AUCKLAND

Regional Policy Statement

July 1999

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Auckland
Regional Council
TE RAUHĪTANGA TAIAO

Toitū te marae ō Tāne

Toitū te marae ō Tangaroa

Toitū te Iwi

If the domain of Tāne is sustained

And the domain of Tangaroa sustained

So too will the people be sustained

The Resource Management Act 1991

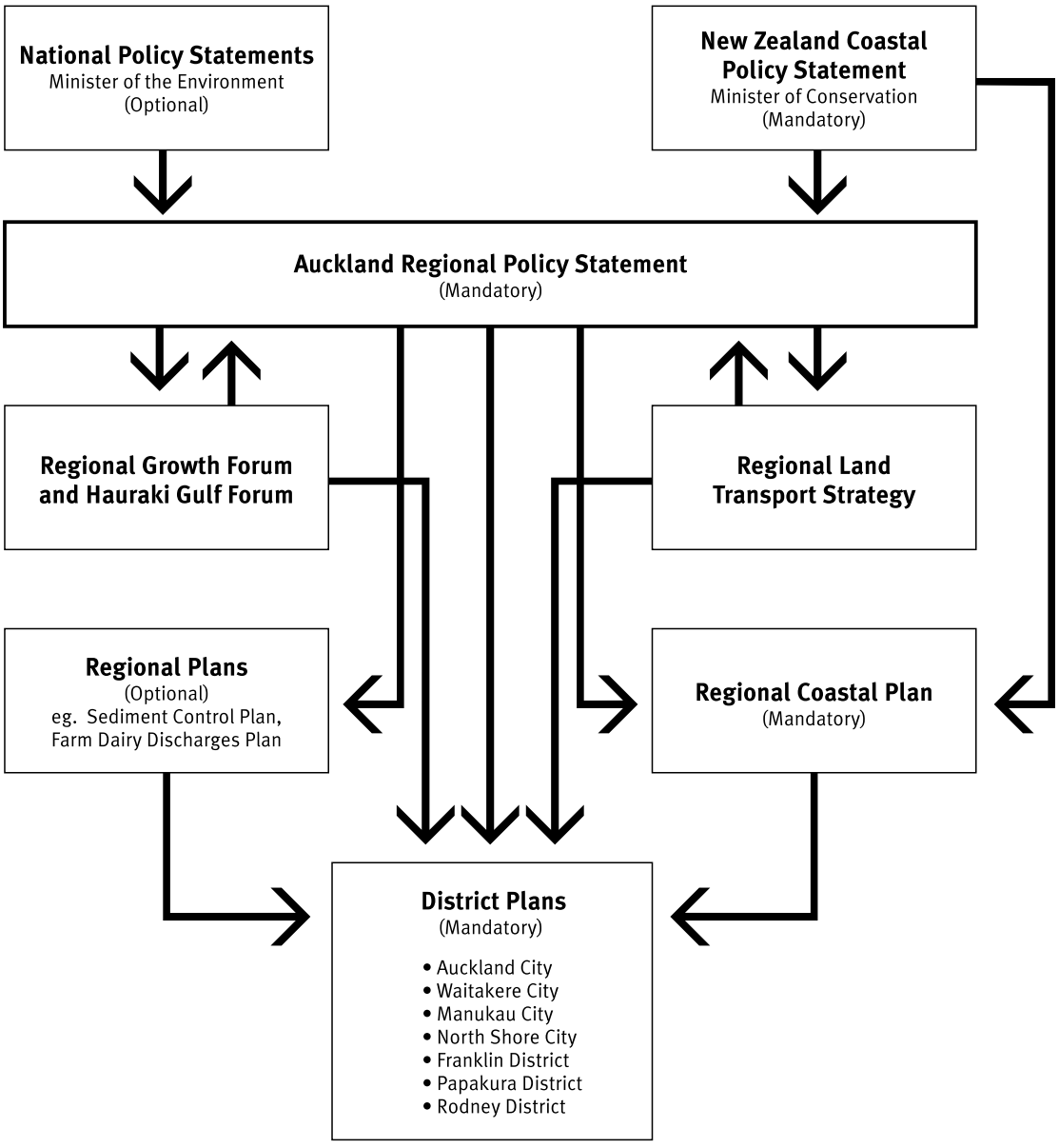
Approval of the Auckland Regional Policy Statement

This Regional Policy Statement has been prepared in the fulfilment of the requirement of the Resource Management Act 1991.

The Auckland Regional Policy Statement is presented in two volumes; a **Policy Volume** and a **Map Volume**.

The Auckland Regional Council approved the Auckland Regional Policy Statement on 16 August 1999 by affixing its seal to the Policy Statement.

The Auckland Regional Policy Statement became operative on **31 August 1999.**



Policy Statements and Plans in the Auckland Region

The Resource Management Act provides for a relationship between policy statement and plans.
Each of the policy statement and plans must not be inconsistent with any of those at a higher level.

The Auckland Region is New Zealand's largest and fastest growing region. Every five years, we are accommodating the equivalent of a new Dunedin or Hamilton within our boundaries. The region's rich and distinctive natural and physical resources have attracted successive waves of human migration for over 1000 years and now it is home to nearly one in three New Zealanders - and still growing fast.

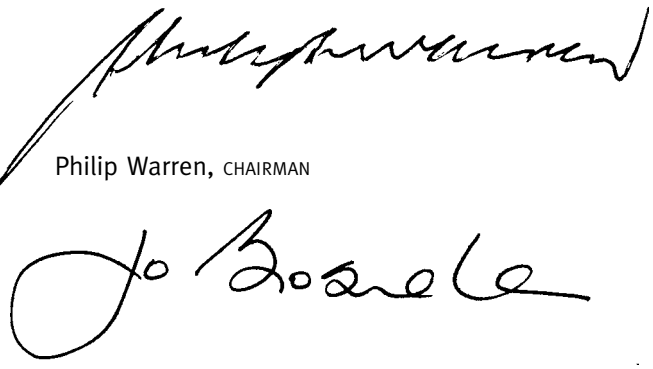
All this growth places pressure upon our region's environment. Aucklanders value their open spaces, beach and beautiful landscapes. However, the sheer weight of our numbers and demands on these resources, threatens to destroy the evry things we cherish.

In 1991, the government recognised that we need to take a co-ordinated and comprehensive approach to managing our envirnment if we are to care for it sustainably. The Resource Management Act was created to provide an operational framework to allow for integrated and sustainable resource management. The development of regional Policy Statement was seen as cornerstone to achieving this goal.

The Regional Policy Statement set out the board resource management issues, objectives and policies for the AucklandRegion to Achieve the integrated management of its natural and physical resouces. It is a statutory requirment under the Resource Management Act for every region to have a regional policy statement. Under the planning framework set out in the Resource Management Act, Regional Plan and District Plans cannot be inconsistent with a Regional Policy Statement. Therefore, it functions as an umbrella policy document for environment planning anf policy development within our region.

The development of the Auckland Regional Policy Statement has required a tremendous effort by both councillors and staff. It was first publicly notified in May 1994. A total of 2523 submissions were received on the draft version and all of these had to be individually analysed and deliberated upon. It has involved the resolution of several complex issues which are unique to the Auckland Region, one of the most inpotant of which has been the definition of the Auckland Metropolitan Urban Limits. It has also been responsible for spawning other important initiatives such as the Auckland Regional Gowth and Hauraki Gulf Forums.

TheRegional Policy Statement seeks to maintain a quality environment for the Auckland Region and at the same time, Maintain and enhance opportunities for the region's future growth. This is a challenge which Regional Policy Statement places before us - it is now up to everyone within the region to realise this goal. We commend this document to you as a sustainable pathway for present and future Aucklanders.



Philip Warren, CHAIRMAN

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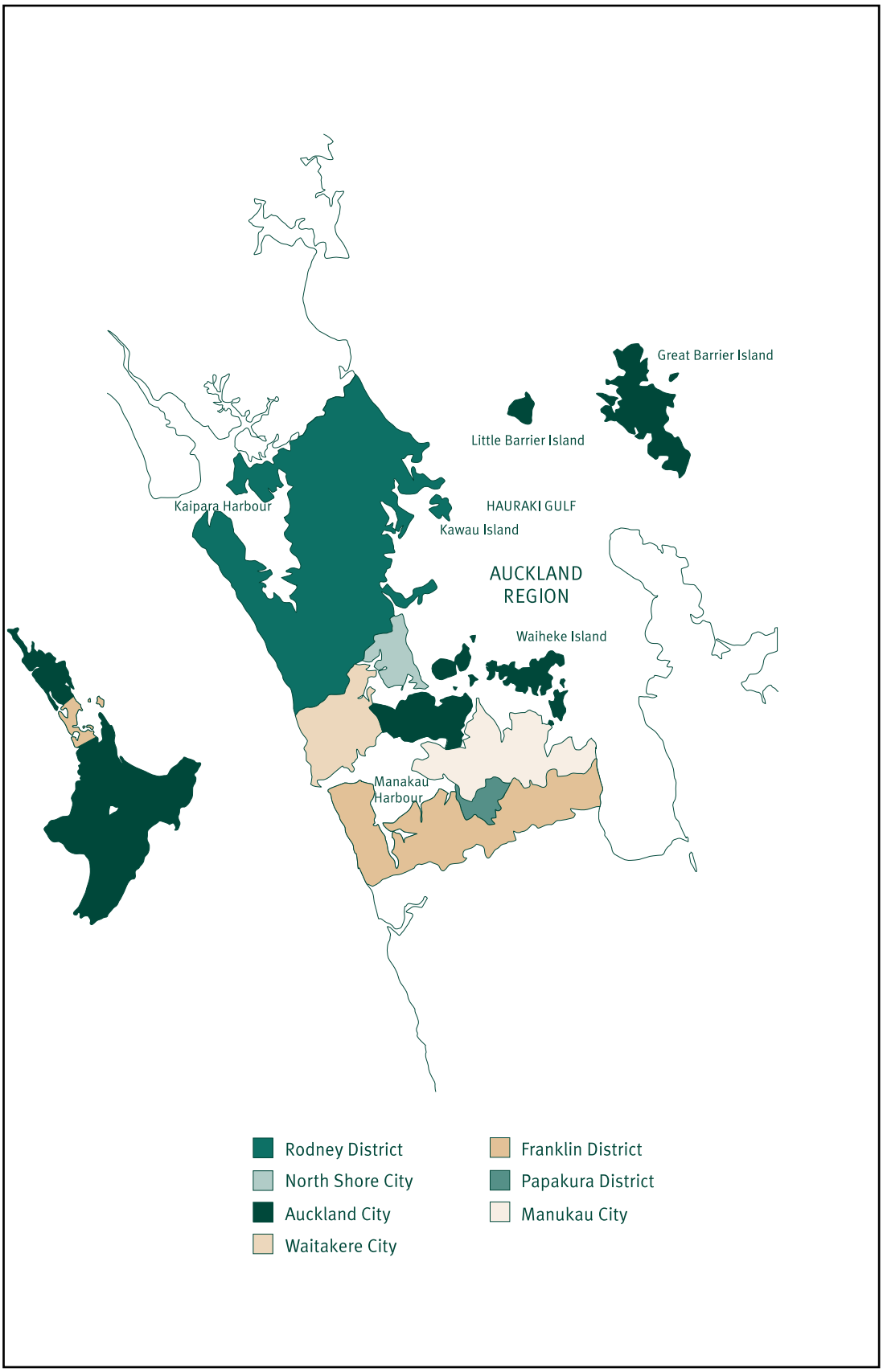

Great Barrier Island
Little Barrier Island
Kaipara Harbour
HAURAKI GULF
Kawau Island
AUCKLAND
REGION
Waiheke Island
Manakau
Harbour
Rodney District
North Shore City
Auckland City
Waitakere City
Franklin District
Papakura District
Manukau City

1.1 Introduction

This document is the Regional Policy Statement (RPS) for the Auckland Region. It is a statement about managing the use, development and protection of the natural and physical resources of the Region. It sets in place the policy for promoting the sustainable management of these resources. It also clarifies the respective roles of the agencies with responsibilities under the Resource Management Act (RM Act) in this Region. Its aim is to achieve integrated, consistent and co-ordinated management of the Region's resources. Its aim is also to provide greater certainty over the ways that natural and physical resources are to be managed and hence create an awareness of the constraints and opportunities in this Region.

The Auckland Regional Council (ARC) has prepared the RPS in accordance with the provisions of the RM Act. Section 59 of the Act states that the purpose of the regional policy statement is:

> *"... to achieve the purpose of the Act by providing an overview of the resource management issues of the region and policies and methods to achieve integrated management of the natural and physical resources of the whole region."*

The RM Act defines natural and physical resources as:

> *"Land, water, air, soil, minerals, and energy, all forms of plants and animals (whether native to New Zealand or introduced), and all structures."*

The purpose of the Act is defined in Section 5:

"(1) The purpose of this Act is to promote the sustainable management of natural and physical resources.

(2) In this Act 'sustainable management' means managing the use, development, and protection of natural and physical resources in a way, or at a rate, which enables people and communities to provide for their social, economic, and cultural wellbeing and for their health and safety while:

(a) sustaining the potential of the natural and physical resources (excluding minerals) to meet the reasonably foreseeable needs of future generations; and

(b) safeguarding the life-supporting capacity of air, water, soil, and ecosystems; and

(c) avoiding, remedying, or mitigating any adverse effects of activities on the environment."

In preparing regional policy statements, regional councils are required to comply with sections 59 through 62, and Schedule 1 of the RM Act.

1.1A Local Government (Auckland) Amendment Act 2004

The Local Government (Auckland) Amendment Act 2004 section 39 (1) required that:

> *"Each Auckland local authority must, by 31 March 2005, prepare and publicly notify proposed land use changes to its Auckland planning documents."*

The purpose of the Change is to integrate the land transport and land use provisions and make those consistent with the Auckland Regional Growth Strategy (section 3).

Section 40 describes such changes as:

> *"A land transport and landuse change is a change or variation to an Auckland planning document by including issues, objectives, policies, and descriptions of methods for the purpose of-*
>
> *a) giving effect, in an integrated manner, to the growth concept in the Auckland Regional Growth Strategy prepared under section 37SE of the Local Government Act 1974; and*
>
> *b) contributing, in an integrated manner, to the matters specified in Schedule 5."*
>
> *(see Appendix G)*

1.2 Structure of the Regional Policy Statement

The policy content of this RPS is in four parts:

Regional Overview and Strategic Direction: Chapter 2

This chapter integrates the whole RPS into a consistent framework for resource management in the Auckland Region.

Resource Management Matters of Significance to Iwi: Chapter 3

This identifies significant matters of concern to Tangata Whenua and policies for dealing with those issues which are consistent with the RM Act. Appropriate cross-referencing has been included between this and other chapters.

Transport and Energy: Chapters 4 and 5.

Policies are set out to ensure that development and change in the Region is managed in a manner which improves urban efficiency in terms of energy use and transportation.

Environmental Protection: Chapters 6 to 18 inclusive.

Objectives, policies and methods are set out to achieve sustainable and integrated management of major natural and physical resources and the Regionally significant activities in the Region.

1.3 Structure of Chapters

The content of each chapter is organised in a uniform way:

- **Issues** which are significant to the Region are identified, where a resource is affected by an activity, in ways which cause or have the potential to cause effects.
- **Objectives** are stated in the form of environmental outcomes to be achieved.
- **Policies** are expressed as courses of action designed to achieve objectives and may also include:
  - (a) criteria for assessing issues or resources; and
  - (b) statements defining the respective roles of organisations under the RM Act.
- **Methods** are stated which specify the actions to be taken, and identify the persons responsible for taking the actions, in order to achieve the policies. A number of methods which may be generally applied in many situations are set out in Section 1.9.
- **Reasons** are set out which explain the approach taken, and background information is also provided.
- **Environmental Results Anticipated** are stated. These identify the outcomes which are expected as a result of implementing the objectives, policies and methods.
- **Monitoring** of the effectiveness of the objectives, policies and methods will be undertaken in terms of section 35 of the RM Act, and the means of doing this are stated.

Chapters include cross-references. In such instances, it is necessary for the chapters to be read in conjunction with the material to which reference has been made.

Terms which are defined in the RM Act shall have the same meaning in this RPS. A number of other terms are defined, and their meanings are set out in Appendix D – Definitions and Abbreviations.

1.4 Time frame

This RPS provides long-term direction for the Region, and a review will commence no later than 10 years after the date on which it becomes operative. The RPS will remain operative until the review is completed (see section 79(5) of the RM Act).

As circumstances alter, changes to the RPS may be initiated, in accordance with the relevant provisions of the RM Act.

1.5 Monitoring

Monitoring is an integral part of the RPS framework, providing feedback on whether the objectives and policies of each chapter are effective and suitable, and whether the environmental results anticipated from those provisions are being achieved. Furthermore, it is a key mechanism in determining whether the RPS is achieving its primary purpose, namely the integrated management of natural and physical resources.

Section 35 of the RM Act lists four types of monitoring required to be carried out by the ARC: state of the environment; suitability and effectiveness of the RPS and regional plans; transferred or delegated powers; and resource consents. In addition to the monitoring provisions related to section 35, the RPS is required to be reviewed not less than 10 years after the date on which it becomes operative.

Monitoring of policies for their suitability and effectiveness will be reported at three-yearly intervals and will be integrated with a state of the environment report. Baseline studies are necessary to establish a point from which improvements in environmental quality can be measured. Some areas, for example water quality and water allocation, already have extensive databases. Where appropriate, each chapter has indicated where baseline data is absent or incomplete. Concurrent with this will be development of indicators which will act as measures of change in the environment and provide the basis for monitoring environmental trends and status. The ARC has to some extent made progress in developing regional indicators. National indicators are also needed in some areas so that standards can be

applied appropriately on a nationwide basis.

Compliance monitoring of resource consents is important both as a mechanism for monitoring changes in the availability or condition of a particular resource (e.g., aquifers) and anticipating cumulative effects on the environment. The ARC will predominantly undertake compliance monitoring of those consents which the ARC has granted. However, periodically, the ARC will request results of monitoring by TAs where this will assist in assessing the effectiveness of objectives and policies and whether environmental outcomes consistent with the RPS are being achieved.

Monitoring of transferred powers will either be undertaken by the ARC in the course of a review of that transfer or will be carried out by the public authority as a condition of the transfer.

1.6 Integration

In order to achieve integrated management of the natural and physical resources of the Region, the RM Act provides that district plans and regional plans shall not be inconsistent with the RPS. There is a similar requirement in the Transit NZ Act relating to the Regional Land Transport Strategy (RLTS). The RPS provides the broad environmental outcomes to be achieved and the objectives, policies and methods to reach those outcomes.

The RPS is part of a hierarchy of plans and policy statements dealing with resource management and conservation at central, regional and local government, and Iwi authority levels. These include the New Zealand Coastal Policy Statement (NZCPS), national policy statements, DoC Conservation Management Strategy, regional and district plans, Iwi management plans and Hauraki Gulf Marine Park Act 2000 (HGMPA).

The HGMPA requires the Council to ensure that any part of the RPS that applies to the Hauraki Gulf, its islands and catchments does not conflict with sections 7 and 8 of the Act. The matters relating to sections 7 and 8 of the Act need consideration when the Council considers an application for resource consent and its impacts in the Hauraki Gulf Marine Park.

The HGMPA requires the Council maintains the interrelationship between the Hauraki Gulf, its islands and catchments to sustain the life supporting capacity of the environment. Sections 7 and 8 of the Act recognise the national significance of the Hauraki Gulf and sets out objectives for its management.

Figure 1.1 shows the relationship between the RPS, Regional Land Transport Strategy (RLTS), regional plans and district plans.

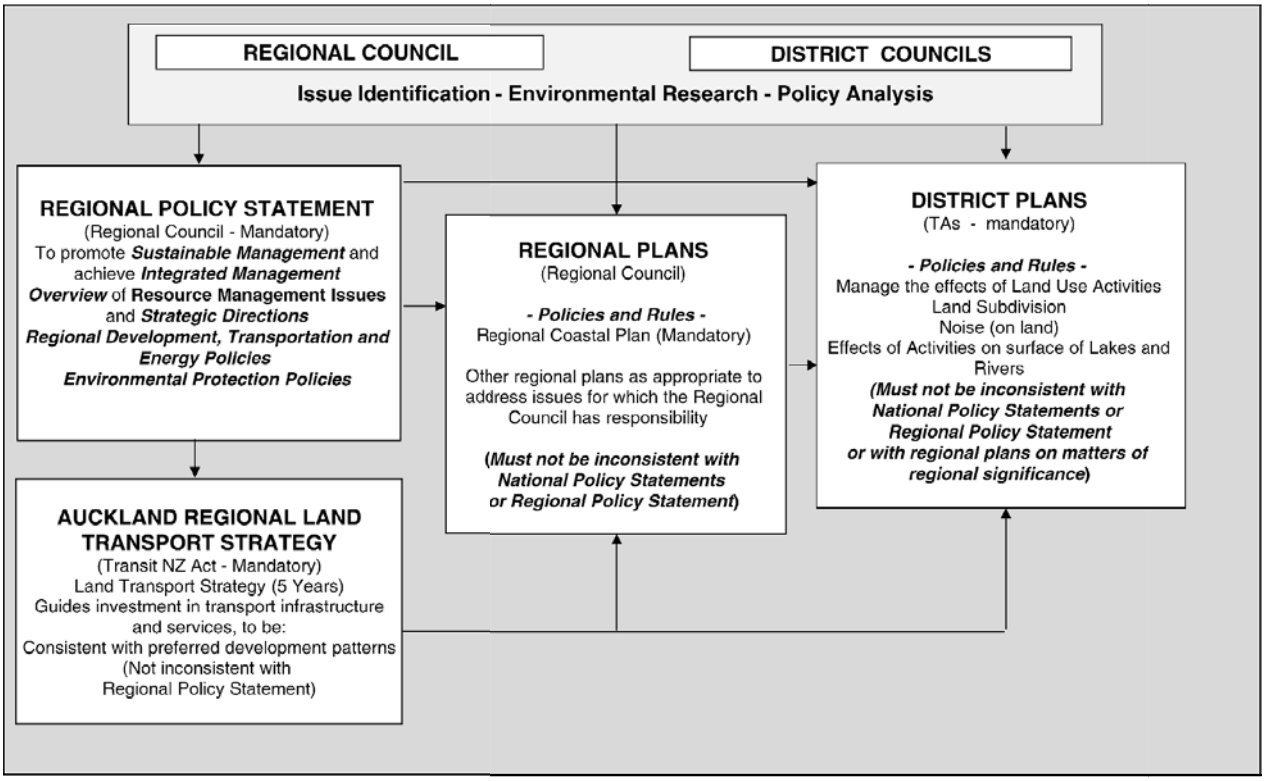
In achieving integrated management it is also necessary to co-ordinate policies and programmes between TAs and with adjoining regions where there are issues of a cross-boundary nature. Some cross-boundary issues (between TAs and between regions) have been identified in the individual chapters of the RPS. Policies and methods identify appropriate procedures for dealing with them. Generally, the ARC will address any such matter through consultation. Where this does not achieve resolution, mediation or arbitration may be used if those processes are acceptable to the parties involved. Alternatively, the processes of submissions, hearings and referral of matters to the Planning Tribunal, as provided in the RM Act, may be followed. When new, significant resource management issues arise, the ARC will encourage consultation amongst affected resource management agencies with a view to developing appropriate joint action to address these issues.

1.7 Administration of Resource Management

The RM Act is administered by the Ministry for the Environment (MfE), and the ARC and the seven territorial authorities (TAs) have functions and powers under the Act. The TAs are: Auckland, Manukau, North Shore and Waitakere City Councils and Papakura, Rodney and Franklin District Councils. The sea boundary extends to the 12 mile limit and includes the islands of the Hauraki Gulf. The MfE has an important advisory and monitoring function. The ARC is the administrative body responsible for the management of the coastal marine area (CMA) in association with the Minister of Conservation. The functions of regional councils and TAs are detailed in sections 30 and 31 of the RM Act respectively.

Joint hearings as provided in section 102 of the RM Act will be held in circumstances where they assist integrated resource management and facilitate the efficient consideration of resource consent applications. A procedure has been agreed upon with each of the seven constituent TAs in the Region for the administration of joint hearings. Generally a joint hearing committee will consist of two councillors or commissioners from the ARC and two or more from the respective TA.

Fig. 1.1 Integration of Statutory Resource Management Instruments, Regional Policy Statements and Plans.



Section 33 of the RM Act establishes a process and criteria for the transfer by local authorities of certain functions, powers and duties under the Act to other public authorities. The ARC may from time to time investigate the potential to make such transfers, and may do so where the criteria specified in the Act are met, and agreement is reached with the transferee as to the terms and conditions of the transfer.

Some transfers of this nature have already been effected. The ARC has transferred to TAs responsibilities relating to some aspects of air quality, coastal bylaws and coastal building permits.

As well as having powers under the RM Act, TAs and the ARC have responsibilities under other legislation. These Acts, together with other legislation administered by other agencies which may affect resource management, are listed in Appendix C – Legislation Dealing with Resource Management. Where appropriate, the RPS refers to the use of these Acts.

1.8 Consultation

The term 'consultation' is defined in Appendix D.

The preparation of the RPS has involved a high degree of consultation with government agencies, local authorities and Tangata Whenua as well as the wider public. Consultation has meant that alternatives and new directions have been canvassed and evaluated. In late 1992, a Discussion Document on the RPS was released for public submission. Written submissions assisted in clarifying the policy directions. Workshops and meetings on specific issues have also assisted in considering alternatives.

1.9 Adverse Environmental Effects

All users of resources have a responsibility under section 17 of the RM Act to avoid, remedy, or mitigate adverse effects on the environment. The ARC will take appropriate legal action where adverse effects and/or contamination of the environment occur through neglect or deliberate actions. The RM Act provides mechanisms for dealing with adverse effects as conditions of resource consents.

Section 108 (2) (a) of the Act permits the use of financial contributions and this policy tool should be included in district plans since this is the means by which the policy instrument is given statutory effect.

The ARC will include appropriate policies in the Regional Plan: Coastal and any other regional plans.

The phrase 'avoid, remedy, or mitigate' and combinations thereof are used in various places throughout the RPS. While the meaning and applicability of each of these words can depend on the context of the situation, overall, the ARC has adopted an approach to the use of these words as encapsulated by Policy 3.2.2 of the NZCPS 1994 which states that:

> *"Adverse effects of subdivision, use or development in the coastal environment should as far as practicable be avoided. Where complete avoidance is not practicable, the adverse effects should be mitigated and provision made for remedying those effects, to the extent practicable."*

The word 'minimise' has also been used, predominantly in Chapter 10 – Air Quality and Chapter 15 – Waste. Its use is consistent with the precautionary approach (refer to Section 1.10) and the adoption of the best practicable option.

1.10 General Approach to the Management of Natural and Physical Resources

Amendments to the Local Government Act (LG Act), and other legislation have had the effect of substantially reducing the range of methods through which regional councils can give effect to the function, powers and duties for which they have responsibility under the RM Act. Because of this, regional councils must rely on the requirements of the RM Act that:

- Regional and district plans be not inconsistent with national or regional policy statements;
- when considering applications for resource consents under the RM Act consent authorities must have regard to (amongst other matters) any RPS or proposed RPS, and any other relevant regional plan or proposed regional plan.

Regional councils also rely on the introduction of regional plans as a means of giving effect to their functions under the Act. Under section 75(2) of the RM Act, district plans are required to be not inconsistent with any regional plan on a matter of regional significance or when the ARC has primary responsibility under section 30 of the RM Act. In addition, TAs are required to consult with the ARC during the preparation of district plans. In turn, the regional council may make submissions and further submissions to proposed district plans as provided for under the First Schedule of the RM Act.

The ARC is in the process of making operative the Regional Plan: Coastal, the Farm Dairy Discharges Plan and the Regional Sediment Control Plan. The ARC will also prepare additional provisions for inclusion in regional plan(s) for those significant resource management issues that require such a structure to give effect to objectives and policies in the RPS, or in order to carry out its other resource management responsibilities. This has been included as a method in appropriate chapters of the RPS. The ARC will establish an up-to-date list of the components of these regional plan(s) and make this information available to the public.

A number of methods which are often used, and which have a place in the processes of resource management generally, are outlined below. Where any of these are appropriate to the issues being addressed, they may be applied in this Region, whether or not they are included in the methods provided for in the relevant chapter.

Precautionary approach

Within the RPS there are references to taking a "precautionary approach" to resource management decision making. Where there is reason to believe that any adverse effects, including cumulative effects, that may arise from a proposed activity may be significant but those potential effects cannot be fully assessed due to inadequate information or understanding of these effects on the environment, then a precautionary approach should be taken. In such situations, when making decisions about managing the use, development or protection of natural and physical resources, local authorities should consider such options as:

- Taking account of the level of uncertainty about the nature, extent, intensity and duration of potential adverse effects in classifying activities as permitted, controlled, discretionary, non-complying or prohibited or framing assessment criteria or conditions to apply to particular consents for proposed activities.

- Declining or limiting the duration of a consent, or requiring a review during the period of the consent so that the results of monitoring can be considered.
- The local authority undertaking monitoring and research to provide additional information and understanding.
- Applicants undertaking appropriate monitoring of the effects of their activities on the environment as conditions of resource consents.
- Sharing information and knowledge gained about natural and physical values and processes, or the effects of activities on natural and physical values and processes, where this information and knowledge has changed or was previously unknown or little known.

Catchment Management Plans

Catchment management plans are non-statutory plans, which can be prepared for catchments where issues arise which affect the use, development or protection of a range of natural and physical resources. The part they play in resource management processes, and their relationship to strategic planning and structure planning processes, is outlined in Appendix A – Planning processes. The provisions of catchment management plans may be given effect through resource consent processes, or their findings may be incorporated in regional, district and/or annual plans.

Structure Plans

Structure plans should be used as a means of identifying land which is to be urbanised or subject to urban intensification and/or redevelopment. The structure plan process is described in Appendix A.

Surveys and Research

Sustainable management of natural and physical resources requires resource management agencies to understand the resources which they are mandated to manage. Surveys, research (and modelling as described below) are undertaken to achieve this. Surveys and research can include the collection, collation and analysis of information about the state of natural and physical resources, the ways in which they are valued, and the demands/pressures for their use, development or protection.

Modelling

In order to understand the resources being managed, modelling techniques are often used. These involve the use of computerised simulations of natural, social or economic dimensions of resource systems. The use of models can enable the implications of changes to the utilisation or management of resources to be explored and better understood before they are brought into effect. Modelling can also provide a context for monitoring the effectiveness of policies and the state of the environment.

Pollution Abatement/Enforcement

Pollution abatement work is carried out to prevent and/or minimise pollution being caused by a range of activities. Pollution abatement staff inspect sites to identify any actual or potential sources of pollution. The effectiveness of discharge treatment and disposal systems and site management processes to prevent pollution are evaluated. Owners are then advised of any remedial action that is required and given an appropriate time frame in which to carry out the work. Major potential sources of pollution are targeted and sites may be inspected on a catchment saturation basis, random basis or activity specific basis.

Pollution abatement staff also investigate pollution complaints, (the ARC operates a 24 hour pollution hotline) clean up spills and undertake other action to ensure pollution is avoided or minimised. Prosecutions are undertaken by the ARC where appropriate to ensure compliance with the RM Act.

Formal Submissions (within statutory processes)

Formal submissions are made by the ARC, where appropriate, to fulfil the ARC's functions under the RM Act, during statutory consultation procedures. These include submissions to:

- Annual plans;
- District plans and applications for TA resource consents;
- Proposed law changes, including changes to the RM Act, the NZ Coastal Policy Statement and the like.

Non-Statutory Submissions

Informal submissions are also sometimes made by the ARC during the preparation of non-statutory documents which relate to the ARC's RM Act functions. These include submissions to:

- Draft development proposals, including Assessment of Environmental Effects (AEE) preparation processes for major developments.
- The preparation process of non-statutory plans, such as strategic planning discussion documents and catchment management planning documents.

Advocacy or Education

Advocacy is used to educate people on their responsibilities under the RM Act and to effect changes (which can be to people's behaviour or to the policies of other agencies) to enable desired RM Act outcomes to be achieved. Advocacy includes:

- Education programmes including the preparation of newsletters, brochures and the like, and giving presentations to interested groups.
- Releases to the media.
- Non-statutory guidelines and industry codes of practice.
- Giving advice and advocating change to applicants, other resource management agencies and government.

Co-operation

The RM Act requires that consultation be undertaken in the course of resource management processes. Consultation can serve a variety of purposes, ranging from the collection of information and opinions, to the avoidance or resolution of conflicts. Consultative approaches to resource management are also important. These can include facilitated forums or workshops where information is shared and activities co-ordinated on particular resource management issues. Joint projects between local authorities, government agencies and Iwi authorities can also be beneficial in promoting integrated resource management.

2.1 Introduction

The Auckland Region has a diverse natural and cultural environment. The intricate coastline, bush-clad hills, volcanic cones and craters, sheltered harbours and islands and waters of the Hauraki Gulf all contribute to its unique character. The equable climate, ample rainfall and rich soils sustain lush and diverse vegetation. In the past, while the Region's population was small, the effects of human habitation were masked by the natural setting. As the population has increased, however, pressures on the Region's resources have grown and degradation has occurred to some of the Region's natural resources. In recent years the regional community has shown a growing awareness of these problems and the need to rethink its actions in relation to the present and future qualities of the Region. There is now a need to consider whether today's actions will leave an environment for future generations which is, at least, as good as that which was inherited from the past. That is, there is a need to determine whether the Region's resources are being sustainably managed.

As well as natural resources, the Auckland Region also has significant physical resources. These resources include the metropolitan area and rural and coastal settlements and their extensive infrastructure, including its ports, airports, roading and utilities infrastructure. The physical resources also include the large industrial base, commercial facilities, the rural industry, including forestry and mineral extraction, and the extensive housing suburbs. These physical resources are of both regional and national significance and must be considered when determining the sustainable management of the region's overall resources.

As noted in Chapter 1, the RM Act requires the promotion of the sustainable management of natural and physical resources. The purpose of this RPS as prepared under the RMA and amended by changes prepared under the LGAAA is to manage growth and development in order to promote and integrate the sustainable management of those resources within the Auckland Region. The need for an integrated approach arises both from the diversity of the Region's natural and physical resources and from the need to co-ordinate the actions of the various agencies with responsibility for their management.

Subsequent chapters in the RPS provide for the management of specific resources in a manner which is sustainable and co-ordinated across the Region. The function of this chapter is to integrate the management of the various components by:

- outlining the setting of the Auckland Region today;
- providing an overview of the major resource management pressures and issues confronting the Auckland Region;
- establishing strategic objectives and policies to give overall direction (strategic direction) to the management of the Region's resources;
- stating the broad outcomes which the provisions of the RPS are intended to achieve.

The strategic approach is of key importance to the integration of resource management and entails:

- taking the long-range view when considering the impact of development in shaping the future;
- taking a wide aerial view which considers the entire Region, not just a sectoral or district view;
- dealing with multiple issues including environmental needs, cost-effective infrastructure, community values;
- being proactive rather than reactive; that is, guiding, rather than merely responding to initiatives to use resources and development activities;
- dealing with matters comprehensively, which involves considering cumulative effects, rather than dealing with them in a piecemeal manner.

A regional approach by itself is not sufficient to deal comprehensively with all the issues facing the Auckland Region. Central government also has an important complementary role. It has the central role in determining appropriate immigration policy, ensuring the timely provision of critical services such as education and health, and supporting local government and the community in managing the pressures of development in such areas as the funding of regional transport.

2.2 The Setting – Auckland Today

The special qualities of the Auckland Region and its environment have attracted people to the Region over many generations. First, came the Maori who saw the benefits of its land and waters and settled on Tamaki Makaurau. Then came the European settlers from the British Isles and Australia. The modern city-region was built over the next 150 years. During this period new

settlers arrived from Europe, the Pacific Islands and Asia, changing the social character of Auckland into a multi-cultural region.

With over 1.3 million people, and 32% of the nation's population, the Auckland Region is the most populous in New Zealand. It is also the most cosmopolitan region, where currently Maori, Asian and Pacific Islander groups each comprise more than 150,000 people and in addition it is the largest centre of economic activity, and the focus of continuing growth.

With European settlement, the physical form of the Region changed markedly. Of particular significance were the physical developments around the ports and jetties that gave rise to fledging city and town centres, which serviced the ports and other infrastructure. Over time these became key parts of the industrial base for the region and the country. The motorway systems of the 1960s, further facilitated extensive low-density housing suburbs. The last two decades have seen significant changes to the region's economic base, as well as a renewed and increasing interest in urban (higher density, mixed use) living.

The Region's commercial and industrial base, and its ports, airport and rural industry are of both regional and national significance. The Region contains 31% of the nation's workforce and 38% of its business enterprises. The Region's ports handle 65% of the nation's imports by sea and 30% of its exports (by value), and handle about half of the total number of containers handled in all of New Zealand's ports. Eighty percent of all visitors to New Zealand enter the country via the Auckland International Airport. It is also significant that the airport accounts for over 45% by value of all imports into New Zealand.

Economic indicators such as retail trade, building activity, employment and population growth, and levels of business confidence show Auckland poised for continued economic growth.

The Auckland Region's rural economy reflects the presence of New Zealand's largest market. Although it has only 2% of the country's land area, the Region has 8% of the nation's land in horticulture. The rural parts of the Region also include other rural activities, for example, intensive animal keeping in buildings and some protected crops, that may not always be dependent upon the productive quality of the land, but which nevertheless contribute to the regional and national economy. Commercial forestry is also an important rural land use activity with over 56,000 ha planted as at 2003.

The Region's continuing growth is of key strategic importance. The region's population has grown continuously throughout the last century, and in recent years most of the nation's growth has been occurring in the Auckland Region. Between 1996 and 2001, the region's population increased by over 90,000 permanent residents, 76% of the nations increase. From 2001 up to 2004 the population increased a further 100,000, 55% of New Zealand's increase. By 2003, 32% of New Zealand's population lived within the Auckland region. This is expected to increase to 40% by 2050.

The majority of Auckland region's growth is natural increase. Between 1996 and 2001 55% came from this source, with the remainder composed of migration from overseas and other regions in New Zealand. Even without migration therefore, the population of the Auckland Region would continue to grow.

A reliable power supply is essential to the social and economic wellbeing of the Region. Currently, there is limited power generated in the Auckland Region, relative to demand. The Region is therefore dependent upon power supply from other regions.

Historically, the transport system and provision of bulk utility services (especially drainage) shaped metropolitan Auckland. The decisions made in the 1950s to develop a motorway system, and to provide drainage services to the greater part of urban Auckland from a treatment and disposal system situated at Mangere, greatly facilitated urban expansion. Sustained investment in the motorway system, and high levels of car ownership, encouraged suburban growth and has led to the low-density urban form which is present-day Auckland.

The low-density form of the Region's development provides a number of benefits to the public in terms of lifestyle, spaciousness and privacy. Many older communities of Auckland have special characteristics such as mature trees and vegetation, access to open space, and the quality and historical significance of the homes. It is clear there is a public desire to protect these qualities.

The individual home on a separate title, with the benefits that provided, became an important aspiration for many people and this was reinforced by government housing policy. These benefits, coupled with high rates of car ownership, ensured that the majority of people

had sufficient personal mobility to access employment, shopping, recreation, education and other services.

At the same time Auckland's low-density urban form has led to poor relationships between transport and landuse and to inefficient travel patterns and use of energy. People have to travel further to get to the services they require and to get to and from work. Not only does this require more travel than a more compact urban form, but it has led to the need for more and higher capacity roads and greater reliance on private vehicles and less effective use of public transport. More travel means greater use of non-renewable fuel, more emissions to the environment from vehicles, a greater contribution of greenhouse gases to the atmosphere, community health impacts, noise, community severance through the development of large transport infrastructure projects and a greater impact on the quality of air and water in the Region.

Auckland's low-density urban areas have also been wasteful of land. They have taken valuable soils out of production. For example, Mangere and the Rosebank peninsula were once productive market-gardening areas in close proximity to the city. More recently, significant areas of productive land have been lost due to the uncoordinated expansion of urban and Countryside living development into rural areas of the Region. Furthermore, much urban land, especially industrial land, lies under-utilised within the urban areas. Urban development has also covered basalt lava flows and tuff, and scoria deposits which could have enhanced the heritage of the Region or been used as aggregate for construction materials. Urban expansion has adversely affected natural resources such as indigenous flora and fauna and the quality of streams and coastal waters. It has obliterated many places of cultural importance, particularly to Tangata Whenua, and has required the expensive extension of utility services, transport networks and community services to support low density settlement.

Since the 1990's Auckland has developed as much within the existing urban areas, as it has on its margins. A range of factors, including increased land values, a more vibrant CBD and a desire to relocate more centrally, has seen a rekindling of interest in urban living. The region now faces the challenge of providing a wider range of housing choices, in ways that better support easy access to the facilities that the region needs. This challenge must also be balanced with the provision of important utilities infrastructure to support urban intensification and the protection of existing regionally significant infrastructure to ensure land use conflicts are minimised.

There has also been a shift in housing trends. These include falling home ownership rates, increasing housing costs, the reduction through sale of much of the state housing stock, and increased demand for both social and affordable housing. While the return to income-related rents for state housing tenants has assisted some households, the growth in waiting lists for state-owned housing provides ample evidence that many Auckland households face constraints on their ability to purchase adequate housing.

There is growing recognition that good quality, affordable housing is an essential component of strong communities. The health effects of poor housing are the most obvious. If people are forced into poor quality or overcrowded housing this is likely to have a negative impact on mental and physical health. However there is also growing evidence that there is a relationship between housing and a wide range of other social issues including learning deficiencies, crime, unemployment and family stability.

Changes have also taken place in the business sector as Auckland has grown. Perhaps the most obvious changes have taken place in the retail sector with the continued development of Commercial Centres, and continued pressure and demand for business and commercial, including larger format retail, development along Corridors and other out of centre locations. As the population in the existing built up areas intensifies, consideration will need to be given for appropriate ways to manage provision for growth and demand.

Auckland possesses some particularly defining features which provide a unique setting and are a valuable resource. These include:

- The diverse coastal environment which ranges from developed urban coastlines to sheltered estuaries, harbours and bays to rugged landforms. The coastal setting gives Auckland a distinctive character and the coast is valued for its role in the area's history, culture, landscape, ecology, amenity, recreation, tourism and economy.
- The islands of the Hauraki Gulf comprise significant natural and physical resources in terms of favourable location and climate, outstanding landscape features and unusual ecological balance.

- The Auckland scoria cones, explosion craters, tuff rings and lava fields are the most easily recognisable elements of the volcanic field on which urban Auckland is built. Not only is this volcanic field of national scientific importance, it also contributes to the distinctive character of Auckland. The volcanic cones are the most visible elements of the volcanic field and are outstanding natural features, cultural heritage icons and geographic markers in the Auckland landscape. The significance of Auckland's volcanic field comes not just from scientific, visual, historic, cultural and open space values of individual features, but from the complexity and diversity of these features within a relatively small area.
- The Waitakere Ranges Heritage Area (refer Appendix I for description of Waitakere Ranges Heritage Area and heritage features). The Waitakere Ranges including the foothills and coastal villages are a dominant and highly valued iconic landform of the Auckland region. The bush clad rainforest area of the landform is considered to be of international importance and significance. The foothills of the Waitakere Ranges have landscape value in their own right as a conglomerate of natural, rural and cultural landscapes. The foothills also play a significant role as a buffer and transition to the outstanding natural landscape and features of the upper ranges. The area is under unique pressure for subdivision, use and development due to its close proximity to Auckland, and is susceptible to cumulative adverse effects on its heritage features in the constituent urban, rural and forested parts, and on the area as a whole.
- The rolling green landscapes to the North and the South of urban Auckland, delineating urban from rural, and containing high quality soils and horticultural activities.

These defining natural resources make an important contribution to creating the region's unique character. These natural resources require careful management to sustain and protect them from inappropriate development.

The environment beyond Auckland's Metropolitan Urban Limits displays varying characteristics and supports diverse landuse. The rural and coastal settlements define a pattern of development explicitly linked by geographical association with urban Auckland, but also provide vibrant communities in their own right. Rural and coastal settlements vary in size and function, but maintain local communities of interest and lifestyle choice.

The settlement pattern is also reflective of the natural and physical elements that further define the character of particular parts of the region. Parts of rural Auckland support large traditional pastoral and arable based activities, while others support more intensive arable based activities to create unique landscapes. Other activities have established in rural areas such as mineral extraction and aerodromes due to their requirement of a rural location.

2.3 The Auckland Regional Growth Strategy

The Auckland Regional Growth Forum is a partnership between Auckland's local and regional authorities allowing a co-operative regional approach to growth management. This Forum, a committee of the ARC, has delegated power to take responsibility for the production, implementation and review of a Regional Growth Strategy for the Auckland Region. The Forum has examined the options and alternatives to accommodating future growth in the Auckland Region and adopted the Regional Growth Strategy in November 1999.

The Local Government (Auckland) Amendment Act 2004 required all Councils in the Auckland region to make changes to their respective planning documents for the purposes of giving effect in an integrated manner to the growth concept contained in the Auckland Regional Growth Strategy.

The purpose of the Auckland Regional Growth Strategy is:

> *"... to ensure growth is accommodated in a way that meets the best interests of the inhabitants of the Auckland Region."*

The Auckland Regional Growth Strategy provides a vision for what Auckland could look like in the future with a population of 2 million.

This vision of the Auckland Regional Growth Strategy is that the diversity and well-being of people and communities living in the Auckland region will continue to prosper in a sustainable manner which:

- Promotes strong, supportive communities;
- Ensures a high quality living environment;

- Creates a region that is easy to get around; and
- Protects the coast and its surrounding natural environment.

The Growth Concept

The "Growth Concept" is a snapshot of how the region could look at 2050 if growth is managed according to the vision, outcomes and principles.

For the purposes of giving effect to the "Growth Concept" the 'Sector Agreements' developed by all Councils have been used as a guide to identify future growth areas. Councils may also develop other appropriate strategies or approaches to give effect to the "Growth Concept".

Key features of the "Growth Concept" are that:

- Growth will be managed by promoting quality, compact urban environments (intensification);
- Most growth is contained within the existing metropolitan area with development outside current urban areas only where environmental, accessibility and community principles can be met. This results in a wide range of living opportunities, both in rural and in urban areas by enabling the accommodation of future growth in a variety of ways.

  Accessibility principles in this context are based on the degree to which opportunities for people, goods and service can conveniently travel within an area/region. Community principles are based on how people live, work and play in the region and creating a liveable region. For more information on environmental, accessibility & community principles refer to Regional Growth Strategy, November 1999, Table 4 Principles for Evaluating Regional Growth Alternatives;
- Most urban growth is focused around High Density Centres and Intensive Corridors (refer Schedule 1) to create higher density mixed use communities, with a variety of housing, jobs, services, recreational and other activities;
- There is much less emphasis on accommodating growth through general infill in suburban areas.

Specific new areas are earmarked for growth (refer Schedule 1) and other areas are identified in which development is to be avoided:

- Future urban (greenfield) areas including Takanini, Flat Bush, Hingaia, Westgate/Hobsonville Long Bay, and the balance of Albany/Greenhithe, and Orewa West /Silverdale;
- Selected rural towns notably Helensville, Kumeu and Pukekohe because of their location on rail lines;
- Development is avoided in the most highly valued and sensitive natural areas and catchments.

Some expansion in new greenfield areas is necessary to provide sufficient land and locational choice for dwellings and businesses. If all proposed greenfield development proceeds the Auckland region's metropolitan area will increase by about 10% or 5000 hectares, over the 50-year timeframe.

By 2050, more than a quarter of the population (more than 500,000 people) could be living in higher density, multi-unit accommodation compared with less than an eighth or 125,000 people in 1996. However, even after 50 years, 70% of the population could still live at lower densities.

Mixed-use development (different activities including residential, business, retail etc, sharing premises within the same area), is already common in places like the CBD, Ponsonby, Newmarket, Newton, Takapuna and New Lynn. It is important that more intensive types of employment development are located with better access to the public transport network. The Growth Concept also seeks to ensure there is sufficient business capacity available in specific employment zones for larger industrial and commercial development.

Major employment (re)development is envisaged in a number of existing and new areas including Albany, East Tamaki, Sylvia Park, Mt Wellington, Massey North, Hobsonville and the central area. Maintaining and improving access to jobs and between businesses will be vital.

Transport

An efficient transport system is also vital to the prosperity of the Auckland Region and to the well-being of Aucklanders. Transport and land use are closely interrelated. Transport systems can both service growth and development and can lead planned development patterns.

The "Growth Concept" anticipates a shift in land use patterns towards a more compact urban form which focuses growth in High Density Centres and Intensive Corridors, such as the northern, western and southern passenger transit corridors and near main arterial roads. More intensive development can support a greater range of local services and facilities, increase the opportunity

for safe walking and cycling and help support public transport, by bringing people closer to the main routes. Careful design will be needed to ensure good urban amenity.

Lifestyle issues will be important in determining people's desire to live in High Density Centres and Intensive Corridors. The "Growth Concept" envisages that many people will consider being close to activities, shops, cafes and possible work, as well as not having the responsibility for a large garden, or daily commutes, as a desirable trade-off for living in a busier environment. Priority public transport improvements for the next ten years are vital to service these High Density Centres and Intensive Corridors.

Along with aligning land use more with the transport system accessibility between different parts of the region can be improved by further investing in the public transport system, developing new roading improvement and through initiatives which aim to reduce the demand for single occupancy vehicle trips. In this regard the Regional Land Transport Strategy, is a key mechanism for the implementation of the Growth Strategy.

2.4 Issues

An overview of the key strategic resource management issues in the Auckland Region shows that nearly all of them stem from the pressures and impacts of development on the Region's natural and physical resources. (Note: the appropriate sections in Part 2 of the RM Act are referenced at the end of each issue.)

2.4.1 The Region will need to accommodate continued population growth and economic development in the foreseeable future.

There are three key factors influencing Auckland's continued growth and development:

- **Population structure.** Its existing population structure means that the Region will continue to expand as a result of natural increase (excess of births over deaths).
- **Migration.** Migration rates are subject to substantial fluctuations which are difficult to predict. External immigration is largely affected by government policy, and has made a substantial contribution to Auckland's growth in recent years. In any particular year, up to 70% of migrants to New Zealand settle in Auckland. Internal migration is influenced mainly by the state of the national economy. Planning for the Region's future will need to include consideration of future fluctuations in migration rates.
- **Economic activity.** The Auckland Region is the dominant commercial focus of New Zealand. Its large domestic market, infrastructure, port and airport, commercial expertise and diverse manufacturing and industrial base will ensure that this focus continues. With trends towards open global trade relations, Auckland is central to a successful export-led strategy. The domestic market contained within the northern part of the North Island (approximately 2.1 million residents by 2016) will also be a significant contributor to continued growth in the Region.

The Auckland Regional Council projects the Auckland Region to grow to 1.75 million by the year 2026, and to 2.1 million by 2046, representing approximately 40% of the nation's population. When the RPS was first notified in 1994 it was estimated that the population would reach 1.3 million by the year 2016. However, the population reached 1.25 million in 2003. The substantial difference between the actual population growth and the estimated population growth is a reflection of the difficulty in predicting future population dynamics. This is why the Growth Concept acknowledges there is a need for flexibility.

