proposed NPS requires district and regional plans to identify these areas within five years of the NPS taking effect.

³ The Ministry for the Environment is currently evaluating submissions to the Proposed National Policy Statement on Indigenous Biodiversity and may, where necessary, seek further comments. After this, recommendations will be developed for the Minister for the Environment to consider. The Government intends to wait for the release of a report from the Waitangi Tribunal on claim 262 before finalising the NPS. Part of this claim relates to environmental, resource and conservation management.

The NPS also provides guidance to local authorities to go beyond the areas listed as significant in the NPS as these areas are only considered as an essential bottom line requirement.

The NPS provides direction for enhancing and restoring ecological areas using a range of regulatory and non regulatory methods. Also, the NPS seeks to ensure there is no net loss of biodiversity but preferably a net gain is achieved.

The NPS directs decision makers to consider a hierarchy of measures when managing the effects of activities on significant biodiversity. It also includes the use of biodiversity offsets.

A copy of the proposed NPS is contained in Attachment 3.

3.7 National Environmental Standard for Sources of Human Drinking Water

This Standard requires regional councils to ensure that effects on drinking water sources⁴ are considered in decisions on resource consents and regional plans.

3.8 Revised National Environmental Standard for Air Quality

The main features required by the standard relative to the Unitary Plan or Regional Plan are:

- to have no more than one exceedance of the fine particle standard per year for the Auckland airshed by 1 September 2016
- from September 2012 new discharge consent applications will only be permitted to discharge PM₁₀ if they reduce emissions from elsewhere (offsets) so that overall emissions in the Auckland airshed stay the same or improve
- from September 2012 new solid-fuel open fires in homes will be prohibited where the AQNES is breached
- setting of ambient standards for other air pollutants
- prohibiting various burning activities

3.9 Proposed National Environmental Standard for Assessing and Managing Contaminants in Soil

This NES⁵ seeks to ensure that land affected by contaminants in soils is appropriately identified and assessed at the time of being developed and if necessary remediated, or the contaminants contained, to make the land safe for human health. It requires district councils to:

- set nationally consistent human health soil guideline values
- systematically identify and assess potentially contaminated soil at the time of land being developed and if necessary remediated

This process enables councils to gather and apply the information needed for efficient decision making on contaminated or potentially contaminated land.

3.10 The Auckland Plan

⁴ The National Environmental Standard for sources of Human Drinking Water only applies to activities that may affect the quality of a registered drinking water supply providing 501 people or more with drinking water for 60 or more calendar days in a year.

⁵ The National Environmental Standard for Assessing and Managing Contaminants in Soils will only impact on new decisions and resource consents.

The Auckland Plan is a 30 year vision and strategy for Auckland underpinned by the Mayors vision of making Auckland the world's most liveable city. The Auckland Plan will provide the overall strategic framework for the region, which includes:

- the existing and future location of critical infrastructure such as transport, water supply, wastewater and stormwater, other network utilities as well as open space, cultural and social infrastructure
- nationally and regionally significant ecological areas that should be protected from development
- how Auckland might develop, including the sequencing of growth and provision of infrastructure etc.

It is intended that the Auckland Plan will be adopted by the end of 2011 in order to give a basis for the 2012 - 2022 Long Term Plan and other inter-related programmes. The Unitary Plan has a key role in giving effect to the strategic direction set out by the Auckland Plan.

4.0 Issues and Approaches

This paper focuses on four natural and physical resources:

- 4.1 Air
- 4.2 Land
- 4.3 Water, and
- 4.4 Indigenous Biodiversity

4.1 Air Issues

Issue 1: Domestic Heating Emissions

Domestic home heating is the greatest contributor to fine particle emissions and has a significant impact on air quality in the region. The emission of fine particles are linked to human health effects such as respiratory symptoms and premature death. There is a Air Quality National Environmental Standard (AQNES) for fine particles that the Council must meet by 1 September 2016.

Background to the issue

Domestic emissions contribute to 49% of the total annual emissions, but amount to 64% of fine particle emissions in winter. Domestic and vehicular sources comprise 49% and 37% respectively of Auckland's annual PM₁₀ (fine particle) emissions. Domestic sources provide the greatest source of emissions in winter and vehicle sources the greatest emission source in summer. Traffic emissions are not a local government function and need to be addressed by central government through vehicle standards. An overview report on air quality management including domestic heating is given in Attachment 4.

Auckland does not currently meet regional and national air fine particle standards. If Auckland does not meet the AQNES compliance date of August 2016, it will face the risk of Ministerial intervention. Regardless of any national standard, domestic solid fuel heating leads to a significant health burden for the Auckland region.

The Auckland Regional Plan: Air, Land, and Water (ARP: ALW) has effectively banned new open domestic fires and domestic coal burners with its particulate emission standard of 4.0 g/kg from October 2010. The AQNES also established a national urban wood burner standard of 1.5 g/kg. Regulation 24A of the AQNES also provides a default rule to ban new open fires, should any airshed exceed the standard, after 1 September 2011. However, based on current projections, it appears unlikely that these measures will be sufficient to reduce the concentrations to meet the standard. The Auckland Regional Council calculated that annual PM₁₀ emissions need to decrease by 53% compared to background levels to meet the 2004 AQNES standard.

Approaches to manage the issue

Approach 1: Do Nothing/Status Quo

This approach would:

- expose Auckland citizens to ongoing health effects and costs due to poor air quality, currently estimated to cost \$727 million per year
- be inconsistent with Auckland Council's mandate under the RMA to maintain and improve the state of the environment
- be inconsistent with the Mayor's vision
- attract Ministerial intervention as the air shed is unlikely to meet the national PM₁₀ particle standard by 1 September 2016, and Council would not meet the requirements of the Revised National Environmental Standard for Air Quality

Approach 2: Regulation

a) Unitary Plan Rules

Develop a more consistent region wide approach (objectives, policies and rules) in the Unitary Plan of district level controls to managing open fires and wood burners.

b) Auckland Regional Plan: Air Land and Water Plan (ARP: ALW)

The ARP: ALW could be relatively easily changed by a plan change to further manage the discharges of open fires and wood burners. Disadvantages to this approach include:

- risk that a plan change could open all other relevant air quality provisions in the ARP: ALW to challenge through submissions etc
- the cost and time of changing the ARP: ALW and resolution of appeals

c) Bylaws

Bylaws for domestic home heating emissions were implemented in Rotorua in 2010 by Environment Bay of Plenty and Rotorua District Council and represent New Zealand best practice.

The advantages of using bylaws include:

- a quick and efficient method of managing domestic emissions as they do not go through the RMA plan process
- a bylaw can only be appealed to the High Court on a point of law
- Auckland is a unitary authority and implementation of bylaws will be less complex than separate district councils

Approach 3: Incentives and Communication

Any regulatory option will need to be implemented as a complete policy package to mitigate the financial effects. This is particularly to mitigate impacts on lower socio-economic sections of the community which would be on a far larger scale than the former Waitakere City Council's "Warm your Home" programme and Environment Canterbury's "Clean Heat" programme. Communications approaches will not, however, deliver the intended outcomes by themselves unless underpinned by rules and financial incentive schemes.

Issue 2: Statutory Integration

The ARPS was made operative in 1999 and the ARP:ALW was originally notified in 2001. Since this time there has been the introduction of the AQNES in 2004, amendments to the RMA through the Energy and Climate Change Amendment Act 2004 (Climate Change Amendment Act 2004) and the 2010 formation of the amalgamated Auckland Council. These three drivers have significantly altered the air policy landscape. Integrating these statutory processes into regional planning documents is either required by statute or would make management of the air resource more efficient and effective.

Air quality and land use are inextricably linked and the formation of the amalgamated Auckland Council has created the ability to manage air quality in a more comprehensive manner through coordinating both land use and air quality provisions (discussed further in Issue 3 below).

The Exclusions Paper by Hill Young Cooper has also identified that the air quality provisions of the ARP:ALW should be incorporated into the Unitary Plan. This provides a timely tool to give effect to the new statutory requirements and to update the air provisions with more recent information than that available in 2001; this could include health findings such as the recalculated effects of air pollution on Aucklanders' health through the Health and Air Pollution in New Zealand Study and the adverse effects of sulphur dioxide and national methods for emissions from motor vehicles.

It must be noted that the incorporation of the air provisions of the ARP:ALW into the Unitary Plan assumes the following:

- that the review is a 'soft' review of the provisions

- that there is no rewording of any existing provisions that do not require amendments (i.e. those not highlighted in Issues 1-4) – this is the bulk of the rules and policies within the Air Chapter of the ARP:ALW
- that the Agrichemicals Chapter (Chapter 4A) is specifically excluded from the Unitary Plan at this point in time and is treated in the same manner as the current land and water parts of the ARP:ALW due to its linkages with water quality and the NPSFM

Background to the issue

The AQNES

The AQNES primarily has impacts on regional air quality management but it also impacts on individual activities as well. Except for minor references, the direct requirements of the AQNES and the potential wide ranging methods for achieving compliance with the Air Quality Standards that the AQNES have instigated have not been included within the ARP:ALW. Some of the changes required are:

- providing a discussion of the linkages between the AQNES and regional planning documents
- clarification on the status of gazetted airsheds (through the AQNES) compared to the Air Quality Management Areas (AQMA) currently within the ARP:ALW and how consequential amendments to the MUL and any boundary issues are dealt with. Some AQMA changes may require regazettal of the airsheds as well (outside the Unitary Plan process).
- the inclusion of AQNES impacts on regional air quality. That is additional management of regional sources of air pollution including domestic fires (Issue 1 of this report), motor vehicles (Issue 3) and industry (Issue 4), and
- addition of the prohibited activity standards (e.g. for high temperature incinerators).

The Climate Change Amendment Act 2004

The Climate Change Amendment Act 2004 affects greenhouse gas policy and essentially clarifies that central government is the primary policy creator and regulator for greenhouse gases. Chapter 4 of the ARP:ALW currently has a section on greenhouse gases. It also has a few industrial activity rules where the pollutants discharged may affect climate change. The air policy strategy within the ARP:ALW should be amended to reflect the requirements of the Climate Change Amendment Act 2004.