The housing market is influenced by changes in family and household composition as well as lifestyles, and economic factors. The following demographic changes affect the demand for housing in the Region:

- Net inflow of permanent and long-term migrants. Net migration figures show a large increase since 1991. Most overseas migrants entering the country settle in the Auckland Region, and they and their families have an immediate requirement for housing.
- Large numbers of people in the family formation age groups. This has been an important factor in the percentage growth of dwellings (11%) being higher than the percentage growth of population (8%) between 1996 and 2001.
- Changes in patterns of family formation and household composition. The average household size

is now below three persons. The number of single parent and one person households has increased rapidly in recent years. Household generation, increased longevity and other socio-economic factors also affect demand for housing.

- Ethnically diverse population. The population of the Region is becoming more ethnically diverse. Maori and Pacific Islands populations are much younger than the rest of the population and have a higher household formation rate. While the Asian household formation rate is lower than that of Maori and Pacific Islanders, their demand for housing has been driven by high net migration rates.
- Sub-regional differences. Each sub-region has distinct social and demographic characteristics and these affect the demand for particular housing.

These factors may increase pressure on the building and associated sectors and could result in a more varied supply of housing than has been provided in the past. There is little evidence to date that the housing industry is fully responding to these changes in housing demand.

In the past residential growth was accommodated in the suburban areas of Manukau, North Shore and Waitakere. More recently, areas such as Rodney and Franklin have experienced rapid population growth. However, the supply of relatively low-cost flat land for mass housing projects within the metropolitan limits is now almost used up. As a result, it can be anticipated that there will be greater interest in redeveloping the existing urban area as well as ongoing pressures to expand the metropolitan limits to accommodate more urban expansion. Accommodating future growth predominantly through continual expansion is unsustainable and contrary to the RGS.

The growing trend towards redevelopment of the existing urban areas includes infill housing of residential areas; the central city (CBD and city fringe) apartments; and a re-evaluation of commercial and industrial land with a view towards comprehensive residential and associated uses (e.g., Railways land in the city). Some criticism of the quality of infill and higher density housing has resulted, but this can and should be avoided by appropriate methods that ensure higher density residential areas are attractive places in which to live.

In the past, rural areas have undergone population growth faster in percentage terms than urban areas. There will be continued pressure to expand the compact contained urban form into rural areas as the population increases. While there are already significant Countryside living opportunities within the Auckland region, the scale, take-up and specific location of such activities outside of the urban area has the potential to undermine a compact contained urban form and to divert growth into areas with unsuitable infrastructure and/or create significant adverse environmental effects in rural areas. One area where this is a particular concern is the Waitakere Ranges Heritage Area (refer Appendix I) where urban intensification pressures are compounded by the area's proximity to metropolitan Auckland and where there is little capacity to absorb further subdivision.

Whether greenfields development or urban intensification, the challenge for local authorities and developers will always be to continue to accommodate new development while protecting the social and natural values which make Auckland an interesting, efficient and diverse Region in which to live and carry out business activity.

Part 2 of the RM Act and links with other chapters

In order to enable people and communities to provide for their social, economic and cultural well-being and for their health and safety, the Region must accommodate future population growth and economic development (see section 5 of the RM Act). Accommodating growth also fulfills the requirement of section 5(2)(a) to meet the reasonably foreseeable needs of future generations. Policies relating to growth and development issues are specifically addressed within this chapter. However, all other chapters of the RPS deal with the effects of growth and development on the natural and physical resources.

2.4.2 Urban development in the Region threatens environmental qualities and thresholds.

The Auckland Region is reaching several critical thresholds in terms of the quality of the environment and the suitability of land for urban development. The long term cumulative effect of development continues to place pressures on natural and physical resources which, if not managed in an integrated manner, can eventually lead to the gradual diminishing of environmental quality.

In particular Auckland's historical pattern of urban expansion has resulted in significant impacts on the region's environment. However, new patterns of urban

development can be more sustainable than historical patterns and can protect, maintain and enhance the region's environment.

The semi-enclosed harbours with their poor natural flushing characteristics in parts of the harbours have become adversely affected by the pressures of development. Parts of the Waitemata and Manukau Harbours and Tamaki River are impacted as a result of urban-generated sediment and pollution. (see Map Series 6).

If not managed appropriately, development can result in a wide range of environmental pressures and adverse effects, broadly summarised as follows:

- Loss of valued natural resources through land clearance and associated development. Such resources include streams, terrestrial ecosystems and habitats, indigenous flora and fauna, landscapes, landforms, geological features, soils, and the natural character of the coastline. Natural resource values that remain after urban development, such as in parks and reserves, are often extensively fragmented, isolated or degraded reducing their potential to support long-term viable ecosystems. Moreover, amenity (including coastal access), landscape, and open space values may be compromised without appropriate consideration of urban form and design.
- Earthworks and land disturbance may result in erosion and the generation of sediment, which is transported by rainfall (stormwater runoff) into streams and coastal waters. Steep land is particularly prone to the generation of large amounts of sediment, and urban development in such areas may exacerbate slope instability and the potential for erosion. Sediment deposition in water bodies causes habitats to silt up reducing water clarity and light penetration leading to a corresponding reduction in productivity. Sediment deposition may also change stream channel shape, providing substrate for excessive aquatic plant growth, altering flows and potentially increasing the risks of flooding.
- Urban development, through the proliferation of impervious surfaces such as roads, roofs, concrete and hard surfaces, generates more intense stormwater runoff altering the hydrological characteristics of surface and groundwater flows. Inappropriate urban design and unmitigated stormwater runoff increases the risks of stream erosion and flooding. Furthermore, new roads and industry increase the amount of contaminants such as fuel derivatives, oil and heavy metals carried by stormwater into our streams, estuaries and harbours, reducing the quality and life supporting capacity of these sensitive receiving environments.
- Uncoordinated urban intensification places pressure on the capacity of existing infrastructure. For example, pressure on wastewater and stormwater networks increases the potential for wastewater overflows during heavy rainfall and subsequent contamination of waterways and beaches.
- Urban development, including intensification, can generate reverse sensitivity effects when located in close proximity to infrastructure.
- Changes to stream and groundwater levels and flows resulting from increased water demand, water abstraction and damming also influence stream habitat availability and have ongoing impacts on water quality and the health of freshwater ecosystems. Water resource management in the region faces the need to provide for increased demand and competing needs whilst maintaining levels and flows necessary to sustain the ecological, amenity and cultural values of water bodies. Growth may be constrained in locations where adequate forward planning of water supply provision is not made.
- Air emissions from new residential areas, industry and vehicles increase concentrations of toxic pollutants such as carbon monoxide, ozone, oxides of nitrogen and sulphur and fine particulates. These substances not only degrade visibility but more importantly exacerbate respiratory and heart disease resulting in increased hospital emissions and subsequent deaths. Intensification of existing urban areas has the potential to expose more people to high levels of air pollution if the emission sources are not managed appropriately and effectively. There is a need to ensure that air emissions are controlled at source (e.g. vehicles tuned and with catalysts, industrial process control equipment, domestic fires meeting NZ standards etc) to a practicable level. There is also a need to ensure appropriate separation between pollutant sources and sensitive activities through the use of Air Quality Management Areas and appropriate placement of transport routes.

- Urban expansion can generate reverse sensitivity effects when it occurs in or adjacent to productive rural areas. Any proposal for urban expansion needs to consider effects on productive soils and water and air quality.
- Increased infrastructure and development has continued to intensify the demand for limited aggregate supplies, some of which have limited availability due to a range of adverse effects associated with their extraction. Existing resources must be appropriately and efficiently managed, including the management of reverse sensitivity effects, if we are to avoid the high cost and adverse environmental effects associated with the transportation of material.
- Cultural resources, sites and values including waahi tapu areas, taonga, buildings, objects, artefacts, natural features of cultural and historical significance, historical associations, people and institutions may all be impaired or adversely impacted by the pressures of increased growth and development.
- Old industrial and horticultural land may be contaminated by historical chemical and pesticide use. Redevelopment of such land and reuse of soil for residential purposes needs to be managed appropriately to avoid environmental and public health risks from exposure to potentially harmful contaminants. The historical use of some persistent chemical compounds may have resulted in residues in the soil, which may pose a human health risk if the land is used for certain types of urban development. Redevelopment of such land needs to be appropriately managed.
- The expansion of urban activities onto rural land may, individually or cumulatively over time, reduce the visual distinction between rural and urban areas and the distinction between the types of activities that are characteristic within each of these areas. This lack of a clear visual distinction between rural and urban areas may then generate further pressure for urban expansion and/or urban sprawl.
- The intrusion of urban structures and activities into rural areas may also impact on both rural landscape character and amenity.
- Inappropriate development can cause significant degradation of high natural heritage, landscape and amenity values.

Part 2 of the RM Act and links with other chapters

This issue is concerned with the cumulative, actual and potential adverse effects of continued development on the regional environment. Providing for future generations, safeguarding the life-supporting capacity of resources and avoiding, remedying, or mitigating adverse effects are provided for in section 5(2), (a), (b) and (c) of the RM Act. Policies relating to urban development issues are specifically addressed in this chapter and the Water Quality, Water Conservation and Allocation, Coastal Environment, Air Quality, Natural Hazards, Heritage, Minerals, Waste, Hazardous Substances and Contaminated Sites chapters.

2.4.3 Ad hoc urban redevelopment and land use changes can lead to loss of urban amenities and environmental qualities.

Urban development patterns in the Auckland region are changing from predominantly a low density pattern of development outwards into one which also includes a substantial amount of higher density redevelopment within existing urban areas.

Urban redevelopment occurring outside of High Density Centres and Intensive Corridors in an ad hoc manner can result in the loss of urban amenities. For example, it can result in:

- Incompatible land uses on adjacent sites and between adjacent zones;
- Poor development layout;
- Inefficient use of the land resource;
- Densities and a mix of uses insufficient to support land use and passenger transport integration, and a viable passenger transport network;
- Residential and business densities not supported by increases in infrastructure and utilities, open space and community facilities provision (in some areas, some urban utility services, such as sewer and stormwater systems, electricity supply, telecommunication systems and the transportation network have reached limits to their capacity and require refurbishing, replacing or upgrading;
- Commercial development within new localities or by means of the expansion of existing High Density Centres may improve access to goods and services and better enable people and communities to meet their social and economic needs. However, regionally significant changes in the pattern of distribution of

commercial development can result in particular adverse effects, or require consideration of the relationships with other aspects of the "Growth Concept", including the following:

- the relationship to higher density residential areas;
- the efficiency of the use of existing physical resources, including public transport;
- the extent and rate at which impacts on other centres (particularly High Density Centres) could reduce their amenity, and adversely impact on their social and economic functions;
- whether adversely affected centres have outlived their function;

- Increased traffic congestion and underutilisation of public transport systems;
- Damage to natural and cultural heritage;
- Increases in stormwater run-off to Auckland's sensitive receiving environments.

Comprehensive, well planned urban redevelopment has the potential to remedy past adverse effects on the natural environment, improve urban form and design outcomes, reduce conflicts between incompatible land uses, reduce transport demand in the longer term, and increase housing, transport and employment choices.

Where and how urban growth should be accommodated

Urban intensification in the Auckland region has been underway for many years. Initially, urban redevelopment involved infill housing. The scale of infill development has led to increased densities but has not provided equivalent increases in amenity and has placed pressure on existing infrastructure and communities. Furthermore, it does not provide sufficient support to the public transport system.

The Growth Strategy focuses most of the region's future development within existing urban areas, particularly in High Density Centres and Intensive Corridors. It sets out a concept of selected and planned intensification, based on urban redevelopment. This provides opportunities for:

- enhancement of urban form and design,
- more effective use of the land and provision of open space,
- upgraded infrastructure and improved environmental standards, and
- improved transportation and community services.

Implementing the Growth Strategy will need to take into account changing trends in land use activities and their locational requirements, having regard to addressing the wider adverse effects of urban growth and the strategic integration of infrastructure with land use.

Sub region and town centres provide the critical mass necessary to support a number of urban activities. More intensive development can support a greater range of local services, facilities and employment increase the opportunity for safe walking and cycling. This also helps support passenger transport by bringing residents, employees and visitors closer to the main public transport routes.

There is a risk that intensification may occur in areas that cannot support increased densities. If provisions for land use intensification are not integrated with land transportation provisions, networks and systems, ad hoc urban redevelopment and intensification could result in high density residential developments being located distant from town centres, employment and passenger transport networks. Some areas within the MUL and the limits of rural and coastal settlements have significant natural heritage, landscape and amenity values. Significant intensification is not appropriate in such areas and should only be provided for where this will not compromise these values, and where environmental benefits are achieved, such as ecological restoration.

Equally, there is a risk that the long term potential of the region's urban form could be compromised through lower density (re)developments in areas that are well located for more intensive (re)development or through ad hoc development of small sites limiting the region's ability to achieve comprehensive quality development that integrates land use and infrastructure.

Intensification can be managed by local authorities so as to minimise the adverse effects on environmental, social and community, and amenity values, and on existing and new infrastructure. This management should take place through appropriate provisions within regional and district plans, and Long Term Council Community Plans. However, there will be a need to ensure a consistent and integrated outcome across all local authority boundaries within the Auckland Region.

Improving urban amenity

As residential densities increase, some aspects of amenity that are naturally provided by low density developments must be carefully considered and designed (e.g. access to outdoor space and buffering from the noise of adjacent activities). Some intensification has lead to poorly located and poor quality developments often with limited privacy and amenities, which lack diversity in design and in unit size.

Attention needs to be paid to good urban form and design outcomes in order to maximise economic opportunity, social wellbeing, cultural diversity and environmental health.

Good urban form and building design is critical to ensuring that developments provide a high quality urban living experience, with sufficient amenities, a range of housing to accommodate a diverse population within mixed use, vibrant and coherent High Density Centres and Intensive Corridors.

Improving the quality of urban living includes considering such issues as safety, accessibility (including access to and via the passenger transport network), pedestrian circulation, connectivity, streetscape, and coordinated planning for provision of safe and high quality passenger transport shelters, stations and terminals, open space, schools and other community facilities.

Local Authorities responsible for public infrastructure in High Density Centres and Intensive Corridors can stimulate high quality private sector mixed use development by planning for multi-modal accessibility in adjoining street networks, and by ensuring public places and streetscapes are built to a high standard attractive to pedestrians and local residents.

Part 2 of the RM Act and links with other chapters

In order to enable people and communities to provide for their social, economic and cultural well-being and for their health and safety, the Region must accommodate future population growth and economic development (see section 5 of the RM Act). Accommodating growth also fulfils the requirement of section 5(2)(a) to meet the reasonably foreseeable needs of future generations.

Providing for growth and intensification primarily through urban redevelopment contributes to the efficient use and development of natural and physical resources (section 7(b)), and – through the integration of land transport and land use provisions –the efficiency of the end use of energy (7(ba)) and the effects of climate change (7(i)).

Ensuring coherent urban redevelopment, with consideration of urban form and design issues, contributes to the maintenance and enhancement of amenity values (section 7(c)).

2.4.4 Rural resources enable people and communities to provide for their social, economic, and cultural wellbeing and for their health and safety. However, the effects of some activities on the resources and the environment of rural areas, including cumulative effects, can be significantly adverse.

Rural resources include soils, water, minerals, flora and fauna, wetlands, ecosystems, open space, landform and heritage features, landscape character, amenity, and infrastructure. A range of activities take place in rural areas including;

- horticulture, farming, forestry and mineral extraction;
- services for rural people and their activities (e.g. schools, meeting places/places of worship and transport companies);
- rural residential and lifestyle occupation (countryside living);
- resource-based recreation;
- resource conservation (e.g. enhancement of bush remnants);
- Activities that, due to their inability to contain all their effects on-site, are optimally suited to locating in a rural setting (e.g. aerodromes and airports).

The activities mentioned contribute in significant ways to the opportunities for the region's people and communities to provide for their social, economic, and cultural needs and they affect rural resources in different ways. The effects on the environment that result from activities in rural areas are often separated from those activities by time and space and the cumulative effects must be considered. The consistent administration of policy statements and plans is of key importance for the management of cumulative effects, and in order to achieve the objectives of policy statements and plans.

In circumstances where an activity serves both rural and urban areas, a location in the rural area will need to be assessed on its merits. Consideration of character, intensity and scale can assist in that evaluation. The activities in the bullet point list above are examples of activities that are typically associated with rural areas. Other considerations include the degree and extent to which the activity depends on rural resources, requires a rural location or will serve residents in rural areas.

Rural land also has the potential to provide for urban settlement in the future, and it is important to ensure that this potential, which provides for the reasonably foreseeable needs of future generations, is not unnecessarily or prematurely compromised.

Problems that arise from the interaction of activities and resources include the following:

1. Some activities deplete the life supporting capacity, quality or diversity of rural resources (such as the effects of inappropriate agricultural practices on the quality of soil and water resources, clearance of bush, removal of vegetation from stream margins, and draining of wetlands).
2. Some activities (such as the commitment of rural land to urban development, rural intensification, or the inappropriate subdivision of rural land) reduce access to rural resources.
3. Section 5 of the RM Act requires that rural resources be managed to meet present needs while maintaining options for future generations to meet their social, economic and cultural needs.
4. Conflicts arise because people value the resources in rural areas in different, and often conflicting, ways. e.g. Some farming activities, such as intensive animal keeping or orcharding, may give rise to effects beyond property boundaries such as odours, noise, or spray-drift.
5. In rural parts of the region some activities have reduced rural landscape quality and visual amenity and hence rural character.
6. Amenity values and safety are reduced due to the cumulative effects of increasing vehicular traffic movements on regional roads.
7. The scale of some development and activities locating outside of the Metropolitan Urban Limits (and the limits of rural and coastal settlements), has the potential to undermine a compact contained urban form and may increase travel demand in a manner that would adversely affect land transport systems that support the integration of land use and transport.

The scale and significance of issues in rural areas varies - not all are RM issues nor are they all of regional significance. Regional significance can arise through the scale of the issue, its area, extent, or because of actual or potential cumulative effects. These issues should be managed by the consistent administration of statutory resource management policies.

Part 2 of the RM Act and links with other chapters

Recognising the versatility of the Region's rural resources enables people and communities to provide for their social, economic and cultural wellbeing (section 5). It also ensures that opportunities are maintained for future generations to make resource use choices in order to meet their own needs (section 5 (2)(a)). In addition, the protection of the soils of the Region is provided for in section 5(2)(b) of the Act which requires the safeguarding of the life-supporting capacity of air, water, soils and ecosystems. The importance of the amenity values of the rural areas (section 7(c)) is also recognised in this issue. Section 7(g) requires that particular regard shall be given to the finite characteristics of natural and physical resources. Policies relating to rural issues are specifically addressed within this chapter and the Water Quality, Air Quality, Soil Conservation, Water Conservation and Allocation, Heritage, Pests and Minerals chapters.

2.4.5 Regionally significant physical resources, including infrastructure, are essential for the community's social and economic wellbeing. The location, development and redevelopment of infrastructure is of strategic importance in its effects on the form and growth of the region. However, the long term viability of regionally significant infrastructure and physical resources can be compromised by the adverse effects, including cumulative effects, of other activities. These regionally significant resources can equally give rise to adverse effects, including cumulative effects on the environment, and on communities. They can be adversely

affected by conflicts if sensitive uses are allowed to develop near them or if they are inappropriately located.

1. Regionally significant infrastructure

The Auckland Region has a large amount of nationally and regionally significant utility services as well as physical structures such as roads, rail, bridges, factories, commercial centres, offices and tourist facilities.

Infrastructural services and facilities, including utility networks and services, are necessary to enable people and communities (and future generations) to meet their economic and social wellbeing.

Regionally significant infrastructure includes the road, ferry and rail system ports, airports and airport flight paths, bulk water supply and drainage reticulation and associated works, solid waste disposal, energy transmission (electricity, gas and oil), electricity generation, transport networks (land and sea), telecommunications and radio communications networks and associated installations, and defence establishments. Universities and other tertiary institutions, large public hospitals and regional parks and reserves are also significant public infrastructure and services. Examples of regionally significant infrastructure are given in Appendix D.

The key issues involving regionally significant infrastructure are:

- Provision (or non-provision) of infrastructure is a major influence in the overall pattern and direction of regional development.
- The need for maintenance, expansion, replacement or upgrading of infrastructure or provision of new infrastructure in order to avoid adverse effects and/or to increase the capacity of infrastructure to accommodate growth.
- The need to avoid, remedy or mitigate the adverse effects generated by proposed changes to infrastructure and to consider alternative ways of avoiding or remedying them. Relocation of infrastructure or restrictions on the location of infrastructure or restrictions on the establishment of sensitive land uses in close proximity may be required to overcome the environmental problems faced. For existing infrastructure, alternatives are often limited to the consideration of matters of system efficiency rather than the relocation of infrastructure. For new infrastructure, alternatives are sometimes limited by the consideration of location.
- An absence of co-ordination between infrastructure providers and other agencies responsible for urban growth and development may increase the likelihood of adverse effects.

In recent years, utility services have undergone structural change through a process of privatisation and corporatisation. These utility companies are required to focus on their own areas of responsibility, and any co-ordination of utility provision will be on the basis of inter-agency co-operation. There is a need for infrastructure providers to co-ordinate the provision of regionally significant infrastructure so as to properly provide for the economic and social wellbeing of the regional community. At the regional level, the ARC will promote such co-ordination, where appropriate, as a means of achieving integrated management of the natural and physical resources and the strategic direction of the RPS.

Regionally significant infrastructure has had an important influence on the form and direction of the Region's development. New and upgraded infrastructure, particularly roads, public transport facilities and sewerage systems, can also play a major role in reinforcing the desired regional form which is aimed at increasing efficiency and the enhancement and protection of amenity values and significant heritage. In some instances the effects of and/or on regionally significant infrastructure may give rise to the need to evaluate the options for redeveloping, relocating, or restricting regionally significant infrastructure or neighbouring sensitive activities

2. Utility Servicing Thresholds

Auckland is facing a number of development thresholds as the demands on several major utility services and part of the transport network approach design capacities. Options for meeting demands on capacity may be constrained by the location, intensity and nature of both the facility and the proposed urban growth and intensification.

The population served by the Mangere Wastewater Treatment Plant is approaching design capacity. The extent and magnitude of urban development in West

Auckland is nearing capacity of the trunk sewer serving that area.

In addition, the effects of contaminated overflows from the old combined stormwater and sewerage system during rainfall have become less acceptable as public concern about environmental quality has risen. Such overflows have the potential to affect public health and limit public use of effected beaches and waterways.

Much of the presently urbanised area requires significant expenditure to upgrade stormwater and wastewater networks to remedy or mitigate adverse environmental effects and/or accommodate an expanding population. Drainage issues need to be considered on a catchment and city-wide basis and the most appropriate solutions and priorities found to ensure future population growth can be accommodated whilst appropriately mitigating ongoing adverse environmental effects. The regions Councils are working together to develop a more co-ordinated and integrated approach to the management of stormwater contaminants, including reduction at source and targeted stormwater treatment, which considers effects on receiving environments and priorities on a catchment and city-wide basis. A number of future growth areas, particularly rural and coastal settlements, also require significant infrastructure upgrades to meet the growth capacity and to satisfy new environmental standards particularly for discharges.

Electricity networks and services are approaching capacity thresholds due to ongoing and extensive growth and associated demand for electricity supply. The National Grid in particular is reaching capacity. Without significant investment, secure electricity supply into the Auckland and Northland Regions becomes increasingly difficult. In response to this a programme of upgrades of existing infrastructure servicing the Auckland and Northland Regions has been initiated. This programme will be ongoing to continue to ensure a reliable and secure supply of electricity, to meet the projected growth demands in those regions. The failure to do so will severely restrict the regions' economic and social growth and development.

Because of the developmental and environmental consequences which can arise when utility services are provided or extended, it will be essential to ensure that such works are planned and programmed within a strategic framework. Such services should, where practicable, be designed to support a direction of urban development which gives effect to the purposes of the RM Act.

Part 2 of the RM Act and links with other chapters

As with Issue 2.3.1, this issue is also linked to section 5 of the Act. Regionally significant infrastructure enables people and communities to provide for their social, economic and cultural wellbeing and for their health and safety. In meeting the needs of future generations and, in some cases, dealing with major environmental and public health issues, infrastructure is also linked closely to section 5(2)(a), (b) and (c). In addition, section 7 of the Act requires that particular regard shall be given to:

- The efficient use and development of natural and physical resources.
- The maintenance and enhancement of amenity values.
- The maintenance and enhancement of the quality of the environment.

All these provisions have particular relevance to the significant infrastructure of the Region. Policies relating to infrastructure issues are specifically addressed within this chapter and the Transport, Energy, Water Quality and Coastal Environment chapters.

2.4.6 It is important that Auckland's transportation system and its land use is well integrated. Without a high level of integration it will be difficult for the region to meet its social and economic needs and this will result in an inefficient use of resources and increase the adverse effects the transport system has on the environment.

Past development of Auckland's transport system has provided Aucklanders with a level of mobility and accessibility that is high by world standards and is based on the private use of motor vehicles. Investment from the 1960s onward in the development of the motorway system has encouraged outward expansion and decentralisation of the city.

Today, however, parts of the motorway system and arterial roading system are congested, especially at peak travel times. This reflects the inefficiency of Auckland's expansive low density form, and the diminishing effectiveness of the public transport system. Longer

travel times and greater numbers of vehicles exacerbate the adverse environmental effects of transport activities.

In addition, the public transport system has become primarily a commuter service, carrying a small proportion of workers and servicing mainly the central city, a destination which is no longer the Region's only significant employment focus.

The cause and effect relationship between land use and transport has been acknowledged for some time in Auckland. However, the lack of planned integration between the outcomes has contributed to a number of adverse effects to the environment.

The development of the motorway network has been a key contributor in the development of Auckland as a low density city since the 1960s. This low density of development, which includes single dwelling housing suburbs and single storied industrial areas, has had a number of adverse effects on the natural environment.

In turn this form of development has led to the need to invest even more in the roading network which has perpetuated the expansive growth of the city and the dependency on the motor vehicle for the vast majority of all trips being made in the region.

The adverse environmental effects of a road based transport system and of the low density urban form and lifestyle it supports are well known. These effects include;

- the loss of rural land which is valued for its agricultural, ecological and aesthetic qualities;
- increased emissions into the air of a variety of pollutants, including greenhouse gases;
- the lowering of water quality in waterways and harbours by polluted runoff from roads, including lead, zinc, copper, hydrocarbons and petro-chemicals;
- relatively high use of energy and reliance on consumption of non-renewable resources both in fuel use and in land use;
- impacts on sustainable urban form and design, including town centres, and on urban and rural amenity values.

While there are some community benefits associated with this low density form of development, there are also a number of direct and indirect adverse effects on regional and local communities. These include:

- adverse health effects from air emissions from vehicles;
- reduced community health and fitness from a lack of safe active transport modes;
- a high level of road deaths and injuries;
- other community impacts such as community severance caused by the development and expansion of the urban roading network.

This pattern of low density urban development and dependence on private motor vehicles has also made it difficult to provide for more sustainable transport modes such as effective public transport and walking and cycling opportunities. This is because low density development cannot support an efficient public transport system and segregated land uses (e.g. living in one part of the region, working in another) promote longer trips and restrict opportunities for walking and cycling.

Since the early 1990s land use patterns in Auckland have began to change with more growth being accommodated by way of urban intensification. However the majority of this intensification (through infill housing and medium density housing development in a number of business zones) has not always been coordinated with the maintenance and enhancement of existing passenger transport networks and the development of an integrated multimodal transport system. This form of intensification and land use provisions have perpetuated the pattern of more private vehicles trips and with it the associated adverse effects on the natural environment and the health and safety of communities.

In addition, this uncoordinated form of urban intensification is having an adverse impact on the efficiency and sustainability of the regions transport system. These impacts include:

- reverse sensitivity effects and costs placed on the roading network from urban development which has not addressed air quality and noise effects which arise from locating adjacent to busy roads;
- the reduced safety and efficiency of the roading network resulting from the cumulative addition of vehicles and driveways directly accessing the roading network;
- the inability to provide or coordinate improved accessibility for all transport modes;
- the loss of opportunities for mixed use high density development within and surrounding High Density

Centres and Intensive Corridors.

Transport and land use are both interrelated and interdependent. This is especially the case in the Auckland Region, where the transportation system passes through and serves a range of land uses and activities. Commercial and industrial business activities are changing their character within the Region, with less traditional manufacturing, and retail activity seeking locations outside commercial centres, and the rapid distribution of goods and services. Implementing the Growth Strategy will need to take into account changing trends in land use activities and their locational requirements, having regard to addressing the wider adverse effects of urban growth and the strategic integration of infrastructure with land use.

In particular, there is a need to ensure that future investments in regional transport maintain an efficient and effective transportation system, and support the more intensive land use pattern where High Density Centres and Intensive Corridors have been provided for.

A lack of integration between land use intensification and the transportation system (in particular the passenger transport network) will result in an under-utilisation of the land resource and greater development of low density neighbourhoods at the edge of the urban area. Passenger transport nodes should be reinforced and strengthened where these are:

a) within walking distance of higher residential density areas, High Density Centres, Intensive Corridors; or

b) in close proximity to mixed use and commercial activity nodes in High Density Centres and along Intensive Corridors.

Realising opportunities for intensification near passenger transport nodes will give effect to the Growth Strategy and the vision of a compact, contained urban form.

The Gulf Islands face particular transport issues including the need to relate access opportunities to the ability of the environment to cope with development and visitors and the need for special planning measures at key entry points (wharves and airports).

Part 2 of the RM Act and links with other chapters

The transportation system is essential for the social and economic wellbeing of the community. It is an important shaper of the Region's development, is a high user of energy, and also has an impact on the environment. The roading network is a highly significant component of Auckland's infrastructure (refer to Issue 2.3.2 for further details of this issue). Energy is included in the meaning of natural and physical resources and its efficient use is a matter requiring particular regard under section 7(b) of the Act. The environmental effects of transportation can be significant and avoiding, remedying, or mitigating those effects are provided for in section 5 of the Act. Policies relating to transport issues are specifically addressed in the Transport, Energy, Air Quality and Water Quality chapters.

2.4.7 Auckland's coastal environment is a fundamental part of its heritage and is sensitive to the adverse effects of inappropriate subdivision, use and development. It is also essential for the Region's social and economic wellbeing.

In this Region water quality is of major significance. Auckland's maritime setting is crucial to its identity and economy. The coastal marine area (CMA) represents 69% of the total area of the Auckland Region. The Region's coastline is lengthy and diverse, ranging from the rugged and wind-swept west coast to the protected harbours and beaches along the east coast and gulf islands.

The Hauraki Gulf and its islands are resources of regional and national significance for navigation and port purposes, fishing, recreation, tourism and settlement. The Hauraki Gulf Marine Park Act 2000 requires the Council maintains the interrelationship between the Hauraki Gulf, its islands and catchments to sustain the life supporting capacity of the environment. Sections 7 and 8 of the Act recognise the national significance of the Hauraki Gulf and sets out objectives for its management. An integrated management approach (including national, regional and local levels) is required to sustain these activities while avoiding the risk of environmental damage. The main harbours of the Kaipara, Waitemata and Manukau are semi-enclosed bodies of water which are susceptible to the adverse effects of stormwater runoff from land development and urban and rural activities. Stormwater runoff impacts water quality and has effects on ecology and the marine habitat. The Region's coastline includes a number of other significant harbours (Mahurangi, Whangateau, Bon Accord, Matiatia, Fitzroy and Tryphena), and many estuaries and rivers (such as the Matakana, Puhoi, Orewa, Weiti, Okura, and Wairoa). All of these are of ecological, recreational and visual

significance to the regional community. They are all sensitive to the ways in which land in their catchments is developed and used.

Harbours, such as the Mahurangi, sustain a variety of recreational uses as well as commercial shell fisheries. The catchment also contains large tracts of forest and some urbanisation. These potentially conflicting uses must be carefully managed to ensure this diversity of use is sustainable and the resource qualities are maintained.

The coast is a public asset which not only provides much of the character and identity of the Auckland Region but is important to the social, economic and cultural wellbeing of its residents. Maintaining or improving public access to the coast is a matter of national importance to be protected, promoted and, if required, negotiated with landowners.

Development on the coast for such purposes as the port, marinas, and some particular forms of commerce, may affect the natural character of the coastal environment and may not be appropriate in all coastal areas. It can also be a catalyst for urbanisation with additional effects on the marine environment. It is therefore important that its location and effects be planned and managed within the strategic framework for regional development. Development along the coast should also take into account potential hazards from coastal erosion and the unpredictability of the effects of global climate change.

There is increasing pressure for settlement in coastal areas, and there is a concern that some coastal settlements are losing coastal natural character, landscape and amenity values through such things as the proliferation of buildings and loss of native vegetation. Future settlement needs to be managed carefully in terms of its location, extent, scale and character so as to avoid such adverse impacts on the Region's coastal environment. This includes in the Waitakere Ranges Heritage Area (refer Appendix I) where there is little capacity to absorb further subdivision and the built environment should remain subservient to the natural landscape.

Most of urban Auckland drains into harbours, estuaries, or coastal waters which are valued and used in a wide variety of ways. The protection of these areas already imposes unavoidable costs, in terms of managing the environmental consequences and treatment of stormwater runoff. Continuing urban expansion would extend these effects and increase the costs of mitigating or remedying adverse effects on the Region's marine areas.

Growing awareness of the pollutive effects of urban stormwater was brought into focus by the Manukau Harbour Water Quality Management Plan, 1990. It showed stormwater runoff from urban areas to be the greatest contributor of toxic contaminants to that harbour. Urban stormwater is contaminated by a wide range of sources, including spills by industries, products of vehicle operation washed from roads, faeces of domestic pets, and sediments from land under development and from home gardens.

This requires a combination of approaches such as public education to reduce contamination at source and prioritising catchments for appropriate stormwater treatment.

Part 2 of the RM Act and links with other chapters

This particular issue is linked to the provisions of Part 2 of the Act, in particular, section 5 and Matters of National Importance, section 6(a) which provides for the preservation of the natural character of the coastal environment. Policies relating to coastal environment issues are specifically addressed in the Coastal Environment, Heritage, Water Quality, Natural Hazards and Matters of Significance to Iwi chapters.

2.4.8 Auckland's heritage is important because it gives Auckland its uniqueness and sense of identity, but some of this is under threat.

Auckland has a unique and distinctive natural and cultural heritage which is central to the identity of communities, groups and individuals in the Region. It is also important for the economic, social and cultural wellbeing of the Region. In addition, the intrinsic values of Auckland's ecosystems and natural areas and their biodiversity are important and in need of protection.

At a strategic level, the Waitemata, Manukau and Kaipara Harbours, Waitakere Ranges Heritage Area (refer Appendix I), Hauraki Gulf Islands, important bush-clad escarpments and volcanic features (cones and craters) are major features of natural heritage which contribute to Auckland's identity. Many of these features also hold associations with the past for the Tangata Whenua of the Region. In many places in the Region indigenous vegetation has been reduced to a level where the remaining remnants are no longer sustainable as viable ecosystems. Wetlands have been progressively drained so that the remaining wetlands are now of special value because of their rarity. It is also essential to control plant and animal pests which can damage important natural

heritage in urban and rural areas.

Historic and special character buildings, sites and places also play an important part in the retention of the Region's heritage. It is essential that these buildings be identified and given appropriate classification and protection in district plans and through the provisions of the Historic Places Act (HP Act).

Respect for the vital contribution heritage makes to the identity of Auckland and recognition of the importance of the life-supporting capacity of ecosystems and natural features are constraints which mould the form and direction of development in the Region. In certain cases there is a need for a greater level of protection from adverse effects than has been provided in the past. One method of achieving this is to ensure there is no significant increase in the intensity of development. Examples include the volcanic cones and Waitakere Ranges Heritage Area, (refer Appendix I).

Part 2 of the RM Act and links with other chapters

The protection of the Region's heritage (natural and cultural) is provided for in Part 2 of the Act. In particular: section 6(b) provides for the protection of outstanding natural features and landscapes; section 6(c) provides for the protection of significant indigenous vegetation and habitats; and section 6(e) provides for the relationship of Maori with their ancestral lands, water, sites, waahi tapu and other taonga, all as matters of national importance. In addition, particular regard shall be given to the recognition and protection of heritage values of sites, buildings, places, or areas (section 7(e). Policies relating to heritage issues are specifically addressed in the Heritage, Matters of Significance to Iwi and Pests chapters.

2.4.9 Tangata Whenua are under increasing pressure to manage their ancestral taonga.

Management of the ancestral taonga by Tangata Whenua is being affected by:

- The effects of Auckland's regional growth and development on the relationship of Tangata Whenua with their ancestral taonga. Growth and development has also been associated with pollution of waterways, reduction in natural and cultural heritage, and reduced access to heritage and sites of significance to Tangata Whenua.
- Impediments to Tangata Whenua in their effective involvement in sustainable management of their ancestral taonga. These impediments include misunderstandings, lack of awareness of rights and responsibilities, limited resources to participate, and difficulties in dealing with official structures and systems.
- Lack of recognition of the Treaty of Waitangi in the administration of resource management. With the RM Act, Tangata Whenua have expectations that new procedures will be in place to ensure that, as far as practicable, future Treaty grievances pertaining to the management of natural and physical resources will be avoided.

Part 2 of the RM Act and links with other chapters

This issue is linked to sections 6, 7 and 8 of the Act. Section 6 provides for the relationship of Maori with their taonga as a matter of national importance; section 7(a) states that particular regard shall be had to kaitiakitanga; and section 8 states that the principles of the Treaty of Waitangi (Te Tiriti o Waitangi) shall be taken into account in exercising powers and functions under the Act. Policies relating to Tangata Whenua issues are specifically addressed in the Matters of Significance to Iwi Chapter and in most other chapters.

2.4.10 There is a diminishing supply of vacant, or underutilised, business land to provide for future economic development. The provision and location of business land is of strategic importance in its effects on the form and growth of the region.

Economic growth can support a higher standard of living. To provide for the economic well-being of people and communities, the Region seeks to encourage sustainable economic development, whilst protecting agreed social and natural values. A compact urban environment needs to efficiently utilise remaining business land whilst providing sufficient opportunities and flexibility for business growth.

Existing High Density Centres and in some cases Intensive Corridors represent an agglomeration of regionally significant physical resources. Such areas play an important role in providing for the economic and social well-being of the region and have an associated value and range of benefits to the community. Subject to integration of land-use and transportation, and maintaining the important role of Commercial Centres, Commercial Activities located along Intensive and other Corridors could contribute to the economic and social well-being of the community. This presents challenges for the identification of appropriate mechanisms to ensure that such High Density Centres and Intensive Corridors are sustainably managed for existing and future communities, whilst recognising appropriate opportunities for commercial growth in other locations.

Auckland is the key industrial and commercial centre for New Zealand. Important commercial centres are situated throughout the Region in areas such as the CBD, and other centres such as Newmarket, St Luke's Centre, Manukau, Henderson, New Lynn, Takapuna, Westgate, Albany, Orewa, Pakuranga, Papatoetoe, Glenfield, Howick, Browns Bay, and Manurewa. Other areas for light and heavy industry are also located throughout the region in areas such as Albany, the Wairau Valley, Penrose and Mt Wellington, East Tamaki, Manukau and Auckland Airport. A range of other business areas are also established in many other parts of the Region.

In a compact urban environment it is important that Commercial Centres, Corridors and industrial areas are able to grow, in accordance with social, economic, cultural and environmental outcomes. Commercial centres in particular can benefit economically from increased intensification and efficient use of available land. If development in these areas is well designed, and contains a mixture of activities, this will ensure that the centre becomes multi-functional. While residential development will be encouraged in such centres, residential development will need to be appropriately designed to ensure that the introduction of dwellings does not result in reverse sensitivity effects on commercial activities.

The relative importance of commercial centres changes over time due to competition and new developments. It is important that plans recognise the dynamics of change and also that the adverse effects of change on the environment including the form and direction of urban growth are adequately considered and monitored. The grouping of activities that have similar environmental effects is supported where this enables economic growth and such grouping enables the avoidance, remedying or mitigation of any adverse environmental effects that might otherwise be caused. Whether such activities are grouped or not, it is important that their location and design serves to enable the effective management of adverse environmental effects. Commercial centres are important community focal points particularly where they provide opportunities for the public and private sectors to co-ordinate their services, including transport, for the benefit and accessibility of the community.

In the past, business growth has relied largely on expanding onto greenfield sites. Accommodating future growth through continual expansion without also considering the efficient utilisation of existing business land would be unsustainable and contrary to the RGS. However it is recognised, that, while there remains a shortage of business zoned land, particularly for land extensive industrial activities, expansion into Greenfield land will need to be provided for, including locations outside of the existing MUL where there is a proven sub-regional shortage of such land. In some locations, expansion onto Greenfield sites may also be the most appropriate means of providing for more localised employment opportunities in those areas where there is an employment/residential imbalance. The employment residential imbalance is a particular issue in the western sector of the region. Addressing this imbalance will assist in reducing the need to travel longer distances for employment; as one means of achieving better integration of land use and transport.

Similarly local planning for economic development has generally allowed a broad range of business activities to locate within broadly defined business zones. This has meant retail and service sector businesses competing for the same business land as manufacturers and other land extensive business sectors. In some town centres in the region there are remnant industries that cause significant adverse effects that impact on other commercial activities located nearby.

Commercial activities that are best suited to locate and develop in High Density Centres and Intensive Corridors should be enabled to do so within those areas. Outside of the localities of High Density Centres and Intensive Corridors, such activities should be discouraged from locating where they would compromise the achievement of a compact sustainable urban form and sustainable urban land use intensification.

There is in addition, a range of business activities, including a limited range of retail (particularly larger format retail) activities which due to form, scale or customer base are ill-suited to locating in High Density Centres and Intensive Corridors. These include activities that require extensive land, have noxious emissions, contribute to reverse sensitivity problems and create adverse effects on the environment. Such activities should be encouraged to locate in business areas that are zoned specifically for such activities so that adverse effects can be adequately avoided, remedied or mitigated. Although there is some regional capacity for future growth in these heavy business areas, it is recognised by the ARC that future business growth is likely to lead to a shortage of vacant business land in such business areas and new greenfield land may be required to provide for future growth.

Increasing populations will create an increased demand for commercial, particularly retail, activity. The availability of Retail Activities is particularly important to provide for the community's wellbeing by ensuring that consumers have ready access to a choice of goods and services. There is a wide spectrum of Retail Activities in terms of form, scale, function, transportation effects and customer base. Whilst the majority of Commercial Activities will continue to locate in Commercial Centres, a centre location may not always be suitable for all types of retail activities due to a number of factors including their function, as well as site requirements and size. It may therefore be appropriate in a number of circumstances, to locate such activities along Intensive Corridors and elsewhere in business zones, subject to ensuring any adverse environmental effects are appropriately managed.

Recognition of the important industrial and commercial base of the Region is essential in resource management and strategic planning. It is crucial for the economic and social wellbeing of the community. Local authorities should ensure that the introduction of mixed use zones (e.g., residential and commercial) or encroachment of housing on quarrying and industrial areas, especially those storing or using hazardous substances, do not impose high costs on or prejudice the future use of industrial sites due to incompatibility of uses.

Part 2 of the RM Act and links with other chapters

As with Issues 2.4.1, this issue is also linked to section 5 of the Act. Sustainable economic development and the provision of business land enables people and communities to provide for their social, economic and cultural well-being and for their health and safety. Also as already identified in Issue 2.4.1, the Region must accommodate future population growth and economic development (see section 5 of the RM Act). Accommodating growth also fulfils the requirement of section 5(2) (a) to meet the reasonably foreseeable needs of future generations. Specific objectives and policies related to sustainable economic development and the provision of business land are contained within Strategic objectives and the policies related to urban containment and structure.

2.5 From issues to Strategic Direction

The RM Act requires the RPS to provide an overview of the resource management issues relevant to the Region together with policies and methods necessary to enable the resources of the Region to be managed in a sustainable and integrated manner.

Essentially this requires, in addition to the protection of the natural environment, recognition of those other resources and activities which enable people to provide for their continuing economic, social and cultural wellbeing and their health and safety, and the identification of the issues which need to be addressed. Section 5 of the RM Act also requires consideration of three conditions over the management of the use, development and protection of the natural and physical resources of the Region.

The first stated requirement in the RMA is to sustain resources to meet the reasonably foreseeable needs of future generations. The Strategic Direction recognises the needs of future generations by:

- managing future growth and development to achieve sustainable outcomes;
- ensuring the Region has the capacity to accommodate growth and development;
- enabling the providers of significant regional resources to meet economic and social needs of the community while ensuring that adverse environmental effects are avoided remedied or mitigated;

- improving urban efficiency.

Guiding development in a way which avoids foreclosing future options ensures that future generations will be in a position to make appropriate resource use choices in order to meet their own needs.

The second requirement stated in the Act is to safeguard the life-supporting capacity of air, water, soil and ecosystems. The Strategic Direction is concerned with the protection of the life-supporting capacity of these resources in the Region. It also recognises that some of these resources have already been degraded and seeks their remediation.

The third requirement is that measures be taken relating to any adverse effects on the environment. Where an activity or the use or development of any resource results in, or is likely to result in, some adverse effects on the environment, the RM Act identifies three approaches to achieving a balance of competing values and interests involved. These are to 'avoid' adverse effects, to 'mitigate' the effects, or where the resources are already affected, to 'remedy' the adverse effects.

The strategic response is to avoid significant adverse effects, especially where the effects are not easily anticipated or, where cumulatively over time, they carry costs (social, economic or environmental). Failure to respond effectively can lead to significant irreversible impacts which cannot be remedied or mitigated. It is also recognised that not all adverse effects can be avoided as a result of development processes. In such circumstances the strategic response is to seek a direction that leads to the least adverse effect which is most capable of being managed over the long term.

The key factors to be considered in the integrated management of the Region's natural and physical resources are:

- Auckland is the largest growth centre in New Zealand, in terms of population increase, urban development and the physical take-up of land, and nearly all of the Region's resource management issues stem from the impacts of this development on natural and physical resources.
- The continuing growth of urban population results in an ongoing need for more housing, jobs, regional infrastructure, transport facilities, and other services, with cumulative effects on the land and water resources of the Region, and on its air quality.
- The effects of urban development and a large urban population extend widely over the rural parts of the Auckland Region. These effects create pressure for urban-generated countryside living, resource-based recreation, and growing markets for rural produce.
- New regional infrastructure and transportation and the extension of existing services can have a profound impact on the form and direction of the Region's development and consequential, as well as direct, potential impacts on the environment.
- Auckland's regionally significant resources, including infrastructure, and facilities and services for transport and energy are essential to the community's social and economic wellbeing. New infrastructure and the extension of existing services can have a profound impact on the form and direction of the Region's development.
- Auckland already has a number of serious environmental concerns which need attention. These include degradation of some waterways, air quality concerns in some urban areas and loss of natural and cultural heritage. Developmental pressures have the potential to exacerbate those problems.

In the development of a regional strategy, the form and direction of future growth provides a focus around which the integrated management of natural and physical resources can best be achieved. This is because, in determining an appropriate direction and form for Auckland's future development, all resource management objectives need to be considered. That is, land management, water quality, heritage, coastal, air quality, landscape, social, economic, energy, transportation and other infrastructure objectives all have to be recognised and taken into account in order to provide for the integrated management of all the Region's resources.

For the above reasons, it is concluded that the strategic direction for the Region should guide development in a direction and towards a form which will provide appropriately for the Region's growth while managing the resources of the Region in a sustainable and integrated manner, as required by section 59 of the RM Act.

An overview of the issues arising in the Region leads to the conclusion that to achieve the purposes of the RM Act it is necessary to:

- Auckland is the largest growth centre in New Zealand, in terms of population increase, urban development and the physical take-up of land, and nearly all of the Region's resource management issues stem from the impacts of this development on natural and physical resources.
- The continuing growth of urban population results in an ongoing need for more housing, jobs, regionally significant infrastructure, transport facilities, and other services, with cumulative effects on the land and water resources of the Region, and on its air quality.
- New development occurring in close proximity to regionally significant infrastructure can have an adverse effect on the function and operation of services necessary to support continuing population growth.
- The effects of urban development and a large urban population extend widely over the rural parts of the Auckland Region. These effects create pressure for urban-generated countryside living, resource-based recreation, and growing markets for rural produce.
- New regionally significant infrastructure and transportation and the extension of existing services can have a profound impact on the form and direction of the Region's development and consequential, as well as direct, potential impacts on the environment.
- Auckland's regionally significant resources, including infrastructure, and facilities and services for transport and energy are essential to the community's social and economic wellbeing. New infrastructure and the extension of existing services can have a profound impact on the form and direction of the Region's development.
- Auckland already has a number of serious environmental concerns which need attention. These include degradation of some waterways, air quality concerns in some urban areas and loss of natural and cultural heritage. Developmental pressures have the potential to exacerbate those problems.

In the development of a regional strategy, the form and direction of future growth provides a focus around which the integrated management of natural and physical resources can best be achieved. This is because, in determining an appropriate direction and form for Auckland's future development, all resource management objectives need to be considered. That is, land management, water quality, heritage, coastal, air quality, landscape, social, economic, energy, transportation and other infrastructure objectives all have to be recognised and taken into account in order to provide for the integrated management of all the Region's resources.

2.6 The Strategic Direction

The strategic direction for the Region should guide development in a direction and towards a form which will provide appropriately for the Region's growth while managing the resources of the Region in a sustainable and integrated manner, as required by section 59 of the RM Act.

This is further reinforced by the requirement of the Local Government (Auckland) Amendment Act 2004 which requires that the growth concept in the Auckland Regional Growth Strategy be given effect to through this RPS and other planning documents in the region.

An overview of the issues arising in the Region leads to the conclusion that to achieve the purposes of the RM Act and Local Government (Auckland) Amendment Act 2004 it is necessary for the Strategic Direction to:

- contain expansion of Auckland's urban development while still providing for population and economic growth;
- require that High Density Centres and Intensive Corridors within the metropolitan urban limits are the focus for accommodating urban growth through intensification;
- provide restricted opportunities for greenfields development through limited movement of the metropolitan urban limits;
- recognise that rural towns and settlements are an important focus for accommodating rural growth in a contained compact form;
- direct urban, rural and coastal settlement development and countryside living to areas in a form which is efficient in terms of travel patterns and energy use, supports infrastructure investment and avoid, remedies, or mitigates adverse effects on the Region's natural and physical resources including existing infrastructure and, the Region's volcanic cones;

- guide the providers of urban infrastructure and transport facilities or services so that they plan and programme their facilities or services so as to support urban development being contained within urban limits and growth being accommodated through intensification at selected locations;
- remedy or mitigate degraded natural resources which are life-supporting (air, water, soils and ecosystems), and protect those significant natural and physical resources which provide for the foreseeable needs of future generations;
- guide Councils to plan for the regeneration of existing sub regional centres and town centres to maximise opportunities for public and private investment;
- protect the important natural and cultural heritage, landscape and amenity values of significant landscapes in the Region, such as the Waitakere Ranges and the volcanic cones, from the adverse effects of intensification;
- promote the protection, restoration and enhancement of the heritage features of the Waitakere Ranges Heritage Area (refer Appendix I) and recognise that the area has little capacity to absorb future subdivisions without creating adverse effects, including cumulative effects, on these heritage features.

The Strategic Direction comprises the following Strategic Objectives and Policies. It is based on Part 2 of the RM Act, the LGAAA, consideration of the overview issues in 2.4 of the RPS, the ARC's functions under the RM Act and the provision of policies and methods to achieve integrated management of the natural and physical resources of the whole Region. These objectives and policies are to be considered in conjunction with the objectives and policies in other chapters of the RPS.

2.6.1 Strategic Objectives

1. ***To ensure that provision is made to accommodate the Region's growth in a manner which gives effect to the purposes and principles of the Resource Management Act 1991 and Section 40 of the Local Government (Auckland) Amendment Act 2004, and is consistent with these Strategic objectives and with the provisions of this RPS.***
2. ***To maintain and enhance the overall quality of the environment of the Auckland Region, within and outside the urban area, including its unique maritime setting, volcanic features, significant landscapes, cultural and natural heritage values, and public open space.***
3. ***To achieve a compact well designed more sustainable urban form served by an integrated multimodal (private vehicles, public transport, walking and cycling) transport system.***
4. ***To develop and manage the region's transport system including road, rail, ferry, bus, cycling and pedestrian networks and services in a manner that supports urban development and land use intensification.***
5. ***To achieve a built environment within the region's metropolitan area and rural and coastal settlements that has a sense of identity and character, has a range of densities and uses, maintains or enhances its amenity values, and is visually pleasant, functionally efficient, environmentally sustainable and economically vibrant.***
6. ***To achieve a high level of mobility and accessibility within the Region that provides for an integrated, responsive, sustainable, safe, affordable and efficient movement of goods and people.***
7. ***To protect regionally significant mineral resources from the adverse effects of inappropriate subdivision, use or development.***
8. ***To protect the rural land resources from the adverse effects of inappropriate subdivision, use or development.***
9. ***To protect amenity values, rural character, and landscape values of rural areas, including volcanic cones, from the adverse effects of inappropriate subdivision, use or development.***
10. ***To preserve the natural character of the coastal environment, whilst ensuring that the use of the coastal environment by those industries and activities which serve the needs of the Region and which depend on a coastal location is appropriate and efficient.***
11. ***To protect the intrinsic values of the Region's natural resource base, within and outside the urban area, and to make appropriate provision for the avoidance, remediation or mitigation of adverse effects on the Region's environment, including the***

identification of significant natural features and landscapes, and areas of significant indigenous vegetation and habitat, and protection of these from inappropriate subdivision use and development.

12. *To encourage the efficient use of natural and physical resources, including urban land, infrastructure, and energy resources.*
13. *To preserve and protect a diverse and representative range of the Region's heritage resources*
14. *To manage the Region's natural and physical resources in an integrated manner.*
15. *To involve the Tangata Whenua as kaitiaki of the Region's natural resources.*
16. *To improve the overall health, well being and quality of life of the people of the Region.*
17. *To enable the redevelopment, operation and maintenance of existing and provision of new regionally significant infrastructure.*
18. *To develop a network of High Density Centres and Intensive Corridors as the focus for the region's urban growth.*
19. *To enable sustainable economic development to occur through Business Activities in appropriate locations throughout the region.*
20. *To protect the Waitakere Ranges Heritage Area from inappropriate subdivision, use and development, and to promote the protection restoration and enhancement of the area's heritage features (refer Appendix I).*

Strategic Policies

There are six Strategic Policies:

- Urban Containment
- Urban Structure
- Urban Design
- Land Use and Transport Integration
- Infrastructure
- Rural Areas

2.6.2 Strategic Policies - Urban Containment

1. *Urban activities are to be contained within the metropolitan urban limits (MUL) shown on Map Series 1 and within the limits of rural and coastal settlements such that:*

   (i) There is no provision for new, or expansion of existing, urban activities outside the metropolitan urban limits as defined and shown in the RPS, except as provided for in Policy 2.6.2.2;

   (ii) There is no expansion of rural and coastal settlements outside the limits of their existing urban areas except as provided for in Policy 2.6.2.2;

   (iii) There is no provision for new rural and coastal settlements except as provided for in Policies 2.6.2.4 and 2.6.2.5.

2. *Extensions may be made to the metropolitan urban limits shown on Map Series 1 and to the limits of rural and coastal settlements from time to time, but only where:*

   (i) The strategic direction of containment and intensification is not compromised. In particular the extension does not compromise intensification within the areas identified for intensification in:

      (a) Schedule 1 that are within the same geographical Sector (North/West, Central or South) where the extension is located; and

      (b) the district plan(s) that relate to that geographical Sector;

   (ii) The extension avoids areas of:

      (a) significant ecological or heritage values;

      (b) outstanding natural features and landscapes;

      (c) regionally significant landscapes; or

      (d) high natural character;

      including areas or parts of areas identified in Appendix B that contain these values, and the area identified in Appendix I;

   (iii) It can be demonstrated that infrastructure and services, including utility services, roading and public transportation facilities and services, and community and health services, such as schools, libraries, public open spaces can be provided appropriate to the scale of the extension;

(iv) The extension:

(a) is contiguous with existing urban development; and

(b) can be efficiently connected to existing physical infrastructure or serviced by new infrastructure; and

(c) in the case of rural and coastal settlements, the extension will support and complement existing rural and coastal settlements;

(v) Areas where there is a risk of damage to land or property or of loss of life occurring as the result of the impact of natural hazards, such as flooding or land instability, are avoided;

(vi) The new boundary provides a clear differentiation between urban and rural areas in order to reduce pressure for future urban expansion, including through the use of:

(a) water catchment boundaries; and/or

(b) visual catchment boundaries; and/or

(c) major roads and transport routes; and/or

(d) land protected from development (through legally binding protection mechanisms or vesting as public reserve);

(vii) It achieves a defensible long term limit to the urban area;

(viii) Conflicts or incompatibilities between adjoining land uses are avoided or mitigated;

(ix) Areas of elite land are avoided;

(x) It is demonstrated that there is insufficient undeveloped and/or appropriately zoned land, available within the metropolitan urban limits, or the limits of rural or coastal settlements, within the particular geographical Sector (North/West, Central or South) in which the extension is located;

(xi) An integrated transport assessment is provided in accordance with the matters outlined in Appendix J; and

(xii) In the case of proposed extensions to the metropolitan urban limits, the following matters are to be taken into account:

(a) the need to redress any existing residential/employment imbalance;

(b) the need to provide for a range of housing types;

(c) for land extensive industrial activities, the typical requirements set out in the definition of land extensive industrial activities in Appendix D.

3. Countryside living is subject to constraints as to location, scale and extent and should not compromise urban consolidation policies (refer to Strategic Policies – Rural Areas and methods).

4. New rural or coastal settlements may be provided for where the proposal:

(i) only utilises existing titles and/or consented lots from within the rural area within the particular geographical Sector (North/West, Central or South) in which the new rural or coastal settlement is located; and

(ii) meets the requirements in Policies 2.6.2.5(iii), (iv), (v), (vi) and (ix), and Method 2.6.3.10.

5. New rural or coastal settlements that do not meet Policy 2.6.2.4(i) may be provided for where the proposal:

(i) does not compromise the strategic direction of urban containment and supports the integration of landuse and transport;

(ii) does not compromise the planned growth of existing rural and coastal settlements and/or planned extensions of the MUL;

(iii) avoids the following:

(a) areas of:

- *significant ecological or heritage values;*
- *outstanding natural features and landscapes;*
- *regionally significant landscapes; or*
- *high natural character*

including areas or parts of areas identified in Appendix B that contain those values and the area identified in Appendix I;

(b) areas where there is a risk of damage to land or property or of loss of life occurring as the result of the impact of natural hazards, such as flooding or land instability;

(c) areas of elite land;

(iv) achieves environmental restoration and/or enhancement relevant to the scale and/or location of the proposal;

(v) avoids or mitigates reverse sensitivity effects between incompatible land uses;

(vi) provides the following infrastructure and services, as relevant to the scale of the proposal:

(a) utility services;

(b) roading and transportation facilities and services; and

(c) community and health services, and public open spaces;

(vii) provides a clear differentiation between urban and rural areas in order to reduce pressure for future urban expansion, including through the use of:

(a) water catchment boundaries; and/or

(b) visual catchment boundaries; and/or

(c) major roads and transports routes; and/or

(d) land protected from development (through legally binding protection mechanisms or vesting as public reserves);

(viii) provides a mixture of activities including commercial, residential, and community activities and enables the provision of sufficient land to enable local employment opportunities, as relevant to the scale of the proposal;

(ix) provides an integrated transport assessment in accordance with the matters outlined in Appendix J, in a manner relevant to the scale of the proposal; and

(x) takes into account whether there is insufficient undeveloped and/or appropriately zoned land available within the particular geographical Sector (North/West, Central or South) in which the proposed rural or coastal settlement is located.

2.6.3 Methods - Urban Containment

1. *District Plans shall provide for the urban containment of metropolitan Auckland within the metropolitan urban limits shown on Map Series 1 in the RPS. In particular they will include appropriate provisions to avoid urban activities locating outside the metropolitan urban limits and limits of rural and coastal settlements and to accommodate urban activities within these limits.*

2. *District plans shall identify areas suitable for urban intensification within the MUL that are able to accommodate reasonably foreseeable growth and include provisions to enable and encourage this to occur.*

3. *The ARC upon request from a territorial authority within the Region will consider changes to the RPS to extend the metropolitan urban limits in accordance with Policy 2.6.2.2. Information required in support of a request will include but not be limited to:*

(i) an assessment of how the provisions of this RPS are addressed;

(ii) an integrated catchment management plan;

(iii) all relevant applications for discharge consents, including stormwater discharges;

(iv) a report demonstrating how any environmental, including human health, issues arising from the catchment management plan and application for discharge consent will be addressed;

(v) an assessment of how any air quality management issues and any potential health will be addressed;

(vi) a structure plan in accordance with the matters set out in Appendix A: Structure Planning;

(vii) District Plan policy guidance and rules to a level of detail sufficient to establish:

(a) the types and densities of activities provided;

(b) the extent of potential impermeable surfaces;

(c) how any environmental issues arising from the catchment management plan

and application for a discharge consent will be addressed;

(d) the sequencing and timing of the release of land for urban development;

(e) how urban design outcomes will be achieved;

(viii) an open space plan having regard to the Auckland Regional Open Space Strategy;

(ix) where appropriate, provide a report detailing the discussions and agreements of the proposed change from the territorial local authority partners to the relevant Regional Growth Strategy Sector Agreement.

4. The ARC will initiate changes to extend the metropolitan urban limits to incorporate areas identified in Schedule 1B, upon request from the appropriate Council and upon receipt of the information outlined in Method 3 above, and subject to the information addressing all relevant issues to a satisfactory standard.

5. Each TA shall set out within its District Plan issues, objectives, policies and methods for managing the extension of rural and coastal settlements and Countryside living. This shall:

(i) be an integrated consideration of the relevant issues;

(ii) be integrated with the urban, coastal and rural components of the District Plan;

(iii) include matters raised in Appendix A and in Policy 2.6.2.2 and Method 2.6.3.3 above.

(Refer also to 2.6.17 Strategic Policies – Rural Areas and 2.6.18 Methods)

6. The ARC and TAs will undertake 'Capacity for Growth' surveys every five years to determine the provision and take up of residential and business urban development and redevelopment opportunities (including vacant land) within the metropolitan urban limits and the limits of rural and coastal settlements.

2.6.4 Reasons - Urban Containment

The Region's sustained growth is accompanied by ongoing development and redevelopment with consequent effects on natural and physical resources.

Section 40 (1) of the Local Government (Auckland) Amendment Act 2004 directs the Regional Policy Statement to give effect, in an integrated manner to the "Growth Concept" in the Auckland Regional Growth Strategy. The Growth Concept seeks that growth is managed by promoting quality, compact urban environments with the intensification of selected High Density Centres and Intensive Corridors. Growth for the most part (approximately 70%) will be contained within the existing metropolitan area with development outside current metropolitan urban limits only where environmental accessibility and community principles can be met. Land use and land transport provisions should be integrated to manage growth and provide for mobility in an efficient manner.

A Memorandum of Understanding (MoU) commits all territorial local authorities in the Auckland Region to the Regional Growth Strategy including its vision, outcomes and principles as well as a sector-based planning approach to provide detail on how the Strategy will be implemented at a local level.

Along with the Local Government (Auckland) Amendment Act 2004 and the Auckland Regional Policy Statement, Sector Agreements are a key tool for implementing the Regional Growth Strategy, and identify High Density Centres and Intensive Corridors, where urban intensification can occur. These agreements include the form, sequencing and location of growth opportunities, and the planned capacity for residential, recreational, business and commercial expansion.

The Metropolitan Urban Limits help to manage the impacts of development, providing sufficient opportunities for communities to grow and develop while protecting the Region's natural resources and significant heritage resources from the adverse effects of development. Auckland's historical pattern of urban expansion has resulted in significant impacts on the region's environment. Continued uncontrolled expansion outside the Region's limits to growth can have significant impacts on the Region's natural environment and can result in the inefficient provision of infrastructure and transport networks. Growth should be managed in an integrated manner, ensuring the efficient provision of infrastructure and transport in a compact and contained urban form.

Policy 2.6.2 provides for the containment of urban activities within the metropolitan urban limits and the

limits to rural and coastal settlements. These limits have been defined to minimise adverse effects of particular urban activities on regionally significant resources, including:

- areas of high amenity value;
- natural heritage and cultural heritage features and areas;
- the productive soil resource of the region;
- vulnerable ecosystems;
- areas prone to where the quality of the environment is already degraded and requires improvement;
- areas where there is a risk of damage to land or property or of loss of life occurring as the result of the impact of natural hazards such as flooding or land instability;
- strategic infrastructural facilities such as airports/ airfields;
- significant natural resources including aggregate resources; and
- integration with the transport network.

The definitions of urban activities and rural activities provide the elements to be considered when evaluating an activity sits on the continuum between urban and rural activities. Such elements will include character, intensity and scale.

The definition of the metropolitan urban limits also takes account of:

- the need to promote an urban form which maximises opportunities for the integration of land uses with transport networks;
- the amount of land available for peripheral expansion having regard to the strategic direction of urban containment and intensification;
- the need to promote the efficient use of existing urban infrastructure and where necessary to enable the provision of new infrastructure;
- the incompatibility of urban uses with activities such as airports, intensive horticulture or activities storing or processing hazardous substances.

The above factors are also consistent with the provisions of the New Zealand Coastal Policy Statement which addresses the use, development and protection of land in the coastal environment. In addition, the definition of metropolitan urban limits takes account of the need to maintain a clear differentiation of character, especially visual character, between urban and rural areas. This should also be taken account of in defining the limits to rural and coastal settlements.

Policy 2.6.2.4 and Policy 2.6.2.5 provide for two different means of establishing new rural or coastal settlements. Under Policy 2.6.2.4 a proposal must only utilise existing titles and/or consented lots from within the geographical sector in which the new settlement is to be located, as well as meeting five of the criteria set out in Policy 2.6.2.5. If a proposal does not only utilise existing titles and/or consented lots from within the relevant geographical sector, Method 2.6.3.10 and all the criteria set out in Policy 2.6.3.10 and all the criteria set out in Policy 2.6.2.5 must be met.

The Strategic Policy provides a framework for limited extensions to the metropolitan urban limits and to the limits of new and existing rural and coastal settlements. The policy direction is based upon not compromising the strategic direction of containment and intensification, supporting the integration of landuse and transport, and avoiding adverse effects on the environment.

It is also important that any provision for expansion or intensification of rural towns and coastal settlements gives consideration to whether residential development could readily outstrip growth in employment opportunities, resulting in long and energy inefficient commuting trips into metropolitan Auckland.

It is expected that Catchment Management Plans and Structure Plans will be prepared for each growth area identified in Schedule 1 to enable major stakeholders to be involved in planning the physical form of developments in each area, including co-ordinating the programmes for infrastructure and service provision. The Regional Practice and Resource Guide to Structure Planning seeks to promote a consistent approach to structure planning by providing a reference for territorial authorities, providers of infrastructure and services, and other stakeholders in the development process.

It will also be necessary to monitor ongoing growth and development in the region and, within the broad framework of the Strategic Direction, to ensure that the detailed policies continue to make appropriate and effective provision for the Region's growth.

Historically, complex and liberal provisions in district plans for control of the subdivision of rural land have provided for people to live in rural areas. This largely urban generated use has had a range of adverse effects on the Region's environment (refer to Strategic Policies – Rural Development Control). Countryside living can assist in achieving positive environmental effects by remedying the existing environment (detailed further in the Rural Area Reasons 2.6.19). However, Countryside living can undermine the policies of urban containment and intensification, reduce the sustainability of urban settlement and effect the efficiency of the regional roading network.

2.6.5 Strategic Policies - Urban Structure

High Density Centres and Intensive Corridors

1. ***Urban intensification is to be encouraged to occur in specified locations (being those areas identified in Schedule 1 and other High Density Centres and Intensive Corridors identified in district plans) to provide the primary focus for the Region's residential and commercial growth.***

2. ***Pending the development of a classification framework for and identification of further High Density Centres and Intensive Corridors through changes to Schedule 1 of the ARPS, and the resulting change or review, urban intensification (including retail activities) may occur in locations other than those listed in Schedule 1, if it can be demonstrated that it will not compromise the achievement of Policies 2.6.5.3 – 2.6.5.10.***

3. ***To develop a network of High Density Centres and Intensive Corridors which are linked by high quality public transport ranging from frequent local bus services supplemented by express buses to rapid transit (rail, ferry, or bus) on separate rights-of-way.***

4. ***Development within High Density Centres and Intensive Corridors should primarily be of a character and form that supports or serves Compact Mixed Use Environments.***

5. ***The structure and sequencing of urban development in the High Density Centres and Intensive Corridors should support and be coordinated with the development, implementation and operation of the transport and infrastructure networks serving or traversing the area.***

6. ***(i) High Density Centres identified in Schedule 1 or in district plans, should be developed for a range of uses, (including high density residential activities). The widest range, and greatest intensity of uses, including a primary focus on enabling Commercial Activities, shall be within the Commercial Core.***

   (ii) Intensive Corridors identified in Schedule 1 or in district plans, should provide for Compact Mixed Use Environments and other appropriately located employment areas, where this is compatible with the principal focus of the movement function of the corridor, and does not detract from maintaining public transport network efficiency and effectiveness.

7. ***Commercial Activities shall be encouraged in High Density Centres identified in Schedule 1 or in district plans to the extent that such activities serve the function, role and amenity of High Density Centres, and would not compromise the achievement of development pursuant to Policies 2.6.5.1, and 2.6.5.3 to 2.6.5.6.***

8. ***To encourage the outward expansion of the Commercial Core of High Density Centres which are suitable for growth, subject to having regard to the following matters:***

   (i) the effects on the existing distribution of business activity and population, in order to facilitate an efficient and sustainable distribution of such centres;

   (ii) the effects on High Density Centre function and their role;

   (iii) the provision of a greater level of access by a community to a wide range of facilities, goods and services in a convenient and efficient manner;

   (iv) the traffic effects associated with the expanded Commercial Core and the ability to maintain the safety and efficiency of the road network, in a way that promotes integrated transport through:

      (a) providing a strong connection to a range of transport modes to an adjoining Compact Mixed Use Environment, including ease of accessibility for walking and cycling; and

(b) *enabling efficient connections to the existing public transport network to link with adjoining High Density Centres and Intensive Corridors.*

9. *Commercial Activities are, where appropriate, to be enabled in business and mixed use zones along Intensive Corridors (being those areas identified in Schedule 1 or as identified in district plans) having regard to the following matters:*

   (i) *any effects on High Density Centre function and their role;*

   (ii) *social and economic enablement and accessibility;*

   (iii) *the efficient use and provision of Infrastructure;*

   (iv) *the impacts on transport efficiency, including but not limited to effective public transport through the region;*

   (v) *the effects on the road network;*

   (vi) *the impacts of the development on the efficient use of any scarce industrial land resource;*

   (vii) *the effects on residential activity and planning for residential intensification along Intensive Corridors; and*

   (viii) *reverse sensitivity effects.*

10. *To enable new High Density Centres to be developed in locations where they:*

   (i) *contribute to a distribution of High Density Centres with close proximity to living areas (specifically areas of moderate to high density housing);*

   (ii) *provide a diverse function and role which complements the established network of High Density Centres and Intensive Corridors;*

   (iii) *provide transport choices and improve travel behaviour, through fostering resilient, attractive and integrated transport options by:*

      (a) *providing a strong connection to a range of transport modes to an adjoining Compact Mixed Use Environment, including ease of accessibility for walking and cycling; and*

      (b) *enabling efficient connections to the existing public transport network to link with adjoining High Density Centres and Intensive Corridors;*

   (iv) *avoid adverse effects at a regional level, both individually and cumulatively with other High Density Centres, on:*

      (a) *the distribution, function and amenity of High Density Centres; and*

      (b) *existing and planned Infrastructure (including the classified road network and public transport systems networks).*

Other Existing Urban Areas

11. *Where appropriate, Commercial Activities are to be enabled in business and mixed use zones in locations other than High Density Centres and Intensive Corridors (in particular Neighbourhood Centres and those Corridors not listed in Schedule 1 or in district plans) having regard to:*

   (i) *the matters listed in Policy 9(i)-(viii);*

   (ii) *the extent to which such activities would compromise the achievement of Policy 2.6.5.1; and*

   (iii) *the extent to which the hierarchy of locations indicated in Policies 2.6.5.3 – 2.6.5.9 may be compromised.*

12. *Existing urban areas shall be managed so that significant natural heritage, landscape, amenity and character values are maintained and enhanced, including in the Waitakere Ranges Heritage Area (refer Appendix I) where there is limited capacity to absorb further subdivision.*

13. *Provision shall be made for sufficient business zoned land, in particular industrial land, in appropriate locations in the region, to accommodate anticipated growth.*

14. *To ensure sufficient business zoned land is identified and prioritised for Industrial Activities by zoning in appropriate locations in the region.*

15. *Within urban areas, opportunities for urban intensification may be enabled at Passenger Transport Nodes where these:*

(i) would not compromise the development of a network of high density centres and intensive corridors as the primary focus for the region's residential and commercial growth;

(ii) maintain or enhance significant natural character, heritage, and landscape values;

(iii) provide for a mix of open space, community and neighbourhood business opportunities commensurate with the nature and extent of proposed urban intensification; and

(iv) maintain the function of supporting infrastructure and the road network.

Industrial Areas

16. Land Extensive Industrial Activities should locate in appropriately zoned business areas, where such activities would:

(i) avoid reverse sensitivity effects;

(ii) be appropriately located with good transport access to the arterial road network, port, airport and railways, and avoid direct access to sensitive local streets;

(iii) not detract from the safety and function of the arterial road network;

(iv) avoid adverse effects on the safe, efficient and sustainable operation of regionally significant Infrastructure.

17. Residential activities and other sensitive activities shall only be provided in industrial areas where they do not reduce capacity for Land Extensive Industrial Activities, and where there is no likelihood of reverse sensitivity issues arising.

Future Urban Areas

18. Prior to operative urban zoning Future Urban Areas (including those identified in Schedule 1B) should not be compromised by the location, nature, scale and extent of activities by subdivision of the land.

19. The rezoning of Future Urban Areas shall enable urban development and/or a subdivision pattern that maximises the efficient use of the land and provides higher density development adjacent to public transport Corridors, subject to consideration of environmental, economic and infrastructural capacity issues.

20. Future Urban Areas should not be developed for urban uses until it can be demonstrated that all necessary Infrastructure can be provided. Where appropriate, development can be staged.

21. When areas identified in Schedule 1B are rezoned for urban purposes, provision may be made in selected locations for levels of urban development appropriate for Town Centre development, where the area to be rezoned is identified to support Town Centre development. In such areas policies 2.6.5.1 – 2.6.5.6, 2.6.5.8 and 2.6.5.10 shall apply.

22. To ensure sufficient land is identified and provided, including through zoning, to meet existing and anticipated demand for Industrial Activities, including Land Extensive Industrial Activities, having regard to the following:

(i) reverse sensitivity effects;

(ii) being appropriately located with good transport access to the arterial road network, port, airport and railways, and avoiding direct access to sensitive local streets;

(iii) not detracting from the safety and function of the arterial road network; and

(iv) avoiding adverse effects on the safe, efficient and sustainable operation of regionally significant Infrastructure.

Refer also to Strategic Policies - Land Use and Transport Integration (2.6.11) and Infrastructure (2.6.14), Chapter 4 - Transport and Chapter 6 - Heritage.

2.6.6 Methods - Urban Structure

1. Strategic Policies – Urban Structure shall be given effect through the provisions of any relevant regional plan, changes to the RPS, district plans, and the RLTS, and should be reflected in the LTCCP process and any relevant strategic planning process.

2. TAs shall include a programme for the sequencing and timing of the development of areas identified in Schedule 1 sufficient to accommodate growth based on a minimum 20 year time frame in District Plans. These programmes should include:

(i) An indication of the anticipated increase in household densities and employment densities having regard to Appendix H;

(ii) The location and nature of higher density development;

These programmes shall be reviewed in consultation with ARC and ARTA to ensure that they are co-ordinated with and support planned transport improvements.

3. *District and Regional Plans shall include appropriate provisions including rules that enable the development, implementation and operation of the transport network.*

4. *TAs should align LTCCP processes, including infrastructure funding processes with the development of High Density Centres and Intensive Corridors identified in Schedule 1.*

5. *TAs shall include appropriate provisions in District Plans for tools such as minimum and maximum lot sizes, minimum required densities, and minimum heights to:*

   (i) ensure that efficient use of land and the desired densities are achieved in the selected High Density Centres and Intensive Corridors, in Future Urban Areas and, where applicable, in Passenger Transport Nodes; and

   (ii) increase support and use of public transport investments.

6. *Desired densities and development controls to achieve appropriate levels of urban intensification shall be determined by the ARC and TAs by reference to Appendix H.*

7. *TAs shall include provisions in District Plans to manage development and activities in the areas identified in Schedule 1 so that the areas' ability to accommodate urbanisation and or intensification is not compromised.*

8. *ARC and TAs shall promote appropriate redevelopment and greenfield development through reference to Appendix A and Appendix H and:*

   (i) Structure Planning: Regional Practice and Resource Guide 2005 (for the avoidance of doubt structure planning in an urban context should be used for areas of 5,000m^2 or greater);

   (ii) NZ Urban Design Protocol;

   (iii) Integrated Catchment Planning Guide;

   (iv) Auckland Regional Open Space Strategy;

   (v) The Regional Land Transport Strategy;

   (vi) National Guidelines for Crime Prevention through Environmental Design in New Zealand.

9. *The ARC and TAs will encourage central government and local government to design and locate sustainable public buildings and community facilities within the urban area and within or at the edge of High Density Centres and Intensive Corridors and close to public transport services where this is appropriate.*

10. *The ARC through the Auckland Regional Growth Forum will engage with the Ministry of Education to develop a strategic approach to providing schools in the Region in a manner consistent with the land use strategy set out in the Auckland Regional Growth Strategy and in the RPS.*

11. *The ARC will encourage Councils to implement relevant aspects of the "Auckland Regional Affordable Housing Strategy" and work with central government where appropriate to support the achievement of this.*

12. *The ARC will monitor the effects of the RPS and Auckland Regional Growth Strategy on housing affordability within the MUL's and where necessary advocate for greater provision of lower cost housing.*

13. *The ARC will work with Territorial Authorities, the Department of Conservation and other appropriate central government and community agencies to implement the "Auckland Regional Open Space Strategy".*

14. *Significant new areas proposed for urban development and existing urban areas proposed for significant redevelopment are to be provided through the structure planning process that, as a minimum, meets the requirements of Appendix A: Structure Planning.*

15. *The ARC will investigate mechanisms for encouraging intensification in High Density Centres and Intensive Corridors.*

16. *The ARC will work with potential partners to investigate mechanisms, review, and advocate for different models to facilitate urban redevelopment, including the aggregation of land.*

17. *The ARC will advocate to central government for access by local authorities to government seed funding for facilitating urban redevelopment that supports land use and transport integration.*

18. ***The ARC will work with the Auckland Regional Growth Forum to identify the amount and location of greenfield land for the future growth of Land Extensive Industrial Activities.***

19. ***The ARC will work with Territorial Authorities to develop criteria for the identification of greenfield land to cater for the future growth of Land Extensive Industrial Activities. These criteria will include: business need, social, cultural, economic and environmental factors.***

20. ***District Plans shall include appropriate provisions to provide for a range of Commercial Activities to enable the community to provide for its wellbeing.***

21. ***In relation to the Waitakere Ranges Heritage Area (refer Appendix I) the ARC and TAs will advocate for and support initiatives that promote objective 2.6.1.19 including support for weed and pest eradication, Waitakere Ranges Heritage Area covenants, visitor management , rural activities in the foothills, design guidelines, and provision of Local Area Plans.***

22. ***Territorial Authorities shall investigate and may, where appropriate, provide for the intensification of residential activities within Passenger Transport Nodes where these:***

    (i) support a network of High Density Centres and Intensive Corridors and Passenger Transport Nodes which are linked by high quality public transport;

    (ii) enhance public transport network efficiency and effectiveness;

    (iii) enable neighbourhood and convenience based commercial and employment activity, commensurate with the extent of household development anticipated for that area within a 400m radius or 5 minute walk of the station or terminal on which the node is centred;

    (iv) are supported by transport and infrastructure to serve such intensification;

    (v) maintain the function of the supporting road network; and demonstrate consistency with the Policies in 2.6.5 and 2.6.5.1, such as by way of structure plan.

Refer also to Chapter 4 - Transport and Chapter 6 – Heritage.

2.6.7 Reasons - Urban Structure

More intensive forms of development should not be provided on an ad hoc basis but should be centred around identified High Density Centres and Intensive Corridors. Such development should be comprehensively designed to provide a safe, clean and easily accessible environment that encourages a variety of activities and attracts business investment. Land, within a walkable distance of High Density Centres and Intensive Corridors, also offers development opportunities for a wider range of housing types and densities than have been attempted in some greenfields developments in Auckland. Achieving higher density development within and around identified growth areas and on undeveloped urban land will mean that the current reservoir of urban land will be able to accommodate the Region's growth for a longer period of time.

The Strategic Policy supports intensification of those areas identified in Schedule 1. This land is in areas where the existing amenities, social infrastructure, utility systems and the transport network have capacity to service higher density forms of residential and non-residential development. Intensification can enable the more efficient use of physical resources including infrastructure and also shift the emphasis of development of metropolitan Auckland toward an urban form which is more efficient in transport and energy terms, and which enables an integrated multimodal transport network including walking, cycling, motor vehicles and public transport services. Such development has the potential to play a greater part in meeting Auckland's future needs for housing, jobs and services, and also to bring about a more varied supply of housing types and densities, thus achieving a better match between housing supply and need.

The intensification within High Density Centres and Intensive Corridors of a range of activities including retail, commercial, community and health facilities is also an important factor in ensuring a compact and contained urban form. Commercial sectors that are likely to be suitable for High Density Centres and Intensive Corridors are: retail trade, accommodation, cafes and restaurants, communication services, finance and insurance, property and business services, government administration, health and community services, cultural and recreational services, personal and other services. The clustering of activities which enhance amenity

values and convenience should also be encouraged in identified High Density Centres and Intensive Corridors. Intensification should be contained within an easily walkable distance of transportation nodes, encouraging increased use and investment in the public transport system.

Whilst there is desire to provide for the establishment of a broad range of Business Activities throughout the Region, there is the potential for incompatible activities, such as some types of Commercial Activity, to restrict and displace the opportunities for Industrial Activities within industrial business areas. Some inappropriately located Commercial Activities can also have the potential to threaten the ongoing role and function of the Region's High Density Centres. However, not all Commercial Activities necessarily fall into such a category. Some Commercial Activities are ancillary to a predominantly industrial use, or are of a trade, construction, automotive or marine nature that may well be more appropriately accommodated in the industrial business areas of the Region. Likewise, small scale convenience based Commercial Activities such as administration offices, or food and beverage outlets may well meet localised needs for employees in the business industrial areas of the Region.

In respect of Commercial Activities, their establishment should be encouraged in High Density Centres and enabled in other locations where appropriate, where they would maintain or enhance the function and amenity of such Centres or such other locations.

Commercial Activities are to be enabled, where appropriate, to locate along Intensive Corridors and other areas where this is not inconsistent with:

- the ability to make efficient use of, and undertake long term planning and management of the transport system;
- maintaining the vitality and viability of High Density Centres; or
- the functioning of the road hierarchy.

There will be in addition, the need for the respective local authorities to identify and provide for opportunities for continued commercial growth in the Region to meet demand, subject to the criteria as specified in Policies 2.6.5.8 to 2.6.5.11, and 2.6.5.20. The variety of existing and evolving forms of Retail Activity in particular makes it important that across the Region the range of Retail Activity is provided for, meaning that district plans will need to ensure the enablement of a range of Retail Activities in appropriate locations. Such managed flexibility recognises the varied forms and requirements of Commercial Activities (particularly larger format retail and trade based Retail Activities), in terms of their locational requirements, whilst ensuring that the environmental effects of Commercial Activities are appropriately managed.

Intensification needs to be carefully planned to avoid, remedy or mitigate adverse effects which can stem from loss of trees, bush and landscape values, overloading of utility systems (especially drainage and stormwater), traffic congestion, poorly integrated passenger transport and reduction of space around buildings. Where possible, necessary refurbishing or replacement of urban utility services should be planned and programmed to fit in with provision enabling intensification. With careful planning and programming, intensification may be co-ordinated with, and help to fund, necessary improvements to services so that natural resource values are protected and amenity values maintained or enhanced.

High Density Centres and Intensive Corridors should provide for a wide range of compatible and mutually supportive activities, enabling a mixed use urban environment where residents have opportunities to work, shop and participate in recreation within easy walking distance of their residence. In mixed use environments it is essential that residential development incorporates sufficient measures to protect the amenity of residents, including noise attenuation and access to sufficient daylight and sunlight.

It is also important that residential activities be segregated from incompatible activities (such as those handling hazardous or toxic substances). Allowing residential activities, or activities involving assemblies of people, in close proximity to industries which emit significant noise, air emissions, pollution or involve hazardous or dangerous processes may not only have adverse effects on the health or safety of residential communities, but may also adversely affect the economic and safe operation of such industries. Major areas of industrial and business activity which are important to the regional economy should not be compromised by the introduction of incompatible activities.

The Strategic Policy encourages the development of mixed use environments within High Density Centres and Intensive Corridors and outside those areas of industrial activity, to allow the development of higher density housing and more intensive forms of compatible non-residential activities.

Due to the diminishing supply of business land, it is important to provide sufficient areas for business that are discouraged from High Density Centres and Intensive Corridors. These businesses are important to the economic well-being of the region and provision needs to be made for their land and location requirements. Land Extensive Industrial Activities such as manufacturing, transport and storage, construction, and wholesale trade may be unable to locate and intensify in centres. The strategic policy direction recognises that such activities are better directed to heavy business zones. Dependent on the future growth of these business sectors, the region may, from time to time, have to identify and provide additional greenfield land to enable growth of these business sectors.

To maximise the efficient use of the land resource and to support an integrated multimodal transport network, high density forms of residential living are encouraged with the use of District Plan statutory methods such as minimum density controls to ensure that lower density development does not eventuate, compromising the ability of a centre to accommodate growth.

Planning for intensification must also take account of features or places of cultural or of historical significance to the Region or nation. These may be important to the identity of the Region or locality. Areas of significant natural heritage value should also be avoided.

Changes should be planned and managed so that activity patterns which provide appropriately for social, economic and cultural wellbeing and the health and safety of the community are reinforced, and opportunities to make better provision for those matters and to improve amenity values are realised. Increases in residential population in High Density Centres and Intensive Corridors and in future urban areas will require appropriate provision and enhancement of amenities, particularly the quality and accessibility of the commercial cores of town centres, community infrastructure and open spaces.

Structured intensification is only part of the regional growth management package and needs to be carefully co-ordinated with transport and other infrastructure provision. Intensification needs to incorporate good urban design, consideration of crime prevention through environmental design principles, civic amenity and initial community consultation programmes. The "Structure Planning: Regional Practice and Resource Guide 2005" provides more information on the regional framework, broad local criteria and examples of practice which could improve the quantity and quality of intensification. The use and continued development of mixed use and higher density residential design guidelines will assist in the development of High Density Centres and Intensive Corridors of high quality.

2.6.8 Strategic Policies - Urban Design

1. ***The design of Future Urban Areas and the management and promotion of change in existing urban areas is to occur so that:***

   (i) There is a diversity of urban environments (including building types and densities) and living choices for individuals and communities;

   (ii) Buildings, public spaces and road corridors contribute to a vibrant, liveable and attractive environment with a sense of place;

   (iii) Buildings and places with heritage and cultural value are protected;

   (iv) Urban environments have a logical permeable and safe structure of connected routes for all modes of transport, including walking and cycling;

   (v) Public transport, roading, cycling and walking networks are integrated with each other and the land uses they serve;

   (vi) Roads (including new roads) and road improvements within higher density areas should be designed to provide a pleasant environment for cyclists, pedestrians and residents and minimise adverse effects on urban amenities;

   (vii) There is long term protection of public open space, and improvement in the quality, quantity and distribution of local open space;

   (viii) Iconic and outstanding Auckland landscapes are protected; and in existing urban areas other urban landscapes that contribute to local character and identity are managed to ensure critical values remain;

(ix) Natural features and their relationship with built elements are recognised and protected, and, where appropriate, enhanced;

(x) A positive contribution is made to the environmental health of urban streams, the harbours, beaches and their catchments, including through improved storm water and waste water management;

(xi) Public access to and along stream, coastal and foreshore environments is protected and, where possible, enhanced;

(xii) Conflicts between incompatible land uses are avoided, remedied or mitigated;

(xiii) In areas of high density where new development is exposed, or could potentially be exposed, to high noise levels (internally and externally), and diminished air quality, higher building standards should be required;

(xiv) Urban design acknowledges the importance of energy, water and materials efficiency and conservation to the sustainable management of natural and physical resources;

(xv) The health and well being of communities is maintained, and where appropriate, enhanced.

2.6.9 Methods - Urban Design

1. *Strategic Policies: Urban Design shall be given effect through the provisions of any relevant regional plan, changes to the RPS, district plans, and the RLTS, and should be reflected in the LTCCP process and any relevant strategic planning process.*
2. *TAs shall identify in District Plans explicit urban design outcomes to be achieved. This could be achieved through rules and /or guidelines on urban design. These guidelines should also consider, via consultation with ARTA, the design of the road space and road network, passenger transport services and infrastructure and the siting and design of buildings and appropriate land uses adjacent to transport Corridors.*
3. *Significant new areas proposed for urban development and existing urban areas proposed for significant redevelopment (such as areas identified in Schedule 1 or where the redevelopment requires a district plan change) are to be provided through the structure planning process that as a minimum meets the requirements of Appendix A Structure Planning.*
4. *The ARC will encourage and support all Councils to establish urban design panels.*
5. *The ARC, as a signatory of the New Zealand Urban Design Protocol, will develop a set of actions appropriate to the Auckland Region to implement this commitment, and will monitor and report annually on the actions.*
6. *The ARC will encourage central government and local government to locate public buildings and community facilities within the Urban Area, and within or close to High Density Centres and Intensive Corridors and close to public transport services.*
7. *The ARC and TAs will encourage improvements to urban structure, urban design and amenity through reference to relevant good practice guidelines such as:*
   (i) Structure Planning: Regional Practice and Resource Guide 2005;
   (ii) New Zealand Urban Design Protocol;
   (iii) ARC Low Impact Design Manual;
   (iv) People, Places and Spaces.
8. *The ARC will implement relevant aspects of the "Auckland Regional Open Space Strategy" and encourage the Department of Conservation and other territorial authorities to do so.*
9. *TAs shall include in their District Plans rules and other methods to manage adverse effects of development (including adverse effects arising from development on adjoining sites) on heritage buildings, including its setting or curtilage. Rules and other methods should ensure development is in keeping with the characteristics and heritage values of significant heritage places. Other methods include conservation management plans and transferable rights.*
10. *The ARC will encourage interdisciplinary approaches to the management of urban land use and transport systems.*

11. ***In relation to the Waitakere Ranges Heritage Area (refer Appendix I) the ARC and TAs will advocate for and support initiatives that promote objective 2.6.1.20 including support for weed and pest eradication, Waitakere Ranges Heritage Area covenants, visitor management, rural activities in the foot hills, design guidelines, and provision of Local Area Plans.***

12. ***The ARC will advocate for and support initiatives to improve understanding across disciplines of integrated urban design outcomes, the importance of interdisciplinary approaches to achieving sound design outcomes, and the contributions different disciplines have to make.***

13. ***The ARC and TAs will continue work with other agencies, including Transit, ARTA, LTNZ, Housing New Zealand Corporation, the Ministries of Transport and the Environment, on improving the contribution that transport and land use make to integrated urban design outcomes, both at a regional and local level.***

14. ***The ARC will advocate for and support initiatives to improve:***

    (i) the liveability and sustainability of building outcomes;

    (ii) energy, water and materials efficiency and conservation;

    (iii) the appropriate management of mixed use and medium and high density work and living spaces.

2.6.10 Reasons - Urban Design

The development of new and existing urban areas should ensure the highest quality design outcomes. Approaches to urban development in the past have typically had an emphasis on land use segregation and hierarchical street systems, and designs focused on engineering, surveying and lot yield efficiency. Today's urban development should establish a design framework for communities which are sustainable, safe, vibrant and efficient. This involves an integrated approach to urban design, seeking site and community specific design responses within the overall framework of the "Growth Concept" in the Regional Growth Strategy.

Urban design is critical to the development of a network of connected communities, an effective passenger transport system, and the layout of buildings, roads, open spaces and physical and social infrastructure. Quality urban design should maximise economic opportunity, social wellbeing, cultural diversity, environmental health and choice for residents. Particularly important to the Growth Concept is the design of walkable, safe, convenient and attractive communities that meet the diverse needs of people, and which are adaptable to future change.

The Strategic Policy sets out a range of matters that need to be taken into account in the design and layout of new development. Particular emphasis is placed on the design of buildings, streets and public spaces. Together these design elements should combine to create environments of high amenity that are valued community resources.

Sites and developments cannot be designed in isolation. Quality urban design needs to respond to the natural and physical environment, protecting and enhancing those environmental values important to the character, amenity and identity of a community. Protection of heritage, waterbodies, beaches, significant vegetation and habitat, more sustainable urban water management and incorporation of areas of cultural significance is also important.

As the intensity of High Density Centres and Intensive Corridors increases through redevelopment, design becomes increasingly important to the maintenance and enhancement of built character, civic spaces, streetscape and pedestrian amenity. With the prospect of more mixed, intensive urban environments, high standards of urban design are essential to ensure that centres develop as integrated attractive residential, employment and community hubs. Poorly designed development may detract from the character of these centres and adversely affect their vitality and vibrancy, in turn affecting their ability to attract further activities and development. Mixed use activities where appropriate should be located in association with passenger transport stations and terminals.

The development of a range of residential densities and diversity of dwelling types provides more housing choice for today's diverse household types. Higher density forms of residential living should be actively encouraged as part of urban intensification, potentially as part of multi-storey mixed use development. The provision and design of residential activities within High Density Centres and Intensive Corridors helps bring vitality to these areas, but due to their sensitivity to noise and other effects, they can have an impact on the operation of surrounding

town centre activities. Particular attention is required to the design and form of residential living, responding to the character and amenity of the neighbourhood and providing adequate open space, daylight access, acoustic attenuation and privacy.

The design of buildings, public spaces and infrastructure should provide for long-term sustainability, being more water and energy efficient with less construction and operation waste outputs. Government agencies and territorial authorities should be proactive and lead by example, incorporating advancements in sustainable building practices into all public buildings and infrastructure projects.

2.6.11 Strategic Policies - Land Use and Transport Integration

1. ***Land Use and Transport shall be integrated throughout the region to ensure that:***

   (i) within urban areas land use patterns provide communities with improved access to a range of services and activities and opportunities to work locally;

   (ii) within urban areas new urban development and subdivision provides for improved connectivity for all transport modes including walking and cycling;

   (iii) within urban areas new development and redevelopment provides for safe and attractive walking and cycling environments;

   (iv) the transport network is not compromised by inappropriate land use and subdivision and is planned and developed to support land uses;

   (v) high traffic generating activities, where not located within High Density Centres or on Intensive Corridors, locate on transport corridors served by public transport appropriate to the particular activity;

   (vi) within rural areas Countryside Living avoids, remedies or mitigates adverse effects on the regional roading network including limiting its provision and only providing for Countryside living in selected locations (refer to Policies 2.6.17);

   (vii) urban activities shall be located in urban areas, except as provided for in Strategic Policies 2.6.2.1 and 2.6.2.2, as well as Methods 2.6.3;

   (viii) the roading system is developed and managed to be an efficient, safe and sustainable network utilising, to its full extent, existing roading infrastructure;

   (ix) land use development along existing and proposed regional arterial roads identified in Appendix K or in District Plans, is to be managed to ensure that adverse effects on the transport function, or functions, and safety of these routes are avoided, remedied or mitigated;

   (x) so far as is consistent with their statutory authority the funding processes of the RLTS and ARTA shall give effect to the strategic direction and strategic policies set out in this ARPS;

   (xi) all Future Urban Areas can be:

      (a) effectively served by public transport;

      (b) provide attractive walking and cycling opportunities and environments; and

      (c) item (xi)(a) above shall not apply for the expansion of existing coastal and rural settlements that cannot be efficiently served by public transport;

   (xii) existing urban areas within the MUL are better served by public transport;

   (xiii) industrial land uses are located where they have good access to freight corridors;

   (xiv) reverse sensitivity effects on the transport network are considered in land use development;

   (xv) opportunities for urban intensification at Passenger Transport Nodes within urban areas may be enabled where these:

      (a) are integrated with and supported by rapid, frequent and integrated transit services; and

      (b) provide for the medium to high density intensification of residential activities within walking distance of the Passenger Transport Node to support public transport.

2. ***Land use and Transport shall be integrated within High Density Centres and Intensive Corridors (refer to Policies 2.6.5) to ensure that:***

(i) High Density Centres and Intensive Corridors are able to be served by an efficient and effective public transport network;

(ii) High Density Centres on the rail rapid transit network and on the bus rapid transit system are served by a fast, frequent and reliable public transport service;

(iii) High Density Centres and Intensive Corridors are planned to develop to a density which supports planned transport infrastructure and service improvements (refer to Appendix H);

(iv) provision is made for transport improvements which deliver a multi-modal transport system (including walking and cycling) in a manner which supports quality, compact and contained High Density Centres and Intensive Corridors;

(v) central and local government services, as well as associated support services and facilities (consistent with Policy 2.6.5.6), should locate within High Density Centres and Intensive Corridors;

(vi) High Density Centres and Intensive Corridors are not compromised by inappropriate transport infrastructure. This includes avoiding, remedying or mitigating the severance of communities;

(vii) High Density Centres and Intensive Corridors and major public transport interchanges and stops should, where possible, develop as multi-purpose destinations;

(viii) the road network within all residential development areas should ensure:

(a) good access by buses;

(b) the facilitation of good, direct pedestrian access routes to bus stops; and

(c) the Region's parking issues are planned and managed in a way that supports integrated land use and transport.

2.6.12 Methods - Land Use and Transport Integration

1. The Strategic Policies: Land Use and Transport integration shall be given effect, through the provisions of any relevant regional plan, changes to the RPS, district plans, and the RLTS, and should be reflected in the LTCCP process and any strategic planning process undertaken by the region's councils.

2. The RLTS shall define those transport corridors with key public transport services.

3. The ARC and TAs shall implement Land Use and Transport policy by reference to Appendix H.

4. The ARC will ensure that the RLTS and ARTA's Land Transport Programme give effect to the landuse and transport outcomes set out in the Growth Concept contained within the Auckland Regional Growth Strategy.

5. TAs shall provide for significant new areas proposed for urban development, existing urban areas proposed for significant re-development, or significant new areas proposed for Countryside Living purposes through the structure planning process (or other similar mechanisms).

6. The ARC, TAs, ARTA, NZ Transport Agency and ONTRACK, in conjunction with the relevant transport operators, will implement improvements to the public transport network to support the development of areas listed in Schedule 1.

7. TAs shall ensure that proposals to amend the MUL, Structure Plans, Plan Changes, Variations and resource consent applications which enable major trip generating activities are subject to an Integrated Transport Assessment.

8. Development through a Change to the ARPS of a regional parking strategy that provides strategic policy direction on regional parking issues including reference to parking issues in High Density Centres and Intensive Corridors. One of the ways in which the strategic policy direction should be implemented is through District Plans.

9. The ARC and TAs will jointly identify a regional approach to accommodate retail activity (having regard to their associated characteristics and commercial/ operational requirements) that integrates land use and transport.

10. The ARC and TAs will jointly develop a classification framework for High Density Centres and Intensive

Corridors which provides guidance on the appropriate activities in these locations. The classification of Corridors may be defined utilising three functions:

(i) freight or private vehicle movement;

(ii) mixed use and intensity – as anticipated by the Auckland Regional Growth Strategy;

(iii) arterial roads linking High Density Centres and Intensive Corridors that have a mix of (i) and (ii) plus Public Transport (PT);

The classification should be based on the predominant function of the High Density Centre and Intensive Corridor and will take into account matters such as transport efficiency, safety, distributional and amenity effects. The classification framework will be developed initially through changes to Schedule 1.

11. TAs shall investigate and may where appropriate provide for medium to high density residential environments associated with Passenger Transport Nodes, in locations where these:

(i) do not compromise the achievement of Policies 2.6.5.1, 2.6.5.9, 2.6.5.11 and 2.6.5.12;

(ii) enable neighbourhood and convenience based commercial and employment activity, commensurate with the nature and extent of proposed household development within a 400m radius or a 5 minute walk of the station or terminal on which the node is centred;

(iii) are supported by transport and infrastructure networks necessary to serve such intensification;

(iv) enhance public transport network efficiency and effectiveness;

(v) maintain the function of the supporting road network; and

(vi) demonstrate consistency with the Policies in 2.6.8.1, such as by way of structure plan.

2.6.13 Reasons - Land Use and Transport Integration

There is a direct relationship between transport and land use. Land use and the transport system should be planned in an integrated way so that they are mutually supportive.

A key issue in realising the strategic direction outlined in the RPS is the recognition of the need to develop land use patterns that support reduced vehicle demand and increased use of passenger transport, walking and cycling. A long-term solution to the region's transport problems thus requires a shift in land use patterns towards a more compact and sustainable urban form. An improved public transport system will provide opportunities in High Density Centres, transportation nodes and Intensive Corridors for intensified growth within selected areas, and conversely, the realisation of future intensive development opportunities will support the public transport system.

There is also a direct link between land use, the transport system and the direct effect on the environment. By aligning land use and transport systems the following benefits to the environment can be achieved:

- Reduced levels of air pollution in the metropolitan area
- Reduced generation of contaminants associated with motor vehicle and road use
- Reduced consumption of non renewable resources including fossil fuels, construction material and land
- Reduced community disruption including community severance
- Reduced health and safety effects on the community.

Land use activities produce and attract trips. These trips are distributed over the transport network depending on available choices in transport mode and route, distance time and cost of travel. The characteristics and density of the population, the nature and distribution of employment and the location of activities all effect the use of the transport system and the transport system influences decisions on the kind of land use activities.

The adverse effects on the environment from both urban development and transport can be mitigated by making conscious land use and transport decisions. From a land use perspective a more contained and intensive form of urban development that supports local accessible employment and is focused on the public transport network will bring about a land use pattern that provides the community with shorter trips and more choice of transport mode including walking and cycling.