Incorporation of District Plan issues

Regional councils have functions to directly manage air discharges under section 30(1) (f) of the RMA. Territorial authorities may zone or otherwise control land use on the basis of effects on air quality relating to that use. While existing district plans can and do manage air quality indirectly using their s 31 RMA functions to achieve the 'integrated management of the effects of the use, development, or protection of land and associated natural and physical resources of the district', the results have been variable in the past.

Currently, because of the effect air quality has on land use all the legacy district plans contain differing ad hoc provisions relating to air quality particularly for odour, dust and activities that are sensitive to these effects. Setting clear amenity expectations at local levels would provide more detailed regional direction than currently in the air provisions of the ARP:ALW. Examples of areas that could be considered are:

- promulgating zone statements regarding anticipated air quality outcomes within zones (e.g. Residential zones may be required to have no industrial odours)
- consistently defining activities sensitive to air quality
- promulgating region wide and/or localised odour and dust standards.

Particular land use issues, relating to the impacts of air quality and land use are discussed in Issue 3.

Approaches to manage the issue

Approach 1: Do nothing/Status Quo

This approach would entail the continued use of several documents, including an out of date ARP:ALW, to manage air quality within the region. This is not currently working well and causes confusion for the consents team and external users, in particular industry.

Approach 2: Regulation

- **Unitary Plan**

Integrating all air quality provisions in the Unitary Plan promotes a “one stop shop” in the integrated management of air quality.

- **Auckland Regional Plan: Air , Land, and Water**

The ARP:ALW could be relatively easily amended by a plan change to further manage the issues raised in the AQNES and Climate Change Amendment Act.

The matters identified above relating to the district plans could not easily be established in the ARP: ALW as these are section 31 functions. This would provide a disconnect between the land use functions the Unitary Plan is endeavouring to manage, particularly the anticipated amenity outcomes for land use zones.

- **Future Variation to the Unitary Plan**

This approach would delay all integration benefits of integrating land use and air quality provisions. It would also be very complex to implement in a future Unitary Plan change. If a decision was made to integrate land use and air quality provisions, it would be better to do this now rather than later, due to the complexities of later integration. It would also incur all the costs of a separate plan variation.

Issue 3: Landuse and Air Quality

The exposure of the Auckland population to industrial and transport generated air pollution and its adverse health effects requires an integrated management approach of land use and air discharges to:

- reduce population exposure to air pollution using tools such as separation distances, and
- reduce reverse sensitivity issues, which occur when the operation of established landuses such as industry or rural industries are affected by sensitive activities such as schools or residential areas being located nearby because of complaints, for example.

Background to the Issue

Regional and District Functions

Regional councils have functions to directly manage air discharges under section 30(1) (f) of the RMA. Territorial authorities may zone or otherwise control land use on the basis of effects on air quality relating to that use. While existing district plans can and do manage air quality indirectly using their s 31 RMA functions to achieve the ‘integrated management of the effects of the use, development, or protection of land and associated natural and physical resources of the district’, the results have been variable in the past.

Many legacy district plans have schedules based on the out of date Clean Air Act provisions. The provisions deal with the regulation of industries based on the substances used in industrial processes. The need for such controls and the replacement of current controls with a more effects based framework means that the Unitary Plan can address both landuse and air discharges in an integrated manner.

Reverse Sensitivity

Reverse sensitivity occurs when established land uses such as heavy industry, major roads or airports are adversely affected by sensitive activities such as schools or houses locating nearby. This reverse sensitivity affect limits the ability of the established land uses to operate efficiently and leads to an uncertain regulatory environment. Reverse sensitivity effects are particularly likely to occur:

- near industry close to existing industrial air quality management areas, and
- in new residential areas adjacent to established rural activities.

Note that the Auckland Regional Plan: Air, Land, and Water (ARP: ALW) has established Industrial Air Quality Management Areas (IAQMAs) to avoid the location of sensitive activities that are sensitive to heavy industry. IAQMAs provide a zone where heavy industrial activities can locate and less stringent air discharge consenting standards apply, because sensitive activities are normally excluded from IAQMAs.

Separation Distances

Separation distances can be used to avoid locating incompatible activities near each other and also avoid adverse health effects, particularly on vulnerable population groups. A feature of transportation pollution exposure is the disproportionate exposure of disadvantaged groups in the population to traffic pollution. Effective landuse planning provisions accompanied by separation distances, some of which are already in some existing legacy district plans, can provide an improved management framework to address the air quality effects of new roads and industry.

Some legacy district plans have effective plan provisions to manage these effects such as the Mangere wastewater treatment plan provisions in the Manukau City District Plan which represents best practice.

Design principles for industry separation distances in the Unitary Plan could be applied to provide simple, transparent and adequately conservative approaches to manage appropriate separation distances for industry. This will avoid nuisance effects by not locating incompatible activities next to each other, minimise reverse sensitivity issues and consequently provide industry with a level of certainty for future use.

Managing the effects of traffic generating activities

Transportation projects such as motorways continually generate large amounts of particle emissions from vehicle exhaust discharges, as well as a range of other pollutants. Requiring new major infrastructure projects to trigger specific air discharge requirements will ensure that the adverse air quality effects of such projects can be fully considered by the consents process.

Similarly, planning provisions for significant new landuse activities such as shopping centres have traditionally required assessments and management methods to deal with the impacts of increased traffic. The opportunity now exists with the Unitary Plan to ensure that the extra emissions generated by high traffic generation activities can be avoided or mitigated. This can be achieved by including plan provisions on emissions reduction that consider in an

integrated way the effects of traffic and of air quality. Such provisions will ensure that emissions from such projects do not increase over time.

Monitoring

There is a need to have a more consistent region wide activity status for the establishment of environmental monitoring sites. This includes air quality monitoring stations so that air quality in Auckland can be managed by allowing for an effective network of air quality monitoring stations. Some legacy district plans make the activity of establishing an environmental monitoring site a non-complying or inordinate activity which is far too onerous to establish monitoring sites for regional and national environmental compliance purposes.

Approaches to manage the issue

Approach 1: Do Nothing / Status Quo

This option incurs costs to Council and to the public as the current land use planning provisions are not well integrated with air quality management.

Approach 2: Regulation

Regulatory approaches include:

- the replacement of the out of date Clean Air Act schedules with a more suitable region wide regime
- providing minimum separation distances between sensitive activities and larger sources of air pollution (major industries and transport) and other appropriate plan provisions to ensure incompatible activities are not located adjacent to each other and to avoid and mitigate the effects of roads and industry
- providing assessment criteria for land use activities that generate air discharges including within designation and structure plan processes
- investigate options to:
 - require air discharge consents for new transportation projects and traffic generating activities to assess and mitigate air quality effects, such as air pollution assessment and abatement measures for high traffic generating activities
 - more liberal activity status provisions for environmental monitoring sites to facilitate better management for environmental outcomes by allowing sites to be established

These proposed approaches regulate using the RMA section 31 functions (Territorial Authorities) to manage air quality as they are:

- a better fit and alignment to landuse controls under a district plan, and
- are not the sort of rules that currently exist in the ARP: ALW that manages more traditional section 30 (Regional Council) functions, such as domestic solid fuel burners and industrial emissions

As Auckland Council is now a unitary authority, it can make the choice about the best place and plan to locate any section 30 or 31 air quality provisions. The two current options available are in the Unitary Plan or the ARP: ALW.

a) Unitary Plan

Integrating air quality and landuse provisions in the Unitary Plan promotes a “one stop shop” in the integrated management of air quality discharges and land use controls.

b) Auckland Regional Plan: Air , Land, and Water

While the land use matters identified above could be established in the ARP: ALW, they do not integrate well as they are quite different from the air discharge (regional functions) set

out in the APR: ALW provisions (land use versus discharge functions). A separate plan change is required to integrate land use provisions into the ARP: ALW.

c) Future Variation to the Unitary Plan

This approach would delay all integration benefits of integrating land use and air quality provisions. It would also be very complex to implement in a future Unitary Plan change. If a decision was made to integrate land use and air quality provisions, it would be better to do this now rather than later, due to the complexities of later integration. It would also incur all the costs of a separate plan variation.

Issue 4: Industrial Provisions

The provisions in the ARP: ALW for:

- coffee roasting
- volatile organic compound (VOC),
- and combustion rules for solid and liquid fuelled boilers (combustion rules) are currently not working effectively and should be revised. Offsets introduced by the AQNES need to be provided for.

Background to the Issue

For some of the rules relating to the above activities, the threshold above which consent is required appears to be too low and therefore are non-consented activities that are operating and causing a nuisance or potential health effects.

Rule 4.5.1 of the ARP: ALW provides a 'back stop' to deal with activities that cause nuisance. However, enforcing this rule involves staff time and in some cases has resulted in prosecutions. In addition, there is a need for these rules to be changed to ensure that the activity status of a discharge is proportionate to the effects on the environment and to ensure that a consistent approach is adopted for activities with similar effects, based on the best practical option.

Research has been commissioned to provide an evidence base of technical information in order to establish what a more appropriate rule structure would look like in the ARP: ALW.

Coffee Roasting

The smoke and strong pungent odour from coffee roasters is a large source of public complaints in urban Auckland. 44 complaints about coffee roasters from the public were received by the ARC between 2004 and 2010. A report was commissioned by Auckland Council on recommending a best practicable option to mitigate these effects.

Volatile Organic Emissions (VOC)

Issues associated with VOC emissions include:

- insufficient clarity of rule
- activities not being covered by the rule it was intended to apply
- appropriate thresholds compared to effects and other RMA plans

Combustion Rules

Issues associated with the permitted combustion rules include:

- the need to use a threshold of total rated thermal input to address the discrepancy between emissions and effects from internal and external combustion appliances

- appropriate standards for particulate control measures for wood and coal appliances need to be set
- guidance on the most appropriate stack height assessment method is required
- wood fuels including hog fuel, briquettes, woodchips, and pellet fuel rules which were not addressed previously
- considering appropriate combustion capacity thresholds in the plan as current ones were likely to be too high

There are two options for addressing the issues with these rules. These are either:

- through a plan change to the ARP: ALW, or
- the inclusion of objectives, policies and rules in the Unitary Plan.