To encourage more trips to be made by the more sustainable modes like walking and cycling it is

important that safe and attractive connections are made within existing and new urban areas. Increased walking and cycling opportunities improve the cohesion of and movement within High Density Centres and Intensive Corridors. These opportunities can be improved and secured at both the structure planning and subdivision/ development stages of the planning process.

At the same time, it is recognised that even with significant increases in public transport patronage, the majority of trips will be made by private transport in the foreseeable future. For instance, it is recognised that where high traffic generating activities (such as larger format retail activities) are enabled, in areas other than High Density Centres or Intensive Corridors, some access by public transport should be available, although the level of such access would be dependent on the particular activity.

It is also important that activities which generate vehicles trips and are not able to be supported by alternative transport modes are managed carefully. In this regard countryside living and non rural activities in rural areas need to be limited or avoided because of the direct adverse impact they have, by encouraging longer distance vehicle trips, and on the efficient operation of the roading network.

Transport improvements add to the attractiveness of areas serviced by those improvements for further urbanisation. While this is beneficial to those areas identified for future growth, such as High Density Centres and Intensive Corridors and identified greenfield sites, these investments may also create growth pressures in areas where urban expansion is not desired. It is important that the growth pressures associated with improvements to the transport system are understood and managed to avoid urban growth in areas not identified for future growth. This requires a transport system and land use policies which act in unison to manage urban growth pressures in areas where urban growth is not planned.

As mentioned the urban form promoted in Policy 2.6.5 promotes and facilitates a more sustainable transport network. The more urban development is planned around High Density Centres and Intensive Corridors the more this development will support the public transport network, walking and cycling modes and reduce the number of vehicle trips made. It is therefore important that all new urban development is planned with more sustainable transport modes in mind.

To achieve this, the level of urban development needs to be at a scale which can support investment in a rapid transit system for it to provide a service which will compete with private vehicle use. Evidence from Australia and the United States shows that certain thresholds of urban density are required to support public transport systems. The more fixed and rapid the public transport system the greater the densities required to support it become.

"Cities for Tomorrow: Best Practice Guide" (Austroads,1999) suggests a minimum of 15-20 dwelling units per hectare are required to support a good local bus service and 50 or more dwelling units per hectare are required to support a rapid rail system of the type being developed in Auckland. As it is not sufficient simply to develop a higher density of housing within High Density Centres and Intensive Corridors, employment density too should increase. Employment should range from 100 employees per hectare for a local bus service to 450 employees per hectare to support rapid rail.

The densities required in Appendix H are average minimum densities required within the High Density Centres and Intensive Corridors. However, it is equally important that the highest densities occur closer to the transport interchange, graduating to lower densities towards the edge of the centre.

Every centre however has its own characteristics and while every effort should be made to reach these densities this must be done with regard to achieving high quality urban design outcomes. The monitoring of densities being achieved within these High Density Centres and Intensive Corridors is an important part of the process and the densities required in Appendix H should be updated in light of this monitoring.

As the region grows, the transport network will be required to increase in capacity to service this growth. Roading, rail, public transport, walking and cycling networks will all come under pressure from future growth, particularly in those parts of the network in and around High Density Centres and Intensive Corridors identified in Schedule 1. This growth and development will need to be managed carefully particularly with regard to the strategic roading and rail network. Transport space is a scarce resource and is becoming increasingly scarcer in the region. Therefore managing major traffic generators, parking standards

and requirements, vehicle access onto existing roading networks etc are all issues that will need to be considered carefully as the region grows and intensifies.

An effective transport system that supports and responds to the proposed land use pattern is a key element of this RPS, and the RLTS is a key mechanism in developing that transport system. It is important that land use development is managed in a way that does not compromise the transport function or functions of the Strategic and Regional Arterial Network identified in Appendix K. These transport functions are multidimensional and comprise access and the movement of people and goods, with a focus on provision for public transport, pedestrians and cyclists on the Regional Arterial Network. The design and operation of regional arterial roads should support the amenity of the communities they pass through, and where they pass through High Density Centres and Intensive Corridors the balance of travel and landuse demands should be carefully considered to ensure that the road network supports the RGS in an integrated manner.

Another key dimension of managing the relationship between land use and transport planning is addressing the reverse sensitivity effects associated with the transport system especially in high volume corridors generating pollution (e.g. noise, air quality, vibration, community severance).

The Structure planning process plays an important role in this regard by ensuring that the best land use / transport outcome is achieved and that the cumulative effects on the transport system from inappropriate land use and subdivision are avoided.

2.6.14 Strategic Policies - Infrastructure

1. The operation of existing regionally significant infrastructure and the provision of new or upgraded regionally significant infrastructure shall:

- ***(i) be consistent with the Strategic Direction of the Regional Policy Statement;***
- ***(ii) support and reinforce the Regional Growth Strategy and the proposed outcomes of that strategy; and***
- ***(iii) ensure that any adverse effects of those activities on the environment (including human health) are avoided, remedied or mitigated in a manner consistent with the relevant provisions of this RPS.***

2. Provision is to be made to enable the safe and efficient operation, maintenance and development of regionally significant infrastructure which is necessary for the social and economic wellbeing of the region's people.

3. Land use change should avoid significant reverse sensitivity effects on regionally significant infrastructure.

Refer also to Strategic Policies 2.6.2(2) (viii), 2.6.11(1) (n), 2.6.17(e) (i) and 2.6.17(4) (ii).

4. The provision and operation of infrastructure, including transport infrastructure should support the development of high quality urban amenity.

5. In the operation of existing regionally significant infrastructure and the provision of new infrastructure consideration and appropriate provision is to be made for the following matters:

- ***(i) the avoidance of significant adverse effects (including cumulative adverse effects) on:***
  - ***(a) the environmental values protected by defined limits to metropolitan Auckland and defined limits of rural or coastal settlements;***
  - ***(b) significant and outstanding coastal and natural landscapes, vegetation and fauna areas;***
  - ***(c) amenity values throughout the whole of the region and the rural character of rural areas in the Region;***
  - ***(d) human health;***

  where significant adverse effects cannot be avoided they shall be remedied or mitigated;
- ***(ii) avoiding prematurely foreclosing, or compromising options for future urban and rural and coastal town growth including areas identified in Schedule 1;***
- ***(iii) consideration of alternative locations (including locations in urban areas) for utility service facilities which give rise to significant adverse effects on the environment;***
- ***(iv) environmental enhancement and/or remediation opportunities.***

2.6.15 Methods - Infrastructure

1. ***TAs and the ARC shall include policies and methods in regional and district plans that facilitate and enable the development of appropriate transport infrastructure, including provisions that enable the development of the Auckland passenger rail network. This shall include providing for a 'passenger rail zone' or similar, that permits the development of the passenger rail network on all land and airspace necessary for that purpose. This shall include land and air space underlying any existing designation of the rail Corridor, as well as outside any designation that is necessary for development of the passenger rail network.***
2. ***Policy 2.6.14 shall be given effect through the provisions of district plans and/or the designation process (Part 8 of RM Act) and/or through the Regional Land Transport Strategy (Land Transport Act).***
3. ***Policy 2.6.14 should also be reflected in TA strategic plans and LTCCP's and in any strategies, plans and programmes of major operators or providers of regionally significant infrastructure and services.***
4. ***Regionally significant infrastructure should be identified within District Plans. TAs should adopt a consistent region-wide management approach to addressing the adverse effects of, and on, such infrastructure. TAs need to take account of the cross-boundary issues where such infrastructure extends over many jurisdictions.***

2.6.16 Reasons - Infrastructure

The social and economic well-being, and health and safety of the regional community are dependent on the availability and efficient operation of necessary services, and the Region's sustained growth brings with it requirements to upgrade, expand or provide services. How and where this is done not only affects natural and physical resources, but also can facilitate or inhibit directions of urban development and promote or inhibit intensification. It is of key importance to ensure that investment in provision, expansion or upgrading of infrastructure is, as far as practicable, consistent with the Strategic Direction, and does not undermine the integrity of the metropolitan urban limits and are consistent with strategies for planned expansion of rural towns and coastal settlements.

The implementation of an improved transport system is critical for the region, particularly for the sustainable development of High Density Centres and Intensive Corridors.

The policy requires that the whole range of effects (including potential cumulative effects on development patterns in the Region) should be considered when changes are proposed to, and future sites designated for, regionally significant infrastructure, facilities or services. Decisions within the context of the RM Act, regarding changes to or the identification of future sites for regionally significant infrastructure, should have regard to the matters set out in Policy 2.6.14, and especially to the consistency of any such proposal with the Strategic Direction. Not only is it essential that these provisions be reflected in district plans, but (as provided by section 104 of the RMA) consent authorities must also have regard to them when considering applications for resource consents for regionally significant proposals to provide, extend or upgrade regionally significant infrastructure or services.

It will be desirable for service providers to consult with local authorities, and especially with the ARC, in the course of preparing proposals for regionally significant infrastructure facilities or services. Service providers should also consider ways of providing services more efficiently, including (where practicable) the shared or multiple use of facilities.

2.6.17 Strategic Policies - Rural Areas

1. ***The use, development and protection of natural and physical resources and the subdivision of land outside of the Metropolitan Urban Limits and the limits of rural and coastal settlements are to be managed in an integrated manner, that:***
   - ***(i) gives effect to Part 2 of the RMA and the other Strategic Policies;***
   - ***(ii) is consistent with the relevant provisions of Chapters 3 to 18 inclusive of this RPS;***
   - ***(iii) safeguards the life-supporting capacity of rural soils so far as practical;***
   - ***(iv) maintains the ability of rural resources to meet the needs of future generations;***
   - ***(v) takes account of and makes appropriate provision for the following matters;***

(a) the avoidance of significant adverse effects on:

- *the environmental values protected by defined limits to metropolitan Auckland and defined limits of rural or coastal settlements;*
- *the safe, efficient and sustainable operation of existing regionally significant infrastructure including land transport infrastructure and services;*
- *the necessary upgrading of existing regionally significant infrastructure;*
- *the provision of new regionally significant infrastructure;*
- *human health;*

where significant adverse effects cannot be avoided they shall be remedied or mitigated;

(b) avoiding prematurely foreclosing, or compromising, options for accommodating the further growth and development of urban areas;

(c) significant adverse effects on the regional transport network are avoided, remedied or mitigated;

(d) avoidance of the creation of conflicts between quarrying (and similar activities dependent on locationally specific natural resources) and other incompatible activities;

(e) avoidance of conflicts between incompatible activities. Where such conflicts cannot be avoided they shall be remedied or mitigated;

(f) management of the use of rural land with regard to the availability and sustainability of water resources;

(g) protection of the versatility and productive potential of rural land;

(h) consideration of alternative locations (including locations in urban areas) for activities which give rise to significant adverse effects on the environment;

(i) environmental enhancement and/or remediation opportunities;

(vi) avoids adverse effects on significant landscapes and heritage values identified in the ARPS;

(vii) avoids, remedies or mitigates significant adverse effects on the rural character of the region; and

(viii) avoids adverse effects on the Waitakere Ranges and promotes the protection, restoration and enhancement of those features that contribute to the natural and cultural heritage, landscape, amenity and recreational values of the area and to the wellbeing of local communities (refer Appendix I).

2. In rural areas provision shall be made for marae, papakainga and customary uses of ancestral taonga in accordance with Policy 3.4.4, and with regard to the matters set out in Policy 2.6.17.1.

3. Countryside Living may be provided for, subject to the constraints set out in (i) – (vi) below relating to location, extent and scale:

(i) Countryside Living is avoided in areas:

(a) where the location of Countryside living would result in conflicts between incompatible activities;

(b) where Countryside living would undermine the integrity of the metropolitan urban limits;

(c) identified in the Regional Policy Statement or district plans for the further growth and development of urban areas;

(ii) Countryside living avoids development in those areas or parts of areas identified, in the RPS, including Appendix B, or in regional or district plans, as having significant ecological, heritage or landscape value or high natural character and that contain:

(a) significant ecological value; or

(b) significant historic heritage (excluding significant historic built heritage); or

(c) outstanding natural features and landscapes; or

(d) high natural character;

(iii) Adverse effects of Countryside living on the following are avoided:

(a) the safe and efficient operation of existing regionally significant infrastructure;

(b) the necessary upgrading of existing regionally significant infrastructure;

(c) the provision of new regionally significant infrastructure;

(d) mineral resources identified in district plans and lawfully established or consented mineral extraction sites;

(e) the regional transport network;

(f) significant ecological, heritage and landscape values;

(g) areas of high natural character;

(h) areas where there is a risk of damage to land or property or of loss of life occurring as the result of the impact of natural hazards, such as flooding or land instability;

(iv) Adverse effects of Countryside living on the following are avoided, remedied or mitigated:

(a) the rural character of the region;

(b) the versatility and productive potential of prime agricultural land;

(v) Where Countryside living is provided for in accordance with Policy 2.6.17.3, it shall appropriately provide for environmental restoration and enhancement and recognise and protect those measures through legally binding protection mechanisms;

(vi) The creation of lots for Countryside living purposes within each of the rural areas of the geographical Sectors (North/West, Central or South) shall be managed by:

(a) allowing for the relocation of existing and/or consented Countryside living lots where that relocation will better achieve the outcomes sought through Policies 2.6.17.3(i) - (iv); and

(b) restricting the number of additional lots for Countryside living purposes to the subdivision opportunities available under the applicable District Plan(s) as at 21 March 2012 (including subdivision provisions that subsequently became operative but arose from proposed plans, plan changes and variations notified by that date), unless it can be shown that:

- *there is insufficient provision for Countryside living within the relevant geographical Sector, having regard to the capacity for growth survey referred to in Method 2.6.18.7; and*
- *the outcomes sought through Policies 2.6.17.3(i) – (iv) will be achieved.*

4. Notwithstanding 2.6.17.3 above, no further subdivision for Countryside living purposes shall be provided for in that area identified in Appendix I, except where additional lots have been made available under the District Plans as at 30 November 2009, which includes those additional lots arising from plan changes publicly notified at that date.

2.6.18 Methods - Rural Areas

1. TAs whose districts contain significant areas of rural land (Franklin, Papakura and Rodney District Councils, and Manukau, Waitakere and Auckland City Councils) will, in consultation with the ARC, identify rural locations in which the existing or potential (i.e. have not yet been issued with a certificate of title) subdivisional pattern is likely to result in outcomes that fail to give effect to Part 2 of the Act, and are inconsistent with the Strategic Direction, and with the matters set out in Policy 2.6.17.

2. In the localities identified pursuant to Method 2.6.18.1, and in Countryside living areas, TAs shall, in consultation with the ARC, manage activities, including through district plan subdivision rules, to avoid, remedy or mitigate the adverse effects which could stem from the existing or potential subdivision pattern. Such management may include:

(i) transferable development rights, including the transfer of rights between TAs, provided such measures will contribute to achieving outcomes consistent with the Strategic Direction and Policies 2.6.17;

(ii) redistribution of current capacities for countryside living within the district or between TAs;

(iii) management of the erection of buildings (including dwellings) including, where appropriate, provision for the erection of buildings to be contingent upon the acquisition of transferable development rights;

(iv) where buildings are permitted, management of their location, size (through methods such as curtilage control), use and appearance, to the extent necessary to avoid, remedy or mitigate significant adverse effects (including cumulative effects) on the environment.

3. *TAs will, in consultation with the ARC, evaluate the extent to which the provision of activities and rural subdivision approaches comply with Policies 2.6.17. Such an evaluation must consider the cumulative effects that provision for rural subdivision and activities will have in conjunction with other developments (including countryside living opportunities, and urban living opportunities) both within the district and where appropriate within adjoining districts.*

4. *TAs shall include in their district plans assessment criteria, including in relation to the matters in Policies 2.6.17.3, against which subdivision applications for countryside living shall be assessed.*

5. *Outcomes of the programme of urban growth monitoring and management identified in Method 2.6.3.6 may have an impact on the rural policies of this RPS. To ensure consistency with Method 2.6.3.6 changes to the rural policies of this RPS may be notified (unless as a result of the process set out in Method 2.6.3.6 it is unnecessary or inappropriate to do so).*

6. *Areas identified in Policy 2.6.17.3 for Countryside living purposes are to be developed through the structure planning process that as a minimum meets the requirements of Appendix A: Structure Planning.*

7. *The ARC and TAs will undertake 'Capacity for Growth' surveys every five years to determine the provision and take up of Countryside living opportunities available in rural areas.*

8. *In relation to the Waitakere Ranges the ARC and relevant TAs will advocate for and support the initiatives that promote Strategic Objective 2.6.1.20, including support for weed and pest eradication, Waitakere Ranges Heritage Area covenants, visitor management, rural activities in the foothills, design guidelines, and provision of Local Area Plans.*

9. *Where provision is made for Countryside living, any areas of significant ecological value, or of significant historic heritage, or of outstanding natural features and landscapes, or of high natural character shall be identified. These areas shall be identified in policy statements and plans either spatially, by scheduling, or descriptively (through criteria) and by reference to the RPS. Where district plans provide for Countryside living they shall contain provisions to ensure that development (such as earthworks, buildings, roads and driveways) within the above areas is avoided.*

2.6.19 Reasons - Rural Areas

The Strategic Direction of the RPS is dependent on the ability to manage growth and control adverse effects. This results in the separation of urban and rural areas, and is primarily achieved through the definition of urban limits and management of activities, including subdivision, in rural areas. It is designed to avoid the adverse effects of urban Auckland on areas outside the metropolitan area, protect the region's natural resources from significant adverse effects of urban development, retain options for future use of resources and to improve the efficiency of urban Auckland by encouraging development at locations that will promote cost-effective servicing by transportation systems, utility network systems and other works and services.

People place different values on resources and the activities that are undertaken in rural areas. These values influence what people consider to be issues. Integrated resource management in rural areas requires trading off different values to achieve the purpose of the RM Act. Decisions can not be based on the consideration of a narrow set of issues or values. Inevitably, when there are competing potential uses for the same resources, trade-offs will have to be made between those uses.

Part 2 of the RM Act (and the RPS policies) requires that a wide range of factors be considered when decisions are

made about the use, development or protection of natural and physical resources in rural areas. The following are examples of the range of matters that the policies require to be considered. It is not an exhaustive analysis.

Different resources and activities have differing degrees of flexibility as to their form and location. For example Class I and II soils comprise approximately 120,900 ha of the region and are in fixed locations. Water resources also occur in fixed locations, but water can be piped from where it occurs to where it is needed. Because of the adverse effects of some activities on the versatility and productive potential of soils such activities may be more appropriately located on soils of lower versatility.

Some activities may be necessary for the social, economic or cultural well-being of people and communities, but may preclude alternative future uses and may reduce the options available to future generations. It is important that options for the future are not narrowed prematurely or unnecessarily.

Activities which fail to have appropriate regard to the value and vulnerability of soil and water resources, may not only deplete the potential of those resources to provide for the needs of future generations, but may also fail to safeguard their life-supporting capacity and adversely affect environmental quality.

Some activities produce outputs which are economically or socially important, but are accompanied by adverse effects which extend beyond site boundaries. Examples include orcharding, which can give rise to spray drift and noise; or intensive animal farming which can generate odour and wastes which potentially can pollute nearby streams.

Failure to:

- choose suitable locations for such activities, and sites of appropriate size and land quality; or
- impose or enforce necessary operating conditions, or;
- segregate such activities from sensitive neighbours or vulnerable resource features;

can result in adverse effects to health, reduce amenity values, or may diminish the quality of the environment.

The temporal dimension of sustainable management must also be considered. Future users of the Region's resources cannot participate in today's market, and this means that the current market values for resources may not accurately reflect their long term value. Therefore, resource management agencies, when making decisions which commit resources in rural areas in ways that are not easily changed at a later time, must carefully consider the potential needs of future generations. For example, when considering options for future urban growth, or countryside living or the location of urban related activities, the financial return from such development will generally exceed even the most profitable farm crop, and in the absence of resource management processes rural land might well be inappropriately urbanised or used for Countryside living or urban related development. If the life supporting capacity of soils in rural areas and the versatility and productive potential of rural land is valued for future generations, current resource management policy and practice should ensure that such soils continue to be available for rural production activities, as well as the potential needs of those future generations.

In considering the life supporting capacity of rural resources (refer policy 2.6.17) reference may be made to the productive potential of the resource. Such potential may or may not include uses that are economically advantageous. But all such uses should be ecologically sustainable.

With regard to the subdivision of rural land and the subsequent erection of buildings this has resulted in the fragmentation of significant areas of rural land. In addressing the issue of rural subdivision the policies require that a comprehensive approach is adopted to ensure that as far as possible options for future generations are maintained. Matters that will have to be taken into account include:

- the size of the lots so that they are capable of accommodating a range of activities. At the district level this may mean ensuring that a variety of lot sizes are available;
- the quality and quantity of the soil and water resources.

Activities, including land development and land use changes which follow consequentially from land subdivision can affect rural landscapes in a variety of ways. In some instances the changes can be beneficial, but in others they can be adverse. It is important that the use, development and protection of rural land is managed with regard to the quality and sensitivity of the landscape, as provided by Policy 6.4.22.

In some parts of the Region there is an underlying subdivision pattern of unoccupied titles which have not, to date, been built on. There may be a need in such areas to mitigate as far as possible the adverse effects of excessive fragmentation of land titles. Such adverse effects include impacts upon rural character and amenity and the reduction in the versatility of such lots for a range of productive activities. Mitigation may be achieved by a number of methods, one of which is by introducing a system of transferable development rights. This technique may take various forms, and generally involves establishing a regime in which subdivision to, for example, provide for countryside living or expansion of rural or coastal settlements is dependent on acquiring a development right created by the amalgamation of small lots in rural areas into lots of greater area. This approach is provided for by Method 2.6.18.2. To be effective, it will require co-operation between TAs.

Management of the natural and physical resources of the rural parts of the islands of the Hauraki Gulf is driven primarily by the high quality of the heritage, landscape and amenity values of the islands, rather than their agricultural potential or mineral resources. The values which give priority to protection of the heritage and landscape qualities also prevent exploitation of mineral resources, except to meet local needs.

Land quality and historic access limitations have constrained primary production activities on the gulf islands. Recently however, particular combinations of climate and land quality have led to the establishment of specialist elements of the wine industry on parts of Waiheke. While Policy 2.6.17 gives priority to protection of natural resource quality, heritage resources and landscape values, primary production activities of this sort should be enabled.

A greater commitment is also needed to developing databases on such subjects as the nature, volume and value of primary production, land values, land holdings and cadastral information as a basis for identifying rural trends and monitoring the effectiveness of plan provisions (see 2.8 Monitoring).

The adverse effects of subdividing rural land into small lots can include the following:

- reduced versatility of potential use of rural land and mineral resources
- compromised natural resource values (native vegetation, habitat, and water quality), cultural heritage values, rural landscape and amenity values, and a change to the character of rural areas
- increased demands arise in some areas for the provision of urban-type services which are costly and inefficient to provide at rural-residential densities.

These effects are inconsistent with the objectives of the RPS which aim to bring about the sustainable management of the Region's urban and rural lands.

Careful planning is necessary in order to ensure that provision is made for countryside living in a manner that gives effect to Part 2 of the RM Act, and is not inconsistent with the Strategic Direction and with all relevant provisions of this RPS. The RPS does not indicate priorities as to the significance to be attributed to the different outcomes described in Policy 2.6.17. This will depend on giving effect to Part 2 of the RM Act, and on the context within the region and district. An evaluation is however required to include specific reference to how each of the stated outcomes are dealt with, the decision making process including the weightings and reasons for weightings given to each, and on what basis the final decision is made. Where a proposal is evaluated and found to be not inconsistent with the policies, though not actively promoting them, such a proposal may be considered to have made appropriate provision for the policies.

In order to achieve integrated management an evaluation of Policy 2.6.17 (which cross references to other chapters of the RPS) shall include the following matters:

- Chapter 3 - Iwi concerns; the existence of features and qualities of significance to Maori;
- Chapter 4 - the cumulative effects on the region's transport network, and the effects of intensification of rural settlement patterns on the safe and efficient functioning of local roads;
- Chapter 5 - the cumulative effects within the region of low intensity settlement patterns in terms of energy use and especially of transport energy;
- Chapter 6 - the existence of features or qualities which are significant in terms of natural or cultural heritage; the quality and sensitivity of the landscape, and the effects on it of more intensive subdivision and settlement;

- Chapter 7 - effects on the coastal environment, and the need to preserve the natural character of the coastal environment;
- Chapter 8 - the effects of intensification of rural land use on the quality of natural water bodies, with particular reference to stormwater and wastewater treatment and disposal;
- Chapter 9 – the effects of intensification of rural land use on the quantity of natural waterbodies with particular reference to increased demand for potable water supply;
- Chapter 11- the need to avoid or mitigate the effects of natural hazards, including land instability and flood risk;
- Chapter 12 – minimising the loss of prime agricultural land with greatest protection to elite land;
- Chapter 13 - avoidance of unnecessarily compromising regionally significant mineral extraction activities and mineral deposits;
- Chapter 17 - avoidance of contaminated sites, or provision for remediation or mitigation of their adverse effects.

The RPS recognises the need to provide for appropriate Countryside living within the region as a viable method of accommodating the region's rural population growth. Hence, in the same way that Strategic Policies 2.6.2 – Urban Containment establish matters for consideration when addressing urban growth, Strategic Policies 2.6.17 – Rural Areas establish those matters that need to be considered when addressing the issue of growth outside the metropolitan urban limits, including Countryside living.

The fundamental intent of Policies 2.6.17, and in particular 2.6.17.3, is therefore to inform and enable District Plan processes to address the environmental effects of Countryside living in rural areas. The potential environmental effects of Countryside living include (but are not limited to):

- Increased pressure on the regional roading system, leading to increased transport costs and increased demand for transport infrastructure to service Countryside living as the provision of Countryside living results in people living in areas where they are often still dependent on commuting to regional centres. Countryside living can also give rise to cumulative effects on the regional roading system (in combination with other development opportunities) and can have cross boundary implications.
- Adverse effects on the safe and efficient operation of existing infrastructure, in particular regionally significant infrastructure. For example, Countryside living adjoining or close to a regionally significant airfield, even at low densities, can give rise to conflict.
- Adverse effects on water quantity and quality resulting from the stormwater run-off from increased impermeable surfaces associated with Countryside living.
- Adverse effects on rural character, including landscape. The provision of Countryside living can change the landscape and character of an area from one of open space to a comparatively more intense and less open character.
- Reverse sensitivity effects where conflict occurs between the expectations of people living in the area for the lifestyle and the production based activities occurring in these areas.
- Cumulative effects. Consideration must be given to the cumulative effects that provision of countryside living may have in conjunction with other developments (including other rural opportunities, and urban living opportunities) both within the district and, where appropriate, within the region.
- Potential to undermine urban management policies or methods and foreclosure of opportunities for future expansion that arise from consideration of Policies 2.6.2. For example, the expansion of a particular settlement in a certain direction may be controlled in order to preserve an area of open space. Prior to identifying Countryside living opportunities, particularly those adjoining urban areas, an assessment will be required as to the preferred form of development in any given area. This should include consideration of whether urban development may be the more appropriate option. This will require integration with the relevant settlement growth strategy (refer to Method 2.6.3.5). Where urban growth is the preferred option for the future use of that land, consideration should be given to ensuring compatibility with councils' rating policies.

Policy 2.6.17.3(i) acknowledges these potential effects and outlines that Countryside living is to be avoided where it would result in conflicts between incompatible activities such as reverse sensitivity effects, result in the undermining of the integrity of the metropolitan urban limits, or compromise future urban areas.

Policy 2.6.17.3(ii) also requires Countryside living to avoid development in areas identified in the RPS or in district plans as areas of significant ecological value, or of significant historic heritage, or of outstanding natural features and landscapes, or of high natural character; including areas or parts of areas identified in Appendix B that contain these values. These areas represent the Region's most precious resources, and their protection and/or preservation is consistent with both section 6 RM Act and the promotion of sustainable management. The Region contains a sizeable rural area and there is considerable opportunity for Countryside living development outside of these areas. Clear priority is therefore given to a location outside of those areas. It is acknowledged that in some circumstances, provided that development (including earthworks, buildings, roads and driveways) is avoided within those identified areas, Countryside living provisions can result in the protection of the values and features, for instance through permanent legal protection or the creation of special lots or reserves.

Policy 2.6.17.3(ii)(b) specifically excludes countryside living development from having to avoid built heritage. This recognises that sometimes restoration and hence development of historic buildings and structures is required to protect and preserve them. However, the building, structures and their context contain significant heritage values and so Policy 2.6.17.3(iii)(g) states that any adverse effects of countryside living on these values are avoided.

Policy 2.6.17.4 states that no further subdivision for Countryside living purposes is to be provided for in the Waitakere Ranges Heritage Area where there is a need to protect, restore and enhance heritage features and there is limited capacity to absorb future subdivision.

There are already significant Countryside living opportunities within the Auckland region. Some of the Countryside living lots are not, however, in a location, or of an extent or at a scale where regional objectives and outcomes can be achieved. Some are, for example, located a considerable distance from arterial transport routes, commercial facilities and/or employment opportunities.

Policies 2.6.17 and Methods 2.6.18 do not specify how countryside living shall be provided, for example, whether it be by way of defined areas or by way of scattered opportunities or by some other method. Where Countryside living is provided by way of scattered opportunities throughout the rural areas, however, the potential for conflict with Policies 2.6.17 may be greater. One way of mitigating these conflicts is to confine countryside living to specific areas. It is therefore expected that structure plans or other similar mechanisms will be utilised to guide the development of defined Countryside living areas so that adverse effects are avoided, remedied or mitigated (Method 2.6.3.5). This may offer a means of giving effect at a local level to Part 2 of the Act, and to achieving the outcomes that are referenced in Policies 2.6.17.

Policy 2.6.17.3(vi)(a) and Method 2.6.18.2 highlight the potential for the rationalisation of unoccupied titles through the transferable development rights (TDR) system as one method of providing for Countryside living in more appropriate areas. Such an approach not only seeks to prevent excessive fragmentation of land titles, but also enables the provision of Countryside living lots to achieve the regional objectives and outcomes (e.g. environmental, landscape and infrastructure efficiency outcomes) as set out within the RPS by ensuring they are suitably located and of an appropriate extent and scale. Rationalisation could be achieved, for example, by trading rights for Countryside living (the transfer of titles from a donor area to a recipient area), or through the re-organisation or reconfiguration of existing or potential titles, whilst not increasing the amount of Countryside living capacity.

Policies 2.6.17.3 and 2.6.17.4 recognise that there are already significant Countryside living opportunities within the Auckland Region and that, if all such opportunities were taken up, then significant adverse effects would result. Rural capacity studies based on 2006 data have determined that the Region already has over 20 years of Countryside living theoretical capacity, as calculated from the various district plan provisions in countryside living zones and general rural zones. Even accepting that the capacity likely to be taken up may be less than the theoretical figure, the possibilities currently available for countryside living are likely to cater for a reasonable forward planning period up to

and probably beyond 2020. These policies recognise that the environmental effects associated with existing Countryside living opportunities need to be managed, in addition to the effects of any new Countryside living opportunities.

Having regard to the above, it is necessary that a conservative approach be taken to any further provisions for countryside living in that region. Policy 2.6.17.3(vi)(b) further provides that additional Countryside living lots shall not be created unless it is demonstrated that there are insufficient opportunities for countryside living within a particular geographical sector. In the context of this policy, the provision of Countryside living opportunities will need to be assessed by taking into account the turnover of Countryside living lots existing undeveloped countryside living lots (and the likelihood or ability of these lots to be developed or transferred) and the provision for countryside living lots within the existing district plans relevant to that part of the region under consideration (North/West, Central or South). Capacity is therefore one factor in the assessment of countryside living provision.

Countryside living capacity will be recalculated on an ongoing basis in accordance with Method 2.6.18.7. Such calculations will be used to inform the District Plan process and will be made available to the public.

2.7 Strategic and Environmental Results Anticipated

Having given effect to the Strategic Direction the following results are anticipated:

(a) More than 70% of total growth within the Auckland region up to 2050 will be contained within the Metropolitan Urban Limits as were made operative in November 1999.

(b) 30% of total regional population will be contained within High Density Centres and Intensive Corridors.

(c) The public transport level of service will increase generally in the urban area, and specifically in High Density Centres and Intensive Corridors. Explanation: The public transport level of service denotes how many public transport services pass through the pedestrian catchments of bus, ferry, and train stations during the traffic peaks (morning and evening and the inter-peak).

(d) 20 years capacity for urban development will be provided within the region.

(e) Auckland's population growth and economic development will be accommodated while retaining the Region's intrinsic natural qualities.

(f) The land supply available for peripheral expansion and urban intensification will be used efficiently in the long term.

(g) There will be a shift of emphasis from continued peripheral development to greater levels of urban intensification.

(h) Urban development will occur at such locations and in such a way as to promote cost-effective servicing by transportation systems and networks and public utility services.

(i) Development in the Region will be managed so that it does not constrain the efficient and safe operation of regionally significant infrastructure and facilities.

(j) A strategic approach will be implemented to deal with the impacts of urban intensification, taking into account stormwater runoff on a catchment basis, infrastructure requirements, amenity values, open space and community services.

(k) Those features which give Auckland its unique sense of place, such as the coastal environments, outstanding natural features and landscapes (including in the Waitakere Ranges Heritage Area refer Appendix I, and the volcanic cones) and its natural and cultural heritage will continue to be protected from inappropriate subdivision, use and development.

(l) Urban development will be directed away from areas prone to flooding, from geologically unstable areas and from catchments draining into pollution sensitive estuaries and inlets.

(m) Adverse effects including the cumulative effects of development on the environment will be minimised.

(n) Subdivision and development of rural land for urban purposes will be managed.

(o) Sporadic urban-related development in rural areas will be managed to avoid, remedy or mitigate adverse effects.

(p) Countryside living and similar development will be focused into areas where the rural natural resource values and the values protected by the urban containment strategy will be maintained.

(q) The soil resources of the region, particularly prime agricultural land and elite land, are protected.

(r) Water pollution, air quality concerns, adversely affected ecosystems and contaminated land sites, will be reduced in the long term.

(s) Better urban structure and improved urban design outcomes for all new urban (re)developments.

(t) Housing will be of a good quality and affordable, and a range of housing choice is provided.

(u) Relationships between resource management agencies and Tangata Whenua will be enhanced.

(v) A built environment that achieves a higher level of long term sustainability with respect to water and energy conservation, reduction of waste and pollution, and efficient use of resources.

(w) Regionally significant infrastructure will be maintained and provided in such a way and to an extent that it efficiently and effectively supports anticipated growth within the Region.

2.8 Monitoring

1. ***The ARC will monitor and report annually on the form and direction of Regional development, and will monitor the performance and effectiveness of regional policies.***

2. ***Every five years the ARC will collate and interpret Census data which is relevant to assessing the strategic objectives.***

3. ***The ARC will periodically collate and report on results of monitoring undertaken by TAs in the Region, with regard to the extent to which the provisions of district plans result in outcomes which are consistent with the Strategic Direction and the Strategic Policies, and also with reference to:***

    (i) Take-up of the development capacity of residential and employment activity within TA districts;;

    (ii) The cumulative effects of development in rural areas on rural resources;

    (iii) A full capacity monitoring assessment of the matters outlined in Section 2.6.3.6. Such assessments should be undertaken regularly to ensure that a minimum of 20 years capacity is maintained for future development. The monitoring survey will be published and made available to the public.

4. ***The ARC in consultation with utility providers and TAs will monitor and report on the co-ordination of development in the Region with the provision of infrastructure.***

5. ***The ARC and TAs will jointly produce, adopt and notify a monitoring report that will monitor the state of the environment of the Waitakere Ranges Heritage Area (refer Appendix I) and progress made towards achieving strategic objective 19 by 2013 and at intervals of not more than five years after that.***

3.1 Introduction

This chapter states the broad issues which are of resource management significance to Tangata Whenua, and objectives and policies which stem from those issues. Tangata Whenua interests relating to particular issues or resources are set out in other chapters. It is necessary for other chapters to be read in conjunction with this chapter.

Under the RM Act and Hauraki Gulf Marine Park Act 2000 the RPS is required, among other things:

(i) as a matter of national importance, to recognise and provide for the relationship of Maori and their culture and traditions with their ancestral lands, water, sites, waahi tapu and other taonga (section 6(e));

(ii) to have particular regard to kaitiakitanga (section 7(a));

(iii) to take into account the principles of the Treaty of Waitangi (Te Tiriti o Waitangi) (section 8);

(iv) to have regard to recognised relevant Iwi planning documents and any regulations relating to the conservation and management of taiapure or fisheries (sections 61(2)(a)(ii)&(iii));

(v) to state matters of resource management significance to Iwi authorities (section 62(1)(b)).

(vi) To recognise the historic, traditional, cultural, and spiritual relationship of the tangata whenua with the Hauraki Gulf and its islands.

An understanding of traditional concepts is fundamental to the application of RM Act provisions regarding traditional Maori interests and values. While these differ between tribal groups a brief explanation is offered here.

Traditional approaches to resource management focus on maintaining and enhancing the mauri of ancestral taonga. Taonga generally refers to something highly prized and treasured, tangible or intangible, that contributes to Maori intellectual, physical or spiritual wellbeing. The term equates roughly to the concept of a resource, but incorporates a range of social, economic and cultural associations (the courts and the Waitangi Tribunal have maintained broad and flexible descriptions of the term taonga). Mauri is normally described as the life-essence, life-force or power which, through the creation of the natural world, exists in all things. Taonga are intimately linked by mauri. Mauri binds the spiritual and physical elements of taonga together, enabling existence within the bounds of their own creation. When something dies the mauri is no longer able to bind the physical and spiritual elements together and thereby give life. Without mauri nothing can survive. Tikanga – customary values and practices have been developed and observed over many centuries to sustain the mauri of all things, and continues to provide the basis for traditional approaches to resource management.

In the preparation of the RPS, consultation has been carried out with the following Tangata Whenua groups:

- Huakina Development Trust (a management committee of Tainui Marae and Papakainga, and the Environmental Authority of the Tainui Maori Trust Board);
- Awaroa ki Manuka (representing Ngati Te Ata);
- Ngai Tai ki Tamaki Trust Board;
- Ngati Paoa Whanau Trust;
- Ngati Whatua o Orakei Maori Trust Board;
- Te Hao o Ngati Whatua (representing the five Ngati Whatua marae surrounding the Kaipara Harbour in the Auckland Region);
- Te Kawerau a Maki Trust;
- Ngati Wai Trust Board.

In addition to the above, the Hauraki Maori Trust Board is also a significant Iwi authority of the Auckland Region.

Only Tangata Whenua or their representatives have the right to determine matters of resource management significance to them. These have been identified through a series of hui, meetings, written statements and Iwi planning documents.

Tangata Whenua representation may be subject to change. Where Tangata Whenua representation remains unclear, matters of representation will need to be referred back to Tangata Whenua processes for clarification, and wider consultation will be necessary. For these and other consultation issues, parties should refer to the Proposed Guidelines of the Parliamentary Commissioner for the Environment for consultation with Tangata Whenua (June 1992).

3.2 Matters of Significance to Iwi Authorities

The matters of resource management significance to each Tangata Whenua group of the Auckland Region are diverse. They are summarised in the following.

3.2.1 Relationships with ancestral taonga are being adversely affected by inappropriate processes and activities.

Relationships with ancestral taonga continue to evolve and differ between Tangata Whenua groups. Maori regard the natural world holistically, and consider themselves to be an integral part of it. All things are interrelated and interconnected via whakapapa or genealogy.

All taonga must be managed as a whole and cannot be separated. Adverse effects on ancestral taonga damage the wellbeing of Tangata Whenua as Kaitiaki of those taonga.

The effects of Auckland's continued growth and development on the Tangata Whenua of the Region and on their relationship with their ancestral taonga are significant. The Tangata Whenua identify as adverse effects, constraints on the ability to manage their taonga according to tribal customs and preferences, the widespread loss of natural and cultural heritage, and reduction of access to remaining heritage. Also, development in the Region has had adverse effects on water resources and associated habitats. In addition, the little Maori land remaining in the Region is fragmented into small isolated blocks.

The number and variety of activities affecting the mauri of ancestral taonga has increased significantly since traditional times. A combination of both traditional and modern approaches is likely to be required to maintain and enhance the mauri of natural and physical resources today.

Despite improvements in recent years, Tangata Whenua continue to be concerned that their relationship with ancestral taonga is adversely affected and that these effects are not being avoided, mitigated, or remedied.

3.2.2 There is a need for direct and effective involvement of Tangata Whenua in the sustainable management of their ancestral taonga.

Tangata Whenua have developed traditional practices for the sustainable management of most natural and physical resources. These are encompassed by kaitiakitanga, mana, and tikanga – all terms which are referred to in the RM Act. Only Tangata Whenua can exercise kaitiakitanga over their taonga, and therefore determine how kaitiakitanga and rangatiratanga should be expressed.

The RM Act and related legislation provides significant opportunities for the direct and effective involvement of Tangata Whenua in the sustainable management of their ancestral taonga. At present, however, the effective and efficient application of such provisions has yet to be fully realised.

Tangata Whenua have recognised a number of factors which inhibit implementation of statutory provisions which enable Tangata Whenua involvement.

These include:

- misunderstanding of Tangata Whenua interests, values and approaches to the sustainable management of taonga;
- the lack of awareness about the rights and responsibilities of Tangata Whenua, and the extent to which these are recognised by legislation and case-law;
- the limited resources available to Tangata Whenua to enable them to play an effective part in resource management processes, and to pursue and protect their interests;
- the lack of systems and procedures to ensure the early involvement of Tangata Whenua in statutory processes;
- the lack of understanding by Tangata Whenua of local authority structures, functions and procedures.

3.2.3 The Treaty of Waitangi needs to be recognised in the sustainable management of ancestral taonga.

The management of natural and physical resources in the Region has not always been in accordance with the Treaty. Findings of the Waitangi Tribunal thus far demonstrate that Crown breaches of the Treaty in the Auckland Region have resulted in:

- the alienation of land and other resources which were guaranteed to Tangata Whenua;
- loss of the use and enjoyment of resources as a result of pollutive discharges to ancestral waters;
- the over-riding of the customary rights and responsibilities over ancestral taonga.

Tangata Whenua hold that customary rights and responsibilities over their taonga have never been extinguished. Tangata Whenua have continually opposed Crown laws and actions seen to be in breach of the Treaty of Waitangi agreement which confirms and guarantees customary rights. (See Appendix E for full text of Treaty of Waitangi.)

Tangata Whenua consider a significant resource management issue to be the Crown's exercise of presumptive ownership, management and control over ancestral taonga. In many instances the Crown has individualised title, and granted use rights in respect of taonga (e.g., minerals, water, and land) to individuals and organisations. The Crown receives income as a result of those actions.

Such matters cannot be remedied through resource management processes. However, it is important that decisions under the RM Act are made with an awareness of these issues where they exist. So far as possible, care should be taken not to prejudice relationships of the Tangata Whenua with ancestral taonga, nor to exacerbate matters which are the subject of Treaty claims.

Tangata Whenua have high expectations that systems put in place under the RM Act will ensure that, as far as practicable, future grievances pertaining to the management of natural and physical resources will be avoided.

3.3 Objectives

1. *To sustain the mauri of natural and physical resources in ways which enable provision for the social, economic and cultural wellbeing of Maori.*
2. *To afford appropriate priority to the relationship of Tangata Whenua and their culture and traditions with their ancestral taonga when this conflicts with other values.*
3. *To involve Tangata Whenua in resource management processes in ways which:*
   - *(i) take into account the principles of the Treaty of Waitangi, including rangatiratanga;*
   - *(ii) have particular regard to the practical expression of kaitiakitanga.*

3.4 Policies, Methods and Reasons

3.4.1. Policy

This policy gives effect to Objectives 3.3 -1 and 2.

Waahi tapu and other ancestral taonga of special value to Tangata Whenua shall, where agreed by Tangata Whenua, be identified, evaluated, recognised and provided for in accordance with tikanga Maori, and given an appropriate level of protection.

3.4.2 Methods

1. ***The ARC and TAs will, in consultation with Tangata Whenua, identify and list in regional and district plans sites and areas of significance to Tangata Whenua, and such plans will include provisions which afford appropriate levels of protection to the items listed; and such listings will be kept up-to-date.***
2. ***The ARC and TAs will make provision in regional and district plans to achieve appropriate levels of protection for sites and areas of special significance to Tangata Whenua where such sites and areas are known to exist but are not listed or identified in such plans.***
3. ***The ARC and TAs will ensure that Iwi and hapu are informed of the various opportunities that exist for affording their taonga an appropriate level of protection.***
4. ***The ARC and TAs will, when requested by Tangata Whenua, evaluate appropriate management techniques for heritage sites and areas of high significance to Tangata Whenua.***

3.4.3 Reasons

Section 6(e) of the RM Act requires that the relationship of Maori and their culture and traditions with their ancestral lands, water, sites, waahi tapu, and other taonga, be recognised and provided for as a matter of national importance. As stated by Policy 2.1.1 of the NZCPS, this includes the right of Tangata Whenua to choose not to identify all or any areas of special value. Also, as provided for by section 42 of the RM Act, the implementation of Policy 3.4.1 should provide for the protection of sensitive information to avoid offence to tikanga Maori or the location of waahi tapu (e.g., through the use of silent files).

Policy 3.4.1 gives effect to the heritage aspects of Issue 3.2.1. For a variety of reasons, opportunities to formalise the protection of valued areas through statutory plans have not been taken. It is important, however, that opportunities to formally record such areas in statutory plans are maintained and that a cautious approach to activities with unknown but potentially significant adverse effects on ancestral taonga is adopted.

In cases of highly valued, rare and irreplaceable taonga to Maori, the Crown has an obligation to ensure its protection (save in very exceptional circumstances). In taking this Treaty principle into account, an important option for the ARC and TAs to consider would be establishing appropriate management structures to actively manage such taonga (e.g., a heritage order or a management plan).

3.4.4 Policy

This policy gives effect to Objectives 3.3-1 and 2.

Provision will be made enabling facilities and associated customary activities which are necessary for the wellbeing of Maori to be provided on Maori land, and on other land where appropriate, and ensuring that these are actively protected from any adverse effects of other activities.

3.4.5 Methods

1. ***Regional and district plans will recognise and provide for marae, papakainga, and associated customary uses of ancestral taonga.***
2. ***The ARC will maintain an inventory of Maori land and, where appropriate, associated customary uses of ancestral taonga.***

3.4.6 Reasons

Subject to requirements to avoid adverse effects, the RM Act (section 6(e)) and Policy 3.2.6 of the NZCPS recognise that it is a matter of national importance to recognise and provide for marae, papakainga and other cultural facilities and associated customary uses of ancestral taonga. Policy 3.4.4 also takes into account the principles of the Treaty of Waitangi by confirming the right of Maori to live on ancestral land which is still in their possession and actively protecting the ability of Maori to use their taonga from the adverse effects of others. These principles are particularly important in the Auckland Region where little Maori land remains.

Customary activities should not be limited to Maori land. Regional and district plans are the most suitable mechanisms for determining what other land is appropriate for facilities and associated customary activities.

3.4.7 Policy

This policy gives effect to Objectives 3.3-1, 2 and 3.

The involvement of Tangata Whenua in the preparation, implementation, monitoring, change or review of the RPS and regional and district plans shall be undertaken in ways which:

(i) recognise the customary authority of Tangata Whenua;

(ii) provide for the direct involvement of Tangata Whenua where decisions are being made on an issue of significance to Iwi or hapu concerning ancestral taonga or tikanga Maori;

(iii) enable the assessment of effects of activities on relationships with ancestral taonga, including effects on access to, or use of, ancestral taonga;

(iv) provide for early and effective consultation.

In addition, in relation to resource consents, the ARC and TAs shall:

(v) take into account where relevant any planning document recognised by an Iwi authority affected by a resource consent;

(vi) enable applicants to be aware of their responsibilities to Tangata Whenua early in the consent process.

3.4.8 Methods

1. ***The ARC will, in consultation with each Iwi authority of the Region, and in consultation with TAs where it is considered they will be affected, establish an agreement with each Iwi authority regarding procedures to give effect to mutual and respective responsibilities under the RM Act, with particular reference to sections 6(e), 7(a), 7(e) and 8 of the RM Act.***
2. ***The ARC will maintain an information-base comprising relevant Treaty claims, principles, reports and other relevant information enabling the principles of the Treaty to be taken into account.***
3. ***The ARC and TAs will, with Tangata Whenua, determine the likely situations in which Tangata Whenua wish to be consulted, and provide for this in the implementation of regional and district plans.***
4. ***The ARC will, with Tangata Whenua involvement, maintain a list of Tangata Whenua representatives explicitly appointed for consultation over resource management matters.***
5. ***The ARC will and TAs should, with Tangata Whenua, establish co-ordinated education programmes, to improve the understanding of all parties regarding the responsibilities pertaining to matters of significance to Tangata Whenua under the RM Act.***
6. ***ARC hearing procedures will, where appropriate, provide for tikanga Maori, marae hearings, and the use of Maori language where this will enable effective participation by Maori, and contribute to informed decision-making.***
7. ***The ARC will, in consultation with Tangata Whenua, maintain a list of Hearing Commissioners with recognised expertise in tikanga Maori and resource management and/or relevant technical matters. A person from the list will be appointed for hearings under the RM Act where ancestral taonga or tikanga Maori is a significant issue to Iwi or hapu.***
8. ***The ARC and TAs will ensure that matters of significance to Tangata Whenua are identified during the preparation of plans, taken into account, and where appropriate provided for.***
9. ***The ARC will, in consultation with Tangata Whenua, establish and maintain guidelines and checklists to assist consulting parties give effect to Policy 3.4.7.***
10. ***The ARC will ensure that a directory of Maori organisations in the Auckland Region is available in order to assist with consultation.***
11. ***The ARC and TAs will, where Tangata Whenua are affected, encourage applicants to consult the appropriate Tangata Whenua groups prior to submitting their applications for resource consents.***
12. ***The ARC and TAs will ensure that Tangata Whenua are consulted when it is proposed to transfer duties, powers or functions in terms of section 33 of the RM Act.***

3.4.9 Reasons

In addressing elements of Issue 3.2.2, Policy 3.4.7 seeks to give certainty to Tangata Whenua involvement in resource management processes. Policy 3.4.7 also gives effect to recent case-law defining consultation, and incorporates important elements of the Guidelines of the Parliamentary Commissioner for the Environment, for consultation with Tangata Whenua (**Proposed Guidelines for Local Authority Consultation with Tangata Whenua;** Office of the Parliamentary Commissioner for the Environment, June 1992).

Significant adverse effects on ancestral taonga occur largely as a result of consent granting processes. Applicants and the ARC and TAs have certain responsibilities to Tangata Whenua. Consistent with section 8 of the RM Act, and to facilitate the assessment of effects on relationships with ancestral taonga, it is important that, where relevant, Iwi planning documents are taken into account in consent processes.

In recognising the customary authority or mana whenua of Tangata Whenua, Policy 3.4.7 takes into account the Treaty principle of rangatiratanga. Examples of recognising customary authority include the establishment of agreements and the appointment of Hearing Commissioners in accordance with Method 3.4.8

Before making decisions which may affect customary rights, a full appreciation of the nature of the taonga to Tangata Whenua is required. This can only be gained from those having customary rights over the taonga. Policy 3.4.7 takes this important Treaty principle into account.

3.4.10 Policy

This policy gives effect to Objective 3.3-3.

The management of natural and physical resources shall take into account the effects on relevant Treaty claims and/or customary rights of Tangata Whenua.

3.4.11 Methods

1. ***The ARC and TAs will ensure that Tangata Whenua are consulted where relevant Treaty claims and/or customary rights, including the use and enjoyment of ancestral taonga, may be affected by proposals.***
2. ***Where a resource consent application involves the use or allocation of resources which are subject to Treaty claims and those claims concern:***
   - ***the relationship of Maori and their culture and traditions with their ancestral lands, water, sites, waahi tapu and other taonga; or***
   - ***kaitiakitanga; or***
   - ***the principles of the Treaty of Waitangi***

   the ARC and TAs shall have appropriate regard to any relevant and findings of the Waitangi Tribunal on those aspects of the claims when considering whether to attach a condition to the consent to enable a review of consent conditions.
3. ***The ARC and TAs shall have appropriate regard to any relevant and findings of the Waitangi Tribunal or courts of law and any Acts of Parliament or Regulations which concern:***
   - ***the relationship of Maori and their culture and traditions with their ancestral lands, water, sites, waahi tapu and other taonga; or***
   - ***kaitiakitanga; or***
   - ***the principles of the Treaty of Waitangi***

   when exercising their decision making functions under the RM Act in relation to the use or allocation of resources which are subject to Treaty claims.

3.4.12 Reasons

Under subsection 6(e) and 8 of the RM Act the implications of resource management decisions on Treaty claims and customary rights need to be taken into account. Policy 3.4.10 addresses aspects of Issues 3.2.1 and 3.2.3.

Examples of relevant Treaty claims include those reported on by the Waitangi Tribunal relating to the loss of access, use and enjoyment of ancestral resources by Tangata Whenua as a result (inter alia) of environmental degradation. The establishment of Mahinga Mataitai Reserves under the Treaty of Waitangi (Fisheries Claims) Settlement Act 1992, making provision for customary rights, is another relevant matter to take into account under Policy 3.4.10.

Guidance regarding what types of Treaty claims are not relevant to the administration of the RM Act will be taken from the Planning Tribunal and the general courts.

Everything practicable should be done to avoid, and not exacerbate Treaty grievances. Policy 3.4.10 will help avoid future Treaty grievances, and save cost and time to all parties.

3.4.13 Policy

This policy gives effect to Objective 3.3-3.

In the exercise of their responsibilities under the RM Act, the ARC and TAs will enable the practical expression of kaitiakitanga by Tangata Whenua.

3.4.14 Methods

1. ***The ARC and TAs will, in consultation with Tangata Whenua, identify opportunities to involve Iwi in the management of ancestral taonga, including consideration of transfers of functions, particularly for those taonga:***
   - ***(i) (which are tribally-owned or managed;***
   - ***(ii) with characteristics of special value to Tangata Whenua including waahi tapu, tauranga waka, tauranga ika, taonga raranga, taiapure, or mahinga mataitai areas or reserves;***
   - ***(iii) used for customary purposes;***
   - ***(iv) where joint management opportunities exist.***
2. ***The ARC and TAs will, in consultation with Tangata Whenua, identify and provide opportunities for the practical exercise of kaitiakitanga by Iwi and hapu.***
3. ***The ARC will, with Tangata Whenua involvement, encourage initiatives which seek to incorporate tikanga Maori into resource management processes, techniques, and measures of resource quality.***

3.4.15 Reasons

Section 7(a) of the RM Act recognises that kaitiakitanga has a positive contribution to make in promoting the sustainable management of natural and physical resources. Consultation has highlighted existing and proposed tribal initiatives which seek to maintain or enhance the mauri of ancestral taonga (e.g., regeneration of indigenous vegetation adjacent to waterways, conserving both soil, water, and associated aquatic life).

In having particular regard to kaitiakitanga, the ARC and TAs cannot presume how each Tangata Whenua group wants its Kaitiaki role to be recognised. It is important, however, for the ARC and TAs to provide opportunities enabling the practical expression of kaitiakitanga.

It is important to note that the exercise of kaitiakitanga also requires recognition of the rangitiratanga of Tangata Whenua. The RM Act (section 33) and Policy 2.1.3 of the NZCPS recognise that the option of transferring to Iwi direct control is an important method of having particular regard to kaitiakitanga, protecting ancestral taonga and, therefore, promoting sustainable management. Method 3.4.14 -1 provides a focus for any transfers.

3.5 Environmental Results Anticipated

(a) Ongoing beneficial relationships between Tangata Whenua and the ARC and TAs.

(b) Protection and enhancement of relationships of Tangata Whenua with their ancestral taonga.

(c) Consultation on all matters of resource management significance to Tangata Whenua.

(d) Provision for social, economic and cultural wellbeing of Tangata Whenua, in accordance with Treaty rights and obligations.

(a) Involvement of Tangata Whenua in managing their ancestral taonga, including decision-making, in accordance with Treaty rights and obligations.

These results mean that the mauri of ancestral taonga in the Auckland Region will be sustained.

3.6 Monitoring

The following monitoring is necessary to evaluate the suitability and effectiveness of the policies and methods.

(i) Report on the state of the environment, identifying significant adverse effects on relationships, and work initiated or completed to avoid, remedy or mitigate these.

(ii) Report each three years on the effectiveness of resource consent procedures, and suggestions for continuous improvement.

(iii) Report each three years on provisions for achieving policies, their effectiveness, and suggestions for continuous improvement.

The results of this monitoring should provide assurance that the objective of sustaining the mauri of natural and physical resources in the Auckland Region with Tangata Whenua will be achieved.

4.1 Introduction

An effective and efficient transport system is critical to the environmental, social, economic and cultural wellbeing of the Auckland Region and its inhabitants. This is achieved by providing a high level of accessibility to the regions residents to enable them to fully participate in society and to enable the movement of goods and services in a manner which supports the continued economic development of the region.

Transport infrastructure represents a significant physical resource in the Region which requires careful management. The influence of the transport system on urban form and the environment is of considerable importance to the Auckland Region.

The form of development of Auckland and the pattern of activities in the Region has been profoundly influenced by transport systems. Initially water transport movement focused on coastal waters and the Region's harbours. Next rail and roads, and then the tram system developed, enabling longer trips to work and some dispersal of shopping to suburban areas. More recently, the system of arterial roads and motorways evolved, contributing to the development of a sprawling, low-density city. Most people enjoy high levels of accessibility and mobility, and appreciate the opportunities and quality of life that this provides. They do not however, always appreciate the environmental costs associated with this high level of accessibility.

As explained in Chapter 2, the adverse effects on the environment from a sprawling low density form of development are unsustainable. Greater sustainability is to be achieved by locating the majority of future regional growth within the existing metropolitan area by way of a series of High Density Centres and Intensive Corridors. Overseas experience has shown that the implementation of rapid transit, in the form of heavy rail, ferry services, light rail or dedicated busway can assist in leveraging development within High Density Centres and Intensive Corridors. Many of the centres contained in Schedule 1 would benefit from the provision of improved rapid transit.

Population, employment and economic activity in Auckland have increased steadily, resulting in more trips being made. The number of vehicle trips made per person has also increased, accentuating the increase in total trips. The increase in use of vehicles reflects changes in commercial distribution systems, individuals becoming involved in more activities, more single purpose trips and replacement of walk and cycle trips by vehicle trips. The increase is placing greater pressure on the transport system and highlighting its adverse effects on the environment, including reduced environmental health, increased consumption of non-renewable resources, community disruption, and the decreased health and safety of people and communities.

There is increasing recognition that the Region's transport system needs to be developed in a more sustainable manner. Sustainable development in this sense also includes providing for the social and economic well-being of people and communities over time, along with environmental sustainability.

A more sustainable transport system is one in which trip numbers and lengths are minimised, and the use of energy and space-efficient modes of transport, such as public transport, cycling and walking, are viable and encouraged. The development of a transport system which supports a more compact form of development in the Auckland Region would work towards minimising adverse environmental effects, meeting accessibility needs and improving safety, reducing community disruption and contributing to the increased liveability of local communities and centres.

The major direction of transport policy in Auckland will be set by the RPS. The components of that policy are more fully developed through the Regional Land Transport Strategy (RLTS) which has been prepared pursuant to section 175 of the Land Transport Act 1998 and which provides a further mechanism for delivering sustainable transport outcomes. The RLTS must contribute to the overall aim of achieving an integrated, safe, responsive and sustainable land transport system.

The RLTS is also required to:

(i) identify the future land transport outcomes sought for the Region;

(ii) identify an appropriate role for each mode of transport;

(iii) include a travel demand management strategy.

The Land Transport Act 1998 requires that the RLTS must not be inconsistent with the RPS. The RLTS takes effect through a requirement that any project included in the Land Transport Programmes of the region must be aligned with the RLTS. The National Land Transport Programme prepared by Land Transport New Zealand

must have regard to the RLTS. The Auckland Regional Transport Authority (ARTA) is required to give effect to the RLTS.

At the same time, efforts need to be made to diminish or mitigate the transport effects of the dispersed residential patterns developed in recent decades. Thoughtful development of the rapid transit and passenger transport networks can improve access throughout the region's urban areas by more sustainable means, linking High Density Centres with attractive and effective passenger services.

4.2 Issues

4.2.1 The transport system can influence and be influenced by urban and rural form in both positive and negative ways.

Chapter 2 discusses how the form of urban and rural development affects the environment and outlines how through increased selective intensification and limited urban expansion, urban and rural development can be managed more sustainably in the Auckland region.

The transport system is recognised as being one of the major determinants of urban form. The way in which the transport system is developed is therefore one of the major instruments in guiding the form of urban development. If not managed properly, the transport system can promote land uses which do not support the land use outcomes sought in Chapter 2. This can include promoting peripheral low density urban developments which has related adverse environmental impacts.

On the other hand if managed properly the transport system can provide strong leverage for promoting land use outcomes sought in Chapter 2. This involves the management of public transport systems, walking, cycling, rail and roading improvements which promote and support the development of higher density urban centres and Corridors, which in turn attracts more people, more activity and more investment into these areas.

As the region grows the transport network will be required to increase in capacity to service this growth. Roading, public transport, walking and cycling networks will all come under pressure from future growth, particularly those parts of the network in and around the High Density Centres and Intensive Corridors identified in Schedule 1.

Inappropriate land uses can also have an adverse effect on the effective and efficient operation of the transport system. Some of the adverse effects from the transport system can be avoided, remedied or mitigated by the appropriate location of other urban land use activities in proximity to key transport corridors and/or by requiring appropriate subdivision and building development controls.

The sequencing of landuse intensification/expansion without promoting transport choice, and the effective and efficient provision of public transport, can result in issues of reduced accessibility for some members of the Regional community, and reliance on trips by private motor vehicles. The encouragement of modal choice, and reducing trip numbers and trip lengths, primarily through intensifying Compact Mixed Use Environments at High Density Centres and Intensive Corridors is consistent with the strategic objectives in Chapter 2. However, the existing settlement patterns, land uses, and reliance on private motor vehicles, provides challenges for promoting modal choice in the short to medium term. Consequently, the road network and use of the private motor vehicle will need to continue to be factored into evolving development patterns recognising the promotion of modal choices, including cycling, walking, public transport as well as the use of the private motor vehicle. The policies which manage the integration of transport and land use development are described in Chapter 2 and 4. Consequently, the objectives, policies and methods in this chapter must be considered within that wider context.

4.2.2 The transport system has adverse effects on the environment.

As well as the effects the transport system has on the environment through its contribution to urban form, transport has a direct impact on the environment. Motor vehicles are the largest contributor to air pollution in the Auckland metropolitan area and vehicle emissions are important contributors to greenhouse gases. The effect of emissions deposited on roads or stripped by rainfall, together with road surface accumulation from vehicle use (tyre wear, oil leaks, etc.), is that runoff from roads is an important source of water quality degradation.

In addition, the earthworks required to construct transport facilities generate dust and water-borne sediments.

The regional transport system is a relatively high user of energy and for the foreseeable future will rely on the consumption of non-renewable resources, including fossil fuels, construction materials and land. A failure to address energy issues which have a direct bearing on urban form, such as the efficient and effective supply of fuel to Auckland, will have serious environmental (including social and economic) consequences. These include inhibiting the operation of the transport system, an increase in the volume of heavy traffic on the roads and, consequently, a constraint on successful economic development. In order to mitigate environmental effects and meet Kyoto Protocol commitments the use of renewable energy resources should be investigated at a local, regional, and national level.

In the case of water transport, the design and operation of vessels, notably their speed, can cause coastal erosion due to vessel wakes. Such erosion has potential to adversely impact seawalls, beaches and other coastal features.

The transport system impacts both positively and negatively on existing communities. Roads, motorways and rail can have localised effects on people and communities, including noise, reduced safety and the severance of communities. These effects can be mitigated by design and through appropriate traffic management. However, the transport system can also bring people and communities together and enable them to provide for their social, economic and cultural wellbeing by decreasing either the distance or time it takes to travel around the region.

4.2.3 The domination of the transport system by cars inhibits the ability of some parts of the community to provide for their social, economic and cultural wellbeing.

The personal mobility provided by the car has played a large part in the development of a low-density city spread over a large area. People expect to have ready access to jobs, beaches, parks and social activities. This lifestyle is highly valued by the people of the Region. This form of development, however, with dispersed activities and high availability of cars, means that public transport is difficult to provide in a cost-effective manner. This reduces travel choices and opportunities for those who prefer to travel by public transport and, in particular, affects those without access to a private car who are dependent on public transport to meet their working, educational, health, recreational and social needs.

The predominant use of private vehicles has also resulted in the allocation of the majority of road space to the private vehicle at the expense of other modes such as public transport walking and cycling. The road space is a scarce resource for the carrying capacity of other modes of transport and its use needs to be optimised. Associated car parking and vehicle access ways have also been provided at the expense of other urban activities including public open spaces. This in turn has further hindered the ability to provide for effective alternative travel modes.

It is acknowledged however that, for the foreseeable future, a majority of people in the community will continue to use motor vehicles. It is necessary that provision continues to be made for the use of private motor vehicles.

4.2.4 The transport system is a significant regional resource providing for the movement of people, goods, services and resources. The existence of deficiencies in the transport network and landuse mix leads to poor access between some parts of the Region and congestion in parts of the transport network, inhibiting the ability of the community to provide for its social, economic and cultural wellbeing.

Successful economic development relies on a coherent, affordable, efficient and effective transport system and an appropriate spatial mix of employment land to improve the flow of people, goods and services both within the region, to other regions and to and from other parts of the world. Future major road links will still form an important part of the transport system, connecting cities and districts of the region, for 'cross town' or inter-regional movement, and for the movement of freight. Such road links and the use of motor vehicles, will remain an important part of the transport system for the movement of people particularly where they cannot, for the foreseeable future, reasonably be moved by public transport and for whom walking or cycling are not realistic alternatives.

A healthy economy is vital to the future of Auckland and this requires safe and efficient transport links across the network and in particular between important activity areas. The major activity areas include the Auckland Central Business District, the ports of Auckland and Onehunga, Auckland International Airport, the major production and servicing areas, the main employment

areas, some regionally significant infrastructure, residential areas, larger educational institutions, town centres, and major health care centres. In addition, access to metropolitan facilities and services from the surrounding rural areas is essential. Good transport links to other regions and other countries are also necessary.

Ports and airports play a vital part in fulfilling the latter role and it is important that land uses surrounding them do not compromise their effectiveness. Development of transport networks (e.g. rail) associated with the ports and airports provides opportunities to take freight traffic off the existing transport network (e.g. sea-borne freight). Ports and airports are primarily dealt with in Chapter 2 Policy 2.6.14 – Infrastructure. The Port is identified as regionally significant infrastructure and that work is not repeated in this chapter.

The increase in the number of vehicle trips in the Region has outstripped the ability of the road system to accommodate those trips, with the result that in some time periods and on some key parts of the road network, traffic congestion is a significant problem. In locations where roads are currently congested (including central parts of the motorway system, the harbour bridge and northern motorway, the southern motorway, the north western motorway and some key central arterials), traffic demand is expected to continue to increase, yet in many cases there is no realistic prospect of significantly increasing roading capacity.

In this situation, congestion and delays will continue to increase. As congestion builds, travel at peak periods is likely to be discouraged and people will search for alternative routes or travel modes to reach their destination. People may also choose to change their travel times, or change the places where they live, work, shop or carry out business and social activities.

4.2.5 The transport system has a high cost in terms of fatalities and injuries and this inhibits the ability of people and communities to provide for their health and safety.

The health and safety record of the Auckland transport system is poor by both national and international standards and this needs to be improved.

In 2005, 74 people were killed in road crashes in the Auckland Region and 3946 people were reported injured in road crashes. Motor vehicle crashes are the leading cause of hospitalisation for injury.

The cost of all reported motor vehicle crashes (fatal, injury and non-injury) to the Auckland Region in 2005 is estimated at $792 million. This includes health costs, property damage, legal costs and a costing for loss of life/permanent disability.

In addition it is estimated that almost 250 people in the region die every year from exposure to microscopic particles from vehicle emissions. This is a serious issue which requires ongoing action.

The predominant use of the transport system by cars has also resulted in a reduction in the use of the "active modes" of walking and cycling, through a combination of poorer facilities and a perception of decreased safety and security. The increased use of walking and cycling as modes of travel contributes to improved physical fitness and reduced health problems such as obesity and heart disease.

4.3 Objectives

1. *To develop a transport network that supports a compact sustainable urban form.*

The policies which give effect to this Objective are found in Chapter 2 (2.6.11).

2. *To avoid, remedy, or mitigate the adverse effects of transport on the environment and, in particular:*
   - *(i) to avoid, remedy, or mitigate the adverse effects of transport on air quality, water quality and heritage;*
   - *(ii) to reduce the need for the transport system to use non-renewable fuels;*
   - *(iii) to avoid, remedy, or mitigate the adverse effects of the transport system on community well-being and amenity.*
3. *To develop a transport network which provides an acceptable level of accessibility for all sections of the community within and across the region, by encouraging transport choices that are efficient, convenient or practical.*
4. *To develop a transport network which is as safe as is practicable and which promotes better physical health for the community.*

4.4 Policies, Methods and reasons

4.4.1 Policy

The following policy and methods give effect to Objective 4.3.2.

1. ***Land use and transport planning will be integrated in a way which:***

   (i) seeks to reduce trip lengths and numbers and the need for private vehicle travel and encourages a significant increase in the amount of travel made by public transport, walking and cycling;

   (ii) recognises that where access cannot yet be met conveniently, efficiently, effectively or practically by public transport, nor by viable walking or cycling, trips will continue to be made by private vehicle;

   (iii) recognises the need to reinforce an efficient and effective public transport system within and connecting High Density Centres and Intensive Corridors.

2. ***Development of the transport system will be guided in a way which:***

   (i) promotes the use of forms of transport which have fewer adverse effects on the environment;

   (ii) reduces the environmental effects of transport at source;

   (iii) reduces the need to use non-renewable fuels;

   (iv) avoids, remedies, or mitigates the adverse effects of transport on air and water quality;

   (v) avoids, remedies, or mitigates the adverse effects of transport in the modification of landscape and the destruction of natural habitats and other heritage;

   (vi) avoids, remedies, or mitigates the adverse effects of transport on local communities.

See also Chapter 2 – Regional Overview and Strategic Direction; Chapter 3 - Iwi; Chapter 5 - Energy; Chapter 6 - Heritage; Chapter 9 - Water Quality; Chapter 11 - Air Quality.

4.4.2 Methods

1. ***Land use and transport planning should be integrated by:***

   (i) District plan provisions which address the interaction between land use and the transport system and, in particular, should contain provisions concerning:

   (a) control of existing and future land use to enable new developments or redevelopments to be serviced efficiently by public transport, walking and cycling;

   (b) ensuring that planning controls do not unnecessarily restrict the development of High Density Centres, and Intensive Corridors serviced by public transport, working from home or telecommuting;

   (c) encouragement of land use changes so that persons can work and obtain goods and services within local areas, so as to significantly reduce the need to travel by motor vehicle;

   (ii) the Auckland RLTS should recognise the impact which transport has on land use and should guide development of the transport system in a way which is compatible with land use planning.

2. ***The Auckland RLTS and district plans will contain provisions which recognise the advantages of modes of transport which have fewer adverse environmental effects than trucks or single occupant cars, such as public transport (including buses, passenger rail and ferries) high occupancy vehicles, cycling, walking and rail freight.***

3. ***The ARC will take a strong advocacy and educational role in support of the reduction of motor vehicle use and the encouragement of fuel efficient modes.***

4. ***The ARC will continue to take a strong advocacy role for the reduction of emissions and noise from individual vehicles, for reducing the use of non-renewable fuels and for better fuel quality.***

5. ***The ARC will continue to undertake, in a way which complements the actions of other organisations, an educational campaign directed towards promotion of the awareness of the consequences of motor vehicle emissions, promotion of regular tuning and maintenance of motor vehicles, the promotion of more efficient vehicles and promotion of the use of alternative fuels.***

6. ***The ARC will develop, implement, monitor and review an Auckland Regional Air Quality Management Strategy to ensure that air quality in areas impacted by vehicle emissions is in compliance with relevant National Environmental Standards and Regional Air Quality Targets.***

7. ***The ARC will manage sediment discharge from road construction and stormwater discharges from roads via regional plan rules and will also address the adverse effects of stormwater discharges from roads through a Stormwater Quality Control Programme.***

8. ***The Auckland RLTS and district plans will contain provisions which avoid, remedy and mitigate the adverse impacts of traffic and the transport network on local communities including addressing the need for good urban design.***

9. ***The ARC in consultation with EECA will develop targets for energy efficiency improvements from transport in the Auckland Region and support initiatives for achieving this target.***

10. ***The Auckland RLTS and district plans will contain provisions that enable high traffic generating activities to establish in appropriate locations particularly in High Density Centres and along Intensive Corridors; whilst ensuring, particularly for Intensive Corridors, that matters associated with any transport effects of the activity do not compromise the efficiency of the transport system nor its supporting infrastructure.***

See also Chapter 2 – Regional Overview and Strategic Direction; Chapter 9 - Water Quality; Chapter 11 - Air Quality; Chapter 6 - Energy

4.4.3 Reasons

Private motor vehicle use is currently the preferred or only realistic means of travel for the majority of the Region's community. This significant reliance on the private motor vehicle is likely to continue in the short to medium term where public transport, walking or cycling are not realistic alternatives.

Many of the adverse environmental effects of transport (particularly emissions and polluted runoff from roads) are related to the amount of vehicle travel. Reducing the amount of vehicle travel, the level of discharges from vehicles, and proactive mitigation measures for treating the discharges, all assist in reducing the adverse effects.

Improvements to the regional transport network in both rural areas and in existing urban areas can have impacts on the local communities who live there. One of the major impacts from increased traffic or new road or public transport infrastructure is the severance effect on existing communities.

Where there are alternative means of providing for transport demand, environmental objectives can be achieved by giving preference to transport alternatives with lower environmental effects. The environmental effects which the ARC will seek to reduce include:

i) air pollution

ii) water pollution

iii) CO_2 emissions

iv) damage to heritage

v) noise

vi) transport accidents

vii) community severance.

Public transport, high occupancy vehicles, cycling, walking and rail freight generally perform better than single occupancy cars and trucks regarding these effects. Within the range of public transport options, light rail has benefits over buses for the southern, eastern and western corridors. Steps are being taken to ensure the protection of these routes for rail and the higher levels of rail service are being introduced. The feasibility and likely effects of economic instruments, such as road pricing and parking charges, are being investigated. These measures may help travellers understand the full cost of use of each mode of transport. They can then make informed decisions about which mode to use.

Along with road pricing and parking charges are a number of other techniques which seek to increase the use of more sustainable transport modes and reduce the use of single occupancy car travel. These techniques are more commonly known as Travel Demand Management (TDM). TDM includes mechanisms such as aligning land use activities with transport investment, mixed use developments, travel plans for schools, universities, business and communities and improving the level of transport information available. TDM mechanisms in Auckland are designed to work in tandem with improvements made to public transport, walking and cycling modes.

The most effective means of reducing motor vehicle emissions is through measures aimed at the whole vehicle fleet. Such measures include further improvement of fuel and vehicle standards, changing tax incidence, regulation, efficiency labelling etc. Many of these initiates can only effectively be tackled with central government cooperation.

Similarly, reducing the need to use non-renewable fuel will require central government to introduce regulations or tax measures to reduce the amount of fuel used and to encourage the use of renewable fuels.

Continued policy supporting the use of low polluting fuels will assist in reducing the adverse environmental effects of the transport system.

Reducing the adverse effects of the transport system on water quality and air quality will require:

(i) encouragement of the efficient use of fuel and thus reduction in the amount of vehicle emissions;

(ii) reducing motor vehicle use;

(iii) giving effect to voluntary and educational programmes to reduce emissions 'at the tailpipe' under a range of operating conditions in order to limit adverse effects on air quality.

(iv) treating stormwater discharges from roads to limit the adverse effects on the quality of receiving waters;

(v) developing and implementing consistent procedures for the assessment of environmental effects from transport projects;

(vi) ensuring that appropriate environmental mitigation techniques are implemented for transport projects, where adverse effects cannot be avoided or remedied;

(vii) developing and implementing monitoring programs for new transport projects to track impacts of changing transport characteristics on air, water and noise;

(viii) influencing land use to ensure more people can live and work locally.

These measures may have cost implications which may affect the rate at which they can be implemented.

Measures for addressing localised environmental impacts include where appropriate:

(i) introduction of traffic calming measures;

(ii) noise reduction measures;

(iii) introduction of Heavy Motor Vehicle routes;

(iv) introduction of tunnelled routes;

(v) introduction of routes for the transport of hazardous substances.

4.4.4 Policy

The following policies and method give effect to Objective 4.3.3.

The public transport system will be integrated and managed to better enable existing and potential users to get to work, services, shops, educational, health, social and recreational facilities through:

(i) improving the public transport system;

(ii) improving walking opportunities and facilities;

(iii) improving cycling opportunities and facilities.

4.4.5 Method

The transport system will be integrated and managed in the following ways via the following Auckland planning documents:

(i) the policies and methods of the Auckland RLTS and the land transport programmes of transport providers of the region will provide for improvements to the transport system;

(ii) the Auckland RLTS and the Auckland Regional Passenger Transport Plan (prepared pursuant to the Transport Services Licensing Act 1989) will include policies and methods to improve the effectiveness of the public transport system;

(iii) the RLTS will include policies and methods to improve the attractiveness of walking and cycling.

4.4.6 Reasons

In providing a range of transport options transport users are able to make considered choices to meet their transport needs. This includes the ability to choose to travel by private vehicle, public transport, cycle, walk, and even to choose not to travel at all e.g. in the case of working from home. To make these choices viable improvements need to be made to all parts of the transport network. It needs to be recognised however that public transport options are not available in all locations, particularly rural and coastal settlements.

In order to better provide for people's accessibility needs and to encourage the reduction of vehicle trips, the public transport system needs to become more attractive to users and wider use needs to be promoted. The public transport system needs to enable existing and potential users to get to work, services, shops and social and recreational facilities and it needs to provide a good door to door service considering and incorporating the walking component which is an integral part of all public

transport trips. The attractiveness of public transport will be improved through measures such as:

(i) the redevelopment of Auckland commuter rail system, ferry system and the construction of the bus rapid transit system;

(ii) integration between different transport modes;

(iii) development of services which meet the needs of existing and potential users in terms of coverage, reliability, timetables, frequency and integration of timetables, ticketing and fares;

(iv) where practicable introducing measures such as bus priorities which will enhance the speed of services;

(v) improving the pedestrian element of the public transport trip;

(vi) accommodating people with special transport needs (such as people with disabilities);

(vii) ensuring public transport is competitively priced and affordable to those who are unable to operate, or who cannot afford, a car;

(viii) upgrading transfer facilities within and between transport modes;

(ix) ensuring service information is readily available and easy to use;

(x) ensuring vehicles and facilities provide reasonable levels of comfort and security.

The directions in which the public transport system will be developed are outlined in the Auckland RLTS and described in some detail in the Passenger Transport Plan.

Walking and cycling choices also need to enable a number of existing and potential users to get to work, services, shops and recreational facilities. The attractiveness of walking and cycling will be improved through:

(i) developing a regional cycle network;

(ii) upgrading and developing new pedestrian linkages including improved linkages to the public transport network;

(iii) where practicable introducing measures such as pedestrian priority precincts;

(iv) meeting the urban design policies in Section 2.6.8.

4.4.7 Policies

The following policies and methods give effect to Objective 4.3.4.

1. ***Transport networks which promote the efficient movement of people, goods and services throughout the Region will be identified in the Auckland RLTS and district plans and will be required to be protected in district plans.***

2. ***The efficiency of congested transport Corridors will be increased by:***

   (i) encouraging increases in person-carrying capacity (i.e., by supporting public transport, car pooling and high occupancy vehicles);

   (ii) encouraging increases in freight carrying capacity (i.e., by supporting consolidation of loads and rail freight); and

   (iii) encouraging walking and cycling.

3. ***Roading upgrades that accommodate more road vehicles should be used where:***

   (i) congested transport Corridors are no longer able to be effectively managed by Policy 4.4.7.2;

   (ii) the social, cultural, economic and environmental benefits outweigh investment in alternative transport infrastructure or services.

4. ***The efficiency of congested transport corridors will be increased by encouraging shorter trips and recreational trips to be made by walking and cycling.***

4.4.8 Methods

1. ***The Auckland RLTS will identify the major elements of the existing transport system in the form of the regional components of the transport network hierarchy and will also identify the additional regional components of the transport network hierarchy which will be required in the ten year period following the production of each RLTS. The RLTS will also identify any components which are likely to be required in the longer term.***

2. ***District plans shall include a functional road hierarchy and shall provide for the protection of the regional land transport network as, either existing or required.***

3. ***The Auckland RLTS will contain policies and methods for increasing the person-carrying and freight-carrying capacity of the key Corridors.***
4. ***The ARC will maintain dialogue with central government to ensure that a fair allocation of transport funding is made available to the Auckland region to enable the region to provide an integrated, safe, responsive and sustainable transport system.***

4.4.9 Reasons

Ensuring appropriate transport links are available between major activity centres will involve identification of the parts of the transport network (both road and rail) essential for moving goods and services within and in and out of the Region. Processes which will ensure that this network can carry out this function will need to be introduced. Determination of the need for inclusion of particular transport links in the Regional transport network, either currently or in the future, will include consideration of the following matters:

- transport proposals which have not yet been implemented;
- areas where recent developments have meant that increased travel demand (or likely increased future demand) is not well catered for;
- areas where improved transport links are needed to assist development.

In congested transport corridors where roading capacity cannot be significantly increased, efforts will be mainly directed at reducing the increase in demand for vehicle travel. This will be achieved by increasing efficiency of use of vehicles - by increasing the ratio of persons per vehicle rather than by increasing the number of vehicles and by encouraging the use of walking and cycling. It is acknowledged that this requires modal choice to be available to reduce trips by private motor vehicle. Support for high occupancy vehicles including public transport will be important in this regard.

Similarly, attention needs to be given to reducing the need for heavy motor vehicle travel, through measures such as consolidation of loads and encouragement of rail freight where appropriate.

In recent years high-speed ferries have emerged as an increasingly important mode of commuter and tourist transport on the Waitemata Harbour and Hauraki Gulf. Water transport should be encouraged to play a significant alternative role in linking the city centre to Auckland's marine suburbs.

The feasibility and likely effects of pricing mechanisms, such as electronic road pricing, cordon tolls, supplementary licensing/area pricing and parking levies, to manage traffic demand in congested areas and Corridors need to be investigated.

Additional funding has been secured to enable the region to develop and run an improved transport system. It is important that the region ensures that a fair allocation of funding continues into the future.

4.4.10 Policies

The following policies and methods give effect to Objective 4.3.5.

1. ***Co-operation and information sharing between road and rail safety groups will be actively encouraged.***
2. ***Priority areas will be identified for the targeting of road safety resources.***
3. ***Co-operation and information sharing between health and transport groups will be actively encouraged.***
4. ***Take all reasonable steps to avoid, remedy or mitigate the adverse health effects of transport.***
5. ***Ensure the use of personal safety and security measures in the management and development of the transport networks.***

4.4.11 Methods

1. ***The ARC will convene a working group of representatives of the major parties involved in road safety in the Region with the purpose of improving co-operation and information sharing among road safety organisations (the RoadSafe Auckland Working Group currently fulfils this role).***
2. ***A strategy will be produced and reviewed at regular intervals identifying road safety issues in the Auckland Region and targeting priority areas for the allocation of resources (the Auckland Road Safety Action Plan 2004 to 2010 currently fulfils this role).***
3. ***A strategy will be reviewed at regular intervals identifying road safety issues in the Auckland region and targeting priority.***

4. ***Coordination of rail safety initiatives through support of any national rail safety plan and/or the consideration and development of a Regional Rail Safety Plan.***

5. ***The Auckland RLTS will contain policies and methods which address the human health effects of the transport system.***

6. ***In consultation with TAs, develop a series of measures for the transport system to address personal safety and security.***

4.4.12 Reasons

The Road Safety to 2010 Strategy, published by the Minister of Transport in October 2003, maintains regional councils road safety planning, co-ordinating, monitoring, reporting roles. These functions are being undertaken through the RoadSafe Auckland Working Group, made up of representatives from the Regional Council, each city and district council, the Accident Compensation Corporation, Ministry of Health, Land Transport New Zealand, Transit New Zealand, NZ Police, Safekids and the Auckland Regional Public Health Services.

There is a need to provide guidance for the effective allocation of resources in the road safety area. The RoadSafe Auckland Working Group has prepared the Auckland Regional Road Safety plan 2004 to 2010 which identifies the particular road safety issues in Auckland and the priority measures for dealing with these. The current plan targets:

(i) visible safety management and increased safety engineering investment;

(ii) high levels of enforcement of drink driving, speed and intersection rules;

(iii) improved pedestrian safety and initiatives targeted to the needs of at risk road users.

Transport can affect human health in a number of ways, both directly and indirectly and both beneficially as well as harmfully. The New Zealand Health Strategy 2002 identifies a number of goals and objectives which are related to the transport system. These include a healthy social environment, a healthy physical environment, healthy lifestyles and better physical health.

Better transport safety, the promotion of more active modes, reduced vehicle emissions and improved accessibility are all ways in which the transport system can avoid, remedy or mitigate the adverse effect the transport system can have on community health.

Real and perceived threats to personal security and safety can affect the willingness of individuals to use alternative modes of transport, such as walking, cycling and public transport. The development of measures to address personal security and safety, such as Crime Prevention through Environmental Design (CPTED), can increase use of alternative transport modes.

4.5 Environmental Results Anticipated

The policies are intended to produce a transport system which:

(a) is less reliant on non-renewable energy sources and requires less land to function effectively;

(b) reduces adverse impacts on air quality (including greenhouse gases) and water quality and heritage;

(c) minimises community disruption;

(d) provides an acceptable level of access to work, services, shops and social and recreational facilities for all groups in the community, including those without access to a car;

(e) ensures the regionally significant parts of the transport network are able to function effectively and efficiently;

(f) improves the effectiveness of the public transport system;

(g) improves the effectiveness of walking and cycling modes;

(h) is as safe as practicable and which promotes a healthier community.

4.6 Monitoring

The policies are intended to produce a transport system which:

(a) Increases the number of people moved through key corridors, and impacts on goods movement;

(b) Improves accessibility to and between growth centres in peak and interpeak periods by car, public transport, cycling and walking;

(c) Significantly increases the level of fixed rapid transit services to and between growth centres.;

(d) Provides transport infrastructure investment which assists in leveraging further higher density development within high density/growth centres making these centres more attractive places in which to live, work and play;

(e) Enhances the regional economies competitiveness and efficiency while maintaining and enhancing the natural environment qualities of the region.

4.7 Monitoring

The annual monitoring report prepared by the ARC under Section 182 of the Land Transport Act 1998 with respect to the Auckland Regional Land Transport Strategy will be the main means of monitoring implementation of this Chapter. The RLTS annual report is produced in October each year by the Regional Land Transport Committee.

5.1 Introduction

Energy is included in the RM Act definition of "natural and physical resources". A mandate is therefore given to promote the sustainable management of the energy resource (section 5, RM Act) and to have particular regard to the efficient use and development of the energy resource (section 7 (b), RM Act). The efficient and sustainable use of energy is therefore central to the formulation of policy relating to the production, distribution and use of energy. However, because there is a need to approach the management of energy in a strategic and consistent way, efficiency and sustainability objectives are best implemented at the national level. The regional role, on its own, is less effective. The sustainability of the energy resource is an issue that must be addressed at a national level.

The contribution that the ARC can make to the efficient and sustainable use of energy, apart from encouraging a form of development that is more energy efficient, will mainly be in the fields of education, advocacy and co-ordination.

The supply and distribution of energy is essential for the development, wellbeing, and prosperity of the Auckland Region. However, these activities, to varying degrees, may have adverse effects on the environment.

The ARC has a role to ensure that any adverse effects brought about by the production and distribution of energy are avoided, remedied, or mitigated.

The ARC will also encourage the provision of an adequate supply of energy to the Auckland Region. This will involve inter-regional liaison to ensure that the cross-boundary benefits to Auckland of energy developments located in other regions are recognised. The Auckland Region is a major user of the country's energy. Its economic viability is dependent upon a continued and reliable supply. Yet at a national level, electricity supplies during peak demand in winter have at times proved to be critically limited. Because little of the energy used is produced in the Region, there is a heavy reliance on imports of petro-chemicals, electricity, coal and gas from both outside the Region and the country. The continued availability of a reliable supply of energy is an important cross-boundary issue that is fundamental to the economic and social wellbeing of the Region and the nation.

The ARC has a further role in providing a strategic direction for its Region. The strategic direction for Auckland, as discussed in Chapter 2, means pursuing a development pattern of urban containment and intensification of development at selected places. Recognition of this direction would be helpful to the energy supply and distribution agencies for their forward planning.

The scale, sequence, timing and relative priority of regional public works, goods and services, is best achieved in the context of an urban development strategy formulated at a regional level.

A further strategic role that the ARC has, is in recognising the regional and inter-regional significance of existing and potentially new utility corridors. Energy utility corridors should be used wherever possible for a number of reasons, including access and maintenance, although it is recognised that because of Auckland's urban form, and topography, this is not always possible.

In this RPS, energy management is closely linked to, and in part determines, policies relating to urban form, transportation, waste management, air quality and water quality. Because these are major policy areas that can determine Auckland's future, many of the objectives for energy management are contained in those chapters respectively.

It is to be noted that the following issues all involve important matters relating to the management of energy, some of which can best or only be addressed at a national level. Although the objectives, policies and methods which follow the discussion of the issues are, of necessity, restricted to what can be achieved at a regional level, it is important to be wide-ranging in the discussion of the issues, in order to highlight the limitations of what can be achieved at a regional as opposed to national level. Only then can the methods, and in particular Method 5.4.2 -10, be seen in perspective.

5.2 Issues

5.2.1 More efficient use needs to be made of energy.

There is evidence of the inefficient use of energy in all sectors of activity. This ranges from personal use in the home to community use in a low-density, car dependent, sprawling urban form. There is considerable potential to save energy through behavioural change and adoption of energy efficient technology and practices. However, because of a general lack of knowledge and complacency among energy consumers, this potential has not been realised. This is despite the fact that energy efficient practices would postpone, or maybe avoid, economic and environmental costs associated with the provision of additional energy producing and transmitting systems. There is a need therefore to increase public awareness of the benefits of energy efficiency and conservation measures.

5.2.2 Because of the high dependence on non-renewable fuels, the present use of energy is not sustainable.

Fossil fuels on which reliance is currently placed, globally and nationally, are finite resources. Further reserves continue to be discovered, but no new fossil fuel resources are being created. New Zealand's gas and oil reserves are expected to last into the next century, and although further resources may be discovered and exploited they are nonetheless depleting resources.

The Region's dependence on non-sustainable energy sources, and fossil fuels in particular, is a significant issue. Although fossil fuels will continue to be an important energy source in the foreseeable future, there is a need to recognise that, in the long term, a transition needs to be made from a dependence on non-renewable sources to the use of renewable sources of energy.

There is also a need to obtain, in the short term, greater efficiencies from our existing use of non-renewable fuels. For example, co-generation technologies (such as combined cycle plants that use otherwise waste heat) and the use of CNG/LPG as an automotive fuel, could be encouraged.

Renewable options for energy production which should be encouraged in the Region (subject to acceptance of their locational factors and environmental impacts) include:

- wind
- solar
- tide
- hydro
- biogas (generated from industrial or urban wastes)
- biomass fuels (generated from various agricultural crops).

5.2.3 The existing form of urban development in Auckland, including the associated transportation system, is not sustainable in terms of current energy use.

Urban Auckland is large in area and has a low population density by world standards. Its low-density sprawl has been accelerated by the adoption of a motorway system and reliance on the private use of motor vehicles. There is a growing recognition of the environmental costs of such a transport system and the low-density urban sprawl that is determined by it to a large extent. These costs include the continuing expansion of the urban area onto land which is valued for its agricultural, ecological and aesthetic qualities; the emission into the air of a variety of pollutants, including greenhouse gases; and the lowering of water quality of waterways and harbours by polluted runoff from roads. In addition, the current transport system is a relatively high user of energy and relies on consumption of non-renewable resources, not only in the use of land, but also in the use of fuel.

There is a need to develop the transport system in a way which contributes to a more sustainable urban form, and recognises the need for greater efficiencies in energy use.

Policies are needed to reduce both the reliance on car transport and on the use of non-renewable fuel.

The main thrust is through encouraging a form of urban development that results in shorter commuting distances, reduces consumption of fossil fuels, and makes fuel-efficient forms of travel (such as public transport, cycling and walking) more viable.

5.2.4 The production, distribution and use of energy is essential for the development, wellbeing and prosperity of the Auckland Region and there would be major socio-economic impacts should, for any reason, the supply of energy be curtailed. However, the production, distribution and use of energy may have adverse effects on the natural and physical environment and some of these effects may be great.

Energy is produced from natural resources. Some of these (such as the fossil fuels – oil, gas and coal) are not renewable, and although they are generally more economic for producing energy, their use may have adverse effects on the environment. Others are renewable (such as wind and solar) and although they are generally less economic for producing energy, their use may have less impact on the environment.

The transmission of energy, both overhead and underground, may have adverse visual, social or health effects.

Such effects may be able to be avoided, remedied, or mitigated depending upon the circumstances. There may also be positive benefits of energy production within the Region in terms of reduced transmission losses, energy efficiency and a reduced need for overhead and underground transmission lines.

The effects of producing, transmitting and using energy may find expression in various ways:

- By affecting air quality.

  CO_2 and primary pollutants, such as lead and other gaseous and particulate emissions, enter the air as a result of the combustion of fossil fuels. Secondary pollutants, such as photochemical oxidants, also enter the atmosphere. Motor vehicle emissions are the largest single source of air pollution in metropolitan areas. They are precursors to photochemical smog and may contribute to global climate change.

- By contributing to possible global warming and associated climatic changes.

  The burning of fossil fuels releases greenhouse gases into the atmosphere. These gases (such as CO_2) enable energy from the sun to reach the earth relatively freely, but then trap in the lower atmosphere some of the heat radiation emitted from the earth. It has been postulated that this process accelerates global warming which could destroy some agricultural and ecosystems and could enhance others. It may cause rises in sea level, climate zones to migrate from the equator, and possibly increase the variability of climatic conditions at a regional and global level.

- By affecting water quality.

  Stormwater runoff, containing deposits from roads and airborne particulates from exhausts, are a continual source of water pollution. Exhaust emissions contain lead and hydrocarbons. The largest producers of these are transport related activities. Many of the environmental effects of these activities relate to the amount and type of fuel used by vehicles.

- By affecting ecosystems.

  Specific habitats may be affected by the construction of an energy related infrastructure. Ecosystem quality can be affected indirectly by pollution of water, soil and ambient air caused by the production and use of energy.

- By affecting visual values.

  Some energy transmission systems (e.g., high tension power lines and pylons) may have a severe visual impact on the landscape.

- By raising concerns related to health and safety.

  A certain amount of risk, whether real or perceived, is associated, to varying degrees, with some energy production and transmission systems.

  Although the risk of failure of such systems is very slight, in the event of failure there could be major adverse environmental effects. For example, the failure of a nuclear power generation plant or nuclear powered system could have widespread and severe effects on the environment. The current government's anti-nuclear policies are therefore supported in order to prevent the introduction of nuclear energy into New Zealand.

  Some energy transmission systems are sometimes regarded as being undesirable neighbours, partly because of the small or unknown elements of risk associated with them. High pressure gas pipelines in urban areas, for example, fall into this category, especially since no one can guarantee 100% against the occurrence of third party interference, or a natural disaster, such as a major earthquake. High voltage transmission lines are another example. Because there are differences of expert

opinion related to the health risk associated with them, questions relating to health and safety are increasingly being raised, which in turn engenders public concern.

From a resource management point of view, there is a duty to consider any potential effect of low probability which has a high potential impact. On the other hand, energy transmission systems that cross the Auckland urban area are necessary and their location often unavoidable. In relation to energy health and safety issues, therefore, a precautionary or a 'no regrets' approach, such as placing transmission lines in corridors, often needs to be taken wherever possible.

5.2.5 The deregulated energy market and the pricing regimes of local energy supply entities do not necessarily encourage the efficient use of energy.

Many organisations are concerned with the development, delivery and use of different forms of energy. These include the various energy supply companies, central government and a number of national and international environmental organisations. These interest groups have overlapping and sometimes conflicting interests. It is therefore difficult to establish, or even co-ordinate, regional policy on the basis of sustainable management of energy. One area where there is conflicting opinions, relates to the pricing regimes of local energy supply entities.

In the absence of national guidance, local energy supply entities may decide their own pricing regimes, and these are not necessarily designed to promote efficient use of energy. For example, existing charging regimes for electricity include standing or fixed charges, which represent the infrastructure costs and overheads of supply authorities, separate from charges for electricity used. Such charges discourage other attempts (such as the use of solar panels) to reduce consumption. This illustrates the need for principles to be established at a national level, which encourage energy efficiency and energy conservation rather than increased energy generation and growth of energy consumption.

Furthermore, under the current deregulated economy, supply companies will be seeking a commercial return on capital invested, and recovery of operating costs. So long as current technologies prevail, many energy users are captive to particular suppliers – the market for energy is not truly 'free'. In such a situation, conservation objectives can sometimes be in conflict with profit objectives. In this environment, the requirements of the RM Act to promote sustainable management of natural and physical resources (including energy) is difficult to effect.

National direction and leadership is needed, to enable the promotion of sustainable management of energy resources.

5.3 Objectives

1. ***The sustainable use of energy resources (excluding minerals), and the efficient use and development of energy resources.***
2. ***To avoid, remedy, or mitigate any adverse effects of development proposals relating to the production, distribution and use of energy.***

5.4 Policies, Methods And Reasons

5.4.1 Policies

The following policies and methods give effect to Objective 5.3 -1.

1. ***More efficient use shall be made of available energy resources by:***
   - ***(i) promoting a reduction in the wasteful use of energy;***
   - ***(ii) promoting the application of energy efficiency:***
     - ***(a) in the manufacture and use of construction materials;***
     - ***(b) in building design and site layout;***
     - ***(c) in the design and operation of transport vehicles;***
     - ***(d) in domestic and residential situations;***
     - ***(e) in business and commercial situations;***
     - ***(f) in production processes and industrial situations;***
   - ***(iii) promoting the application of other relevant energy conservation and efficiency measures.***
2. ***Renewable energy sources shall be encouraged by:***
   - ***(i) promoting alternatives to the use of non-renewable fossil fuels;***
   - ***(ii) promoting energy production from the Region's renewable energy assets, if such production is consistent with the provisions of the RPS.***

3. ***An urban form, supported by transportation systems, which improves efficiency and conservation in energy use, shall be promoted.***
See also Chapter 2 – Regional Overview and Strategic Direction and Chapter 4 – Transport.

5.4.2 Methods

Methods 1 to 6 below give effect to Policies 5.4.1 -1 and 2.

1. ***The ARC will support the role of the Energy Efficiency and Conservation Authority (EECA) in providing to all sectors of the community advice and information on the benefits of energy efficiency and conservation practices, the availability of energy efficient products, and the use of renewable energy sources.***

2. ***The ARC and TAs will, where appropriate, endorse and promote EECA findings, in order to increase public awareness about the means and benefits of achieving energy efficiency and conservation and using renewable energy sources.***

3. ***The ARC will serve as a role model by implementing energy efficiency and conservation practices in its management programmes.***

4. ***The ARC will advocate energy conservation and the adoption of energy efficient practices.***

5. ***The ARC will, where relevant, consider the efficiency aspects of energy production and distribution, in accordance with any relevant provisions of the RM Act.***

6. ***Provision should be made in district plans requiring consideration of energy efficiency where that is relevant to consideration of the effects of activities in the consent granting process.***
Methods 7, 8 and 9 below give effect to Policy 5.4.1 -3.

7. ***Policy 5.4.1 -3 will be effected by implementing the policies and methods of Chapters 2 (Regional Overview and Strategic Direction) and 4 (Transport).***

8. ***Policy 5.4.1 -3 will be effected by implementing the policies and methods of the Auckland Regional Land Transport Strategy, November 1993.***

9. ***Policy 5.4.1 -3 will be effected by supporting the proposal by the Ministry of Transport (in its Discussion document, "Land Transport Management", May 1993) to produce a National Land Transport Policy Statement. The following methods will be requested to be included in this statement:***

   (i) introduction of regulations, taxes, or other policy instruments, to encourage greater use of renewable motor vehicle fuels, such as biomass fuels or methanol;

   (ii) introduction of regulations, taxes, or other policy instruments, to encourage the use of low polluting motor vehicle fuels and penalise the use of high polluting fuels;

   (iii) introduction of regulations, taxes, or other policy instruments, to encourage the use of vehicles with low fuel consumption and penalise use of vehicles with high fuel consumption;

   (iv) introduction of vehicle emission standards to ensure that vehicles are properly tuned and that the amount of emissions from each vehicle is minimised;

   (v) introduction of measures to move motor vehicle taxation from ownership (i.e., vehicle registration fees) to taxes on vehicle use (i.e., fuel taxes based on efficiency, conservation, environmental effect factors, and road user charges) while not increasing the total tax collected from transport users;

   (vi) introduction of measures (such as a carbon tax or other externality charge) in respect of motor vehicle fuels that reflect the true cost of the use of each transport mode.

Methods 10 and 11 below give effect to Policies 5.4.1 -1 to 3, and to matters raised in the issues that are not addressed in the policies.

10. ***The ARC will advocate that central government considers all the above points and introduces a comprehensive and consistent range of measures to promote energy conservation and efficiency, and the development of sustainable forms of energy, and formalise these in the preparation of a National Policy Statement on Energy in accordance with the powers and processes provided by Part V of the RM Act.***

11. ***The ARC will establish a regional energy forum to bring together energy interest groups of the Region in order to advocate relevant energy matters on behalf of the Region, including the need for a National Policy Statement on Energy.***

5.4.3 Reasons

Under the RM Act, the ARC has a role in promoting the sustainable management of energy.

Auckland is an energy demanding Region with almost all of its energy being imported.

The supply of energy, and the setting of standards or regulations relating to its production, distribution and use, is, for all practical purposes, outside the jurisdiction of the ARC. Therefore, policies and methods relating to the sustainable management and efficient use of energy are largely restricted to an educational role relating to:

- conservation (voluntary restraint in demand);
- efficient use of existing energy resources (avoiding waste and achieving more with less);
- diversification from conventional energy sources (replacement of non-renewable with renewable resources).