The main issues that need to be addressed through regulations relating to air quality have been identified by consent officers and through the provision of technical input from external consultants. However, the precise detail of the definitions, rule details (including standards) and activity status details have yet to be finalised. They would cover all the points for VOC emissions and combustion rules identified above.

PM10 Offsets

Under section 17 of the AQNES, particulate emission offsets are required for new discharge consents, post 1 September 2012, in air sheds where the AQNES PM₁₀ standards are not met. New plan provisions can assist with giving clarification of the amount and type of offset and the required effectiveness of the offset. It would be logical to co-locate these provisions with the existing combustion rules of the ARP: ALW.

Approaches to manage the issue

Approach 1: Do Nothing/Status Quo

This option would entail the continued use of the current rules for coffee roasting, VOCs, and combustion processes which are not currently working well for the consents and compliance teams. In comparison with the other options, this option would involve increased staff time in terms of enforcement of air discharges that cause odour, smoke nuisance, and potential health effects. There would be no ability to manage industrial combustion rules below the permitted activity threshold. Further, it would not provide any more additional guidance for NES offsets than the current regulations and this would hinder our ability to deliver on the requirements of the NES.

Approach 2: Regulations

As Council is now a unitary authority, it now can make the choice about the best place and plan to locate any section 30 or 31 air quality provisions. The two current options available are location in the Unitary Plan or the ARP: ALW.

a) Unitary Plan

Development of Unitary Plan rules could manage discharges associated with coffee roasters, combustion processes, activities that use or emit VOC and the NES particulate emission offsets as section 31 RMA (Territorial Authority) functions. These industrial provisions have traditionally been managed as section 30 RMA (Regional Council) functions. The disadvantage with this approach is that similar rules, such as combustion standards and VOC emission rules are already enclosed in the ARP: ALW. However, coffee roasting rules are considered an appropriate fit to district plan land use controls, and including them in the Unitary Plan would allow for more rapid implementation as the proposed rules and approaches are already drafted.

b) Auckland Regional Plan: Air, Land and Water

The ARP: ALW rules could be amended to address the issues identified with coffee roasting, VOC and combustion rules and the NES offsets as section 30 RMA functions. The advantage with this traditional approach is that it would align well in the current ARP: ALW as VOC and Industrial rules already exist in that Plan.

Approach 3: Incentives and Education

This is not an alternative option but is an additional approach in the interim for coffee roasters. Education and best practice guidance for operators while the rules are in the process of being changed will help to minimise enforcement issues through giving operators increased knowledge on how to minimise the effects of their operations on the environment.

4.2 Land Issues

Issue 1: Sediment Discharges

Sediment is a significant water quality issue for the Auckland region as eroded soil from multiple sources such as earthworks, vegetation clearance, pastoral and horticultural activities can be mobilised and deposited into freshwater bodies and coastal waters.

Background to the issue

Activities which can give rise to sediment generation and deposition include:

- Earthworks
- Roding
- Vegetation clearance
- Forestry harvesting
- Quarrying
- Cultivation
- Stock access to streams
- Lack of riparian management
- Stream bank erosion associated with peak stormwater flows, and
- Stream works

Sediment is managed through the Auckland Regional Policy Statement with high level objectives to maintain water quality in water bodies and coastal waters which have good water quality; and to enhance water quality which is degraded.

Sediment is specifically managed through objectives, policies and rules in the:

- Auckland Regional Plan: Sediment Control 2001 (ARP: SC) - earthworks, roading/tracking/trenching, vegetation clearance, and quarrying
- Auckland Regional Plan: Air, Land and Water 2010, Operative in part (ARP: ALW) – includes land management/cultivation, stock access to streams, stream bank erosion associated with peak stormwater flows, works in the beds of lakes and rivers and storm water provisions
- District Plans of the former 7 territorial authorities - earthworks and roading in the context of subdivision and controls for small-site earthworks
- By-laws of some territorial authorities used to control discharge of sediment into stormwater infrastructure

Shortcomings in the current approach (above) include:

- the ARP: SC
 - does not adequately provide for the protection of highly valued, at risk freshwater bodies and estuaries and harbours
 - is not integrated with the objectives and policies of the ARP: ALW
 - excludes some aspects of land disturbance such as pastoral and horticultural practices and is permissive of forestry harvesting operations
 - does not reflect the policies of future management directions set out in the NZCPS and the NPSFM
- current district plan provisions do not reflect consistency with the ARP: SC or the ARP: ALW; and are not consistent region wide.

A number of national legislative changes have been introduced recently which will have significant management implications for sediment discharges when they are introduced into the Unitary Plan, they are:

- the NZCPS has a number of policies that either directly or indirectly influence the management of sediment generation and deposition

- the NPSFM requires the setting of objectives and water quality limits for every freshwater water body in the region
- the Auckland (Spatial) Plan is required to identify nationally and regionally significant ecological areas that should be protected from development. This may have an effect on how sediment is managed in the Auckland region
- the Hauraki Gulf Marine Park Act and the Waitakere Ranges Heritage Area Act have requirements that are relevant to sediment management

Approaches to manage the issue

Approach: Unitary Plan

Integrate all regional and district level earthworks controls into the Unitary Plan to provide a 'one-stop shop' in the integrated management of sediment discharges.

Issue 2: Soil Contamination

Land potentially affected by soil contamination can limit its use and potentially endanger the health and safety of people. The Proposed National Environmental Standard for Assessing and Managing the Contaminants in Soils to Protect Human Health requires Council to identify and assess land affected by contaminants in soil at the time of being developed to make sure the land is safe for human use.

Background to the issue

Contamination can occur as a result of historical industrial and rural land use activities that were generally recognised as normal practice at the time. There are many other activities where waste or hazardous chemicals were used which, although the use may long be terminated, the contaminants remain within the soil or groundwater for a long time, e.g. sheep dip sites. These uses have created hidden risks to human health and the environment and it is the role of regional and territorial authorities to identify and monitor these sites and to prevent or mitigate against any potential adverse effects.

Contaminated land in the region is currently managed through one regional plan and seven district plans. The regional plan controls the discharge of contaminants, and the district plans focus on:

- the development, use or subdivision of contaminated land and
- how to avoid, mitigate or remedy adverse effects on human health.

Each district plan of the 7 former territorial authorities have different objectives, approaches and rules and this creates frustration for developers and also for the Council as a unitary authority.

The Ministry for the Environment has developed the Proposed National Environmental Standard for Assessing and Managing the Contaminants in Soils to Protect Human Health in recognition of:

- the lack of a nationally consistent management framework
- large gaps in the way contaminated land is managed⁶
- the problem is not adequately addressed by many city and district councils at the critical stage, that is when land potentially affected by contaminants in soil is developed or subdivided for residential use

⁶ Currently, there are a number of large gaps in the way contaminated land is managed. For example, only 14 of 73 district plans reviewed by the Ministry for the Environment had rules on contaminated land.

The Proposed NES will ensure all district planning controls and soil contaminant values for human health are appropriate and nationally consistent and that Councils are able to gather and apply information needed for efficient decision making on affected or potentially affected land. A preliminary assessment of the costs and benefits of the Proposed NES has been prepared by independent consultants for the Ministry for the Environment. The cost-benefit analysis shows that the nationwide impacts are expected to be positive. While the site-specific impacts are unable to be quantified, it is also likely that they will be positive.

The Proposed NES is likely to be in force by late 2011, and Council will have to give effect to the Standard within a specified timeframe (currently undisclosed). Also, the Council has not inherited databases of contaminated land that can be consolidated into one register.

Approaches to manage the issue

Approach 1: Do nothing / Status Quo

The status quo preserves inappropriate and regionally inconsistent soil contaminant values for health, consequently the Council as a unitary authority is unable to gather and apply information in a consistent manner for efficient decision making on affected or potentially affected land.

Approach 2: Unitary Plan

Provide systems to identify and assess land affected by contaminants in soil and manage as necessary, for example contain or remediate contaminated soil.

District functions (s31)

- develop appropriate planning controls (objectives, policies and rules) in the Plan to assess contaminants in soils to make the land safe for human use
- ensures that land potentially affected by soil contamination is identified at the critical stage, that is when it is developed or subdivided for residential use
- insert in the Plan nationally recognised chemical-specific soil contaminant thresholds that will define an adequate level of protection for human health for a range of differing land uses
- implementing the NES into the Unitary Plan is cost effective compared to the alternative approach of amending seven district plans

Issue 3: Farm Dairy Effluent

The discharge of farm dairy effluent (FDE) contributes to the degradation of water quality of Auckland's freshwater bodies and coastal waters, whether it is applied to land or discharged directly to water.

Background to this Issue

FDE is currently managed by the Auckland Regional Plan: Farm Dairy Discharges (ARP: FDD) which was made Operative in 1999. The discharge of sludge or FDE to land is a permitted activity provided the rate does not exceed 150 – 200 kg N ha⁻¹ yr⁻¹ (depending on soil type); and other criteria limiting application rates to protect human health, groundwater and surface water quality.

The discharge of treated FDE from a specification two pond treatment system to a water body is a controlled activity provided that the ponds meet specific requirements listed in the Plan. The discharge of untreated FDE or sludge to a water body is prohibited. The discharge of untreated or treated FDE into freshwater identified lakes or into water draining into identified lake catchments is a prohibited activity.

The average herd size on dairy farms has increased by 21% between 2002 and 2008 and stocking rates have increased by 5% indicating that dairy farm operations are intensifying (ARC, 2010). FDE is generated through the milking process and contains effluent, sediment, detergents and milk. These discharges can have significant adverse environmental effects on surface water bodies including:

- decreased oxygen levels in the water resulting in suffocation of aquatic organisms;
- high levels of ammonia which is toxic to fish;
- eutrophication and associated extensive algal blooms caused by high levels of nutrients;
- increased levels of bacteria which can render the water unsuitable for recreation and stock drinking;
- elevated nitrate which can cause human health risks

These effects are compounded by the fact that most of Auckland's streams are relatively small (less than a few meters wide) and therefore there is not enough volume to adequately mix and dilute point source and non-point source discharges of FDE. Further, as no mainland location in Auckland is more than 20 km from the coast, the catchment areas of each river are relatively small (i.e. they reach the sea before they have the opportunity to merge with others to form large rivers).