Where regulation is necessary in order to achieve energy efficiency and conservation, this can be best realised at a national level, because:

- Although the above factors are important issues for all New Zealand regions, the ability of regional councils to resolve these issues in their own right is restricted to one of providing education.
- A consistency of approach is needed among regions in order to achieve conservation and efficiency objectives.
- Regional differences and inter-regional relationships need a national context. Some regions are major producers of energy, major users, or are neither major producers nor users, but incur the impacts of energy transmission.
- Energy is a matter of national significance and can have major effects on the use, development or protection of natural and physical resources.
- There are obligations in meeting or enhancing energy aspects of the national and global environment.
- The assessment of actual or potential effects of any new energy technology needs a national context.
- Conservation objectives, which may be at odds with the imperative for supply agencies (as commercial enterprises) to secure a return on the capital invested, and to recover their operating costs, can best be resolved at a national level.

For these reasons the policies and methods largely rely on national actions in order to achieve sustainable management of the energy resources. Existing charging regimes for electricity include standing charges, which represent the infrastructure costs and overheads of supply authorities, separate from charges for electricity used. This illustrates the need for the establishment of principles at a national level, which encourage energy efficiency and energy conservation rather than increased energy generation and growth of energy consumption.

Some methods focus on the work of the EECA. This authority is an independent government agency charged with determining and implementing practical measures for achieving greater energy efficiency in New Zealand. It is the key government agency responsible for advising the Minister of Energy on the policies most likely to increase the application of energy efficient practices and technologies.

Method 5.4.2 -11 provides for the establishment of an energy forum. Such a forum could co-ordinate efforts for advocating and achieving sustainable energy management. It could bring together a range of interests, including the energy supply industry, education and research organisations, and environmental and consumer groups and provide a focal point for advocating a national energy policy.

By giving strategic direction to Auckland's development, the ARC, through its regional development policies of containment and selective intensification, is able to provide a framework within which more efficient use of energy may be realised.

Investigations of urban forms and densities indicate that the more compact an urban area and the more land use activities are intensified at selected places, the lower its consumption of liquid fossil fuels, the lower its per capita production of greenhouse gases, and the greater its chance of making fuel-efficient forms of travel more viable.

5.4.4 Policies

The following policies and methods give effect to Objective 5.3 -2.

1. ***Assessment of environmental effects for energy generating and transmission proposals shall, where necessary, be carried out in accordance with the requirements of the Fourth Schedule of the RM Act and any relevant provisions of the RM Act.***

2. ***Nuclear propelled ships and the construction of nuclear power stations shall be prohibited within the Auckland Region.***

5.4.5 Methods

1. ***TAs should specify when resource consents will be required for applications relating to the production or transmission of energy. Where a resource consent is required for such activities, the environmental assessment required by section 88 of the RM Act should include an assessment of any actual or potential effects on the environment as defined by section 3 of the RM Act.***
2. ***When consent authorities are considering applications for resource consents relating to the production or transmission of energy and are having regard to the Regional Policy Statement under section 104 (1) (c) of the RM Act, they shall, where appropriate, have regard (inter alia) to Chapters 2 and 5 of this policy statement and the extent to which the proposal conforms with the strategic direction, objectives and policies set out in those chapters.***
3. ***The ARC will, where relevant, consider the environmental effects of energy production and distribution as part of its resource consent granting process or in accordance with any other relevant provisions of the RM Act.***
4. ***District plans will give effect to Policy 5.4.4-2***

5.4.6 Reasons

The above policies are concerned with the avoidance, remediation, or mitigation of adverse environmental effects, and the avoidance of impairment to human health. Both may potentially arise from the production, conversion or transmission of energy.

These policies aim to ensure that the environmental effects of energy proposals are fully considered at the earliest possible stage in the planning process. Depending on the scale and effect of a proposal, assessments of environmental effects may be required at both the regional and district level, so that the full range of regional and strategic implications is understood.

The reason the assessment referred to in Method 5.4.5 -1 reiterates the need to consider the full meaning of "effect", and the reason why consent authorities (under Method 5.4.5 -2) need to have regard to the extent that the proposal conforms with the strategic direction, objectives and policies of Chapters 2 and 5 of the RPS, is that these matters are often overlooked. Proposers of major developments often neglect to discuss or evaluate indirect, future or cumulative effects, and the way those effects impact on regional growth patterns.

Methods 5.4.5 -1 and 5.4.5 -2 are therefore a reminder to proposers of major energy developments and consent authorities that when impact assessments are produced under th fourth schedule of the RM Act and when resource consents are heard for major proposals, the meaning of "effect" needs to be interpreted in its widest sense (under section 3, RM Act) so that the assessment considers Regional "growth" and other strategic issues for which the ARC has a responsibility under its integrated management functions of sections 30 (1) (a) and 59 of the RM Act.

Other policies to achieve the energy objectives are spread throughout the RPS. In particular, policies that deal with air and water quality, the health of ecosystems, Regional development, energy from waste, and transport, can all be seen as relevant policies for achieving Objective 5.3 -2. Collectively, these policies set standards of environmental quality within which activities associated with energy generation and transmission have to operate.

5.5 Environmental Results Anticipated

(a) There is a sufficient supply of energy to meet the social and economic needs of the Region's population.

(b) More efficient use of energy.

(c) Progressive reduction in the Region's dependence on non-renewable resources.

(d) Avoidance, remediation or mitigation of any adverse effects of generating and distributing energy.

5.6 Monitoring

The ARC will liaise with the EECA to determine an appropriate programme for monitoring energy efficiency.

Energy: 5

6.1 Introduction

[In 2007, Proposed Change 8: Volcanic Features and Landscape was separated into two components, being Volcanic Features and Landscape.

Proposed Change 8: Volcanic Features is now operative and the Environment Court Consent Order version (dated 19 October 2010) is incorporated into this chapter.

A decision was issued on Proposed Change 8: Landscape in October 2010 and it is now subject to Environment Court appeal. The text changes relating to the decisions version of Proposed Change 8: Landscape are included in this chapter for information purposes. Additions or deletions arising from decisions on the Proposed Change 8: Landscape are shown in underline or ~~strikethrough~~.

Reference should also be made to Proposed Change 8: Landscape Map Series 3A and Appendix F which can be viewed at www.aucklandcouncil.govt.nz]

Auckland's heritage involves those aspects of both the natural and cultural environment that have been inherited from the past, define the present and will be handed on to future generations. Auckland has a unique and distinctive physical setting and natural environment. The rich resources of the Region have attracted human settlement for approximately 1000 years. Throughout this period the natural environment has been extensively modified by human activities. Thus the natural and cultural resources of the Region are inextricably linked. Auckland's heritage is a dynamic resource ~~which~~ that changes spatially and over time as natural systems evolve and humans impact on the environment.

While particular aspects of the natural environment have values as heritage resources, the maintenance of the intrinsic values and quality of ecosystems is generally fundamental to the continued survival of those more valued components.

The natural heritage of Auckland includes: indigenous flora and fauna, terrestrial, marine and freshwater ecosystems and habitats, landforms, geological features, soils and the natural character of the coastline. Auckland's cultural heritage includes: sites, places, place names, areas, waahi tapu, waahi tapu areas, taonga, buildings, objects, artefacts, natural features of cultural and historical significance, historical associations, people and institutions. Some of these resources have been highly modified and depleted, yet they contain heritage that is of national and international significance, and are one of the best chronological records of human settlement in New Zealand.

The natural and cultural heritage associated with the coastal environment and the volcanic field in particular has always been of central importance in creating the sense of place that is Auckland.

The long and relatively narrow shape of mainland Auckland, with its rugged west coast and more sheltered eastern shoreline and the presence of numerous islands in the Hauraki Gulf mean a significant area of the Auckland Region is within the coastal environment. This area is valued for its areas of high natural character and outstanding natural landscapes. Being a favoured place for both Maori and European settlement, the coastal environment is also overlaid by places of cultural and historic importance.

~~The entire CMA is overlaid by places of cultural and historic importance to both Tangata Whenua and European alike (refer to Chapter 7 – Coastal Environment).~~

The natural, physical, historic and cultural importance of the Hauraki Gulf, its islands and catchments is recognised by the Hauraki Gulf Marine Park Act 2000. Ensuring that this interrelationship continues in a way that sustains the life supporting capacity of the environment of the Gulf and its islands is a matter of national significance.

Auckland's sense of place is also defined by its volcanic field of which the volcanic cones are the most well known features. They are key components of the cultural identity of many Aucklanders and have been identified as Outstanding Natural Features in Map Series 2a. These features often form part of the wider landscape values of an area, but their identification as Outstanding Natural Features recognises that they are of geological and scientific significance in their own right, as well as having amenity values and being of particular spiritual value to iwi of the region. Other geological features currently listed in Appendix B are also recognised as being Regionally Significant Volcanic Features.

Natural and cultural heritage resources also form the basis of Auckland's landscape. Landscape comprises the interaction of landform, land cover and land use and is the result of the cumulative impacts of natural and sometimes human processes. Visual appreciation

of the landscape is also influenced by people's visual perception; whether it is pleasing or not to look at. The interaction of the physical and the perceptual aspects of landscape are of central importance in creating the distinctive character and sense of place of the Auckland Region. These factors are also included in nationally accepted landscape assessment criteria. Auckland's Outstanding Natural Landscapes have been assessed using these national criteria. (See Appendix F).

Outstanding Natural Landscapes ~~in the Region~~, and other landscapes of amenity value, are part of the Region's heritage resources., ~~but and their maintenance and enhancement of the Region's landscape is a concern which arises in all parts of the Region.~~ However consideration of landscape character and the visual effects of land use and development on landscape in general should be an integral part of managing the Region's natural and physical resources, whether or not development affects Outstanding Natural Landscapes.

This chapter addresses the management of subdivision, use and development in the region's landscapes in a variety of ways. The assessment of the attributes and qualities of Outstanding Natural Landscapes are contained in Appendix F, and inform both the Outstanding Natural Landscape policies and the areas shown on Map Series 3a. However information and policy direction on indigenous biodiversity values and significance, and cultural heritage sites and places is also contained in this chapter and in Appendix B of this RPS. While this other information addresses RM Act section 6 (c) and (f) matters, it also helps to inform wider landscape management decisions. The identification and management of landscapes with amenity values is also addressed in this chapter, while Chapter 2 deals with the urban design components of our urban landscapes.

The heritage resources of the Auckland Region offer a wide variety of social, economic and recreational opportunities, and are primary factors in shaping its development. Auckland's unique heritage is central to the identity of communities, groups and individuals in the Region and is of fundamental importance to Tangata Whenua. It creates the sense of place that is Auckland and engenders a sense of belonging.

This chapter addresses the preservation and protection of heritage resources and is based upon the requirements of sections 5, 6 and 7 of the RM Act. It is intended to provide for sustaining the potential of natural and physical resources to meet the reasonably foreseeable needs of future generations (RM Act section 5(2)a). It is also a response to the requirement to recognise and provide for, or have particular regard to, the following matters:

- the preservation of the natural character of the coastal environment (including the coastal marine area), wetlands, and lakes and rivers and their margins and the protection of them from inappropriate subdivision, use and development (RM Act section 6 (a));
- the protection of outstanding natural features and landscapes from inappropriate subdivision, use and development (RM Act section 6(b));
- the protection of areas of significant indigenous vegetation and significant habitats of indigenous fauna (RM Act section 6(c));
- the maintenance and enhancement of public access to and along the CMA, lakes and rivers (RM Act section 6(d));
- the relationship of Maori and their culture and traditions with their ancestral lands, water, sites, waahi tapu and other taonga (RM Act section 6(e));
- the protection of historic heritage from inappropriate subdivision, use and development (RM Act section 6(f));
- Kaitiakitanga (RM Act section 7(a));
- the ethic of stewardship (RM Act section 7 (aa));
- the maintenance and enhancement of amenity values (RM Act section 7(c));
- intrinsic values of ecosystems (RM Act section 7(d));
- the maintenance and enhancement of the quality of the environment (RM Act section 7(f));
- any finite characteristics of natural and physical resources (RM Act section 7(g)).
- the benefits to be derived from the use and development of renewable energy (RM Act section 7 (j)).

Section 30 (1) also gives regional councils responsibility for:

(ga) the establishment, implementation, and review of objectives, policies and methods for maintaining indigenous biological diversity.

Chapter 2 provides the strategic direction for the development and operation of regionally significant infrastructure and chapter 5 deals with regional energy matters. However there is the potential for operators of important renewable energy generating facilities such as wind turbines and other types of regionally significant infrastructure to want to locate in Outstanding Natural Landscapes. This means that guidance on how landscape protection and provision for regionally significant infrastructure should be considered is provided in the landscape provisions of this chapter.

Other chapters of this regional policy statement have objectives, policies and methods that may affect specific objectives, policies and methods of this chapter. This means that this RPS needs to be read as a whole, having particular regard to Chapter 2: Regional Overview and Strategic Direction. Other chapters that influence the application of the objectives, policies and methods of this chapter are 3, 5, 7, 8, 9, 13, 14 and 18. For example, Chapter 7: Coastal Environment also contains objectives and policies relating to Outstanding Natural Landscapes of the coast. These provisions should be considered in conjunction with the landscape provisions of this chapter, when dealing with subdivision, use and development in the coastal environment.

Roles and Responsibilities

All Heritage

All regional councils and TAs, any Minister of the Crown and the New Zealand Historic Places Trust (NZHPT) are Heritage Protection Authorities under section 187 of the RM Act. Therefore, they are enabled by this provision and required by Part II of the Act to address heritage resources when they are promoting the sustainable management of natural and physical resources.

The ARC has functions to achieve integrated management of all heritage resources in the Region and also, through section 30 of the RM Act, to address heritage resources which are of Regional significance. TAs are required to recognise and provide for heritage resources through their responsibilities to control the actual and potential effects of the use, development and protection of land under section 31 of the RM Act.

DoC is primarily responsible for the conservation of heritage resources located on the DoC estate under the Conservation Act 1987. However, the department also has a conservation advocacy role which relates to all land regardless of ownership. Through the RM Act DoC also has roles and responsibilities for heritage resources located within the CMA. The DoC Conservation Management Strategy (CMS) provides a strategy for the integrated management of all areas administered by DoC in the Auckland Conservancy.

In addition to the statutory agencies, there are independent organisations, such as the Queen Elizabeth II National Trust, which provide a mechanism by which private landowners can protect heritage resources on their land in perpetuity.

Cultural Heritage

The NZHPT is the national body which is charged with promoting the identification, protection, preservation, and conservation of the historical and cultural heritage of New Zealand. They have specific responsibilities regarding archaeological sites and produce and maintain a national register of historic places and areas, waahi tapu and waahi tapu areas.

Natural Heritage

Provisions of the Forests Act 1949, as amended in 1993, prohibit the export and milling of indigenous timbers unless a sawmill is registered, and the timber is taken from an area subject to a sustainable forest management plan or permit, or under one of the few exceptions to the Act. The Act does not legislate against the clearance of indigenous forest for conversion to an alternate land use or the use of timber for firewood. These controls rest with the TAs and are provided for in their district plans. The Forests Act is administered by the Ministry of Forestry. The NZ Forest Accord is an agreement between various members of the timber industry and environmental groups. In the accord, the timber industry agrees to exclude significant areas of indigenous vegetation from clearance and disturbance when establishing plantation forests.

The Forest Heritage Fund and Nga Whenua Rahui provide financial incentives to assist landowners who voluntarily protect their indigenous forests. These funds can assist with land purchase, fencing, survey and legal costs and facilitate in the arrangement of covenants, leases, accords and management agreements.

6.2 Issue

6.2.1 All Heritage

The heritage of the Auckland Region has been depleted and continues to be under threat.

Auckland imposes special pressures on its heritage resources because it is the largest urban area in New Zealand and continues to experience significant population growth in many parts of the region. A significant amount of Auckland's heritage has already been destroyed and a great deal of that which remains is under threat, from the individual and cumulative effects of inappropriate development. In particular, much of the natural and cultural heritage of the coastal environment has been modified or destroyed. While some of the Region's heritage resources receive a degree of protection through public ownership, many resources are held in private ownership.

More specific issues associated with particular natural and cultural heritage resources are as follows:

6.2.2 Matters of Significance to Tangata Whenua

Tangata Whenua have special concerns over the widespread loss of ancestral taonga, e.g., waahi tapu and other areas of significance. They also have concerns regarding public access to certain sites where it may not be appropriate because of the presence of resources of cultural or spiritual significance. They also seek greater involvement in the resource management of heritage resources through their obligations of kaitiakitanga. These matters are dealt with in detail in Chapter 3 - Matters of Significance to Iwi.

6.2.3 Natural Heritage

The Auckland Region's natural environment has been extensively modified with less than 30% of the Region's indigenous terrestrial habitats remaining. While detailed figures on the loss of coastal and marine communities are not available, modification to the coastal environment is thought to have been extensive. The consequences of that modification now appear in the extensive loss of particular biological features and habitats, and the reduction in ecological viability.

Examples include:

- loss of freshwater and saline wetlands, and forests;
- local extinctions and increasing rarity of many plant and animal species (56 animal and 105 plant species are threatened in the Region);
- the extensive fragmentation and isolation of the remnants of natural environment which are left;
- extensive modification of the Region's coastal and freshwater environments including the loss of indigenous riparian and coastal margin vegetation;
- the deterioration of habitat quality in the Region due to introduced plant and animal species (see Chapter 14 - Pests).

Preliminary analysis of the extent of indigenous vegetation cover in the Region indicates that, for particular habitats and in particular parts of the Region, levels of vegetation remaining could be considered to be below threshold levels. Of the total land area of the Region, only 12% remains as indigenous forest, 18% as indigenous scrub and 0.4% as freshwater wetlands. Figure 6.1 on the next page shows the extent of indigenous vegetation cover left within ecological districts in the Region. Table 6.1 provides more detailed information for each district. Through the consultation process Iwi have indicated their concern regarding the widespread loss of wetlands, with consequential losses of habitat and spawning grounds.

The information represented in Table 6.1 and Figure 6.1 is derived from the New Zealand Land Resource Inventory (NZLRI) vegetation cover classes, with additional information from ARC databases. Valued indigenous vegetation in the Region includes a continuum of various stages of regeneration. The NZLRI defines scrubland as "areas of woody plants and ferns generally less than 6 m tall". Field work for the NZLRI was carried out between 1972-79, and updated between 1981-84. Some areas then recorded as scrubland would now be considered forest. No attempt has been made here to account for this change. The totals for protected areas are only up-to-date for ARC and DoC land. As can be seen from this table "scrubland" is the predominant indigenous vegetation class across the Region. These scrublands are mostly young regenerating native forest, some of which will still be dominated by manuka and kanuka. The rest have quickly advanced to a stage where they display a rich combination of trees, shrubs and ferns. The future of Auckland's flora and fauna such as the kauri and kereru is dependent upon the retention and continuing succession of these young forests of manuka and kanuka.

Table 6.1

Percentage of indigenous vegetation cover by ecological district in the Auckland Region both current and pre-European.

Ecological district	Forest * %	Scrub * %	Freshwater wetland * %	Total %	Total protected *
Rodney	9.9 (80)	14.6 (15)	0.1 (5)	24.6	3.2
Kaipara	2.1 (?)	10.6 (70)	1.2 (5)	13.9	4.7
Waitakere	25.2 (95)	57.7 (<5)	0.7 (<5)	82.9	51.1
Rangitoto	20.3	79.7	0.0	100	100.0
Tamaki	1.1 (<5)	5.2 (85)	0.03 (10)	6.3	1.8
Inner gulf	9.5	31.4	0.1	41	13.8
Manukau	0.6 (60)	1.2 (30)	0.1 (5)	1.8	0.5
Awhitu	1.4 (90)	7.6 (5)	0.1 (5)	9.1	1.1
Hunua	17.3 (95)	22.5	0.1 (<5)	39.9	22.0
Little Barrier Island	91.3	8.2	0.0	99.5	100.0
Great Barrier Island	41.5	32.6	2.3	76.4	51.9

** Percentage of total land area of ecological district in the Region. Figures in brackets are estimates of the possible vegetation cover in pre-European times based on historical commentaries.*

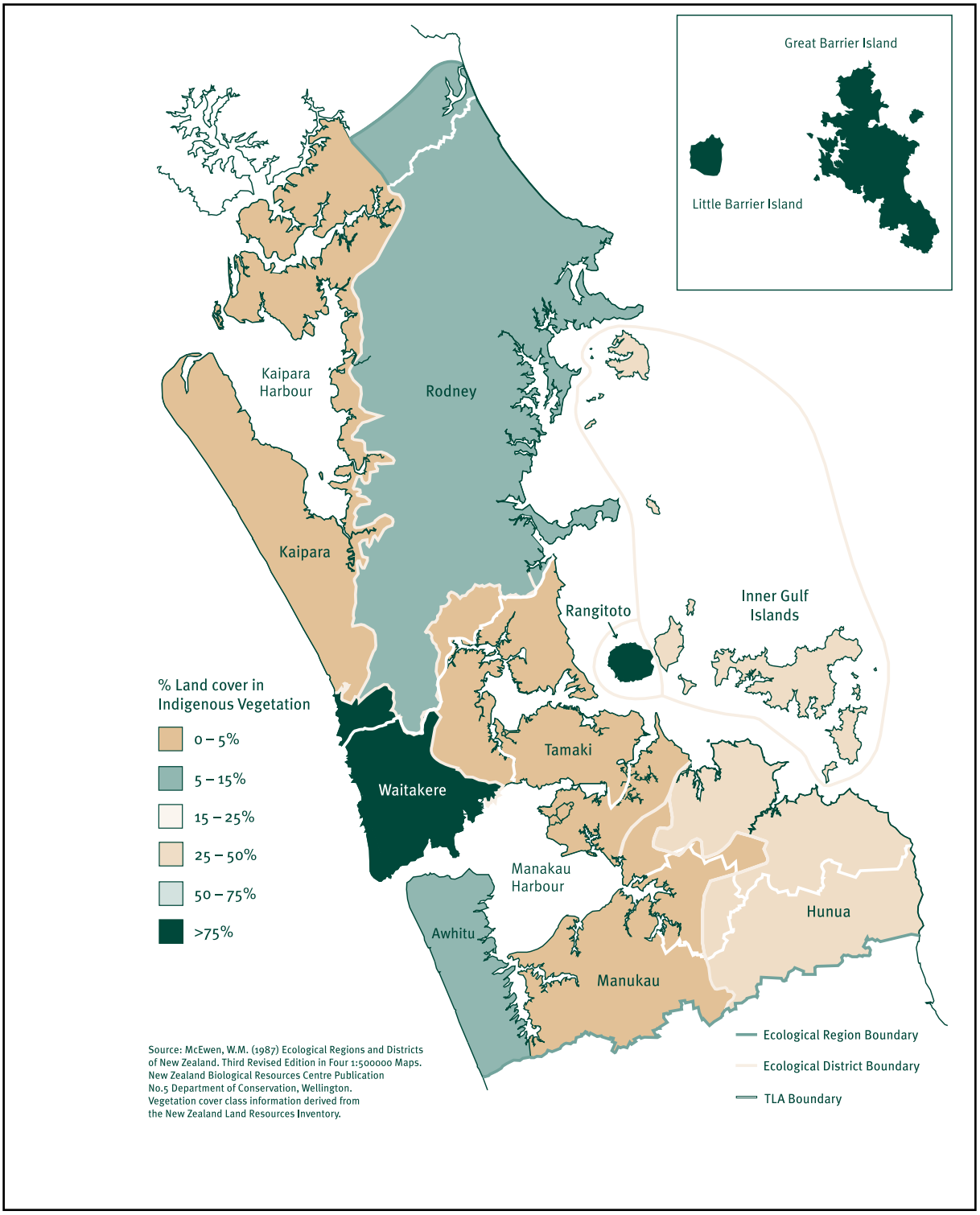
It is probable that some areas of the Region have always had scrublands, for example, on stabilised sand country in the Kaipara or in Tamaki.

However the predominant cover in the Region was forest, with areas of scrub and pockets of freshwater wetlands.

Freshwater wetlands have never been extensive in the Region, except perhaps on the isthmus in association with explosion craters. Today they are small and scattered, mostly around lake and stream margins, although larger wetlands are found on Great Barrier Island and in the Waitakere Ranges. Their scarcity is reflected in the increasingly threatened status of the flora and fauna associated with them.

Table 6.1 shows the uneven distribution of protected areas across the Region which, in places, closely parallels the extensive loss of indigenous vegetation. It is in these same areas that very little is known about the biological communities which have been lost, or that remain.

Figure 6.1


Great Barrier Island
Little Barrier Island
Kaipara Harbour
Rodney
Kaipara
Rangitoto
Inner Gulf Islands
Tamaki
Waitakere
Manakau Harbour
Hunua
Awhitu
Manukau
% Land cover in Indigenous Vegetation
0 – 5%
5 – 15%
15 – 25%
25 – 50%
50 – 75%
>75%
Source: McEwen, W.M. (1987) Ecological Regions and Districts of New Zealand. Third Revised Edition in Four 1:500000 Maps. New Zealand Biological Resources Centre Publication No.5 Department of Conservation, Wellington. Vegetation cover class information derived from the New Zealand Land Resources Inventory.
Ecological Region Boundary
Ecological District Boundary
TLA Boundary

The rate of species extinction in the Auckland Region since human occupation is not certain. However, in the Waitakere Ranges, an area with extensive indigenous vegetation cover relative to other parts of the Region, at least eight bird species have been lost in the last 150 years. It also has 43 threatened plant species, the highest number in the Auckland mainland. Tamaki Ecological District, where vegetation cover is much reduced, is believed to have had 92 local plant extinctions. These figures do not provide any more than a simplistic analysis of the biodiversity status in the Region, or a definitive measure of an ecological threshold. However, they do illustrate the imperative to control the continuing loss and degradation of the Region's natural areas and the continuing consequences of failure to do so.

The ongoing conservation of Auckland's biological diversity requires the restoration of damaged ecosystems, the recovery of threatened species, the control of pests, the willing commitment of all landowners (both public and private) to protect ecosystems in their care, and a conscious effort to minimise adverse effects from use and development.

6.2.4 Cultural Heritage

There is no comprehensive evaluation of the state of the Region's cultural heritage. In the metropolitan area over 50% of pa have been extensively modified or destroyed. Of the original 8000 hectares of stone field areas, less than 200 hectares are still in existence. Between 1979 and 1995, 395 archaeological sites within the Auckland Region have been destroyed or modified (approximately 6% of known sites). Forty-two Auckland buildings listed with the NZHPT, Wellington, as being places of historical and cultural significance, have been destroyed within the last 10 years.

6.2.5 Geological Heritage

Auckland has a diverse range of areas and features of geological significance that form part of its natural and physical heritage. These areas and features can be adversely affected by inappropriate subdivision, use and development.

The Auckland Region is endowed with a rich and diverse variety of natural landforms, geological features and soils. In combination, these features document the unique geological history of the Region, the development of its landforms, and the evolution of its biota. Protection of Auckland's geological heritage has been random with the result that many of its geological features have not been protected.

The two most well known features of the Auckland Region are its coastal setting, which has been shaped by both geological and contemporary coastal processes and the range of large and smaller scale features that comprise its volcanic fields.

The Region has two volcanic fields. The Auckland volcanic field covers about 100 km2 and it originally contained 48 small explosion centres that gave rise to the landmark scoria cones of urban Auckland and to Rangitoto, Motukorea and Puketutu Islands. It also produced a smaller number of explosion craters and tuff rings. Issue 6.2.6 discusses further the protection and management of the Region's volcanic cones and explosion craters and tuff rings, the three most well known and visually apparent Regionally Significant Volcanic Features.

Other volcanic features are associated with the extensive lava flows that extruded from the cones and spread out to underlie much of urban Auckland. Only small areas of these lava flows now remain relatively unmodified, such as the seaward portion of Te Tokoroa (Meola) Reef, or the Otuataua Lava Flow. These lava flows also include associated caves and tunnels and geological exposures. A number of these features are of regional or national significance, while others may be of local significance, or may contribute more cumulatively to the volcanic landscape and character of the region. Some of these volcanic features are known, while others may only be discovered during the course of development projects or works.

The Franklin Volcanic Field, which spans both the Auckland and Waikato Regions, contained 80 identified volcanoes. Being older than Auckland's volcanoes, the Franklin volcanoes are more eroded and weathered and therefore more difficult to recognise as volcanic features. The volcanic origin of much of this landscape is revealed by the presence of the rich red volcanic soils and the sloping forms of Pukekohe and Bombay Hills and by the presence of tuff rings at Barriball Road, Ingram Road and Ravensthorpe and the Pukekohe East Tuff Ring, which is in the north west of the Pukekohe East and Runciman Roads. Because of this, management of the Franklin volcanic field is more closely aligned with landscape management rather than through the specific identification of individually significant volcanic features.

Regionally Significant volcanic features have social, cultural, historical, geological, archaeological, scientific, ecological, amenity, open space and landscape values and many are of regional, national and/or international significance. Other volcanic features may have these values, but due to their type, size, state of preservation or relative abundance are not considered to be of regional significance. They may, however, be considered to be of local significance, and in these circumstances their management is expected to occur primarily through the district plan and other, non-RMA, mechanisms.

All types of geological features in the Auckland Region have been subject to modification, or loss by use and development. The most extensive change has been to the Auckland volcanic field with the loss or significant modification of both large and small scale volcanic features to urban development. Buildings and infrastructure mask the original form of many large scale features, while site specific development affects smaller scale features, both individually and cumulatively.

Excavation, land re-contouring and quarrying have resulted in the loss of geological features of many types. This quarrying continues in some locations by way of existing use rights, district plan rules, land-use consents and mineral permits. This, coupled with public concern over the loss of heritage values associated with the volcanic field, has produced conflict between the value of the aggregate and the heritage value of the features. Chapter 13 - Minerals also covers these issues.

6.2.6 Auckland's Outstanding and Regionally Significant Volcanic Features

The physical and visual integrity and values of the volcanic cones and other regionally significant volcanic features, can be adversely affected by subdivision, use and development that directly impacts on their structure, or by inappropriate development in surrounding areas.

Important views to the volcanic cones from urban Auckland and their value as outstanding natural features can also be compromised by inappropriately located, or inappropriately sized development.

The volcanic cones are iconic features of Auckland. They give the Region its unique character and identity and set this urban area apart from other cities in the world. Their contribution to the character of the Region arises not only from their individual identities as outstanding natural features, but also from their number and juxtaposition within the urban landscape. They provide islands of naturalness, of open space and of green that interact with an urban landscape which continues to change as a result of urban growth and development.

Many views of the cones are inextricably linked with images of Auckland. For example, Maungauika (North Head), Takarunga (Mt Victoria), Rangitoto, Motukorea (Browns Island) and Te Pane O Mataaho (Mangere Mountain) and Maungarei (Mt Wellington) are key markers of Auckland's maritime setting. Other volcanic cones such as Pukekaroro (Auckland Domain), Maungawhau (Mt Eden), Maungakiekie (One Tree Hill), Koheraunui (Big King of Three Kings), Owairaka (Mt Albert), Puketapapa (Mt Roskill), Te Kopuke (Mt St John), Remuwera (Mt Hobson) and Otahuhu (Mt Richmond) are physical markers and identifiers at both the regional and local level. They are outstanding natural features and have a landscape value that arises from their combination of naturalness within an urban environment and their cultural associations.

The volcanic cones are of international, national and regional significance. They are of particular significance to Tangata Whenua of the Region, as ancestral land and taonga, being both sites of occupation and battle. Physical occupation is reflected in the presence of complex earthworks terraces, ditches, pits and middens. They are also central to the identity of Tangata Whenua as tribal groups within the Region and are places to which Maori have a deep spiritual and cultural attachment.

The volcanic cones have also become part of the valued natural and cultural heritage of the wider Auckland community. As well as views to and between the volcanic cones, views from the cones across the urban, rural and maritime landscape are part of the local and visitor experience of the Auckland Region.

Although the scoria cones are the most visual expression of Auckland's volcanic heritage, other volcanic features are also recognised as being regionally significant volcanic features and make an important contribution to the Region's landscape and geological heritage. Larger scale explosion craters and tuff rings provide significant and well known local landmarks, as well as being of national and regional significance. Lake Pupuke, Tank Farm (Tuff Crater), Orakei and Panmure Basins and Pukaki and Mangere Lagoons are all examples of

explosion craters with tuff rings. Due to its international geological significance the Wiri Lava Cave is also listed as a regionally significant volcanic feature, as is the Te Tokoroa (Meola) Reef. Appendix B provides further information on the values of the Regionally Significant Volcanic Features.

Auckland's volcanic heritage has been extensively modified with the result that none of the Region's volcanoes remain completely intact. Of Auckland's 34 volcanic cones, 17 are protected (in part as public reserve), 10 have been completed destroyed and the remainder have been modified to a greater or lesser extent. Of the Region's 17 explosion craters, seven are protected in part with the remainder having been modified by a variety of uses.

Urban development within the Metropolitan Urban Limits, including infrastructure and the development of multi-unit and high rise buildings can affect the physical integrity of the volcanic features themselves, as well as their surroundings, and the views to and from the volcanic cones. Unsympathetic urban development has occurred on some privately owned sections on the slopes of several volcanoes. Inappropriately high or bulky buildings or other structures or planting, or inappropriately located structures can adversely affect the physical intactness, visual quality and visibility of the cones, their value as outstanding natural features and heritage icons and their visual and physical links to the wider urban landscape of Auckland.

Urban development on many of the explosion craters and tuff rings has also resulted in significant physical modification of their original topography, as well as masking of their overall land form and volcanic origins. This has meant a loss in the diversity of Auckland's volcanic features.

The development of key infrastructure, including water supply reservoirs and roads has affected the physical integrity of several volcanic features (cones and tuff rings) and further development has the potential to impact on others.

Chapter 2 provides guidance on the provision of new or upgraded regionally significant infrastructure. The policies in Chapter 2 acknowledge that the social and economic wellbeing of the regional community is dependent on the availability of infrastructure, including the regional transport network. Uncertainty about the location, extent and degree of modification of significant volcanic features can impede attempts to protect them when planning and implementing regionally significant infrastructure and other development.

Many of the volcanic cones and other volcanic features have located within them (underground) or in some cases above ground, existing water supply reservoirs and related facilities. This infrastructure is important for the water supply of the Auckland Region and their past and present use for this purpose is one component of their social and historic value to the community. These facilities will need to continue to serve the water supply management needs of the region into the foreseeable future, and will require maintenance and on occasion replacement. Some new facilities will also be required from time to time, but it is expected that these can be located outside of the Regionally Significant Volcanic Features. It is important that the provisions in this chapter provide for the continued operation, maintenance and replacement of the existing water supply infrastructure.

The Regionally Significant Volcanic Features occur on public and private land. The majority of the volcanic cones and many of the other features identified in this RPS are predominantly held as reserves and managed by either the Department of Conservation or territorial authorities. However, many of them include areas of land on the periphery of the reserve land that are held in private ownership, frequently with extensive existing development, but which are nevertheless an integral part of the feature. Other features are largely or completely in private ownership.

Inappropriate management actions can adversely affect the natural and cultural heritage values of the Regionally Significant Volcanic Features. Such actions can include inappropriately located or designed buildings or earthworks for pedestrian, cycle or road access and vehicle parking, inappropriate planting or grazing by stock, or the allocation of areas of the reserves for exclusive use by particular groups (eg sports facilities). The former actions have direct physical and visual effects on the cones, while the latter affects the ability of the public to freely access all parts of the volcanic cone reserve.

6.2.7 Landscape

The quality and diversity of Auckland's landscapes is being reduced by adverse individual and cumulative effects of subdivision, use and development.

Auckland's volcanic cones, its urban, rural, coastal, estuarine and island landscapes and maritime views provide an important reference point and sense of identity for the people of the Region. Although some of the landscapes of the Auckland Region are heavily settled in comparison to other parts of New Zealand, and generally are not pristine, a number of areas have been identified as Outstanding Natural Landscapes within the context of this region. (see Map Series 3a).

Other landscapes may be important for their amenity values at the district or local level. Their identification and management is the most appropriately undertaken by district plans and the regional coastal plan. However collectively they contribute to the quality and diversity of landscapes at the regional level.

Natural landscapes are also important contributors to the natural character of the coastal environment. Areas of high natural character in the Auckland Region are often Outstanding Natural Landscapes. Landscapes of all types contribute to the quality of life within the Auckland Region and the context within which people use and enjoy their environment. A diversity of good quality landscapes both natural and modified provides places for people to undertake economic, social and recreational activities, as well as being important for regional and national tourism.

~~The quality of the Region's landscape is threatened by development and changing land use activities, patterns which reflect changing economic opportunities, social needs and cultural values.~~

The Auckland Region's rich and varied landscape includes:

(i) the visually dominant volcanic cones ~~unique cone formations which~~ that are now signature features ~~visual evidence~~ of the Region's ~~volcanic~~ heritage and identity;

(ii) the internationally unique volcanic field on which the North Shore, Auckland and Manukau urban areas are founded and which is represented by a number of natural features of national and/or regional geological significance and locally important landscape value, such as Tank Farm (Tuff Crater), Lake Pupuke, Orakei Basin, Crater Hill and Pukaki Lagoon; and

(iii) the iconic indigenous rainforest and landforms of the Waitakere Ranges and the associated eastern foothills that provide ecological linkages with the Ranges and contribute a sense of contrast and a buffer between metropolitan Auckland and the Ranges. The water catchment lakes, dams and related water supply infrastructure that provide essential services to the region. All these components, as well as the characteristics identified in (iii) below now comprise the Waitakere Ranges Heritage Area in recognition of its national significance and its contribution to the natural and cultural heritage of the region;

(iv) the spectacle of the West Coast margins of the Waitakere Ranges, that comprise shorn cliffs and extensive indigenous vegetation interspersed with the black sands and surf of Piha, Karekare and other beaches and settlements; places that now have iconic status for much of the regional community;

(v) the long, straight, black sand beach from Muriwai to South Kaipara head, backed by sand dunes, parkland and exotic forest and terminating in the high dunes and spit at Papakanui;

(vi) the more passive and contained embayments of the eastern Rodney coastline, with dramatic headlands and remnant coastal forest and dune systems, framing some of Auckland's popular ~~most heavily used~~ recreational beaches, giving way to more remote and exposed beaches at Pakiri and Te Arai;

(vii) the complex landscapes of inland Rodney dominated by an increasingly diverse mix of pastoral farming, forestry, vineyards, numerous remnants of indigenous forest, production activities and scattered buildings on rolling terrain;

(viii) The ~~contrasting~~ expansive vistas of the large western harbours (Manukau and Kaipara) with their extensive intertidal flats, sand banks and meandering channels and narrow entrances guarded by headlands and shifting sand bars and their regional, national and international significance as bird habitats;

(ix) the contrast between the relatively narrow, urbanised and busy lower Waitemata Harbour with its focus on the port, commercial hub and the

harbour bridge, and the middle and upper reaches with their important natural areas. These areas include extensive saltmarsh, wetlands and tidal inlets, shore bird habitats and unique shell bank associations, alongside escarpments and hill sides of indigenous vegetation;

(x) the diverse topography of coastal flats, lowlands, basins, rolling land and steep hills of the Manukau and Papakura areas, dominated by pasture and scattered stands of indigenous vegetation, with more extensive areas of exotic forestry on the steeper land, some significant quarries and rural residential development in some locations;

(xi) the richly productive rural landscapes of the Franklin lowlands;

(xii) the forest covered hills of the Hunua Ranges and its adjoining foothills, with ~~and the~~ vegetation corridors linking to the coastal margins of the Firth of Thames ~~with its~~ and the water catchment lakes, dams and related water supply infrastructure;

~~(xiii) the complex landscapes of Rodney which include widely varied rural activities, strong landforms, and numerous remnants of indigenous vegetation;~~

~~(xiv) the deeply indented eastern coastlines;~~

(xiii) the diverse form and pattern of the islands of the Hauraki Gulf and the seascapes to and from these islands, their importance for biodiversity conservation and their role as significant components of the Hauraki Gulf Marine Park;

(xiv) the extensive and changing form of Auckland's built environment, as a prominent feature of the region's landscape, with its diversity of building quality, type and density. Its built form includes high rise commercial and residential towers, established heritage and character areas, new single suburban houses and a multiplicity of commercial and industrial buildings. Significant visual identifiers are provided by the Auckland CBD including the Skytower, the Harbour Bridge, the Ports of Auckland, Auckland International Airport and the urban motorway system, interspersed with green corridors, open space and urban streams. The region's built environment also includes a patchwork of small rural, coastal and island towns and settlements;

~~(xv) the complex diverse and changing form and density of urban Auckland.~~

Further information on the Region's rural, coastal and island landscapes that are Outstanding Natural Landscapes is contained in Appendix F. An area around Titirangi-Laingholm, although within the Metropolitan Urban Limits retains levels of naturalness that make it an Outstanding Natural Landscape and this area is recognised in the appendix. Urban design provisions are contained in Chapter 2.

~~Urban expansion affects visually sensitive landscapes around the urban edge. Infill suburban development, and high rise buildings in the city centre, affect the visibility of Auckland's volcanic cones. Hilltop transmission towers punctuate the skylines of major hill ranges. Rural residential development modifies many of the rural landscapes, and coastal settlements affect the visual quality or sensitivity of coastal and island landscapes and seascapes in the Region.~~

~~The visual effects of development and change must be considered in the process of managing the Region's natural and physical resources in order to protect the quality and sensitivity of the landscape.~~

6.2.7.1 Outstanding Natural Landscapes

The naturalness of Outstanding Natural Landscapes is being adversely affected by inappropriate changes in subdivision, use and development and increasing levels of human modification, in particular countryside living and coastal development.

Outstanding Natural Landscapes of the Auckland region are those that are characterised by a high level of naturalness and which are visually attractive. They include areas that are characterised by both endemic elements, particularly the presence of indigenous vegetation and by strong landforms; as well areas that are more cultured and picturesque, where pastoral land and some types of exotic vegetation are important visual elements. The interrelationship between geology, landform and ecological factors means that these landscapes have high aesthetic values and are visually expressive. Many islands in the Hauraki Gulf and significant areas of the mainland's coastal environment are also Outstanding Natural Landscapes.

The key indicator of an Outstanding Natural Landscape is the absence of significant built development, or where it is present it is subservient to the dominance of natural elements and does not reduce the overall naturalness and visual coherence of the landscape. The absence of built development and the dominance of natural elements are also key determinants of natural character values in the coastal environment and in wetlands, lakes, rivers and their margins. Further information on Outstanding Natural Landscapes, including their assessment in terms of nationally accepted landscape assessment criteria, is contained in Appendix F and Map Series 3a.

Activities such as urban development, land clearance, mining and quarrying, or the development of significant built structures, including houses, coastal protection works, roads, transmission lines, power generation structures and other infrastructure may result in an increase in the level of modification in the landscape and an associated reduction in naturalness.

Apart from Department of Conservation estate, significant local reserves and conservation areas in the regional park network, much of the Auckland Region's landscape is a working landscape that changes over time. Changes in rural production mean changes in rural landscape as pastoral land is replaced by horticulture or viticulture, or stocking regimes change, with their different fencing and building requirements. Significant areas of the region's Outstanding Natural Landscapes include pastoral land, where structures such as farm houses, fences, pumphouses and farm sheds, and land management practices including revegetation of retired land are part of the working landscape. Generally the nature and scale of these structures or land management practices mean that they do not have significant adverse effects on the naturalness of the Outstanding Natural Landscape.

Of particular significance in the Auckland Region is the expansion and intensification of rural residential subdivision (countryside living) in rural, island and coastal areas. This results ing in increasing numbers and sizes of houses, the presence of associated structures such as garages, driveways and hard landscaping areas, infrastructure to service the houses and land modification for building platforms or to obtain vehicular access in Outstanding Natural Landscapes.

Countryside Living continues to intensify in much of the coastal environment of the Auckland Region, except for the more remote areas in north west Rodney and the western coastline of Awhitu Peninsula. North-east Rodney has been the major focus of this development and this trend continues with this part of the Region being under the most pressure for further subdivision. Pressure for further coastal subdivision has extended to include the Firth of Thames coastline, Waiheke and Great Barrier Islands. In the Waitakere Ranges there is a desire for countryside living in areas with high natural landscape values in close proximity to the urban area. This threatens to undermine those values.

Regionally and nationally significant infrastructure, such as bulk water supply dams and pipelines, energy transmission lines and major highways, as well as regionally important mineral resources are located in or near some Outstanding Natural Landscape areas. Maintenance and upgrading or redevelopment of this infrastructure is necessary to ensure its continued efficient operation. The adverse physical and visual effects of these activities on an Outstanding Natural Landscape can vary depending on the type and scale of the maintenance, upgrading or redevelopment work.

It is likely that new regionally significant infrastructure will wish to locate in or near an Outstanding Natural Landscape. This is particularly relevant in the case of renewable energy generation proposals such as wind turbines that require elevated locations to operate. The same areas comprise many of the region's Outstanding Natural Landscapes. Extractive industries may also want to locate within or expand into an Outstanding Natural Landscape because of the presence of a mineral resource.

There is a need to make an overall judgement about how best to achieve sustainable management of the region's natural and physical resources, in terms of the protection of Outstanding Natural Landscapes and the provision of regionally significant infrastructure. Guidance on the matters to be considered in coming to this overall judgement is provided in both the policies relating to Outstanding Natural Landscapes in this chapter and in the Regional Overview and Strategic Direction of Chapter 2 of this RPS.

6.2.7.2 Amenity Landscapes

There are other rural, coastal, island and urban areas of the region that are not Outstanding Natural Landscapes but which contribute to the region's amenity values. Subdivision, use and development has the potential both to enhance and degrade these amenity values, depending

on how it is undertaken.

Auckland's amenity landscapes include well known areas such as the beaches, coastal cliffs and urban development along Tamaki Drive, the east coast beaches and the foothills of the Waitakere Ranges. Other urban, rural, coastal and island landscapes are an important part of individual and community, as well as regional amenity values. Landscapes with good amenity values are also normally working landscapes, undergoing change and used for a wide variety of urban and rural purposes and regional and local infrastructure. Some significant landscape changes occurring in the region are associated with urban development and intensification, the continued expansion of countryside living in the rural areas and the development of regional infrastructure to meet local, regional and national needs.

The maintenance and enhancement of the amenity values of the landscapes is consistent with section 7(c) of the RMA. This means that negative landscape impacts need to be identified and avoided or appropriately managed to maintain important amenity values.

Some landscapes can accommodate change better than others, and retain their landscape character and amenity values. Factors that influence how adverse effects can be avoided, remedied or mitigated include: the type of topography, the form and extent of vegetation cover, the role of ridgelines, enhancement of stream corridors and open space areas and the options for harmonising buildings into the landscape. Landscape restoration and enhancement initiatives, including indigenous revegetation of areas can assist this process. Managing adverse effects is required to ensure the retention of important landscape elements, processes and patterns that individually and in composite give an area its amenity values.

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6.2.7.3 Adverse Cumulative Effects

Landscape quality and diversity and the inherent characteristics that give Auckland's regional landscape its sense of place are being lost by the adverse cumulative effects of subdivision, use and development throughout the Region.

The cumulative effects of all types of subdivision, use and development are progressively changing the rural, coastal and island landscapes of the Auckland Region. These landscapes are dynamic and subject to different types and rates of change, including those associated with rural production or environmental restoration activities. These changes may continue to support Outstanding Natural Landscapes or amenity landscapes. However other landuse changes, particularly more intensive subdivision of land for countryside living purposes and environmental restoration can have adverse cumulative effects on rural, island and coastal landscape quality and diversity.

Inadequate consideration of and response to adverse cumulative effects can result in a reduction or loss of naturalness in Outstanding Natural Landscapes as fewer, or areas remain free from the presence of significant built structures. They can also give rise to a homogenisation of the landscape and a loss of the key characteristics which make a landscape distinct to our Region. Cumulative loss of landscape quality and diversity can occur within a local area, or within the district or across the whole of the Region.

6.2.7.4 Landscape Management

Physical constraints and land management practices can adversely affect the quality of all landscape types. Restoration and enhancement of the land can improve landscape quality. However enhancement techniques associated with subdivision bonuses can introduce further built elements into the landscape, which can change landscape character.

Topography and soil conditions and land management practices have the potential to reduce the physical and visual quality of all types of landscape. Eroded pastoral land, the spread of animal pests, weeds and wilding species affect the quality, health and diversity of all landscapes, even though their effects may not be visually prominent.

Land improvement practices are undertaken by landowners for a wide variety of reasons. Some initiatives are tied to subdivision incentives, with the retirement of erosion prone land, or the revegetation of pastoral land with indigenous species being the most common. The actions can have positive environmental benefits if correctly implemented and maintained and can enhance the visual quality of the landscape. However such incentives are normally associated with the addition of houses and their ancillary structures into the landscape. The addition of these further built elements into the landscape may give rise to adverse effects on natural character and natural landscape values, as discussed in Issues 6.2.7.1 to 6.2.7.3 above.

6.2.8 Management of Heritage Resources

A precautionary approach to management may be appropriate because of the cumulative effects of past destruction, the irreversibility of many of these effects, a lack of accurate and reliable information, and the continuing threat to heritage. Many of the significant heritage resources remaining in the Auckland Region occur on private land. This is particularly the case for indigenous forest areas, gardens, trees in urban areas, wetlands, archaeological sites and historic structures. Thus, to ensure the retention of a diverse and representative range of heritage in the Region, it will be necessary to institute and promote a flexible approach that incorporates a wide variety of management techniques.

6.3 Objectives

1. ***To preserve or protect a diverse and representative range of the Auckland Region's heritage resources.***
2. ***To maintain, enhance or provide public access to the Region's heritage resources consistent with their ownership and maintenance of their heritage value.***
3. ***To protect and restore ecosystems and other heritage resources, whose heritage value and/or viability is threatened.***
4. ***<u>To protect Outstanding Natural Landscapes from inappropriate subdivision, use and development.</u>***
5. ***To maintain the overall quality and diversity of character <u>and sense of place</u> of the landscapes of the Auckland Region.***
6. ***<u>To recognise some Outstanding Natural Landscapes as working landscapes and to enable appropriate activities that are consistent with the Strategic Direction in this RPS.</u>***
7. ***To protect and where practicable enhance the visual and physical integrity and values of the volcanic features of the Auckland Region of local, regional, national and/or international significance including social, cultural, historical, geological, archaeological, scientific, ecological, amenity, iwi, open space and landscape values.***
8. ***To protect significant views to and between Auckland's volcanic cones.***
9. ***To manage heritage resources in an integrated way to ensure their contribution to the variety of heritage values is protected and enhanced.***

6.4 Policies, Methods And Reasons

6.4.1 Policies: Heritage preservation and protection.

The following policies and methods give effect to Objectives 6.3.1 and 3.

1. ***The significance of natural and physical resources in the Auckland Region which are of value as heritage resources will be established by reference to the criteria set out in Policies 6.4.7-1 and 2, 6.4.13-1 and 6.4.16-1.***
2. ***The relationship of Maori and their culture and traditions with their ancestral lands, water, sites, waahi tapu and other taonga shall be recognised and provided for in the preservation or protection of the heritage resources of the Auckland Region.***

(Refer also to Chapter 3 – Matters of Significance to Iwi)

3. ***The subdivision of land, and use and development of natural and physical resources shall be controlled in such a manner that:***

   (i) the values of heritage resources of international, national or regional significance are preserved or protected from significant adverse effects.

   (ii) where preservation or protection and avoidance of significant adverse effects on the values of such significant heritage resources is not practicably achievable, such significant adverse effects shall be remedied, or mitigated.

   (iii) In the context of this Policy, significant adverse effects would include:

   - ***the destruction of the state and physical integrity of significant heritage resources or of a significant physical or biological process to the level where the maintenance of that process cannot be assured;***
   - ***the destruction of or significant reduction in the educational, scientific or amenity value of a significant heritage resources, or of that heritage feature's contribution to significant natural character and landscape values;***
   - ***the fragmentation of significant connections of indigenous vegetation between significant ecosystems;***
   - ***the loss of a threatened or protected species;***
   - ***a significant reduction in the abundance or natural diversity of significant indigenous***

flora and fauna;

- *a significant reduction in the value of the historical, cultural and spiritual association with significant heritage resources which are held by Tangata Whenua and the wider community;*
- *a significant reduction in the value of significant heritage resources in their wider historical, cultural, and landscape contexts;*
- *the loss of significant historic places, areas and waahi tapu;*
- *a significant modification of the viability or value of significant heritage resources as a result of the use or development of other land in the vicinity of the heritage resource.*

(Refer to policies 6.4.7, 6.4.13 and 6.4.16)

6.4.2 Methods

1. *Regional and district plans shall include provisions which preserve or protect (as appropriate) heritage resources identified in Appendix B of the RPS and the values of those identified as significant using criteria in Policies 6.4.7-1 and 2, and 6.4.13-1 and 6.4.16.*
2. *In preparing regional, district and annual plans the following mechanisms for the preservation and protection of heritage resources should be considered:*
   - *(i) advocacy and the provision of information;*
   - *(ii) providing for voluntary heritage preservation and protection;*
   - *(iii) providing for incentives and economic instruments, e.g., for restoration or fencing;*
   - *(iv) discretionary controls to facilitate protection, e.g., bush lot subdivision;*
   - *(v) regulatory controls, e.g., volcanic cone viewshafts, rules, abatement and enforcement orders;*
   - *(vi) heritage orders and water conservation orders;*
   - *(vii) land acquisition and designation, including the use of funding sources such as the Forest Heritage Fund, and Nga Whenua Rahui;*
   - *(viii) the provision of esplanade reserves and marginal strips;*
   - *(ix) disincentives which penalise non-compliance with controls;*
   - *(x) prohibition of activities*
   - *(xi) provision of works and services;*
   - *(xii) use of rates relief;*
   - *(xiii) pest animal and pest weed control;*
   - *(xiv) mechanisms available under the Local Government Act 2002.*
3. *Regional and district plans shall include provisions for the taking of financial contributions for the preservation, protection and restoration of heritage resources, and to offset any unavoidable adverse effects to heritage resources.*
4. *With reference to Policy 6.4.1-1 identification of the significance of heritage resources is to include a statement describing the qualities and value and, where appropriate, location, of each heritage resource which justifies their preservation, protection, maintenance or enhancement.*
5. *Regional plan provisions or changes to the RPS will be prepared which:*
   - *(i) identify heritage resources;*
   - *(ii) provide details and values of heritage resources;*
   - *(iii) deal with heritage assessment, preservation and protection, restoration and enhancement, effects analysis, plan evaluation procedures, the level of heritage resource loss, and the degree of resource fragmentation in the Region;*
   - *(iv) develop comprehensive strategies for the preservation or protection, restoration and enhancement of heritage resources;*
   - *(v) deal with landscape assessment and protection.*
6. *The ARC will, and other heritage protection agencies should, use Heritage Orders and Water Conservation Orders to preserve or protect significant heritage resources where appropriate.*
7. *The ARC and TAs will consult with the public, appropriate agencies, and landowners in recognising heritage sites and areas.*

8. ***The ARC and TAs will consult with Tangata Whenua to recognise heritage sites and areas of significance to Iwi and hapu.***

9. ***The ARC will promote an integrated and co-ordinated approach to heritage management through consultation and the provision of information (such as the Cultural Heritage Inventory).***

10. ***The ARC and TAs will encourage and actively promote a greater public awareness and understanding of heritage resources by:***

    (i) providing advice and information on heritage resources where appropriate;

    (ii) advocating the conservation of heritage resources as appropriate;

    (iii) developing and implementing heritage education programmes where appropriate.

6.4.3 Reasons

These policies and methods, and those that follow relating to specific aspects of heritage, have been prepared to:

- Preserve or protect significant heritage resources which are listed in the RPS, regional plans and district plans.
- Establish a co-ordinated and systematic process for evaluating, recording and eventually preserving or protecting other heritage resources about which local authorities have little information at present.
- Provide an opportunity for the recognition and preservation or protection of heritage resources of importance to Tangata Whenua.
- Control adverse effects on heritage resources.
- Encourage public involvement in the recognition, preservation and protection of heritage resources.
- Foster community support for the preservation and protection of heritage resources.

Used in combination the mechanisms given in Method 6.4.2-2 will provide a flexible approach to the management of heritage resources. Effective conservation will also require the promotion of kaitiakitanga, and the stewardship and guardianship role of private landowners and land managers.

Schedules of significant heritage resources in the Auckland Region are incomplete. It is therefore important that ARC and TAs give effect to these policies by considering heritage issues fully in the resource consent granting process as given in Chapter 1.

Within the range of mechanisms for preserving or protecting heritage resources, it is anticipated, without limiting the use of provisions under the RM Act, that heritage orders and water conservation orders will be used by the appropriate agencies when a heritage resource:

(i) meets the relevant evaluation criteria set out in Policies 6.4.7-1 and 2, 6.4.13-1 and 6.4.16;

(ii) is likely to be damaged or destroyed by development or use;

(i) preservation or protection has not been provided for in regional or district plans.

The process through which heritage orders and water conservation orders are given effect is set out in Parts VIII and IX of the RM Act.

ARC and TAs have responsibilities to promote the sustainable management of natural and physical resources and are Heritage Protection Authorities. ARC and TAs also have a duty to gather information, monitor and keep records. Methods in this chapter relate to these responsibilities and the primary objective to preserve or protect a diverse and representative range of heritage resources. The education of the community about heritage resources and the provision of heritage information are seen as important functions of local authorities. The scoping and programming for preparation of regional plan provisions or changes to the RPS which are referred to in Method 6.4.2-4 will be undertaken in consultation with TAs, Tangata Whenua, DoC and other agencies and persons having a particular interest in heritage matters.

6.4.4 Policies: Heritage use and access.

The following policies and methods give effect to Objective 6.3-2

1. ***The social and economic opportunities offered by heritage resources may be recognised and utilised where the use does not compromise the intrinsic or amenity values of the resources.***

2. ***Public access to heritage resources shall be maintained and enhanced where practicable and appropriate.***

3. ***When enhancing public access to heritage resources, priority shall be given to those heritage resources which are:***

(i) of high amenity or recreational value;

(ii) of importance to Tangata Whenua for carrying out customary activities and in order to exercise kaitiakitanga;
(Refer also to Chapter 3 – Matters of Significance to Iwi)

(iii) of regional, national or international heritage value;

(iv) adjacent to the areas identified in Appendix B and indicated in Map Series 2 and 3, where this would be consistent with the preservation or protection of natural and cultural heritage values;

(v) adjacent to esplanade reserves or other public open space where the enhancement of public access would contribute to the linking together of disconnected reserves.

4. Public access to heritage resources shall be restricted where it is necessary to:

(i) preserve or protect conservation values;

(ii) preserve or protect sites and areas of Maori spiritual and cultural value;

(iii) protect public health and safety;

(iv) ensure a level of security consistent with the purpose of a resource consent;

(v) in other exceptional circumstances, that justify the restriction notwithstanding the national importance of maintaining access;

(vi) protect areas prone to natural hazards.

6.4.5 Methods

1. The ARC, TAs and DoC will ensure that tourism and recreational use of heritage resources does not detract from the conservation values of those resources.

2. The ARC, TAs and DoC will recognise significant heritage resources listed in the RPS, regional plans and district plans, and in non-statutory documents, to guide them in the future purchase of land for conservation, public open space and reserves.

3. The ARC, through the operation of its Regional park network, will actively conserve Regional open space and promote the conservation of heritage resources through its education and interpretation programmes and facilities.

4. The ARC will, in conjunction with DoC, TAs, Tangata Whenua, landowners and interest groups, identify priority areas for public access to heritage resources based on criteria in Policies 6.4.4 -3 and 6.4.4 -4 and Chapter 18. Once identified, TAs will make provision for appropriate access to these heritage resources in district plans.

6.4.6 Reasons

While emphasising the preservation or protection of the Region's heritage resources, it will be necessary to adopt and promote a balanced approach in the management of the resource. Thus the use and development of the resource must be provided for, while ensuring that its inherent values and life supporting capacity are not compromised.

The policies and methods concerning public access highlight the potential for conflict between enhancing access to heritage resources and those circumstances in which it is appropriate to limit or restrict access. Priority will be given to enhancing access to heritage resources of recognised value in order to ensure the enjoyment and realisation of the amenity, ecological, recreational, educational, scientific and cultural value of those resources, for both present and future generations. However, where public access to heritage resources may not be appropriate for a range of conservation, Maori cultural, public health and safety reasons, or to give effect to a resource consent, it will be limited or restricted.

In addition, it is also recognised that the majority of the heritage resources of the Auckland Region are located on private land and that public access to privately owned land may not always be practicable or appropriate. The identification of priority areas for the enhancement of public access to heritage resources must be undertaken in a co-operative manner involving consultation with the ARC, DoC, TAs, Tangata Whenua, landowners, and other relevant interest groups. Provision for these priority areas will then be made using provisions in district and regional plans.

6.4.7 Policies: Evaluation of natural heritage.

The following policies and methods give effect to Objective 6.3-1.

1. The significance of natural heritage resources in the Region, and the identification of the qualities and values which give rise to their significance, shall be determined using criteria including the following:

(i) the extent to which an area is representative or characteristic of the natural diversity in an ecological district or contains outstanding or

rare indigenous community types;

(ii) the presence of a threatened species or uncommon, special or distinctive features;

(iii) the extent to which a natural area can maintain its ecological viability over time;

(iv) the extent to which an area is of sufficient size and shape to maintain its intrinsic values;

(v) the relationship a natural feature has with its surrounding landscape, including its role as an ecological corridor or riparian margin, and the extent of buffering or protection from external adverse effects;

(vi) the natural diversity of species of flora and fauna, biological communities and ecosystems, geological or edaphic features such as landforms and land processes, parent material, and records of past processes;

(vii) the diversity of ecological pattern, such as the change in species composition or communities along environmental gradients;

(viii) the extent to which an area is still reflective of its original natural character and quality;

(ix) the extent to which an area provides an important habitat for species at different stages of their life cycle, e.g., breeding, spawning, roosting, feeding, and haul-out areas for the New Zealand fur seal;

(x) the importance of an area to Tangata Whenua.
(Refer also to Chapter 3 – Matters of Significance to Iwi)

2. In assessing natural heritage resources, their contribution to the viability of the Region's ecosystems will be considered significant if they exhibit the following characteristics:

(i) the area provides a characteristic example of the ecology of the local area; and

(ii) the area is of good quality (e.g., for natural areas it has an intact understorey and is characterised by a low level of invasion from pest species); and

(iii) the area contributes to the ecological viability of surrounding areas and biological communities; or

(iv) the area contains a Regionally threatened species or a unique or special feature; or

(v) the area contains an unprotected ecosystem type, or an ecosystem type under-represented within the protected area network of an ecological district; or

(vi) the area is a component of, adjoins or provides a buffer to, a significant natural resource, or a watercourse or coastal margin; or

(vii) the area has habitat values, or provides or contributes to a habitat corridor or connection facilitating the movement of fish or wildlife species in the local area; or

(viii) the area is in a landscape which is depleted of indigenous vegetation; or

(ix) the protection of the area adds significantly to the spatial characteristics of the protected area network (e.g., by improving connectivity or reducing distance to the next protected area); or

(x) the area is significant to Tangata Whenua; or
(Refer also to Chapter 3 – Matters of Significance to Iwi)

(xi) there is a community association with, or public appreciation of, the aesthetic values of the landform or feature.

3. The heritage value of freshwater ecosystems shall be progressively identified and protected from the adverse effects of use and development.

6.4.8 Method

1. The ARC in consultation with TAs will develop and maintain comprehensive and accessible natural heritage databases.

2. The ARC in consultation with other relevant agencies will develop a Regional evaluation methodology for freshwater ecosystems.

The implementation of Policy 6.4.7 will also rely on Methods 6.4.2 – 1 to 10.

6.4.9 Reasons

Regionally significant natural heritage resources include those evaluated at regional, national and international levels (see Appendix B). Resources of district significance

include those valued at the district and local levels. In general, the ARC will identify significant natural heritage resources at the regional level and TAs will be responsible for identification at the district level. Natural heritage resources of significance to Iwi may be at either regional, district or local levels.

Joint work between DoC and the ARC has resulted in the identification of "Sites of Natural Significance" where the values of those sites are considered to meet the requirements ofsection 6 (a), (b) and (c) of the RM Act. These sites have been published in the Draft Conservation Management Strategy (CMS) for Auckland 1993 – 2003, Volume II, and will be considered along with other sites for inclusion in a variation to the RPS. Notes on the values of each place or feature and an assessment of their vulnerability to adverse effects will be contained in a variation to the RPS.

The CMS maps of significant natural heritage resources have been created from the results of national and regional inventories for natural and physical resources. These include the Auckland Regional Planning Scheme, Protected Natural Area Programme, Sites of Special Wildlife Interest, Wetlands of Ecological and Representative Importance, and Geopreservation Inventories. These inventories use evaluation criteria such as representativeness, rarity, size and shape, naturalness and quality, life cycle requirements, diversity and pattern, long-term ecological viability, buffering and surrounding landscape. While these national evaluation systems have been useful at identifying sites of regional and, to a lesser extent, district significance, they require extensions of methodology to adequately determine values at the local level. Regional plan policy or technical guidelines will be prepared which contain evaluation methods which are useful and consistent at this level.

The criteria for determining local significance are based in part on the evaluation criteria discussed above, but also include the maintenance of threshold levels of indigenous vegetation. Due to the extent of natural area loss and degradation in the Auckland Region, local areas which do not in themselves trigger the criteria in Policy 6.4.7.1 may still be considered of regional significance in their role in maintaining the health and long term survival of ecosystems and their constituent parts in the Region. Policy 6.4.7.2 defines criteria by which the values and quality of such sites should be measured.

Some aspects and localities of natural heritage resources have not been comprehensively described and evaluated. For example, the habitat values of fresh-water and coastal areas for aquatic species, and remnant vegetation in Awhitu and south Kaipara peninsulas, southern Manukau and parts of the isthmus have not been evaluated in comparative terms. Further evaluation exercises and priorities for evaluation will be developed in consultation with relevant agencies and will be facilitated through regional plan provisions or changes to the RPS.

6.4.10 Policies: Restoration of natural heritage.

The following policies and methods give effect to Objective 6.3-5.

1. ***Significant ecosystems that have been damaged or depleted should be protected and restored to the stage where their continued viability is no longer under threat.***
   See Policies 14.4.1 (1) in Chapter 14; and Method 8.4.5-3, Policies 8.4.21, and Methods 8.4.22 (2) and (3) in Chapter 8.

2. ***In the restoration and rehabilitation of heritage resources, opportunities should be taken which ensure that, where appropriate,:***

   (i) resources are brought closer to their original state;

   (ii) resources or ecosystems are replaced by those of a similar type and size ('no net loss' approach);

   (iii) factors which reduce long- term viability are controlled (e.g., pests, fragmentation of habitats);

   (iv) public access, recognition and interpretation of the values of that resource are provided;

   (v) practical expression of kaitiakitanga is provided;
   (Refer also to Chapter 3 – Matters of Significance to Iwi)

   (vi) physical (e.g., fencing) and or legal protection is provided;

   (vii) in revegetation work, use of indigenous species naturally occurring in the general vicinity and use of local genetic stock is considered;

   (viii) barriers to the reintroduction of indigenous species are removed.

3. ***Restoration of natural areas or ecosystems or landscaping with indigenous plants, particularly for sites which abut existing protected natural areas or significant heritage resources, should maximise the opportunity of using indigenous plants from the***

local gene stock.

6.4.11 Methods

1. ***The ARC and TAs will consider the provision of incentives and information to promote the protection or restoration of ecosystems and heritage resources including, where appropriate, the use of locally sourced indigenous plants.***
2. ***When using indigenous plant species in mass plantings or restoration work, reserve management agencies should, where practicable, use locally sourced plants appropriate to local conditions.***
3. ***The ARC and TAs should consider the use of indigenous plants, including those which improve habitat quality, when assessing landscaping work required by resource consents.***

6.4.12 Reasons

As a consequence of the level of depletion of heritage resources in the Region, restoration, as well as the identification and protection of those heritage resources that remain, is essential. This is particularly the case for indigenous ecosystems to ensure the continued survival of biological communities within the Region.

Restoration can include a number of concepts such as, carrying out management activities which return a place or feature closer to its original state, the re-introduction of a feature that once existed in that place, and the creation of a heritage feature which attempts to replicate the original.

Natural Heritage Restoration

There are already in this Region many restoration projects which are focused on the re-creation of indigenous ecosystems by revegetation, the re-introduction of species of flora and fauna, and rehabilitation work by pest control. Restoration work is being carried out by both resource and reserve management authorities, and by the initiatives of independent agencies. Notable in this regard is the work by DoC on Tiritiri Matangi and Motutapu islands; Project Crimson which is focused on the restoration and rehabilitation of pohutukawa forests; and the Trees for Survival Trust Project planting indigenous species for erosion control. The ARC is carrying out programmes to investigate techniques to restore streams which include riparian planting and improvement of the habitat quality for indigenous fish, birds and insects. TAs can provide for revegetation programmes through: financial contributions on subdivision; as conditions on resource consents; in their own reserve management activities; as well as in the composition of street plantings. Private landowners have an important role to play in restoration initiatives by carrying out restoration programmes on their land with help from various sources of funding or agencies which can provide assistance such as the provision of plants, labour, information and advice.

An important concept in revegetation work includes planting appropriate indigenous species. Appropriate species include those that occur within their natural geographic range, e.g., plants that would naturally occur in Auckland; planting species in habitats in which they would normally be found, e.g., pohutukawa along the coastline; and planting species which are from local plant material.

The consequences of inappropriate planting range from interference with distribution and trends in the evolution of indigenous plants to the failure of plantings. The primary concern in relation to the effects of not using locally sourced material is that many plants exhibit a wide variation of characteristics throughout New Zealand. The best documented species which exhibits such wide variation in plant characteristics is kowhai. Flower and seed colour, leaflet size, and even shape (weeping, prostrate, or erect forms) can vary from place to place.

It is recommended that in revegetation work indigenous plant species are used which are:

i) normally found in the surrounding district;

ii) planted in ecologically appropriate places;

iii) grown from seed or plant stock obtained from either the same patch of vegetation or the same catchment as the planting site.

If plant sources from outside the district are used, it is useful to record the nature of the revegetation work. Details that could be recorded include the species and number planted, the source of planting (nursery or locality), and success of the planting (survival rate and naturalisation).

Another important concept in restoration is the consideration of an overall 'no net loss' approach to ecosystems that have been reduced to very low levels in

the Region. One ecosystem component that appears to most need such an approach in this Region is freshwater wetlands, which as Table 6.1 indicates, are at very low levels in the Auckland Region. The concept of 'no net loss' includes avoidance, where possible, of the destruction of existing wetlands. If this is not possible, then a preferred mitigating action is the creation of a wetland or, failing that, the protection of an existing unprotected wetland. The concept of 'no net loss' could also be extended to other ecosystem components in areas where there is very little indigenous vegetation cover remaining (refer to Table 6.1).

6.4.13 Policies: Evaluation of geological heritage.

The following policies and methods give effect to Objective 6.3-1

1. ***The significance of geological heritage resources in the Region, and identification of the qualities which give rise to their significance, will be determined using criteria which include the following:***

   (i) the extent to which an area or feature reflects important or representative aspects of Auckland or New Zealand's geological history;

   (ii) the extent to which an area or feature is representative or characteristic of the natural diversity of the Region;

   (iii) the potential of the feature or site to provide knowledge of Auckland or New Zealand's geological history;

   (iv) the potential of the feature or site for public education;

   (v) the community association with, or public appreciation of, the aesthetic values of the landform or feature;

   (vi) the state of preservation of the feature or site;

   (vii) the rarity or unusual nature of the feature or site type;

   (viii) the importance of the feature or site to Tangata Whenua.

   (Refer also to Chapter 3 – Matters of Significance to Iwi)

6.4.14 Methods

The implementation of Policy 6.4.13-1 will rely on Methods 6.4.2-1 to -10 and the following:

1. ***Resource management agencies will consult with the holders of mining permits (and existing use rights) to encourage and facilitate the voluntary protection of volcanic heritage resources.***

6.4.15 Reasons

The preservation or protection and survival of the best representative examples of earth science sites and features that document Auckland's geological history, is important for education, research, aesthetic appreciation and recreation. These values are reflected in the criteria in Policy 6.4.13-1 and underscore the identification of sites in the New Zealand Geopreservation Inventory. This inventory has been prepared by the Joint Earth Sciences Working Group and published by the Geological Society of New Zealand.

6.4.16 Policy: Evaluation of cultural heritage.

The following policy and method gives effect to Objective 6.3-1

The significance of cultural heritage resources in the Region, and the identification of the qualities and values which give rise to their significance, shall be determined using criteria which include the following:

(i) the extent to which the place reflects important or representative aspects of Auckland's or New Zealand's history;

(ii) the association of the place with the events, persons, or ideas of importance in Auckland's or New Zealand's history;

(iii) the potential of the place to provide knowledge of Auckland's or New Zealand's history;

(iv) the importance of the place to Tangata Whenua;
(Refer also to Chapter 3 – Matters of Significance to Iwi)

(v) the community association with, or public esteem for, the place;

(vi) the potential of the place for public education;

(vii) the technical accomplishment or value, or design of the place;

(viii) the symbolic or commemorative value of the place;

(ix) the importance of historic places which date from periods of early settlement in Auckland;

(x) rare types of historic place;

(xi) the extent to which the place forms part of a wider historical and cultural complex or historical and cultural landscape;

(xii) the integrity and state of preservation.

6.4.17 Method

The ARC in conjunction with TAs will maintain and develop the Cultural Heritage Inventory (CHI) as a system and resource for promoting the sustainable management of the cultural heritage resources of the Region.

Implementation of Policy 6.4.16 will also rely on Methods 6.4.2-1 to 10.

6.4.18 Reasons

In identifying significant cultural heritage resources, the ARC and TAs will take guidance from section 23 of the Historic Places Act 1993 (HP Act) and the New Zealand Historic Places Trust (NZHPT). The HP Act lists values and criteria which assist with the identification of significant cultural heritage resources and sets a minimum standard (see criteria in Policy 6.4.16). The NZHPT has a statutory obligation under section 22 of the HP Act to establish and maintain a register of historic places, historic areas, waahi tapu and waahi tapu areas. Under sections 22 and 23 of the Act the NZHPT may assign Category I or Category II status to any historic place. Category I status applies to "Places of special or outstanding historical or cultural heritage significance or value". Category II status applies to "Places of historical or cultural heritage significance or value".

Criteria for determining the significance of historic buildings or structures are also outlined in Appendix B2 of the NZHPT Cultural Heritage Planning Manual (Dec 1992). Cultural heritage guidelines and criteria for research and evaluation are given by the World Archaeological Congress First Code of Ethics (Members Obligations to Indigenous People [Dec 1990]), the ICOMOS NZ Charter and the NZHPT Cultural Heritage Planning Manual (Dec 1992).

Cultural heritage resources to be listed in regional plans and district plans will include: archaeological sites, buildings and structures, Maori buildings and marae, historic areas, historic places, trees and other natural objects of historical and cultural significance, waahi tapu and waahi tapu areas and other cultural heritage of significance to Iwi where appropriate. (See section 2 of the HP Act for definitions of terms.) All archaeological sites are accorded protection under sections 9 and 10 of the HP Act 1993 whether or not they are registered.

Under section 34 of the HP Act, the Trust is required to maintain and supply to every TA a record of registered historic places, historic areas, waahi tapu and waahi tapu areas that are located within that TA's district and heritage covenants which have effect in that area.

It is recognised that cultural heritage of significance to Tangata Whenua will be determined by Tangata Whenua. It is also recognised that TAs may develop their own criteria to determine cultural heritage of local and district significance within the framework given by section 23(2) of the HP Act.

Cultural heritage of significance to Tangata Whenua will be identified in a way that is appropriate to each Iwi. Some places and areas are already recognised within the NZ Archaeological Association (NZAA) Auckland Region Archaeological Site Record File. Many significant places, however, are not generally well-known and information concerning them is often of a sensitive nature. It is envisaged that most information relating to cultural heritage places and areas of significance to Tangata Whenua will be compiled by Tangata Whenua and held in their own plans and information systems. TAs are however required to recognise and provide for such places under section 6 (e) of the RM Act. Therefore, processes to achieve this recognition and provision must be developed with Iwi. The location and nature of some sites will be sensitive and therefore protective mechanisms will need to be included in regional plans and district plans to accommodate this. Where the precise location of a place is not revealed, a locality or area can be identified. Consultative processes need to be developed with Iwi for proposals which may affect any defined locality or area. Sensitive information can be held in closed or silent files or safeguarded through the use of an order under section 42 of the RM Act. Guidance in this matter may be taken from the HP Act.

The Cultural Heritage Inventory (CHI) is a database of cultural heritage information which is being developed by ARC with the support and involvement of the seven TA's in the Region. The database provides a tool to both rapidly locate known historic places and areas, and identify where further research efforts are required. The CHI also provides a basis from which to identify places and areas of significance to Iwi in the Region.

6.4.19: Policies: Volcanic Features

The following policies and methods give effect to Objectives 6.3.1, 6.3.7, 6.3.8 and 6.3.9.

1. ***The volcanic features of the Auckland Region of local, regional, national and/or international significance***

shall be managed in an integrated manner to protect their multiple values, including social, cultural, historical, geological, archaeological, scientific, ecological, amenity, open space and landscape values and to maintain the range and diversity of volcanic features within the context of the wider Auckland and Franklin volcanic fields.

2. *The physical and visual integrity and values of Regionally Significant Volcanic Features shall be protected by:*

   (i) *avoiding activities within the boundaries of the Regionally Significant Volcanic Features shown on Map Series 2a that individually or cumulatively:*

      (a) *result in significant modification or destruction of the feature; or*

      (b) *detract physically or visually from the values of the feature; and*

   (ii) *ensuring that, where publicly owned, their open space and amenity values are maintained and where practicable enhanced and that the provision of public access and recreation is consistent with the protection of their other values; and*

   (iii) *ensuring activities on land surrounding or adjacent to the Regionally Significant Volcanic Features shown in Map Series 2a, or those parts of the volcanic feature described in Appendix B but not shown on Map Series 2a are managed so that significant adverse effects on the values of the features are avoided, remedied or mitigated, and where practicable the values are enhanced.*

3. *Subdivision, use and development shall be managed to ensure that the overall contribution of the volcanic cones identified in Map Series 2a as Outstanding Natural Features to the landscape character of Auckland, is maintained and where practicable enhanced, including physical and visual connections to, and views between, the volcanic cones.*

4. *The views of volcanic cones that are listed in Appendix L and indicated on Map Series 4a, shall be protected, and intrusion into the defined viewshafts by buildings or structures shall be avoided, except where provided for by specified building heights in Height Sensitive Areas that underlie the viewshafts and are detailed in the district plan and depicted for information purposes in Map Series 4a.*

5. *Urban intensification in High Density Centres and Corridors identified in Schedule 1 shall be undertaken consistent with Policies 6.4.19.1 – 4.*

6.4.20 Methods: Volcanic Features and Viewshafts

1. *Local authorities and other management authorities with responsibility for the management of volcanic features are to:*

   (i) *include in their district and regional plans objectives, policies, rules and other methods, including those available under the Local Government Act 2002, to give effect to Objectives 6.3.6, 6.3.7 and 6.3.8 and Policies 6.4.19;*

   (ii) *give effect to Policies 6.4.19 in management plans prepared under the Reserves Act 1977 or other legislation, to the extent consistent with the purpose of that legislation.*

2. *Resource management and reserve management authorities are encouraged to consider a range of options to achieve the integrated management of Auckland's volcanic features. Possible methods include joint management plans, the creation of a network of volcanic feature parks, and co-ordination of interpretive material on Auckland's volcanic features. Continuing co-operation between all responsible agencies is considered essential for the integrated management of Auckland's volcanic features.*

3. *Provision is to be made in district plans and in the Regional Plan: Coastal to control the location, size and height of buildings and other structures on land or in the coastal marine area under the volcanic cone viewshafts listed in Appendix L.*

3A. *The ARC shall identify, including through the use of maps, those parts of the volcanic features that are described in Appendix B but not shown on Map Series 2a or 3a, and through a future change to the ARPS, will change Map Series 2a to reflect this identification work.*

4. *Territorial Authorities shall identify and appropriately protect locally significant volcanic features (including, where appropriate, areas referred to in Policy 6.4.19.2(iii) or identified*

through Method 6.4.20.3A), and locally significant views to and between the volcanic cones.

5. ***Territorial Authorities are to make provision in their district plans for Height Sensitive Areas around the volcanic cones listed in Appendix L or on intervening landforms where the potential arises for development to intrude into the viewshaft.***
6. ***Territorial Authorities are to control the location, size and height of buildings and other structures in these Height Sensitive Areas to provide a visual buffer around the volcanic cone and/or to maintain visibility within the viewshafts.***
7. ***Where the maximum permissible building height in any Height Sensitive Area underlying a viewshaft offers the potential for development to penetrate the floor of the viewshaft, Territorial Authorities are to control such development so as to reduce adverse effects on protected views to the greatest practicable extent, including prohibiting development that breaches the height restrictions where appropriate.***
8. ***Local authorities and road and rail controlling authorities shall manage vegetation within the land they control, (including the volcanic and other reserves) and any structures such as signs associated with the operation of the reserve, road or rail to ensure that the maintenance of views to the volcanic cones provided by the viewshafts listed in Appendix L, or of the volcanic cones from adjacent roads has been taken into account.***
9. ***District plan provisions relating to the protection of trees and other vegetation should in appropriate circumstances, enable the trimming or removal of vegetation to maintain the viewshafts.***
10. ***District plans are to specify a process to be followed to determine the appropriate course of action when previously unidentified volcanic features of potential significance are discovered during the planning and implementation of new development. This process is to include measures to ensure that the values of the feature are recorded using appropriate techniques.***
11. ***To provide for transit oriented redevelopment (TOD) around the Panmure train station and the growth of Panmure, viewshafts W7 and W8 will be replaced by viewshafts to maintain and enhance the protection of views to Mt Wellington/Maungarei once planning for the redevelopment is complete. The design and planning process for Panmure TOD should take this method into account.***

6.4.21 Reasons: Volcanic Features and Viewshafts

Policies 6.4.19 and Methods 6.4.20 address the management of volcanic features in the Auckland Region and in particular, Regionally Significant Volcanic Features. The Regionally Significant Volcanic Features are described in Appendix B. The volcanic cones are identified as being Outstanding Natural Features on Map Series 2a, as well as being in the group of Regionally Significant Volcanic Features. Method 3a requires that the ARC identifies, including through the use of maps, the extent of the Regionally Significant Volcanic Features that are described in Appendix B but not mapped on Map Series 2a or 3a. Further defining the extent of the Regionally Significant Volcanic Features described in Appendix B will provide greater certainty for future regional infrastructure projects and other development proposals.

Activities outside of the regionally Significant Volcanic Feature reserves have the potential to adversely affect the values of the features. While the most visually significant areas of the volcanic cones and their aprons are protected by the volcanic viewshafts in this RPS and by the inclusion of Height Sensitive Areas in the relevant district plans, activities adjacent to the cones and to other Regionally Significant Volcanic Features have the ability to adversely affect their heritage values. These include new development, which may inhibit access to the volcanic feature, or development that is of a scale or location that dominates the local landscape and reduces the visual significance or amenity values of the volcanic feature. In addition, some features may extend beyond the boundaries depicted in the district plan maps. Although these areas may be significantly modified or developed, they are nevertheless still part of the feature and may retain some significant elements of the values identified and may also be considered to have local significance. In these areas, district plan provisions must ensure that activities are managed or enhance any such significant residual values. Policy 6.4.19.2(iii) addresses the relationship between the Regionally Significant Volcanic Feature, other parts of the feature, and its wider environment.

It is possible that other features of geological significance, either associated with significant volcanic features, or

with the wider volcanic field, may be discovered only when development is proposed for a site – in particular there are likely to be several undiscovered lava caves in the region. In these circumstances, an approach that is different to that required for identified features of significance may be appropriate depending on the respective nature and significance of the feature and of the development. Such an approach may include regulatory and/or non-regulatory responses. Method 6.4.20.10 requires district plans to specify the process to be undertaken to determine the appropriate course of action, but establishes as a minimum that the nature and value of the feature must be recorded.

The volcanic features have a range of values that are identified in Issues 6.2.5 and 6.2.6. Further information on the values of many of these features is also contained in Appendix B of this RPS. Objective 6.3.7 and the Policies in 6.4.19. afford a high level of protection to the Regionally Significant Volcanic Features and in particular the volcanic cones, in recognition of their international, national and regional significance and their strong association with the character and identity of the Auckland Region. The Regionally Significant Volcanic Features are also finite resources that cannot be created elsewhere. Once lost or significantly modified, they cannot be restored or re-created. Hence the focus of the policy is on the protection of values and avoidance of the adverse effects of activities, such as buildings, structures and earthworks or land disturbance, that are physically or visually intrusive.

Smaller scale volcanic features such as lava caves and exposures are important for their geological and scientific values, and sometimes for their historical and recreational values. Retaining the existing range and diversity of features is important as part of the overall volcanic heritage of the Auckland Region.

Method 6.4.20.3 requires Territorial Authorities to protect locally significant volcanic features and locally significant views to and between the volcanic cones. In the management of volcanic soils, the provisions of Chapter 12, Soil Conservation are relevant. A number of the volcanic cones have areas in public ownership, held and managed under the Reserves Act 1977. However, privately owned land generally surrounds the cones and covers the wider volcanic apron. In some cases, privately owned land extends significant distances up the slopes of the actual cone (eg Mt Eden, Mt Albert, Mt Hobson and Mt St John). Larger areas of the Region's explosion craters and tuff rings are in private ownership, although parts of these features are in public ownership.

The volcanic features are in public ownership they provide critical areas of open space within Auckland's urban area. Being public land there is also the expectation of free and full public access, where this access is consistent with the protection of the natural and physical environment of the volcanic feature. Policy 6.4.19.2 requires that the provision of public access to, and recreation on, the publicly owned Regionally Significant Volcanic Features be consistent with the protection of the values of the feature. Many of the volcanic cones have located on, or within them, existing water supply infrastructure, including reservoirs. The existing water supply infrastructure requires maintenance and on occasion, may require replacement. Policy 6.4.19.2 is not intended to prevent or unreasonably hinder the continued operation, maintenance or replacement of the existing water supply infrastructure. However, it is expected that, wherever possible, such works will be preferably within the 'footprint' of existing development or, where that is not possible, in areas of the feature that are already modified.

An integrated approach to the management of the Region's volcanic features is required to ensure that their values are identified and protected and their relationship with the surrounding area is maintained. This approach involves integration among agencies (eg. TAs, ARC, DoC and private trusts such as the Cornwall Park Trust Board and requiring authorities) and between legislation, particularly the Reserves Act 1977 and the Resource Management Act 1991. Policies 6.4.19.1 and 6.4.19.2 and Method 6.4.20.2 address this issue.

Volcanic features that may not be identified as regionally or locally significant may still, nevertheless, contribute cumulatively to the volcanic landscape character of the region. Local authorities may utilise mechanisms available to them in the appropriate management of these broader landscape values, in addition to identifying and protecting features of significance, as required by this ARPS. These include mechanisms available under other legislation, such as reserve management plans, Methods 6.4.20.1 and 2 address this broader range of management responses.

Historically, views to and the general visibility of the volcanic cones have been identified and protected in

regional and district plans. This protection continues in this RPS through Objective 6.3.8, Policies 6.4.19.3, 4 and 5 and Methods 6.4.20.1 and 3 to 9 and by the inclusion of the viewshafts in Map Series 4a. These viewshafts identify regionally significant views to the cones from public viewing locations in Auckland, Manukau and North Shore Cities and in the Coastal Marine Area. The viewshafts are also included in the relevant district plans and in the Auckland Regional Plan: Coastal. District plans also identify Height Sensitive Areas on or near the cones, or on intervening landforms, where these approach the floor of one or more viewshaft. Within these areas controls are placed on the height, location and size of buildings and other structures to maintain the general visibility of the volcanic cones within the urban landscape. Many of the viewshafts originate from lengths of the motorway network. To take account of the view or views seen from moving vehicles, these viewshafts do not have a single point of origin, but extend over a length of between 125 and 800 metres. This means that structures associated with the operation of the motorway such as lights, signage gantries and safety barriers may intrude in a transient manner into the viewshaft along the linear point of origin. Policies 6.4.19.4 and 5 and Methods 6.4.20.1 and 3 to 8 are not intended to hinder the erection of such structures in the viewshaft. However if there is flexibility in terms of motorway operational requirements to locate these structures outside the viewshafts, this option should be taken. Consideration should be given to the effects of new motorway development or significant redevelopment, involving major structures, such as on and off ramps, on the volcanic viewshafts and the options for avoiding, remedying or mitigating such adverse effects on them.

All the viewshafts have been, or will be, surveyed and their limits are described in three dimensional co-ordinates (relative to the Mt Eden Circuit, the National Mapping Grid and Mean Sea Level). This data is included in the relevant district plans and regional plans. This level of data makes it possible for persons owning land over which a viewshaft passes, to establish by means of survey methods, the height to which buildings or structures may be erected on that land, without penetrating the floor of the protected viewshaft.

The protected viewshafts originate at public areas and generally identify a view to a cone that is often along a major road, and in particular Auckland's urban motorway system. Methods 6.4.20.7 and 8 recognise the need to control vegetation to maintain the viewshafts. Local public viewing points to the volcanic cones and their associated reserves are often available from adjacent roads. Hence ensuring that vegetation along these roads and in the reserves themselves do not compromise views to the cones is important.

While the viewshafts identified in this ARPS protect the most iconic and important views to the cones, Policy 6.4.19.3 identifies that other methods may also be required to maintain their overall contribution to the landscape character of the Auckland isthmus. In particular, the identification and protection of views between the cones, and of locally significant views to cones, as required by Method 6.4.20.4. The landscape values of the cones are also to be protected through the identification of height sensitive areas around the cones and on landforms where there is potential for development to intrude into identified viewshafts, as required by Method 6.4.20.5. The appropriate management of vegetation in transport corridors, as required by Methods 6.4.20.8 and 9 is also important for maintaining the contribution of the cones to overall landscape character and quality. District plans may also include other provisions such as zones and character overlays to maintain these landscape values.

6.4.2219: Policies: Landscape

The following policies and methods give effect to Objectives 6.3.4, 6.3.5, 6.3.6 and 6.3.9.8.

1. Outstanding Natural Landscapes identified in Map Series 3a and described in Appendix F shall be protected by ensuring subdivision, use and development in these areas is appropriate in terms of its type, scale, intensity and location, and is undertaken in such a way that it:

- ***(i) maintains the primacy of naturalness in these landscapes and ensures that built elements are subservient to this naturalness;***
- ***(ii) maintains the visual coherence and integrity of the landscape;***
- ***(iii) maintains significant natural landforms, natural processes and significant vegetation areas and patterns;***
- ***(iv) maintains the visual or physical qualities that make the landscape iconic, rare or scarce at the national, regional or district level;***

(v) manages adverse effects on the components of the natural character of the coastal environment consistent with Policy 7.4.4;

(vi) avoids, remedies or mitigates adverse effects on the natural character of wetlands, lakes, rivers and their margins, with particular regard being given to the avoidance of significant adverse effects on those wetlands, lakes, rivers and their margins specifically identified for their natural values in regional and district plans;

(vii) recognises and provides for ongoing primary production, (excluding large scale factory farming) as part of a working landscape, particularly in outstanding natural landscapes where pastoral land dominates;

(viii) accommodates regionally significant infrastructure, where it meets the requirements of Policies 6.4.22.8 and 9;

(ix) enables the operation of existing mineral extraction sites provided that;

(a) adverse visual effects on the Outstanding Natural Landscape are avoided, remedied or mitigated;

(b) further expansion of extraction activities into an Outstanding Natural Landscape is avoided, unless there are no practicable alternatives;

(c) management and rehabilitation plans for the extraction site are commensurate with the degree of adverse effects on the natural landscape values of any affected Outstanding Natural Landscape;

(x) avoids adverse cumulative effects and is consistent with Policy 6.4.22.4.

(xi) supports the achievement of long term certainty in the management of Outstanding Natural Landscapes through regional or district plan provisions.

(xii) is consistent with the Strategic Objectives and the Strategic Policies for Urban Containment and Rural Areas and the associated methods of Chapter 2 of this RPS.

2. In amenity landscapes significant landscape elements, processes and patterns shall be maintained and where practicable enhanced, where they :

(i) Contribute positively to the character and quality of the landscape and to its amenity value including its aesthetic coherence;

(ii) Avoid, remedy or mitigate the adverse visual and amenity effects of subdivision, use and development.

3. Subdivision, use and development in landscapes adjoining Outstanding Natural Landscapes should have regard to its adverse physical and visual effects on the Outstanding Natural Landscape and should manage these effects to:

(i) maintain significant landforms and indigenous vegetation and habitats that are also significant elements or patterns in the Outstanding Natural Landscape to protect the visual and biophysical linkages between the two areas;

(ii) avoid locating significant built elements on the boundary with an Outstanding Natural Landscape, and in particular Outstanding Natural Landscapes within:

(a) regional parks;

(b) Department of Conservation estate;

(c) significant local reserves;

(d) the coastal marine area .

4. In determining whether subdivision, use and development contributes to adverse cumulative effects on Outstanding Natural Landscapes, as required by Policy 6.4.22.1 (xi) an overall judgement shall be made on whether it;

(i) has significant adverse visual and physical effects immediately beyond the boundary of the site;

(ii) reduces the visual and aesthetic coherence and integrity of the wider landscape unit;

(iii) reduces landscape quality and diversity of the local area or within the district, or across the wider Auckland Region;

(iv) if the landscape is iconic, rare or scarce at the national, regional or district level whether the adverse effects result in a loss or a reduction

of the landscape qualities that make the area iconic, rare or scarce;

5. *Restoration and enhancement of degraded landscapes shall be encouraged through appropriate land management practices.*

6. *Subdivision incentives associated with restoration and enhancement initiatives may be appropriate where:*

   (i) *the scale, and intensity of any subdivision is commensurate with achieving significant environmental benefits;*

   (ii) *built development associated with such subdivisions is able to be visually accommodated without adversely affecting the naturalness of Outstanding Natural Landscapes;*

   (iii) *it achieves the environmental outcomes specified in Policy 6.4.22.1 (i) to (vii) and (xi)*

   (iv) *it is consistent with the Strategic Policies for Rural Areas in Policy 2.6.17.1 to 4 of Chapter 2: Regional Overview and Strategic Direction;*

(See also Policy 6.4.10: Restoration of natural heritage)

7 9. *The identification of landscape values on the islands and coastline within the Hauraki Gulf, and their protection and management shall recognise and provide for the management objectives stated in Section 8 of the Hauraki Gulf Marine Park Act 2000.*

8. *New regionally significant infrastructure in Outstanding Natural Landscapes should achieve the environmental outcomes in Policy 6.4.22.1 (i) to (vii) and (xi) and shall:*

   (i) *avoid Outstanding Natural Landscapes that are unique, rare or iconic in the Auckland region;*

   (ii) *avoid significant adverse effects on:*

      (a) *hilltops and high points that are publicly accessible scenic lookouts, particularly where the infrastructure involves towers, poles, pylon, turbines or other tall structures;*

      (b) *high use recreation areas;*

      (c) *recognised popular swimming and surfing beaches and vessel anchorage areas;*

      (d) *landscapes that are predominantly in indigenous vegetation and/or include site specific areas identified in Appendix B for their ecological or geological values;*

      (e) *the Waitakere Ranges Heritage Area, regional parks, Department of Conservation estate significant local reserves and the coastal marine area;*

      (f) *view shafts from specified points in regional parks that are mapped in the Regional Parks Management Plan 2010;*

9. *Where regionally significant infrastructure proposes to locate in an Outstanding Natural Landscape, the following matters shall be considered in making an overall judgement about the requirements of the infrastructure and the protection of Outstanding Natural Landscapes:*

   (i) *the degree to which the proposed infrastructure implements the strategic infrastructure policies 2.6.14 of Chapter 2: Regional Overview and Strategic Direction;*

   (ii) *whether the infrastructure is for the generation of renewable electricity, or for the provision of local and community self sufficiency, such as at Great Barrier Island;*

   (iii) *whether the technical or operational requirements of the infrastructure means that there are no practicable alternative locations outside of the Outstanding Natural Landscape area;*

   (iv) *the type, scale and extent of adverse effects , including:*

      (a) *adverse effects arising from route and/or site selection for the infrastructure;*

      (b) *adverse effects arising from design, location and layout of the infrastructure;*

      (c) *the extent to which the environmental outcomes listed in Policies 6.4.22.1 and 6.4.22.8 will be achieved:*

   and the extent to which these adverse effects can be avoided, remedied or mitigated.

10. *The operation, maintenance and replacement of existing regionally significant infrastructure shall be enabled in Outstanding Natural Landscapes,*

while avoiding, remedying or mitigating adverse visual effects on the key landscape elements, patterns and processes of these areas and meeting the environmental outcomes of Policy 6.4.22.1 (i) to (vii) and (xi) to the extent practicable;

11. Where upgrading or extensions of existing regionally significant infrastructure will have significant adverse effects on Outstanding Natural Landscapes, it shall be assessed under Policies 6.4.22.8 (ii) and 6.4.22.9.

12. New and upgraded regionally significant infrastructure that has significant adverse visual and physical effects on Outstanding Natural Landscapes shall undertake environmental compensation that may include enhancement of the affected Outstanding Natural Landscape area;

~~*1. Subdivision, use and development of land and related natural and physical resources shall be controlled so that in areas identified in Map Series 2 and 3:*~~

~~*(i) the quality of outstanding landscapes (landscape rating 6 and 7) is protected by avoiding adverse effects on the character, aesthetic value and integrity of the landscape unit as a whole;*~~

~~*(ii) outstanding landscapes with a sensitivity rating of 6 or 7 are protected by avoiding subdivision, use and development which cannot be visually accommodated within the landscape without adversely affecting the character, aesthetic value and integrity of the landscape unit as a whole;*~~

~~*(iii) the quality of regionally significant landscapes (landscape rating 5) is protected by avoiding adverse effects on the elements, features and patterns which contribute to the quality of the landscape unit;*~~

~~*(iv) regionally significant landscapes with a sensitivity rating of 5 are protected by ensuring that any subdivision, use and development can be visually accommodated within the landscape without adversely affecting the elements, features and patterns which contribute to the quality of the landscape unit.*~~

~~*2. In those rural areas not rated as being outstanding or regionally significant landscapes and in urban areas, the elements, features and patterns which contribute to the character and quality of the landscape and to its amenity value, or which help to accommodate the visual effects of subdivision, use and development, shall be protected by avoiding, remedying, or mitigating any adverse effects on them.*~~

~~*3. Subject to Policy 6.4.19-1 above, subdivision, use and development on regionally significant ridgelines shall be controlled so that there are no significant adverse effects, including cumulative effects, on the landscape quality and integrity of the ridgelines.*~~

~~*4. The views of volcanic cones, which are indicated in Map Series 4, are to be preserved, and intrusion into the defined viewing shafts by buildings or structures shall be avoided.*~~

~~*5. The use or development of land and related natural and physical resources is to be controlled so that the visibility of volcanic cones is maintained or enhanced.*~~

6.4.230 Methods: Landscape

1. Councils shall identify Outstanding Natural Landscapes in its RMA plans by relevant techniques that may include mapping, and shall include provisions, including rules to manage subdivision, use and development in these areas in a way that gives effect to Policies 6.4.22.1 to 6.4.22.10.

2 Councils shall control the subdivision of land in Outstanding Natural Landscapes identified in Map Series 3A by using a range of appropriate techniques that may include:

(i) avoiding further subdivision, particularly where Outstanding Natural Landscapes are also areas of high natural character and areas of significant indigenous vegetation and significant habitats of indigenous fauna;

(ii) encouraging the use of existing approved certificates of title, rather than the creation of new subdivisions when establishing subdivision rules in these areas.

(see also Policies 2.6.17- Strategic Policies- Rural Areas of Chapter 5 Regional Overview and Strategic Direction.)

3. Councils shall use suitable methods in its RMA plans to maintain the landscape quality and diversity of Outstanding Natural Landscapes, and these

methods may include:

(i) Controls on the establishment and location of new buildings and other significant structures, including infrastructure and controls on their scale and design (including colour and materials);

(ii) Controls on the earthworks including their scale and nature, and other land disturbing activities, that may adversely affect important landforms and landscape, and controls on mineral extraction activities where these are proposed within an Outstanding Natural Landscape;

(iii) Controls on the clearance of significant indigenous vegetation;

(iv) Controls to maintain and enhance rivers and streams and their riparian margins for their contribution to landscape quality;

(v) Criteria for the assessment of proposals involving the use and development of renewable energy resources or new mineral resources in Outstanding Natural Landscapes.

(vi) The use of mechanisms listed in Method 6.4.2.2 to encourage and support landscape protection, management, restoration and enhancement.

4. Councils may identify in their RMA plans by appropriate methods, other rural, coastal, island and urban landscapes that have high amenity values, and should include provisions that maintain and as appropriate enhance these values.

5. Councils should adopt consistent landscape assessment methodologies to enable integration of landscape assessment findings at the regional and district level and to enable monitoring of changes in landscape quality and diversity across the Auckland Region over time.

~~*1. Provision is to be made in district plans and relevant regional plans to give effect to Policies 6.4.19-1, 2 and 3.*~~

~~*2. Provision is to be made in district plans and relevant regional plans to control the location, size and height of buildings and structures in the height sensitive areas and in the viewing shafts indicated in Map Series 4, so as to give effect to Policies 6.4.19-4 and 5.*~~

~~*3. The ARC will, after consultation with interested persons and organisations, prepare and publish guidelines on a standard methodology for the assessment and evaluation of landscape within the Region.*~~

6.4.241: Reasons: Landscape

Outstanding Natural Landscapes shown in Map Series 3a have been identified and described in two regional landscape assessments. The first assessment, based on a public preference survey of what types of landscape are outstanding within the context of the Auckland Region, identified two types of Outstanding Natural Landscapes. The first type is a "wild nature" landscape, where there is little or no evidence of human presence or modification and indigenous vegetation patterns dominate. These wild nature landscapes include those areas closest to the pristine natural state. The second type of Outstanding Natural Landscape is one where "cultured nature" is evident. An example of a cultured nature Outstanding Natural Landscape is one where there is a picturesque mix of bush and pastoral land. In these instances some types of exotic vegetation, such as mature oak trees and the presence of pasture are viewed as important components of Outstanding Natural Landscapes.

In both wild nature and cultured nature landscapes, the key factor that distinguishes an Outstanding Natural Landscape in the Auckland Region, is the absence of, or the minimal presence of human artefacts or buildings. Where buildings and other structures are present, they are subservient to the overall naturalness of the landscape. Such structures can include those used for normal farming practices such as fences, stockyards, pump houses and barns.