The national drivers for controlling FDE are:

- **The National Policy Statement Freshwater Management (NPSFM)**

The NPSFM requires that councils implement water quality limits for all water bodies in the region by 2014 or by agreement no later than 2030. Since FDE degrades water quality, the implementation of the NPSFM will have an impact on farm practices.

- **The New Zealand Coastal Policy Statement (NZCPS)**

Indirectly, dairy farm discharges are also driven by NZCPS since all of the region's freshwater rivers and streams eventually flow into coastal waters. The NZCPS sets a national priority to preserve the natural character of the coast and to protect landscapes and seascapes. The NZCPS also requires rules to meet the objective of enhancing water quality; if freshwater quality is degraded the coastal receiving environment will be as well.

- **The National Environment Standards for Sources of Human Drinking Water**

This NES also influences the control of farm dairy discharges as discharge permits cannot be issued upstream of abstraction points if it is likely to degrade the water to where it does not meet drinking water standards. Non-point source pollution also has the potential to degrade water so that it does not meet drinking water standards.

Approaches to manage the issue

Approach: Unitary Plan

Regional functions (s30)

- Incorporating the ARP:FDD into the Unitary Plan. Approaches to better minimise the impact of FDE include:
 - investigating options of phasing out the discharge of treated FDE to water bodies
 - developing Unitary Plan provisions that provide greater certainty and specificity to plan users e.g. contingency planning, the setting of irrigation rates and storage requirements based on soil types and climate conditions
 - investigating options for controlling silage and feed pads
 - a mixture of regulatory and non-regulatory methods. Education and advocacy will be vital in making sure that farmers are well prepared to manage land application of FDE appropriately.

Issue 4: Hazardous Substances

Nationally the Auckland region has the largest proportion of industry and therefore the largest number of activities which use and create hazardous substances. If hazardous substances are used, stored, transported, or disposed inappropriately they have the potential to impact on the health and safety of people and the natural environment.

Background to the issue

Hazardous substances can enter the environment through a number of pathways, such as stormwater, sewerage, waste, spills, leaks, accidents or through air emissions. This can lead to adverse effects to human health and safety, contamination of land and water, including water supplies, and the destruction of property.

The Auckland region contains the largest quantities of hazardous substances of any region in New Zealand. The majority of these quantities fall within long established and defined industrial areas such as Wiri, Penrose and East Tamaki. Historical landfills may also contain large amounts of hazardous material and these are spread throughout the region amongst increasing residential land.

Poor containment of the waste can lead to contamination of soil, surface water and ground water over time. Transportation of hazardous substances can also pose a considerable danger to the health and safety of people and the environment, with the potential for spills, leaks or explosions.

It is acknowledged in the hazardous substance management industry that the tools available in New Zealand, such as the Hazardous Facilities Screening Procedure (HFSP) are confusing and difficult to work with. Whilst still considered a worthwhile tool, it has limitations (e.g. inappropriate for assessing major facilities) and therefore needs to be used in conjunction with other available methods.

Hazardous substances are primarily managed through the district plans of the former seven territorial authorities. Five of the district plans use the HFSP as a planning tool to determine a proposal's activity status. The district plan rules are then applied to ensure the location; management and design of hazardous facilities do not pose an unacceptable risk to human health and the natural environment.

Approaches to manage the issue

Approach 1: Do nothing / Status Quo

The current use of the HFSP process in five district plans contributes to an approach that is:

- confusing, outdated and fails to address Auckland's physical characteristics of a high volume of small, medium and large industries and their relative proximity to densely populated areas and highly valued environmental areas
- a complicated planning tool for the majority of applications, particularly those for small-medium enterprises
- inconsistent hazardous substance management in the region

Approach 2: Unitary Plan

Approaches in the Unitary Plan to better manage the use, storage, transport and disposal of hazardous substances:

District functions (s31)

- develop a region wide comprehensive approach (objectives, policies and rules) in the Unitary Plan that reflects international best practice

- introduce a two-tier identification system that separates hazardous facilities into small-medium enterprises or major hazard facilities. This recognizes the difference in scale (and thereby the level of potential effects) and each can then be subjected to a separate risk assessment process
- implement a risk based approach and a quantitative risk assessment system to provide more accurate information on risks such as explosions, human health and environmental damage
- apply an integrated management approach using the Hazardous Substances and New Organisms Act 1996, existing methods and proposed Unitary Plan provisions to implement a robust management system appropriate and suitable for the Auckland region.

Approach 3: By-laws

By-laws have been used to address the issues of hazardous substance management in the past. However, the main focus of those bylaws related to the storage of hazardous substances. Further investigation is required to assess what further controls can be initiated through a bylaw.

Approach 4: Long-term plan funding/incentives

The Council currently runs the Hazmobile service, which is a free service that accepts household and garden chemicals, used oil and a range of other hazardous substances. These are then disposed of at a suitable facility, reducing the potential risks to people and the environment. Funding should continue to be made available for this scheme which has proved to be a great success and this service could be extended further to serve industries, commercial retailers and the rural sector.

Approach 5: Education and/or advocacy

Approaches could include education and advocacy measures promoting:

- the reduction of the use, production and storage of hazardous substances
- identifying routes that are preferred for the transportation of hazardous substances
- and providing specialist advice on safe practices to hazardous substance users

Issue 5: Natural Hazard Risk

Life, property, infrastructure, natural resources and the Auckland region economy are at risk from natural hazards such as floods, coastal inundation, storm surge, land instability, cyclones, volcanic eruptions, tsunamis and earthquakes.

Background to the issue

Significant areas of Auckland's rural and urban land are at risk to a variety of natural hazards. Auckland is a major centre of employment and is a nationally strategic distribution and transport hub. Economic activity in the Auckland region is significant, contributing an estimated 35% of the national gross domestic product, and economic modelling has shown that the potential financial impacts of an emergency in the Auckland region would be significant. For example, a hypothetical volcanic eruption would result in a 47% reduction in regional GDP and a 7% reduction in GDP nationally in the first year. Importantly, this economic loss estimation is likely an underestimation of the potential economic risk posed by volcanic eruptions, as it does not include intangible losses incurred by the disaster.

Determination of possible hazard risk location, types of return periods and resilience of vulnerable communities has provided Auckland Council with an important baseline

understanding of the likelihood of hazard risk as well as social, economic, and environmental consequences in specific locations.

However, as the long term social, economic and environmental consequences of the 2010/2011 Canterbury Earthquake Sequence are being qualified and quantified, a new nation wide awareness of natural hazard risk brings a fundamental change to existing national and regional natural hazard risk management practices. Auckland Council will need to undertake a significant amount of new research and analysis to understand the implications of specific hazards and the risks they pose to Auckland communities, infrastructure, the economy, and the environment as well as what the most effective tools and techniques are for managing natural hazard risks. This will include a mix of regulatory and non-regulatory methods to ensure a proactive management approach, including communicating risks effectively and actively managing and monitoring land use and activities, is undertaken on a regional basis.

The RMA defines natural hazards as:

“...any atmospheric or earth or water related occurrence (including earthquake, tsunami, erosion, volcanic and geothermal activity, landslip, subsidence, sedimentation, wind, drought, fire, or flooding) the action of which adversely affects or may adversely affect human life, property, or other aspects of the environment”

Under the Resource Management Act 1991 (RMA), natural hazards are managed by both regional (section 30(1)(c)(iv), (1)(d)(v)) and territorial authorities (section 31(1)(b)(i)). Sections 30 and 31 of the Act specify the control of land use, development and protection for the purpose of natural hazard avoidance and mitigation. Specifically, regional plans and policy statements have scope for policies and controls related to natural hazards whereas district plans have a particular focus on managing land use activities such as development and building activities through controls.

Natural hazard management is also largely dependent on national legislation, including the following:

Resource Management Act (RMA) 1991

- Sets out the functions for regional and territorial councils which includes natural hazard avoidance and mitigation

Building Act (BA) 2004

- Provides comprehensive statutory control over building activities on land subject to natural hazards
- Sets out regulations to ensure structural standards and development techniques remove or reduce natural hazard risks

Civil Defence Emergency Management Act (CDEMA) 2002

- Relates predominantly to emergency situations related to extreme events such as volcanic eruptions, tsunamis and earthquakes
- Does not include controls on land use activities
- Requires the Council to take a proactive approach towards:
 - Hazard and risk management
 - Planning and preparation for emergencies
 - Identification and assessment of hazard risk and implementing cost-effective risk reduction

New Zealand Coastal Policy Statement (NZCPS) 2010

- Must be given effect to by regional policy statements and plans and district plans

- Natural hazard management relates mostly to erosion, sea level rise, coastal inundation and extreme events such as tsunamis and wave action during storms
- Includes some high level policies relating to subdivision and land use activities and the need to consider coastal hazard risks
- Identification of areas at high risk from coastal hazards

Currently there are many resource management plans in the Auckland region managing natural hazards. These include nine district plans from the 7 ex-territorial councils, one regional policy statement from the ex-regional council as well as three regional plans (Air, Land and Water Plan, Coastal Plan and the Sediment Plan). These plans are often very different in their management of natural hazards which has resulted in a legacy database of inconsistent and unreliable natural hazard information and management techniques. Natural hazard management also often focussed on an 'all-hazards' approach rather than a specific hazard approach.

Coastal Hazards

Auckland is a coastal city with large investments in infrastructure, private property and people at or near the coast. These are all at risk from natural hazards with major economic, social and environment losses likely.

Coastal hazards include storms and resultant wave action, erosion, landslips, inundation, flooding and extreme events such as tsunamis. These hazards also have the possibility of increasing in frequency and magnitude under climate change and subsequent sea level rise.

The majority of regional and district RMA plans within the Auckland region have provisions relating to avoiding and mitigating coastal hazards. These provisions include limiting activities at the coast, building setback areas, the use of esplanade reserves and strips and in some cases raised floor levels.

Flood Risk

Flooding is defined as the inundation of land by water. Land prone to flooding covers a significant proportion of Auckland's urban and rural areas and is a significant issue for development located in or near floodplains.

Flooding is a common occurrence in the Auckland region, particularly during periods of heavy rainfall when waterways reach their flow level capacity. Flooding problems can also be worsened by human activities such as vegetation clearance and increases in impervious surfaces.

Flooding poses a risk when it has the potential to impact on infrastructure, assets and resources of value. Flood hazard assessments illustrate that the impact of floods include the movement of debris, the build up of debris against structures, silt and/or mud deposition, erosion, and water damage to buildings and vehicles. Overloaded sewerage systems or transportation of hazardous substances also create consequential public health effects.

Plan provisions on the development of land in floodplains are critical for the management of flooding hazards. These provisions include controls on minimum floor levels, vegetation clearance and stormwater infrastructure provisions.

Land Instability

Erosion, slips and rock falls are different types of land instability hazards occurring within the Auckland region. These hazards are a significant issue for development and infrastructure located on or below steep slopes comprised of soft, weak and/or poorly consolidated rock that is prone to failure. These hazards are also worsened by periods of prolonged or heavy

rainfall as well as human activities such as vegetation clearance, earthworks and excavations.

The potential effects of land instability include economic loss, damage to infrastructure and property as well as harm to persons. Development and other land use activity controls are used to mitigate or avoid land instability hazards. These include earthworks and vegetation clearance provisions. The avoidance or mitigation of instability hazards should be based on risk (the likelihood and consequences of a hazard). Ideally, the risk of instability hazards should be managed as not to exceed an acceptable level. Plan provisions can manage land instability hazard risk through identifying and mapping areas of instability; requiring site investigations to assess risk in areas of identified land instability and developing rules and standards to assess consents for activities in areas prone to these hazards.

Volcanic Risk

The Auckland Volcanic Field (AVF) is located in the central part of the Auckland region and is an active volcanic centre. The AVF is largely monogenetic, meaning that the location of the next volcanic eruption is uncertain and will probably occur in a new location. Volcanic eruptions tend to involve small volumes of magma.

Research is currently being commissioned within Council to establish an evidence base of technical information to establish a more appropriate volcanic hazard risk management approach. This will not be ready before the initial notification of the Unitary Plan but general risk management plan provisions incorporated within the Unitary Plan will mean that as new evidence is gained by Council, plan provisions to proactively manage volcanic risks can be incorporated effectively.

Tsunami Hazard Risk

As a coastal city, Auckland could potentially be affected by a tsunami. Tsunami waves are generated by the sudden displacement of water (caused by a submarine landslide, volcanic eruption or earthquake). Areas that may be at risk to tsunamis are often overtaken by the destructive tsunami overland flow path, and lives, property and infrastructure are often lost as a result of poor planning or warning systems.

Regulatory management techniques such as controls of land use activities in tsunami prone areas and non regulatory methods such as wave monitoring systems and alert systems are relatively underused in New Zealand and Auckland. If used, these methods are designed to either remove people and assets from risk or to manage exposure to tsunami effects.

Significant research is needed to provide an evidence base of tsunami threat and impacts in Auckland. This research could in the future inform a tsunami specific hazard management approach for implementation in Auckland.

Seismic Hazards

Earth shaking, ground displacement, and liquefaction can be experienced during seismic events and can cause damage and losses to infrastructure, property and lives as well as the economy and environment.

Seismic hazards can be managed through the identification of active faults on planning maps and using buffer zones to exclude or restrict development, or require structures, infrastructure and activity in the vicinity of the faults to be designed in such a way as to minimise risk to life, property and the economy. This is particularly important if insurance becomes more difficult to access to remedy the effects of such hazards on people, property and infrastructure.

Along with possible plan provisions, work in other areas of Auckland Council to recognise and manage seismic hazards is currently being undertaken. This includes the draft Earthquake-prone Building Policy. In-depth research on seismic hazards in Auckland needs to be undertaken to ensure that any plan provisions can effectively deal with potential hazards.

Approaches to manage the issue

Approach 1: Status Quo

The status quo has resulted in inconsistent natural hazard management across Auckland. The existing plan provisions for land use activities related to natural hazards are inconsistent and will cause operational inefficiencies for Council in the future as well as unclear guidance, information and rules for landowners. Hazard maps and hazard registers are also out of date and not readily available to the public. This may be a serious liability issue for Council.

Approach 2: Unitary Plan

As an effective, integrated and proactive natural hazard and risk management approach is now required of the Auckland Council, significant issues currently exist that need to be dealt with to ensure this approach can be undertaken. To manage the threats that natural hazards pose to life, property, infrastructure and the environment, consistent and specific plan provisions and information on natural hazards is necessary. These plan provisions should be to control the use of land and the effects of the use of land for the avoidance or mitigation of hazards. Ideally, the risk of hazards should be managed so as not to exceed an acceptable level.

An overarching Council wide multi-hazard risk management strategic policy framework will also assist with clarifying natural hazard information requirements to fulfil Council's statutory obligations and will provide direction for future research, monitoring and information collection.

Approaches in the Unitary Plan to better manage natural hazard effects include:

- Development of risk based plan provisions and assessments. This is dependent on accurate information, proactive planning and effective communication of risks
- Development of consistent hazard plan provisions to manage land use activities at risk from natural hazards. This includes:
 - Overall recognition of regional issues to develop consistent objectives and policies that acknowledge the threat that natural hazards pose and to ensure that their effects are avoided or mitigated
 - Consistent controls for land use activities subject to natural hazards such as floor levels, vegetation clearance, stormwater infrastructure and earthworks
 - Consistent assessment criteria for activities such as site suitability and the requirement of geotechnical reports.
- Having specific hazard provisions that deal with hazards separately rather than having an 'all-hazards' approach as is commonly used. This requires that provisions focus on:
 - The effects that need to be addressed to achieve natural hazard objectives, and
 - How those effects are going to be addressed
- Development of consistent assessment criteria for developing hazard models which provide the basis for plan provisions. Examples of this include:
 - Unitary Plan controls for flooding. These should include consistent use of annual exceedence probability (AEP) flood levels to determine floor levels
- Any hazard information that needs to be included in resource consent applications should be clear and should ensure that natural hazard risk can be properly addressed through the consent process.

- Development of consistent, reliable and accurate hazard maps based on known hazards in the region
- Investigating and recognition within plan provisions of climate change and how this may exacerbate the effects of natural hazards
- Consistent hazard data and information storage. This involves:
 - Compiling hazard data from all ex-territorial authorities to a single natural hazard register
 - Increasing the awareness of the availability of natural hazard maps and registers
 - Ensuring that new information on hazards is collected and stored appropriately
- Investigation of the issues surrounding Council's liability in regards to natural hazards. This includes:
 - How the Council manages natural hazard information and data
 - How this information is communicated to the public.
- Continuing to work with and improve integrated hazard management with Civil Defence. This involves taking a proactive and integrated approach to natural hazard avoidance and mitigation. Actions includes:
 - Public awareness and education initiatives
 - Developing detailed emergency management plans for implementation when necessary

Issue 6: Minerals and Aggregates

Managing the adverse environmental effects associated with quarrying

The extraction, processing and transportation of land based minerals and aggregates from quarries in the Auckland region can cause adverse environmental effects.

Background to the issue

The adverse environmental effects associated with quarrying include:

- Air blast and vibration from blasting
- Noise from the operation of machinery
- Heavy vehicle movements
- Loss of vegetation and habitats
- Including heritage and archaeological sites
- Impacts on agriculture
- Wind-borne dust
- Visual intrusion, and
- Discharge of contaminated works from the pit or quarrying operation.

Reverse sensitivity effects can arise when sensitive land use activities, like residential development, establish in close proximity to quarry operations. Addressing this issue requires a two pronged approach. The first approach involves managing the type, design and location of land use activities in relation to existing quarries; and secondly by ensuring that the adverse effects of quarrying are internalised within the site as much as is reasonably possible. The second approach is the focus of the following discussion.

Approaches to manage the issue in the Unitary Plan

- Continued use of provisions (rules, objectives, policies) to address the types of adverse effects identified. Typical provisions include the use of zone specific, such as Franklin District's Aggregate Extraction and Processing Zone, and performance standards relating to environmental effects e.g. noise.
- The use of Quarry Management Plans (QMP) to manage the environmental effects associated with a specific quarry, including complaints procedures community consultation, communications protocols, rehabilitation and site completion standards.

4.3 Water Issues

Issue 1: Stormwater

Stormwater runoff from urban areas presents significant water quality and quantity issues for the Auckland region. If not managed appropriately, stormwater runoff can cause flooding, stream erosion, and degradation of water quality in the region's estuaries, rivers, lakes, groundwater aquifers and coastal marine areas.

For the purposes of this discussion, stormwater management excludes runoff arising from rural landuse activities as that is dealt with under Issue 2 below (Livestock Access and Riparian Management).

Background to the issue

Urban development results in impervious surfaces including buildings, roads and car parks which increase the amount of stormwater runoff that would otherwise naturally occur. These increases in impervious surfaces and resultant stormwater runoff also introduce a range of contaminants into the runoff such as sediment, heavy metals, petroleum products and litter. All stormwater eventually ends up in a natural water body.

Further, urban development practices typically involve significant modification of landforms via bulk earthworks during subdivision phases of development. These activities often include modification and destruction of natural features such as stream channels, vegetation (including within riparian areas), and wetland areas, all of which exacerbates problems from runoff. Flooding issues may also be exacerbated by the effects of climate change.

The historical approach to stormwater management in the Auckland region focused on a best practicable option (BPO) approach to alleviating existing flooding, together with catchment scale engineering approaches for contaminant reduction, such as large sediment settling ponds. In more recent times, BPO methods have moved towards controlling stormwater at its source, this is commonly referred to as Low Impact Design.

The recent introduction of two national policy statements, to which the Council must give effect, will have a significant impact on the ongoing management of stormwater: These include:

- the NZCPS which has a number of policies that either directly or indirectly influence the management of stormwater e.g. reducing contaminant and sediment loadings in stormwater at source, through contaminant treatment and by controls on land use activities.
- the NPSFM requires the setting of freshwater objectives and water quality and quantity limits (including numerical water quality targets or standards) for every freshwater body in the region.

These national policy statements mean that the historical BPO approach to managing stormwater, which is currently firmly embedded in the ARP: ALW is no longer appropriate and its use must be phased out by 2030 at the latest.

There is an opportunity through the first iteration of the Unitary Plan to develop consistent region wide controls, including objectives, policies and rules, for stormwater management including at source controls that build on the existing provisions in some of the district and regional plans.

Approaches to manage the issue

Approach 1: Unitary Plan

Regional functions (s30)

- Amend existing regional controls on stormwater diversions and discharges, currently in the ARP: ALW, to give effect to the NPS FM.

District functions (s31)

- Develop Unitary Plan provisions including objectives, policies and rules to manage stormwater derived from urban development and subdivision including at its source. The provisions could be largely based on:
 - a consolidation of the best examples of existing district plan approaches, and
 - the inclusion of land use zoning and controls on urban design and development with an emphasis on managing the volume and flows of stormwater generated and its level of contamination.

Key elements of the Unitary Plan land use controls for stormwater could include:

- avoidance of new development and re-development in flood prone areas and the protection of overland flow paths to enable the safe conveyance of stormwater
- recognition of the impacts of climate change
- restrictions on the amount of impervious area associated with new development and re-development so as to ensure that the capacity of the receiving stream network to carry flows is not exceeded
- a requirement for on-site management of stormwater for new development (and re-development) whereby stormwater runoff is retained and, treated prior to entering the reticulated network and/or natural water bodies. The aim is to minimise stormwater flows and remove stormwater contaminants at the individual site scale
- retention and utilisation of natural features to manage stormwater including open stream channels, and wetland areas
- maintaining and enhancing riparian margins within urban areas to mitigate stream erosion, slow and treat stormwater flows, and enhance aquatic and terrestrial biodiversity values, and
- regionally consistent controls on stormwater runoff generated from roads

Approach 2: Education and Advocacy

The Auckland Council's legacy authorities undertook a wide range of education and advocacy service delivery activities designed to raise awareness of stormwater issues and to encourage the community to undertake use and development activities in a correspondingly sensitive manner. These educational initiatives should be consolidated and their delivery continued. This will be undertaken by the Council's Stormwater Unit (an operational unit). However, those matters do not need to be detailed in the Unitary Plan and in fact doing so would reduce desired flexibility to respond to changing educational priorities needs over time.

Issue 2: Livestock Access and Riparian Management

The access of stock to the beds of lakes, rivers and streams in rural areas of the Auckland region degrades water quality as well as instream and riparian habitat values. The restoration or enhancement of riparian vegetation can minimise these effects while also improving biodiversity.

Background to the Issue:

Access to streams and riparian zones by livestock is largely unrestricted and widespread in Auckland. Research has shown that a large proportion of contamination of rural streams by

sediments, nutrients and faecal matter is caused by livestock access to the riparian zone and stream channels.

Appropriate riparian vegetation, preferably native species adapted to wetter environments, can assist in reducing the amount of contaminated overland flows reaching a stream as well as the effects of stock on water bodies and banks while also enhancing important biodiversity values.

Livestock with access to freshwater bodies cause damage to streams and the riparian zone and degrade water quality. This damage from livestock includes:

- removal and damage to riparian vegetation
- breakdown of riparian soils by trampling
- loss of stream bank stability, which can induce stream erosion
- mobilisation of stream bed sediments
- degraded water quality from the direct input of effluent

Nationally, the NZCPS requires stock to be excluded from the coastal marine area, adjoining inter-tidal areas and other water bodies and riparian margins in the coastal environment where water quality is deteriorated and is having significant adverse effects.

The management of stock access is relatively permissive in the Auckland region. There are no rules in the ARP: ALW restricting or prohibiting stock access to water bodies through the requirement of riparian planting or fencing.

Currently, management of stock access at a district level in Auckland is largely permissive. An example of a regulatory approach for stock access management is the rules associated with the Waitakere District Plan Riparian Margins/Coastal Edge Natural Area. This Natural Area is identified as a 'zone' along most of the former Waitakere City streams and around all of the coast, varying in width from 5 – 20m. Rules associated with the natural area makes stock access and forestry a non-complying activity, as well as restricting vegetation clearance, impermeable surfaces and building coverage, and earthworks. Additionally, the subdivision rules provide for the establishment of esplanade reserves and associated fencing.

Non-regulatory approaches for stock access management could include financial assistance for voluntary initiatives, education and advocacy. Support on environmental projects includes:

- the Environmental Incentives Fund which provides support to environmental and heritage projects e.g. fencing costs, and
- the Mahurangi Action Plan which provides support to land owners on best practice land management e.g. fencing and riparian planting along waterways as well as educational programmes.

Approach to manage the issue

Approach: Unitary Plan

Regional (s30) and District (s31) functions

- Investigate options of developing regulatory approaches for stock access and riparian management provisions into the Unitary Plan including issues, objectives, policies and rules such as fence types, setback sizes and types of riparian plantings. Other regional councils in New Zealand have existing provisions that can be adapted and applied to the Auckland region meaning there is no great need to “reinvent the wheel” and develop completely new plan provisions.
- Retain existing district plan regulatory provisions applying to riparian and coastal areas.

- Investigate the development of stock access and riparian management provisions through subdivision and development controls. This includes requiring esplanade reserves around streams and other water bodies.
- Investigate the use of various activity statuses for stock access and riparian management within targeted catchments in the region instead of applying generalised controls across the region; and develop specific provisions for different water bodies such as coastal areas, permanent streams, wetlands and intermittent streams.
- Provide non regulatory approaches such as financial incentives for activities such as fencing and riparian planting through policy in the Unitary Plan and funding secured within the 2012/22 Long Term Plan. Some other regional councils in New Zealand offer subsidies of between 30 and 75% for new fencing dependent on fence type and the 'clustering' of fencing by multiple landowners in one catchment
- Provide education to land owners on how to minimise the effects of stock access and the benefits of riparian vegetation. This approach includes the opportunity for Auckland Council to 'lead by example' by promoting some of the land use practices as planned for on some of Auckland's regional farm parks. Greater effort could be placed into fencing all types of water bodies, including permanent and intermittent streams, which could then be used for education and advocacy purposes for the public. Continuation of current projects such as the Mahurangi Action Plan is also important for education and advocacy on the part of the Council.

Issue 3: Stream Management

Stream management has two interrelated issues.

Issue 3A: Definitions for stream types

The definitions for stream types used in regional and district plans are not consistent and do not reflect current scientific knowledge (i.e. permanent, intermittent, ephemeral)

Background to the issue

In the ARP: ALW, a permanent river or stream is defined as:

Downstream of the uppermost reach of a river or stream which meets either of the following criteria:

- (a) has continual flow; or
- (b) has natural pools having a depth at their deepest point of not less than 150 millimetres and a total pool surface area that is 10m² or more per 100 metres of river or stream bed length;

The boundary between Permanent and Intermittent river or stream reaches is the uppermost qualifying pool in the uppermost qualifying reach.

Notes:

- (1) This definition does not include any artificial watercourse (including an irrigation canal, water supply race, canal for the supply for electricity power generation, farm drainage canal and roadside drain and water-table except where the roadside drain or water-table is a modified element of a natural drainage system).
- (2) Where there is uncertainty over the status of any stream the ARC will provide assistance and advice concerning the steps involved in making that determination.
- (3) Assessment for determining Permanent rivers or streams and Intermittent streams may be undertaken at any time of the year. Once a

reach of a river or stream has been assessed as satisfying the criteria for categorising the stream as an Intermittent stream, upstream of the point of assessment will continue to be considered an Intermittent stream. Details of the assessment should be retained for the purposes of demonstrating the stream's status as an Intermittent stream.

In the ARP: ALW, an intermittent stream is defined as:

Any stream or part of a stream that is not a Permanent stream.

Note: This definition does not include any artificial watercourse (including an irrigation canal, water supply race, canal for the supply for electricity power generation, farm drainage canal and roadside drain and water-table except where the roadside drain or water-table is a modified element of a natural drainage system).

Permanent rivers or streams are distinguished from intermittent streams by the presence of year-round continual flows or standing water. They provide habitat for fish and other aquatic life, and pathways for the migratory lifecycle of native fish. Permanent rivers or streams also assist in addressing contaminants by flushing and assimilation.

The following images show examples of permanent, intermittent and ephemeral rivers in the Auckland region.



Permanent: The Wekatahi River in the Waitakere Ranges. This type of river flows all year round.

Source: Auckland Regional Council, 2010, p. 142. State of environment and biodiversity – Freshwater.



Intermittent: An unnamed tributary of the Okura River. This type of river flows for most of the year, but dries up in prolonged dry periods; it usually has a clear channel within defined banks.

Source: Auckland Regional Council, 2010, p. 142. State of environment and biodiversity – Freshwater.



Ephemeral: An unnamed tributary of the Mahurangi River. This type of river is dry most of the time and flows only after rainfall, it does not usually have a clear channel or defined banks

Source: Auckland Regional Council, 2010, p. 142. State of environment and biodiversity – Freshwater.

District Plan provisions employ definitions for streams/stream types ranging from the:

- adoption of the Resource Management Act (1991) “river”⁷ definition (which includes both permanent and intermittently flowing)
- adoption of the ARP: ALW definitions of permanent and intermittent
- use of independently determined definitions including permanent, intermittent, ephemeral, stream, waterways, watercourse and overland flow path

For management of intermittent streams to be improved (Issue 3B as covered below), we must first define where they begin and end. The ARP: ALW definition of “intermittent” combines two hydrological stream types, intermittent and ephemeral. The flow of

⁷ River means a continually or intermittently flowing body of fresh water; and includes a stream and modified watercourse; but does not include any artificial watercourse (including an irrigation canal, water supply race, canal for the supply of water for electricity power generation, and farm drainage canal).

intermittent streams is by definition not always continuous, as they cease to flow for some periods over the course of a year. The aquatic bed is connected with the water table, and is groundwater fed at certain times of the year (typically winter and spring). The flow of intermittent streams may also be heavily supplemented by rainfall. Ephemeral streams do not have a defined bed or banks and only flow for brief periods during or following rainfall.

In addition to the issues around definition and management of intermittent streams, there are also issues with the current “permanent” definition (refer to note 3 of the definition)

- allows assessment for determining stream type to occur at any time of the year
- allows reassessment of stream reaches identified as permanent
- does not allow reassessment of reaches defined intermittent

In practice, this means that the setting of the boundary between permanent and intermittent can be undertaken at any time of the year. Flow characteristics of river reaches can vary greatly over the course of the year, depending on factors including rainfall and temperature. As a result, the boundary can change depending on the time of year the assessment is undertaken.

In addition, reassessment of reaches from permanent to intermittent is possible, while intermittent to permanent is not. This means that it is possible for the assessment or reassessment to be undertaken when the stream can be labelled intermittent and activities such as structures, disturbance or reclamation undertaken as permitted activities, increasing the loss of streams.

It is suggested that the Unitary Plan adopts a revised version of the current definition of permanent streams as per the ARP: ALW. In addition the Unitary Plan should split the ARP: ALW definition of “intermittent” into “intermittent” and “ephemeral” as per the above explanation. This would allow for rules to manage intermittent and ephemeral streams more appropriately to be added in the future. New definitions for both “intermittent” and “ephemeral”, including defining the boundary between the two, would need to be developed.

The defining of “intermittent” and “ephemeral” in the Unitary Plan will additionally provide important context for the application of other policy initiatives including riparian zone management and stock exclusion from rural waterways.

Issue 3B: Loss of intermittent streams

Intermittent streams in the Auckland region are being degraded and lost due to activities involving structures, disturbance, deposition of substances, reclamation and drainage. The Auckland Regional Plan: Air, Land and Water (ARP: ALW) allows such activities as of right (Permitted Activity Rules 7.5.1, 7.5.14, 7.5.29 and 7.5.35, these rules are attached in Attachment 5).

Background to the Issue

The Auckland stream network has a distinct character. It has a length of approximately 28,000 km of which 16,650 km are permanent streams, 4,480 km intermittent and 7,110 km ephemeral.

In the ARP: ALW, permanent streams are managed more onerously than intermittent streams. Rules applying to intermittent streams are much more permissive (Permitted Activity Rules 7.5.1, 7.5.14, 7.5.29 and 7.5.35).

The introduction to Chapter 7: “Beds of Lakes and Rivers and Diversion of Surface Water” of the ARP: ALW identifies that:

Intermittent streams are important for the maintenance of water quality and quantity. The ARC has completed initial scientific investigations on the values of Intermittent streams and their contribution to the hydrology and aquatic ecosystems of the wider catchment. However a comprehensive policy response to the findings and their implications for the management of activities in the beds of Intermittent streams both inside and outside Urban Areas is yet to be developed. Any further rules controlling activities in the beds of Intermittent streams will be introduced by a change to the Plan.

In the meantime, the provisions of this chapter permit activities such as structures and disturbance including the disturbance of exotic and indigenous vegetation and plant and animal habitats, the introduction or planting of plants, deposition and reclamation within Intermittent streams, subject to controls on how the work is undertaken to address sedimentation and flooding effects.

This research into the catchment hydrology and instream values of intermittent streams found that intermittent headwater streams have similar values to permanently flowing headwater streams. Furthermore, the intermittent habitats sampled showed additional invertebrate taxa to the permanent streams sampled, adding to overall biodiversity.

The permissive nature of rules relating to intermittent streams in the ARP: ALW provides no protection for these streams and habitats. Consequently, where development occurs within a catchment, there is potential for major degradation and loss of headwater streams. Intermittent streams have significant biodiversity values, similar to those of permanently flowing streams and they should be managed similarly.

There are a number of management responses that could be utilised, including applying the same protection to all intermittent streams as permanent streams currently have, or protecting selected intermittent streams in priority catchments.



Aerial view of stream types – Mill Road, Alfriston.
Source: Google Maps 2011.

Approaches to manage the issue

Approach 1: Do Nothing / Status Quo

District functions (RMA, s31)

- district plan provisions would not reference new definitions to reflect current scientific knowledge. The definitions used in district level controls would need to be updated once the regional provisions are incorporated.

Regional functions (RMA, s30)

- regional provisions relating to stream management would not be amended or incorporated into the Unitary Plan at this stage.

This approach would mean continued disagreement in stream type definitions and those intermittent streams and their values continue to be unprotected from activities involving

structures, disturbance, deposition of substances, reclamation and drainage in regional provisions.

Approach 2: Unitary Plan

District functions (RMA, s31)

- rationalise district provisions in the Unitary Plan which relate to stream management and incorporate updated definitions for permanent, intermittent and ephemeral streams.

Regional functions (RMA, s30)

- define permanent, intermittent and ephemeral streams, then either:
- develop a new set of rules and associated objectives and policies that protect intermittent streams in the Unitary Plan.

4.4 Indigenous Biodiversity Issues

Issue 1: Significant indigenous vegetation and significant habitats of indigenous fauna are under threat

Significant indigenous vegetation and significant habitats of indigenous fauna are under threat from human-induced activities such as subdivision, use and development along with animal and plant pests.

Background to the issue

Auckland's indigenous biodiversity is unique, with some species only occurring in this region. There exists a diverse group of ecosystems reflecting the complex physical environment of the region. The characteristic landscape and sense of place that is Auckland is determined by the health, variability, extent and range of terrestrial, freshwater, coastal and marine ecosystems. Healthy and functioning ecosystems also contribute to improved water quality, soil conservation and carbon sinks and other ecosystem services such as flood attenuation. The region supports a significant proportion of New Zealand's biodiversity but development has impacted on Auckland's natural heritage resulting in loss of habitats and a decline in populations of indigenous plant and animal.

To arrest biodiversity decline the proposed NPS seeks no net loss and preferably a net gain of significant indigenous biodiversity. The proposed NPS requires that Councils identify a set of ecosystems, habitats and species populations as 'significant' in their district and regional plans⁸. These are required to be in addition to any existing significant ecological areas already listed in a Plan. The areas specified in the NPS are a bottom line requirement to ensure that national priorities for protection of indigenous biodiversity are addressed. Some sections of the operative Auckland District Plan already include provisions that provide a level of protection beyond what is required by the proposed NPS.

The ability to go beyond these bottom line provisions of the NPS is encouraged. The NPS is not intended to limit what Councils can consider as significant indigenous vegetation or significant habitat of indigenous fauna. Council is required to identify the areas prescribed by the NPS within regional and district plans within five years of it taking effect.

Approaches to manage the issue

The identification of significant ecological areas and their values is a critical step towards maintaining indigenous biodiversity. Consistent region-wide criteria are needed recognising the need for a holistic and integrated approach to enable Council to develop an appropriate management regime e.g. consideration of individual or cumulative effects on biodiversity values.

In saying this, the identification of significant ecological areas will not, and indeed cannot, ever be completely comprehensive. There are likely to be areas which meet the significance criteria but are not able to be identified in the Plan.

Approaches in the Unitary Plan to better manage threats include:

⁸ Policy 2 of the NPS required Council to identify the following areas (in addition to any existing significant ecological areas) as significant in their Regional and District Plans:

- a. naturally uncommon ecosystem types listed in schedule One
- b. indigenous vegetation or habitats associated with sand dunes
- c. indigenous vegetation or habitats associated with wetlands
- d. land environments, defined by the Land Environments of New Zealand at Level IV (2003), that have 20 percent or less remaining indigenous vegetation cover
- e. habitats of threatened or at risk species.

- develop a standard set of criteria for assessing significance and mapping these areas in the Plan
- develop and implement a strategic approach (based on a significance criteria) of identifying in policies, actions of the strategy e.g. 'no development' of highly sensitive areas, regulatory protection, and education on the ecological benefits locally, regionally and nationally
- develop Unitary Plan provisions to manage activities that can assist in restoring and enhancing indigenous biodiversity e.g. revegetation and restoration using indigenous species naturally occurring in the general vicinity of the area being restored or maintained; stock exclusion from natural areas and reducing fragmentation and isolation of existing habitats of indigenous species
- regularly review the significant ecological areas listed in the plan to ensure accuracy

Issue 2: Manage areas which do not meet the criteria of 'significant' to maintain biodiversity

A focus on areas of significant indigenous vegetation and significant habitats of indigenous fauna is not enough to maintain the region's biodiversity.

Background to the issue

Indigenous biodiversity and ecosystems which do not meet the criteria of 'significant' still contribute to the overall health and indigenous character of the region. Areas outside of those identified as significant need to be managed for to support the ecological health and functioning of significant areas, including to increase ecological connectivity between ecosystems. These areas may also make a significant contribution to landscape, natural character and amenity values.

A considerable amount of Auckland's biodiversity is represented in natural areas that, in themselves, may not be of high quality but which cumulatively contribute to the overall ecological character and health of the region. This is particularly the case in urban areas where indigenous biodiversity may be found in sparse and degraded fragments.

The management of these ecological areas is essential as they provide supporting functions to existing significant ecological areas. This includes the provision of linkages and buffers, increased ecological connectivity between ecosystems, and resilience and viability of populations and species assemblages.

Some existing Auckland Plans identify priority linkage areas between significant ecological areas and fragments of other areas of forest or habitat. These linkages may be considered integral to the functioning of ecosystems as corridors for the movement of birds, insects, pollen and seeds.

The proposed NPS supports this idea of 'other' ecological areas in Policy 6a which states decision makers should "recognise the contribution that all remaining areas of indigenous vegetation make to the maintenance of indigenous biodiversity and to encourage the retention of as many elements as possible".

Approaches to manage the issue

Approaches in the Unitary Plan to ensure long-term maintenance of indigenous biodiversity values:

- develop Plan rules and other approaches to protect indigenous ecosystems not considered to be 'significant' but which cumulatively contribute to the overall ecological character and health of the region e.g. identification of key linkage/buffer opportunities,

- general tree protection and vegetation clearance rules, resource consent conditions, and a requirement to use a comprehensive approach e.g. structure plans.
- promote the use of non-regulatory measures to protect and enhance indigenous biodiversity

Issue 3: Net loss and reduction of indigenous ecosystems and species

Due to human habitation and activity many of the region's indigenous ecosystems have been degraded; with species either lost or in serious decline. These indigenous ecosystems and species may be lost unless the principle of 'no net loss'⁹ and preferably a net gain is applied.

Background to the issue

Although the Auckland region only makes up 2 per cent of New Zealand's land mass, it contributes significantly to New Zealand's biodiversity with a range of ecosystems that reflects the complex physical environment of the region. Impacts from humans have been considerable, causing change through the:

- use of land and natural resources
- and the introduction (deliberate or otherwise) of exotic species that have become pests outside their natural environments.

Threats include:

- the degradation of terrestrial ecosystems as Auckland is characterised by small and fragmented areas which make them susceptible to edge effects such as weed invasion and wind damage
- the loss of wetlands as they are susceptible to exotic plant invasion, stock trampling, and sites less than 1ha are particularly vulnerable from drainage activity (because of the nature of existing plan provisions)
- the degradation of streams and the increased presence of structures, piping, channelling and culverting of streams, and other waterways through development can result in the degradation of instream habitats, aquatic ecosystems, and riparian vegetation. This results in a reduction in the range and diversity of aquatic biota, and a reduction in water quality from increased sediment transport or the discharge of contaminants.

The key objective of the NPS is to promote the maintenance of indigenous biological diversity by protecting areas of ecological significance, and to encourage protection and enhancement of biodiversity values more broadly. This is required to be balanced with the need to recognize the positive contribution of landowners as guardians of their land and to recognise that the economic, social and cultural wellbeing of people and communities depends on, amongst other things, making reasonable use of their land.

In achieving this objective the NPS directs decision makers to consider a hierarchy of effects when assessing activities that may affect indigenous ecosystems and species. Here it is important to avoid adverse effects in the first instance with remedial action and mitigation options being used when avoidance cannot be achieved.

The NPS also proposes an option for biodiversity offsets. Here when the avoid, remedy and mitigate options have been exhausted then any residual effects that are no more than minor can potentially be dealt with by way of a biodiversity offset. There are limits on what is able to be offset and that any biodiversity offset is designed to achieve in situ measurable conservation outcomes which can reasonably be expected to result in no net loss and preferably a net gain in biodiversity.

⁹ **No net loss** means no overall reduction in: a. the diversity of (or within) a species b. species population sizes (taking into account natural fluctuations), and long terms viability, c. areas occupied and natural range inhibited by a species, d. range and ecological health and functioning of assemblages of species, community types and ecosystems.

Approaches to manage the issue in the Unitary Plan

Approaches in the Unitary Plan to ensure no net loss and preferably net gain of significant indigenous vegetation and populations of indigenous fauna:

- develop a range of regulatory and non-regulatory provisions to maintain or where possible restore indigenous ecosystems and species e.g. prioritise restoration and enhancement by developing targets based on things such as:
 - the extent to which they have been degraded, damaged or depleted
 - their potential for enhancement
 - their degree of risk from, and susceptibility to adverse effects
 - the benefits from their restoration and enhancement
 - the ecological significance of the site
- review options around the appropriateness and use of ‘bonus’ subdivision in exchange for covenanting and restoring natural areas, or “environmental enhancement” lots to maintain ecosystems in a way that is consistent with other priorities such as growth management and promotion of a sustainable rural environment
- explore non-regulatory methods to encourage protection and support regulatory mechanisms e.g. rates relief provide consent assessment criteria and information requirements to assess the potential effects of activities, including:
 - the effects which contribute to cumulative loss or degradation
 - the impacts on ecosystems or species that interact with other activities or impacts that exacerbate or cause adverse effects
 - assessment and responses to the effects of climate change
- undertake policy effectiveness monitoring of Unitary Plan provisions
- provide clarity around the application of the RMA ‘avoid, remedy, mitigate’ hierarchy, and the use of biodiversity offsets as an addition to this hierarchy, in the Auckland region but only as a last resort.

Issue 4: Integrated management of significant indigenous biodiversity

As areas of significant indigenous biodiversity can cross regional, Crown agency, tribal boundaries or the boundary between public and private land, and those managed under other legislation; there is recognition that management efforts must be co-ordinated to achieve desired outcomes.

Background to the Issue

Approximately 50 per cent of indigenous terrestrial vegetation is protected in public land but this varies significantly in the region, e.g. in the Rodney ward, approximately 85% is outside the network of public land. Many ecosystems, and over half of the threatened plant species populations of the region are found outside of the public reserve network. Long term survival of these areas is therefore dependent on the stewardship or kaitiakitanga of the landowners.

Many landowners are showing a growing interest in and commitment to conservation. Over 53,000 hectares of land is currently being actively managed by community and landowner groups. More than 340 private covenants have been established voluntarily in Auckland as a contribution from private land owners to protection of indigenous biodiversity. It is important that Council maintains a positive relationship with these groups and offers a broad range of methods (both regulatory and non-regulatory) to support and encourage the active management of indigenous ecosystems and species on private land.

A co-ordinated approach is necessary where indigenous ecosystems and species cross jurisdictional boundaries or natural values crossing the regional boundaries or effects which arise from activities not managed under the RMA e.g. fishing. This recognises that many pressures and management risks occur across these administrative and ecological

boundaries. It is also important to recognise and address the ecological values which cross the mean high water spring boundary.

Regional and District Functions

Under Section 30 of the RMA, regional councils have the function of controlling the use of land for the purpose of maintaining and enhancing ecosystems in water bodies and coastal water; and are responsible for objectives, policies and methods for maintaining biological diversity.

Under Section 31 of the RMA, territorial authorities are responsible for controlling the effects of the use, development or protection of land, including for the purpose of maintaining indigenous biological diversity.

Approaches to manage the issue in the Unitary Plan

Approaches in the Unitary Plan to better integrate the management of biodiversity:

- develop a collaborative programme with public land owners that recognises that management efforts must be co-ordinated to achieve desired outcomes e.g. integrating the application of the RMA with other legislation
- develop a range of regulatory and non-regulatory provisions to assist private landowners to maintain or restore indigenous ecosystems and species e.g. rates relief, specialist advice etc
- the Unitary Plan provides the opportunity to combine the regional and district functions to manage indigenous biodiversity into one plan. This could include the use of higher level objectives and policies at the regional level, and region wide provisions to protect significant ecological areas and other ecological areas

Issue 5: Tangata Whenua and indigenous ecosystems and species

The loss and degradation of indigenous ecological areas and species has had, and continues to have, a significant impact on iwi of the region.

Background to the Issue

A concern of iwi is the further loss and degradation of some ancestral taonga e.g. the quality of, and access to, mahinga kai and natural resources which were relied on and used for customary purposes. A physical degradation of a resource manifests in a loss of the mauri of that resource resulting in the inability to maintain and enhance the mauri of their ancestral resources, and in turn, affects the mana of the Tangata Whenua and the ability to pass this resource and associated knowledge onto future generations.

Tangata Whenua of the region have developed their own knowledge, expertise and customary practices to care for the resources with which they have an ancestral relationship. The retention of this knowledge and expertise is of paramount importance in ensuring a sustainable future for Tangata Whenua and for the Auckland region. This approach is reinforced by the Wai 262 treaty claim decision.

Approaches to manage the issue in the Unitary Plan

Approaches in the Unitary Plan to better enable the involvement of Tangata Whenua in the resource management process to provide better outcomes for Tangata Whenua and the region:

- identify collaboratively with Tangata Whenua ecosystems of special spiritual, historical or cultural significance to Tangata Whenua in accordance with tikanga Maori. These may

be in addition to those identified through the application of the ecological significance criteria set out above.

- develop plan provisions including policy to recognise Tangata Whenua relationships with indigenous biodiversity
- develop plan provisions which seek to protect features of value to kaitiaki
- undertake an integrated management approach across tribal boundaries
- Develop non-regulatory provision to assist maintenance of indigenous ecosystems and species in kawenata e.g., rates relief

Issue 6: Climate Change and indigenous ecosystems and species

The global impacts of climate change may have a significant negative impact on indigenous ecosystems and species, these need to be understood and planned for. Indigenous biodiversity also has the ability to support efforts to reduce the negative effects of climate change.

Background to the Issue

The global impacts of climate change are becoming more evident and will have a considerable impact on indigenous ecosystems and species. Managing to protect the extent and quality of ecosystems is important in responding to the challenge of climate change to improve the resilience of indigenous species and ecological communities.

It is important that measures undertaken to mitigate climate change support, rather than undermine indigenous biodiversity. For example identifying that the conservation of scrubland or duneland ecosystems to (carbon credit attracting) production forestry is inappropriate, and recognising the value of ecosystems in mitigating the effects of climate change.

Indigenous biodiversity can also support efforts to reduce the negative effects of climate change through its function as a carbon sink and the amelioration of the potential effects of climate change such as erosion and sea level rise. There are also options around recognising the carbon storage potential of restoration initiatives undertaken since 1990.

Approaches to manage the issue Unitary Plan

Approaches in the Unitary Plan to minimise the impact of climate change on indigenous biodiversity the same as the approaches to manage biodiversity in general. These are as follows:

- develop plan provisions to protect areas of indigenous ecological value, including conserving and enhancing the extent and quality of areas with existing and potential indigenous ecological value
- promote sustainable rural land management practices e.g. enhanced resilience to biosecurity risks
- develop an adaptive management response to climate change threats such as pest and disease
- investigate options to maximize the potential for species to expand or move their range

5.0 Attachments

See separate attachment document.

6.0 Natural Environment Background/Technical Papers

See separate document.