The same landscape units were subsequently assessed using criteria accepted by the Environment Court for the assessment of Outstanding Natural Landscapes. There is a high level of consistency between the results of the two assessments. Explanations of the two landscape assessment methodologies and the assessment results for the ninety-two Outstanding Natural Landscapes identified on Map Series 3a are contained in Appendix F.

Objective 6.3.4 reflects the specific requirements of Section 6(b) of the RMA. Policy 6.4.22.1 provides guidance on what is appropriate subdivision, use and development in Outstanding Natural Landscapes, with

a key focus on maintaining high levels of naturalness, the critical distinguishing component of an Outstanding Natural Landscape. This means that any subdivision, use and development needs to be carefully managed in terms of its type, scale, intensity and location to ensure that the introduction of further individual and cumulative built elements does not dominate over the natural characteristics.

Policy 6.4.22.1 also sets out other outcomes that need to be achieved. These include: consideration of natural and physical landscape factors identified in national landscape assessment criteria; identifying specific areas for particular management attention, eg lakes, rivers, wetlands and their margins; acknowledging the role of primary production activities; and requiring consistency between the management subdivision, use and development in Outstanding Natural Landscapes and the overall strategic policies of this RPS.

Method 6.4.23.2 acknowledges the role of land subdivision as the key precursor to the form and intensity of future land use and development and requires that subdivision be controlled in Outstanding Natural Landscapes. The method provides flexibility as to the type of techniques to be used, but encourages avoidance of further subdivision in areas with multiple RMA section 6 values.

The use of existing approved Certificates of Title for new development, rather than the subdivision of further lots is also encouraged in all Outstanding Natural Landscapes.

However many Outstanding Natural Landscapes in the region, particularly those characterised by cultured nature, are also working landscapes, used for a range of primary production purposes, extractive industries and regional infrastructure. Primary production activities are recognised as being part of an Outstanding Natural Landscape in Policy 6.4.22.1 (vii) and the operation of existing mineral extraction sites is provided for in Policy 6.4.22.1(ix). Policies 6.4.22.8 to 6.4.22.12 provide guidance on how the requirements of regionally significant infrastructure should be assessed against the protection of Outstanding Natural Landscape values.

Other landscapes in the Auckland Region, including urban landscapes, are important for their high amenity values. These other landscapes are not specifically identified in this RPS. However Policy 6.4.22.2 and Method 6.4.23.4 encourage district plans and the regional coastal plan to identify and manage adverse effects of subdivision, use and development on landscapes that are important to regional and local amenity values.

In rural, coastal and island areas, amenity landscape management should focus on maintaining the key elements, processes and patterns that make these areas visually attractive, or contribute to their unique character. These may include the presence of significant ridgelines, slope faces or other prominent landforms, the amount and patterning of indigenous vegetation or significant stands of attractive exotic trees, the presence of water bodies such as lakes, wetlands or estuaries, the naturalness of the margins of the water bodies and the interplay between landform, vegetation and water.

In urban landscapes the focus may be on the presence of historic buildings or precincts, the maintenance or enhancement of public open space and streetscapes, or building densities and design to ensure local character and amenity are maintained. The maintenance and enhancement of remaining natural areas and feature, such as natural streams also contributes to urban amenity values.

This ARPS does not prescribe particular techniques for particular landscape areas, as this level of detail is more appropriately contained in district plans and the regional coastal plan. However Method 6.4.23.3 identifies a number of techniques that may be used to maintain landscape values.

Maintaining the natural qualities of Outstanding Natural Landscapes is also affected by the management of adjacent areas. Policy 6,4.22.3 identifies circumstances where there is a need to consider the adverse effects of subdivision, use and development occurring outside the Outstanding Natural Landscape on the natural landscape values within Outstanding Natural Landscape areas. Particular attention is given to retaining the continuity between significant landforms and areas of indigenous vegetation areas that cross landscape unit boundaries. Careful management of land on the boundary of major reserve areas can benefit both public and private landscape values.

Policies 6.4.22.1(x) and 6.4.22.4 require that the role of adverse cumulative effects in modifying landscape character be addressed in Outstanding Natural Landscapes. In many situations, an individual building or other structure may not have significant adverse effects on landscape character, but the cumulative effect of subdivision, use and development across the district

and the Region may be adverse in terms of significant landscape change.

In the Auckland Region, the most significant adverse cumulative effect on rural, coastal and island landscapes has been the increasing expansion and density of countryside living subdivision and an accompanying increase in the size and visual presence of rural and coastal houses and related development. This means that areas that were previously sparsely populated by buildings are fewer and the rural, coastal and island landscapes are becoming increasingly similar in terms of the presence of rural residential buildings. This has led to a reduction in the naturalness of the Region's landscapes and a loss of district and regional landscape diversity. This not only affects the ability of the Region's community to use and enjoy its natural and physical environment, but also does not take account of the needs of future generations.

Policy 6.4.22.1(xii) sets the landscape provisions of this chapter within the strategic framework for growth management set out in Chapter 2; Regional Direction. It requires that decisions made on landscape matters are consistent with the achievement of regional growth management objectives and policies.

The maintenance of Outstanding Natural Landscapes and the restoration of degraded landscapes requires management of the landscape's elements and features and restoration and enhancement initiatives. Active management may include weed and pest control and the fencing of water bodies or indigenous bush areas to prevent stock access. These land management initiatives are recognised and supported by Policy 6.4.22.5.

Restoration and enhancement actions are often undertaken independently by landowners as part of ordinary property management. However in recent years, larger scale restoration and enhancement involving the replanting of pasture land back into indigenous bush has been accompanied by subdivision incentives. Policy 6.4.22.6 acknowledges that subdivision may sometimes facilitate landscape restoration, but it identifies the need to ensure that subdivision is linked to the achievement of significant environmental benefits. The policy also recognises that there is a need to consider the visual effects of further subdivision and accompanying houses in the landscape and ensure that adverse effects do not outweigh proposed benefits.

The Hauraki Gulf Marine Park Act 2000 gives special status to the islands and waters of the Hauraki Gulf. Section 8 of that Act contains a number of management objectives that must be recognised as matters of national significance. Policy 6.4.22. requires that landscape management of the coastline of the Hauraki Gulf and its islands recognises and provides for this imperative.

Some Outstanding Natural Landscapes contain existing regionally significant infrastructure. The storage lakes, dams, pipelines and related infrastructure associated with the bulk water supply systems in the Waitakere and Hunua Ranges is a particular example. Policies 6.4.22.10 and 6.4.22.11 and Method 6.4.23.3 acknowledge that this infrastructure needs to be maintained and upgraded. In Outstanding Natural Landscapes this work needs to consider how it impacts on the key landscape elements, patterns and processes. The adverse visual effects may range from de minimus to significant depending on the nature and scale of the maintenance and upgrading work and the type of infrastructure. This variability in scale of adverse effects and the requirement to have additional assessment provisions where significant adverse effects are likely is recognised in Policy 6.4.22.11. The opportunity to undertake environmental enhancement is recognised in Policy 6.4.22.12.

New regionally significant infrastructure providers may want to locate in Outstanding Natural Landscapes. Policy 6.4.22.8 (i) directs this infrastructure away from Outstanding Natural Landscapes that are unique, rare or iconic in the region. Policy 6.4.22.8 (ii) identifies areas where significant adverse effects are to be avoided. Policy 6.4.22.9 acknowledges that the requirements of regionally significant infrastructure and the protection of Outstanding Natural Landscapes may be in conflict and it provides criteria for making an overall judgement about what best achieves the purpose of the RMA.

Identifying valued landscape areas at both the regional and district level and monitoring changes in these landscapes requires on-going landscape assessment. Landscape assessment in the Auckland Region has used a number of different techniques that have limited comparison of results among areas and over time. While Method 6.4.23.5 does not prescribe the use of one particular landscape assessment methodology, it does encourage the adoption of compatible methodologies by all local authorities involved in landscape management. Guidance on appropriate landscape assessment methodologies may be provided through relevant

national policy statements.

~~Outstanding landscapes are those which are identified as being major visual elements in the Auckland Region, such as the Waitakere Ranges, or which are unique and/or extremely attractive, such as those with landscape quality values of 6 and 7 in Map Series 2. Regionally significant landscapes are representative of the special landscape qualities of the part of the Region in which they are located and are those areas with a landscape quality value of 5 in Map Series 2.~~

~~The intention of the policies is to protect the aesthetic and visual quality, character and value of the major and unique landscapes from inappropriate subdivision, use and development. Policy 6.4.19.1 does this by requiring the avoidance of adverse effects on the whole landscape unit in outstanding landscape areas. This recognises that the landscape value of these units is derived from a combination of qualities and values which together give them an outstanding rating. These qualities and values usually mean that the units are also extremely sensitive to the visual effects of use and development. In Regionally Significant Landscapes, the emphasis is on the protection of the elements, features and patterns which contribute to the quality of the landscape unit (Policy 6.4.19-1 (iii) and(iv)).~~

~~In other parts of the Region, including urban areas which are not presently covered by a comprehensive regional landscape assessment, there are elements, features and patterns which contribute to the maintenance and enhancement of the visual quality of these areas. Policy 2.6.1.2 requires that urban containment and consolidation within existing urban areas be undertaken in a way which maintains or enhances amenity values. Appropriate protection of urban landscape elements, features and patterns is important in achieving high urban amenity standards. Avoiding, remedying, or mitigating adverse effects on the elements, features and patterns which contribute to landscape quality in all landscapes also maintains the overall quality and diversity of character of Auckland's landscapes which is sought in Objective 6.3(4).~~

~~The individual factors which contribute to the quality and sensitivity of both outstanding and regionally significant landscape vary throughout the Region, depending on the particular landscape. These factors include the presence of prominent ridgelines and slopes, the pattern of vegetation, particularly indigenous vegetation and the presence of bodies of water. Further information on this is contained in Appendix F – Landscape Evaluation Methodology.~~

~~The outstanding and regionally significant landscapes identified in Map Series 2 are derived from the report An Assessment of the Auckland Region's Landscape (Planning Department, ARC, 1984) and were subject to public preference tests. Appendix F provides an explanation of the methodology used in this landscape assessment work.~~

~~The ARC proposes to progressively update the 1984 assessment of the rural areas of the Region and to expand the regional landscape assessment process to urban areas and other parts of the Region not presently covered. The first step is the publication of guidelines for a standard methodology for landscape assessment and evaluation. This is to encourage the adoption of compatible and integrative assessment methods by all agencies in the Region undertaking landscape assessment work. As part of the preparation and publication of the landscape assessment methodology guidelines, the ARC will provide opportunities for public input, consultation and contestability.~~

~~The Auckland Regional Planning Scheme, 1988 provided visual protection of a number of Auckland's volcanic cones. These policies are carried forward into the RPS. The listed cones are Takarunga (Mt Victoria), Maungawhau (Mt Eden), Te Kopuke (Mt St Johns), Owairaka (Mt Albert), Maungakiekie (One Tree Hill), Otahuhu (Mt Richmond), Maungauika (North Head), Remuwera (Mt Hobson), Maungarei (Mt Wellington), Koheraunui (Big King of the Three Kings), Puketapapa (Mt Roskill), and Mangere Mountain.~~

~~It is intended to review the details of the sight-lines protection through regional plan provisions or a plan change to the RPS. This review will be carried out in association with the TAs.~~

6.5 Environmental Results Anticipated

It is anticipated that these policies and methods will result in the following outcomes:

(a) significant natural and cultural heritage resources will be preserved or protected;

(b) loss and degradation of heritage resources will significantly diminish;

(c) significant views of volcanic cones and landscapes

will be protected;

(d) changes that occur within Outstanding Natural Landscapes will sustain the values associated with those areas.

(e) the diverse range of valued landscapes will be maintained;

(~~d~~f) public access to heritage resources will be maintained where this does not create unacceptable adverse effects;

(~~e~~g) the relationship of Tangata Whenua with their ancestral taonga will be recognised and provided for;

(~~f~~h) some heritage resources will be enhanced and restored;

(~~g~~i) public awareness of the issues and values associated with heritage resources will increase.

6.6 Monitoring

~~The ARC in conjunction with TAs~~ Councils will develop and maintain monitoring systems and databases to monitor cultural heritage, natural areas and their ecological processes by:

(i) recording and collating the loss of heritage resources as a result of approved activities from the regional and district consent processes;

(ii) monitoring the effectiveness of policies designed to preserve or protect heritage resources areas in district and regional plans;

(iii) keeping regional totals, by heritage type, of the additions to the protected estate in order to assess whether a diverse and representative range of heritage resources is being preserved or protected;

(iv) establishing, in conjunction with relevant agencies, a base line of the natural area coverage in the Region by the use of regular aerial photography;

(v) monitoring trend and status conditions of key ecological processes and ecosystems;

(vi) establishing relevant monitoring systems with Tangata Whenua;

(vii) the state of ~~o~~Outstanding and ~~regionally significant~~ Natural ~~l~~Landscapes will be surveyed and reported on in the State of the Environment report, at intervals of not less than 15 years;

(viii) the visibility of, and views to, the volcanic cones identified in Map Series 4 will be monitored and reported on at intervals of not less than six years.

7.1 Introduction

The coastal environment contributes to the sense of place, character, heritage, recreational qualities and economic opportunities that give the Auckland Region its distinctive and unique identity. The relatively short distance between the east and west coasts, the extensive harbours, estuaries and embayments and the myriad of islands in the Hauraki Gulf give rise to an elaborate interweaving of land and sea.

The coastal environment of the Auckland Region is complex and diverse, with change occurring over short distances. It ranges from the intensive urban character of parts of the Waitemata Harbour, with its commercial, residential and recreational focus, through to the wild and rugged isolation of the west coast and the open space and natural values of parts of the Hauraki Gulf and its islands. In places, urban development abuts highly sensitive estuarine and harbour areas with high water quality and nationally significant wildlife habitats. Major infrastructure, urban and commercial uses share the coastal environment with recreational uses and amenity values. Activity on the land areas of the Region can have major and far-reaching effects on the quality, health and function of the marine areas. Although the coastal environment is a major proportion of the Auckland Region, the greatest pressure on coastal resources is concentrated in a relatively narrow band of land and water either side of Mean High Water Springs (MHWS).

The extent of the coastal environment of the Auckland Region varies from place to place, depending on the natural and physical characteristics. For the purposes of the RPS, the coastal environment is considered to include three interrelated parts. These are:

- Coastal Marine Area (CMA)
- active coastal zone
- landward component.

The extent of the coastal environment is determined by factors which principally test whether the coast is a significant element or part. These factors also recognise habitat, landform, landscape, cultural heritage and amenity values, the influence of coastal processes, flooding and surface runoff.

The RM Act in promoting sustainable management affords particular recognition to the coastal environment. The Minister of Conservation is required to prepare a New Zealand Coastal Policy Statement (NZCPS) which states policies for the sustainable management of the coastal environment. Additional to this mandatory national policy statement is the Hauraki Gulf Marine Park Act 2000 (HGMPA); the RPS must not be inconsistent with either piece of legislation. The Act also requires regional councils to prepare a regional coastal plan for the CMA within their regions. This is the only mandatory plan regional councils are required to produce. The Minister of Conservation retains certain management responsibilities within the CMA, such as approving the regional coastal plan, and being the consent authority for certain resource consent applications within the CMA. The HGMPA provides for integrated management of the Gulf across 21 statutes including the Resource Management Act, Conservation Act and Fisheries Act.

This chapter in conjunction with other chapters of the RPS, including (but not limited to) Chapter 3 – Matters of Significance to Iwi, Chapter 6 – Heritage and Chapter 8 – Water Quality, gives effect to the provisions of the RM Act and takes into account the policies of the NZCPS within the context of the significant coastal management issues of the Auckland Region's coastal environment. This chapter is not inconsistent with the HGMPA.

7.2 Issues

7.2.1 Auckland's coastal environment ranges from areas which are predominantly in their natural state to areas which have been highly modified. This needs to be taken into account when preserving the natural character of the coastal environment and protecting it from inappropriate subdivision, use and development.

The RM Act states that "the preservation of the natural character of the coastal environment and its protection from inappropriate subdivision, use and development" is a matter of national importance (section 6(a)). In the context of the Auckland Region, the coastal environment ranges from areas which are predominantly in their natural state, characterised by high natural character, to areas which due to human modification have some remaining elements of natural character. Accordingly, preserving areas of high natural character and the remaining elements present in modified areas, and protecting them from inappropriate subdivision, use and development, requires different provisions to ensure the promotion of sustainable management.

The Auckland Region also has a number of areas with ecological and landform values of international, national and Regional significance. Other areas have landscape or spiritual and cultural values which contribute to the Region's own unique identity. Also, the majority of cultural heritage resources are found within the coastal environment. These areas also require protection from inappropriate subdivision, use and development to ensure that their values and character are maintained.

7.2.2 Subdivision, use and development within the coastal environment needs to be in an appropriate location, and of an appropriate form, which meets the purpose of the RM Act.

In the Auckland Region, the scale and intensity of the population and associated urban growth makes demands on the resources and values of much of the coastal environment. In recognising these demands, a major issue facing Auckland is the need to sustainably manage the natural and physical resources of the coastal environment in a way which enables people and communities to provide for their social, economic and cultural wellbeing, and which preserves and protects natural character from inappropriate subdivision, use and development.

Activities such as urban development (including coastal settlements); more intensive rural subdivision of land adjacent to the coast; the development of Regional infrastructure facilities such as ports and network utilities and other activities which are dependent on a location in the coastal environment for their operation, enable people to provide for their social, economic and cultural wellbeing. Although these activities are important to the Auckland Region, if inappropriately located, or of an inappropriate form, they have the potential to result in unsustainable management of the resources of the coastal environment. Inappropriate subdivision, use and development can potentially result in the loss of vegetation, coastal ecosystems and natural features, and increase or exacerbate coastal erosion. Inappropriate subdivision, use and development can also lead to a reduction in water quality arising from increased runoff and sedimentation from the land and the discharge of contaminants from both land and water. These adverse effects, in isolation or combination, affect natural character, landscape values, amenity values and the intrinsic values associated with the natural functioning of coastal ecosystems. (See also Chapter 6 – Heritage, Chapter 8 – Water Quality and Chapter 12 – Soil Conservation.)

In providing for appropriate subdivision, use and development or protection, it needs to be recognised that the coastal environment is composed of finite resources that need to be used efficiently. For example, Auckland has a limited number of sandy beaches, sheltered harbours, coastal wetlands, gulf islands and limited areas of deep navigable water. These areas require protection from inappropriate subdivision, use and development to ensure that their values are maintained.

7.2.3 Some forms of subdivision, use and development are dependent on the natural and physical resources of the coastal environment for their operation and provision needs to be made for these in appropriate locations.

Some forms of subdivision, use and development are dependent on a coastal location for their operation. These activities include regional infrastructure such as port and wharf facilities, jetties, marinas, marine transport, marine farms, other water related industrial and commercial activities and the extraction of sand, shingle and shell. Other forms of use and development such as network utilities may need to use the coastal environment to meet technical or route requirements.

Port and wharf facilities are particularly significant physical resources and are important for the national and regional economy. There are numerous other minor wharves and harbour structures which are located in the coastal environment, which are important locations for cargo transport and ferry services, particularly to the islands of the Hauraki Gulf, or which serve other local needs. In addition, the Auckland coastal environment is the base for other water-related industries such as shipbuilding yards, vessel maintenance facilities and servicing of the fishing and aquaculture industries.

There is a need to provide for the efficient use and development of these activities to enable the Auckland community to provide for its social, economic and cultural wellbeing. However these activities need to be accommodated in a way that will result in the sustainable management of the natural and physical resources of the coastal environment.

7.2.4 Subdivision, use and development within the coastal environment has the potential to enhance or inhibit public access to and along the CMA.

A significant part of the coastal environment is in public ownership including esplanade and other reserves, most beaches and much of the CMA. However, parts of the coastal environment are subject to ownership claims by Iwi under the Treaty of Waitangi Act 1975.

The RM Act states that the maintenance and enhancement of public access to and along the CMA is a matter of national importance. The public has an expectation that access to, use and enjoyment of this publicly owned resource is in most cases freely available and that the CMA should be retained in public ownership. Subdivision, use and development, or occupation of space on land both adjacent to and within the CMA has the potential to limit, reduce or restrict completely public access to and along the coast. However, there are some circumstances where it will be appropriate to restrict the right of access to, and use of this area, or to provide exclusive occupation of parts of the CMA. Such circumstances include protecting conservation values, ensuring public health and safety, preventing or mitigating coastal erosion or ensuring security.

Plans, and resource consents need to ensure that public access to and along the CMA, to other publicly owned areas in the coastal environment as well as to and along the margins of lakes and rivers, is maintained and enhanced. It also needs to be acknowledged that coastal subdivision, use and development can, in some cases, provide the opportunity to enhance public access to, and use and enjoyment of, the coastal environment.

7.2.5 In many parts of the region there is a lack of understanding about coastal processes. Therefore, when providing for or assessing plan provisions or proposals relating to subdivision, use and development, or the protection of natural and physical resources, it is not always possible to determine with much certainty the likely environmental effects.

The coastal environment, particularly the interface between the land and water (the active coastal zone), is one of dynamic change with occasional extreme events and periods of flooding, erosion, inundation and other hazards. The effect that activities have on these processes, and the effects processes have on activities, is often not well understood and at times cannot be determined with much certainty. Consequently, when significant adverse effects may potentially arise it is necessary that a precautionary approach be taken when managing the subdivision, use, development and protection of the coastal environment to reduce the risk of significant environmental damage arising from uncertainty or lack of knowledge.

7.2.6 In some parts of the coastal environment recreation is a particularly important use which needs to be provided for in appropriate forms and locations.

Recreation is a particularly important use of the coastal environment enabling people and communities of the Auckland Region to provide for their social, economic and cultural wellbeing. Accordingly, plans need to provide for recreation in appropriate forms and locations while ensuring that any adverse effects on the environment can be avoided, remedied, or mitigated. Due to the range of recreational pursuits undertaken and the number of users, there is at times intense pressure on the natural and physical resources of the coastal environment. Moreover, there is also potential for conflict to arise between recreational users and between other users of the coastal environment.

7.2.7 Dredging is necessary in some parts of the CMA and the disposal of dredged material and other solid matter in the CMA needs to be provided for in a way which avoids significant adverse effects.

Due to the relatively shallow nature of much of the Auckland CMA and the continuing discharge of sediment from the land, there is an ongoing requirement to dredge parts of the CMA to provide deep water navigation channels, anchorages and berths and to provide access to, or for other facilities. Options for the disposal of the dredged material or other solid matter, such as clean fill or contaminated soils include disposal at sea and on land, or use in reclamations or erosion protection works, where this material is of appropriate composition.

The disposal of this material can have adverse effects on the coastal environment depending on the amount, and type of material to be disposed of, and the disposal location. Any significant adverse effects form the disposal of dredged material and other solid matter in the coastal environment should be avoided.

7.2.8 The coastal environment is of special value to Tangata Whenua.

The use, development and protection of the coastal environment is an important issue for Tangata Whenua. They hold that they have never willingly gifted, sold or transferred the resources of the coast. As a result, Tangata Whenua have made the following suggestions for action under the RM Act:

- The involvement of Iwi in managing the CMA resources (including transfers of responsibilities).
- The application of tribal tikanga to coastal activities including mahinga mataitai, mining and waste disposal.
- Ensuring that local authorities take into account Treaty claims involving the coastal area when dealing with resource consents so as not to prejudice the claim under consideration.
- That the adverse effects of activities on the harbours and coastal environment be avoided, remedied, or mitigated so as to protect ecosystems, fishery habitats, wetlands and cultural heritage resources.

7.2.9 Fragmented management of the land and water components of the coastal environment has, and could lead to, undesirable environmental outcomes.

The land and water areas that make up the coastal environment are inseparable components. Historically there has been a lack of integrated management due to the number of agencies which have had statutory powers and duties within the coastal environment.

The inter-relationships between the land and sea in the coastal environment are complex. Nature does not recognise the boundary of Mean High Water Springs (MHWS) between land and water in the coastal environment, e.g. coastal wetlands. Rivers carry runoff from inland areas to the sea. Both sea and land are integral components of coastal landscapes. Moreover, structures such as wharves, jetties and boat ramps span the land/water interface and therefore the administrative MHWS boundary between the ARC and TAs. This boundary splitsthe primary resource management responsibilities for land and water in the coastal environment.

The local government boundaries between the adjoining regional councils define the jurisdictional boundaries between the Auckland, Waikato and Northland regions (ie. the Firth of Thames and base of the Awhitu Peninsula in the south, and the Kaipara Harbour and Mangawhai in the north). This has resulted in areas such as the Kaipara Harbour and the Firth of Thames, which are naturally functioning ecosystems, being administered by two different regional councils, under different RPS and regional coastal plans. Other agencies also have statutory responsibilities under other legislation for the management of natural and physical resources in the coastal environment.

Achieving the environmental outcomes in relation to the key issue outlined above, through objectives, policies and methods of this chapter, requires an integrated management approach between all agencies with resource management responsibilities in the coastal environment.

7.3 Objectives

1. *To preserve the natural character of the coastal environment and to protect it from inappropriate subdivision, use and development.*
2. *To protect outstanding natural features and landscapes, areas of significant indigenous vegetation and significant habitats of indigenous fauna, and significant historic and cultural places and areas in the coastal environment.*
3. *To enable appropriate subdivision, use and development to be undertaken in the coastal environment.*
4. *To enable the use of the coastal environment for appropriate port purposes, other water-related industrial and commercial activities and network utilities.*
5. *To reduce the risk of environmental damage from subdivision, use and development within the coastal environment arising from uncertainty or lack of knowledge about coastal processes.*
6. *To maintain and enhance public access to and along the CMA and to publicly-owned land in the coastal environment.*
7. *To enable an appropriate range of recreational opportunities to be undertaken in the coastal environment.*
8. *To ensure that the disposal of dredged material, or other solid matter likely to cause significant adverse effects on the natural and physical resources of the*

coastal environment, occurs in a way which avoids, remedies, or mitigates those significant adverse effects on the natural and physical resources of the coastal environment, and meets the social, economic and cultural aspirations of the community.

9. *To recognise and provide for the relationship of Maori and their culture and traditions with their ancestral lands, water, sites, waahi tapu and other taonga of the coastal environment.*

10. *To achieve integrated management of land and water areas in the coastal environment both within the Auckland Region and between adjacent regions.*

11. *To recognise as a matter of national significance the interrelationship between the Hauraki Gulf, its islands and its catchments, by providing for the protection, and where appropriate enhancement, of those resources, features, characteristics and associations in accordance with s8 of the Hauraki Gulf Marine Park Act 2000.*

7.4 Policies, Methods And Reasons

7.4.1 Policy: Coastal environment.

The following Policy and Methods give effect to Objectives 7.3.1-10.

In determining the extent of the coastal environment of the Auckland Region, the following areas and features shall be taken into consideration:

(i) any vegetation or habitat adjacent to, or connected with, the CMA which derives its intrinsic character from a coastal location or which contributes to the natural character of the coastal environment;

(ii) any landform adjacent to the CMA which is presently being formed or modified by processes of coastal erosion or deposition;

(iii) any feature or collection of features, either natural or physical, that derives its intrinsic character from a coastal location and which substantially contributes to the visual quality or amenity value of the coast;

(iv) any site, building, place or area of cultural heritage value adjacent to, or connected with, the CMA which derives its heritage value from a coastal location;

(v) areas of Significant Natural Heritage listed in Appendix B and Outstanding and Regionally Significant Landscape Areas shown on Map series 2 which are adjacent to the CMA;

(vi) any land adjacent to the coast from which surface drainage may flow directly to the CMA;

(vii) any land adjacent to the coast which is affected by, or could be affected by, coastal flooding and other identified coastal hazards;

(viii) any land adjacent to the coast where activities may take place which have a direct physical connection with or impact on the CMA;

(ix) the CMA.

7.4.2 Methods

1. Local authorities will include provisions in their plans which recognise the coastal environment of their areas in a manner consistent with the factors in Policy 7.4.1.

2. In formulating plan provisions relating to the coastal environment, local authorities will consult with the adjacent TAs, the relevant regional council, DoC and Tangata Whenua.

7.4.3 Reasons

The RPS does not define the coastal environment of the Auckland Region, but provides guidelines in Policy 7.4.1 on the areas and features which contribute to the coastal environment and which should be recognised in plan provisions relating to this area. Policy 7.4.1 identifies those natural and physical resources which, because of their form or function, give particular geographic parts of the Auckland Region a character which can be classified as being coastal. Within these areas the coast is a significant element or part and hence can be considered as being the coastal environment. Policy 7.4.1 further recognises that certain natural and physical resources such as vegetation and habitats, landforms and cultural heritage places or areas have characteristics which are coastal and which may in themselves, or together with other features, contribute to the visual and amenity values of the coast.

Other factors in Policy 7.4.1 recognise the operation of coastal processes and those activities which occur on land adjacent to the coast, which may have a functional link with the CMA, or which may generate effects which have direct impacts on the CMA. The land on which these activities occur forms part of the coastal environment. Although runoff into the CMA is generated from throughout a catchment, Policy 7.4.1(vi) focuses only on surface runoff from adjacent land which flows directly into the CMA, rather than passing first

through lakes, rivers or streams, or the stormwater system before reaching the sea.

Policy 7.4.1 does not indicate how the use, development and protection of the identified natural and physical resources of the coastal environment should be managed. The other objectives, policies and methods of this chapter and other relevant provisions of the RPS provide guidance on this matter. The purpose of the policy is to provide a framework for guiding where the application of Chapter 7 should apply.

7.4.4 Policies: Natural character of the coastal environment.

The following policies and methods give effect to Objective 7.3.1 – 2.

1. ***The natural character of the coastal environment shall be preserved, and protected from inappropriate subdivision, use and development by:***

   (i) In areas of high natural character, avoiding adverse effects on:

   (a) the natural functioning and natural processes of sediment transport, substrate composition and movement of biota;

   (b) areas of indigenous vegetation and habitats of indigenous fauna and associated processes;

   (c) the physical integrity of coastal landforms and geological features and associated natural processes;

   (d) features, elements and patterns which contribute to landscape value and scenic and visual value;

   (e) natural features, sites and natural areas of historic, aesthetic, cultural or spiritual value;

   (f) water or air quality;

   (g) habitat important for preserving the range, abundance and diversity of indigenous and migratory coastal species;

   (h) habitat important for breeding and feeding of coastal species;

   (i) the healthy functioning of estuaries, coastal wetlands, mangroves, dunes, sand spits and their margins.

   (ii) In all other areas, avoiding any adverse effects which result in the significant reduction in habitat important for preserving the range and diversity of indigenous and migratory coastal species within the Auckland Region.

   In the context of Policy 7.4.4 -1 (i) and (ii), adverse effects to be avoided include those listed in Chapter 6 – Heritage, Policy 6.4.1.

   (iii) In areas which are not of high natural character, avoiding where practicable or remedying, or mitigating the adverse effects of subdivision, use and development on the elements of natural character outlined in Policy 7.4.4 -1 (i) (a) – (i) except those adverse effects which are to be avoided in 7.4.4 -1 (ii) above.

2. ***Where appropriate, the natural character of the coastal environment shall be restored and rehabilitated.***

7.4.5 Methods

1. ***District plans, the Regional Plan: Coastal and other regional plans will include appropriate provisions to give effect to Policies 7.4.4 -1 (i), (ii) and (iii), and 7.4.4 -2, and in conjunction with other relevant land management documents shall include appropriate measures to restore and enhance the natural character of the coastal environment, including those established under Chapter 18. Where restoration planting is carried out, preference shall be given to the use of indigenous species, with a further preference for the use of local genetic stock.***

(Refer also to Chapter 3 – Matters of Significance to Iwi and Chapter 6 – Heritage.)

7.4.6 Reasons

The RM Act requires the preservation and protection of the natural character of the coastal environment as a matter of national importance, although it contains no definition of what constitutes natural character. For the purpose of this policy statement, a definition of the natural character of the coastal environment of the Auckland Region is included in Appendix D. The coastal environment of the Auckland Region ranges from areas which are predominantly in their natural state, characterised by high natural character, to those areas that due to human modification have only residual elements of natural character.

Nearly all parts of the coastal environment of the

Auckland Region have been subject to human influence to a greater or lesser extent. The original character is now replaced by a character which is derived from a combination of natural values and processes and the impacts of human activity. Although the interaction and relative influence of natural and physical values and human activities varies throughout the Region, elements of natural character still exist in many areas of the coastal environment.

Auckland's coastal environment has special qualities which derive from the presence of its unique species, habitats and ecosystems and the operation of coastal processes. The habitats and ecosystems have intrinsic values which are worthy of protection in their own right, as well as contributing to the community's social, economic and cultural use and enjoyment of the coast. These coastal resources are limited, many of them have been modified or destroyed in the past through inappropriate use and development which makes it imperative that what remains is carefully managed. Policy 7.4.4 -1 (i), (ii) and (iii), by avoiding, remedying, or mitigating the effect of activities on the individual components of natural character, preserves and protects natural character in accordance with section 6(a) of the RM Act. Regional policies for assessing whether subdivision, use or development is appropriate in the coastal environment, contained in clauses 7.4.10, include the consideration of natural character.

A high standard of water quality is an essential requirement for maintaining the quality and health of marine based ecosystems. Pressures for urban growth and intensification of some rural activities has led to concern about coastal water quality in some areas of the Region. The effects of urban and rural activities on coastal water quality are addressed in Chapter 2 – Regional Overview and Strategic Direction, Chapter 6 – Heritage and Chapter 8 – Water Quality.

Although emphasis is placed on the presence of natural values and processes as the major components of natural character, it is also recognised that areas of the coastal environment which have been subject to substantial human modification may still contain elements of natural character which may be worthy of protection. Subdivision, use and development policies (7.4.10 later in this chapter) cover this issue.

7.4.7 Policies: Areas of Special Value.

The following Policies and Methods give effect to Objective 7.3 -1 and 2.

1. ***Areas of significant indigenous vegetation, significant habitats of indigenous fauna, significant landforms and geological features, and significant places or areas of historic or cultural significance in the coastal environment shall be preserved and protected by avoiding, remedying, or mitigating the adverse effects of subdivision, use and development in a manner consistent with Policies 6.4.1-3 and 7.4.4-1 (i), (ii) and (iii).***
2. ***The significance of these places, areas and features shall be assessed in accordance with Policies 6.4.7, 6.4.13 and 6.4.16.***
3. ***Outstanding and Regionally Significant Landscapes in the coastal environment shall be preserved and protected in accordance with Policy 6.4.19-1.***
4. ***Sub-tidal Areas of Special Value in the CMA shall be progressively identified and protected from the adverse effects of use and development.***
5. ***Where Areas of Special Value extend both above and below MHWS local authorities shall adopt consistent and integrated management approaches which protect these values and natural processes.***
6. ***Characteristics of the coastal environment of special value to Tangata Whenua, including waahi tapu, urupa, tauranga waka, mahinga mataitai and taonga raranga, shall be managed in accordance with the objectives and policies of Chapter 3 – Matters of Significance to Iwi.***

7.4.8 Methods

1. ***Regional and district plans will include appropriate provisions to give effect to Policies 7.4.7-1 through 7.4.7-6.***
2. ***The ARC will maintain and progressively update an inventory of Sub-tidal Areas of Significant Natural Heritage in the CMA and implement appropriate methods to protect the values of these areas.***
3. ***The ARC will support the establishment of marine protected areas as a method of sustainably managing Areas of Special Value within the coastal environment, provided that:***
   - ***(i) proposals are consistent with the purpose of the statute under which they are proposed;***

(ii) adequate background research and consultation in support of the proposal is undertaken;

(iii) proposals are not inconsistent with the criteria for the identification and investigation of marine protected areas in the approved Conservation Management Strategy for the Auckland Conservancy of the Department of Conservation;

(iv) that proposals in relation to the protection of Areas of Special Value to Tangata Whenua are not inconsistent with any relevant planning document recognised by an Iwi authority.

In addition to the matters outlined above, in supporting the establishment of marine protected areas, the ARC will have particular regard to:

(v) sites which contribute to the provision of accessible marine protected areas Region-wide;

(vi) sites which relieve pressure from marine protected areas currently subject to intense use;

(vii) important marine resources and habitats adjacent to regional parks;

(viii) the practical expression of kaitakitanga by Tangata Whenua as outlined in Method 3.4.14.

4. As a goal the ARC will support a move towards 10% of the area of representative marine habitat types in the Auckland CMA being fully protected marine reserves.

5. The ARC will work co-operatively with TAs, DoC, MAF and Tangata Whenua, and in consultation with other agencies and interest groups, to identify suitable sites for the establishment of marine protected areas (including marine reserves) in the Auckland Region.

(Refer also to Chapter 3 – Matters of Significance to Iwi and Chapter 6 – Heritage.)

7.4.9 Reasons

The areas of significant natural, physical, historic and cultural heritage and areas of significant landscape value in the coastal environment are known collectively as Areas of Special Value. Chapter 6 – Heritage contains objectives, policies and methods relating to the identification of areas of significant ecological, landform, landscape and historical and cultural value throughout the Auckland Region and their preservation and protection from the adverse effects of subdivision, use and development. These objectives, policies and methods apply equally to the preservation and protection of the Areas of Special Value and these links are recognised in Policies 7.4.7-1 through 7.4.7-3.

Chapter 3 – Matters of Significance to Iwi outlines procedures for the management of areas of spiritual and cultural value to Tangata Whenua, including those in the coastal environment, in a manner which is determined by Tangata Whenua. This is provided for by Policy 7.4.7-6.

There is considerable information on Areas of Significant Natural Heritage in the landward parts of the coastal environment, but less information exists on these areas in the sub-tidal parts of the CMA (ie. those areas below Mean Low Water Mark which are permanently covered by water, See Appendix B). Policy 7.4.7-4 acknowledges the need to establish a more comprehensive Regional inventory of these sub-tidal areas. This inventory will include information on flora and fauna species. Its development requires a co-operative approach between agencies with management responsibilities in the CMA, based on the identification of priority areas for information collection. ARC priorities for the identification of Areas of Significant Natural Heritage are those inner areas of the CMA adjacent to land, or parts of the CMA which are subject to increasing development pressures.

The ARC is also progressively developing a Cultural Heritage Inventory (CHI) for the Region, covering both land and water areas (See Chapter 6 – Heritage – Method 6.4.17 and Reasons 6.4.18). Areas of Special Value (ecological, landform and geological, landscape, and cultural heritage) in the CMA have also been identified in the Regional Plan: Coastal.

Many sub-tidal Areas of Special Value, both natural and cultural, adjoin similarly important Areas of Special Value on land and there is a need to ensure that there is an integrated approach to the management of effects between the land and CMA to ensure the protection of both areas (Policy 7.4.7 -5).

Methods 7.4.8 -3 through 5 recognise that marine protected areas established under a range of other legislation can also give effect to the directives of section 6 (a), (b) and (c) of the RM Act as well as fulfilling their primary legislative purpose. A number of mechanisms are available for the legal protection of marine areas and these mechanisms are described in Appendix C.

The identification of suitable sites for marine protected areas and their establishment needs to be done within a co-ordinated Regional framework, which considers the reasons for protective status, and uses the most appropriate mechanism to achieve protection objectives. The Auckland Conservancy of the Department of Conservation has identified a strategy for marine protected areas in its Conservation Management Strategy (CMS), prepared under the Conservation Act 1987. This is considered a useful basis for co-operative work between agencies and interest groups in the Auckland Region aimed at establishing a Regionally agreed network of marine protected areas.

As of 1995, the Auckland Region had one marine protected area at Tawharanui, established under Fisheries Act regulations and three marine reserves. The marine reserves, established under the Marine Reserves Act, are Cape Rodney to Okakari Point- Leigh, Pollen Island in the upper Waitemata Harbour, and Long Bay-Okura. In addition, the Regional Parks Service and MAF are involved in ongoing joint work to assess whether there is any need for protection of marine life adjacent to Regional parks through the introduction of controls on fishing and shellfish gathering. Any controls implemented would be through the provisions of the Fisheries Act 1983 as section 30(2) of the RM Act specifically excludes regional councils from controlling the harvesting or enhancement of any fishery controlled by the Fisheries Act (refer also Appendix C).

7.4.10 Policies: Subdivision, use and development.

The following Policies and Methods give effect to Objectives 7.3 -1-10.

1. ***The diverse range of values of the coastal environment shall be recognised and the need to enable people and communities to provide for their social, economic and cultural wellbeing shall be provided for in appropriate areas of the coastal environment.***
2. ***In assessing the appropriateness of subdivision, use and development in the coastal environment particular regard shall be had to the following matters:***
   - ***(i) natural character is preserved and protected in accordance with Policies 7.4.4-1 (i), (ii) and (iii), and 7.4.4-2;***
   - ***(ii) public access is maintained or enhanced in accordance with Policies 7.4.13-1, 2 and 3;***
   - ***(iii) amenity values are maintained or enhanced as far as practicable;***
   - ***(iv) public open space is maintained or enhanced as far as practicable;***
   - ***(v) there is a functional need for use and development within the CMA;***
   - ***(vi) efficient use is made of the natural and physical resources of the coastal environment;***
   - ***(vii) activities are of a scale, design and location that maintain or enhance landscape values in the area, including seascapes and landforms;***
   - ***(viii) there are no significant adverse effects of activities on the CMA, or on adjacent land, including effects across the MHWS boundary;***
   - ***(ix) adverse effects are avoided, remedied or mitigated in Areas of Special Value in accordance with policies in 7.4.7;***
   - ***(x) activities are designed and located to avoid the need for hazard protection works;***
   - ***(xi) provision is made for adequate utility services (including the disposal of waste);***
   - ***(xii) effect is given to all other relevant provisions of this policy statement, in particular those stated in Chapter 2 – Regional Overview and Strategic Direction, Chapter 6 – Heritage and Chapter 8 – Water Quality.***
3. ***A precautionary approach shall be taken by local authorities when providing for and assessing subdivision, use and development in the coastal environment where potentially significant adverse effects may arise.***
   (The precautionary approach is outlined in Chapter 1 – Introduction.)
4. ***Applications to reclaim part of the CMA, extract sand, shell and other natural material and rights to occupy the CMA shall have regard to any available alternatives to the proposal, which would avoid these activities.***
5. ***Where existing subdivision, use and development is threatened by a coastal hazard, coastal protection works should be permitted only where they are the best practicable option for the future. The abandonment or relocation of existing structures should be considered among the options. Where coastal protection works are the best practicable option, they should be located and designed so as***

to avoid or minimise adverse environment effects.
(Refer also to the Chapter 11 – Natural Hazards)

6. ***In determining the appropriate form and location of subdivision, use and development, it shall be recognised that some natural features may migrate inland as a result of dynamic coastal processes, including sea level rise.***

7. ***Areas which derive their particular character and amenity value from the predominance of built structures, modifications or activities shall be recognised and, where appropriate, their values maintained or enhanced.***

8. ***Appropriate subdivision, use and development shall be encouraged to locate in areas where the natural character has already been compromised, thereby avoiding sprawling or sporadic subdivision, use and development in the coastal environment.***

9. ***Notwithstanding Policy 7.4.10-8, regard shall be had to the protection of those elements of remaining natural character which continue to exist in areas where human modifications or activities predominate.***

10. ***Papakainga housing and marae developments shall be provided for in a manner that is consistent with Policies 7.4.10-1 through 9 in the coastal environment, where this would provide for the relationship of Maori and their culture and traditions with their land, water, sites, waahi tapu and other taonga.***

(Refer also to Policy 2.6.4-3 in Chapter 2 – Regional Overview and Strategic Direction; and Chapter 3 – Matters of Significance to Iwi.)

7.4.11 Methods

1. ***Regional and district plans shall contain appropriate provisions to give effect to Policies 7.4.10-1 through 10.***

2. ***Regional plans and district plans should include provisions which enable financial contributions (including contributions of money, land, works or services) for the purposes of remedying, or mitigating adverse effects of subdivision, use and development, to be secured by way of conditions on resource consents as provided by section 108 of the RM Act.***

3. ***In order to give effect to Policies 7.4.10-1 through 10, regional and district plans shall incorporate the limits to urban coastal development within their areas as required by Method 4.4.2 of this RPS.***

4. ***Regional and district plans shall include a provision requiring that the Maritime Safety Authority and the Hydrographic Office of the Royal New Zealand Navy are to be notified of new structures and works in the CMA at the time permission is given for their construction.***

7.4.12 Reasons

The coastal environment has been the historical focus of human settlement in the Auckland Region. Subdivision, use and development within the coastal environment has played a major role in shaping the identity and functioning of the Auckland Region and in establishing the amenity values of the Regional community. However, due to the importance that people place on the coastal environment, some parts of it are subject to development pressure.

In providing for appropriate subdivision, use and development, it needs to be recognised that the preservation of the natural character of the coastal environment, and the protection of it from inappropriate subdivision, use and development, is a matter of national importance. In achieving this the NZCPS requires that policy statements and plans should:

> *"Define what form of subdivision, use and development would be appropriate in the coastal environment and where it would be appropriate"* (Policy 3.2.1).

In giving effect to the RM Act and the NZCPS, Policy 7.4.10 -2 identifies a number of matters to be given particular regard in assessing the appropriateness of subdivision, use and development in the coastal environment. It outlines a number of matters that shall be considered by local authorities in providing for appropriate subdivision, use and development in the preparation of plans and evaluations of specific proposals.

Some activities have a functional need to locate in the CMA (and the coastal environment). These include facilities for water based recreation, structures which provide access to and from the water, ports and water based industrial, commercial and transport activities. These activities are generally considered appropriate where any adverse effects can be avoided, remedied, or mitigated. Appropriate subdivision, use and development also includes making the most efficient use of space.

Where possible, multiple use of any new, existing or approved facilities should be made. This is particularly important in the CMA, where there is a long-held public expectation that public use of and access to this area will in most cases have priority over private or exclusive occupancy.

The adoption of a precautionary approach by local authorities when setting objectives, policies, rules and other methods in plans and when evaluating proposals for subdivision, use and development in the Auckland Region is addressed by Policy 7.4.10-3. The precautionary approach requires that when potentially significant adverse effects which cannot be fully assessed due to inadequate information or understanding (particularly where this is due to lack of scientific or technical knowledge) may arise from the subdivision, use, development or protection of natural and physical resources, local authorities shall act cautiously and should consider such options as:

- Taking account of the level of uncertainty about the nature, extent, intensity and duration of potential adverse effects in classifying activities as permitted, controlled, discretionary, non-complying or prohibited, or framing assessment criteria or conditions to apply to particular consents for proposed activities.
- Declining or limiting the duration of a consent or requiring a review during the period of the consent so that the results of monitoring can be considered.
- The local authority undertaking monitoring and research to provide additional information and understanding.
- Applicants undertaking appropriate monitoring of the effects of their activities on the environment, as conditions of resource consents.
- Sharing information and knowledge gained about natural and physical values and processes, or the effects of activities on natural and physical values and processes, where this information and knowledge has changed or was previously unknown or little known.

The coastal environment has a finite capacity to absorb the effects of subdivision, use and development. Policy 7.4.10-4 recognises that some activities may have a significant adverse effect on the CMA and that alternatives need to be considered. This is in accordance with Policy 4.1.6 of the NZCPS.

The dynamic nature of coastal processes is recognised in Policies 7.4.10-5 and 6. The protection of subdivision, use and development from coastal hazards requires careful consideration of alternatives and long-term solutions including the abandonment or relocation of existing structures. Recognition of the dynamic nature of coastal processes is especially important in consideration of new subdivision, use and development so that further sites are not subject to coastal hazards.

Policy 7.4.10-7 recognises that there are parts of the coastal environment of the Auckland Region which have been subject to extensive human modification and which now possess a quality, identity or amenity value which is derived from the predominance of human activities and structures. Examples of such areas include Tamaki Drive, parts of the upper Waitemata Harbour, east coast beaches and cliffs from North Head to Browns Bay and parts of Kawau Island. Where appropriate these areas should be recognised and their values maintained. Policy 7.4.10-8 recognises the desirability of concentrating subdivision, use and development, while 7.4.10-9 recognises the need to consider remaining elements of natural character in areas which are already modified. Furthermore, Policy 7.4.10-9 recognises the importance of the port to the Auckland Region, and the need to make provision for appropriate port activities along with other water related industrial and commercial facilities.

Policies 7.4.10-3 through 10 further identify other matters which shall be taken into account with respect to consideration of appropriate subdivision, use and development.

The special relationship Tangata Whenua have with the coastal environment is recognised in Policy 7.4.10-10 by the provision of papakainga housing and marae developments.

The policy direction of this chapter accepts a degree of flexibility in the provision of subdivision, use and development in the coastal environment. Policies and methods are likely to be more constraining on subdivision, use and development located outside the highly modified urban areas of the Region, where natural character is considered to be high, and in Areas of Special Value. In urban areas and locations where a built environment predominates, greater recognition may be given to other factors in considering whether it is appropriate to locate in the coastal environment. Such factors may include the contribution made to the efficient operation of urban areas, the enhancement of amenity values, and the provision of recreational opportunities.

7.4.13 Policies: Public access.

The following Policies and Methods give effect to Objective 7.3 -6.

Note: These policies do not override the rights of private property owners.

1. ***Public access shall be maintained and enhanced to and along the CMA and to publicly owned land in the coastal environment.***
2. ***Particular regard shall be had to enhancing public access to and along the CMA and to publicly owned land in the coastal environment where:***
   - ***(i) areas are of high amenity or recreational value; or***
   - ***(ii) areas are of importance to Tangata Whenua for carrying out customary activities and in order to exercise kaitiakitanga; or***
   - ***(iii) access would be of particular value or potential value for educational or scientific reasons; or***
   - ***(iv) areas are adjacent to the Areas of Special Value identified in Appendix B and Map Series 2, where this would be consistent with the protection of natural and cultural heritage values; or***
   - ***(v) a number of esplanade reserves or other public open spaces exist in the vicinity, and the enhancement of public access would contribute to the linking together of disconnected reserves.***
3. ***Public access to and along the CMA should only be restricted where it is necessary to:***
   - ***(i) protect significant natural or cultural heritage values; or***
   - ***(ii) protect sites and areas of Maori spiritual and cultural value; or***
   - ***(iii) protect public health and safety; or***
   - ***(iv) ensure a level of security consistent with the purpose of a resource consent; or***
   - ***(v) protect areas of the coast which are sensitive to physical disturbance from the presence of people; or***
   - ***(vi) (in other exceptional circumstances sufficient to justify the restriction notwithstanding the national importance of maintaining that access.***

See also Chapter 3 – Matters of Significance to Iwi; Chapter 6 – Heritage; and Chapter 18 – Esplanade Reserves and Strips.

7.4.14 Methods

1. ***Local authorities will, in conjunction with DoC, identify areas in which public access to or along the CMA is poor or unavailable, and in which enhancement of public access is desirable, including access which is useable by people with disabilities, consistent with the criteria in Policy 7.4.13 -2 and Chapter 18. These areas will be reviewed periodically. In the areas so identified, the local authorities will consult with landowners and other interest groups to, where possible, improve access.***
2. ***The Regional Plan: Coastal and district plans will identify circumstances and/or areas where public access is to be restricted, in accordance with Policy 7.4.13 -2. Consideration will be given to the use of alternative methods for restricting access to these areas.***
3. ***Provision will be included in district plans for the setting aside of esplanade reserves, esplanade strips or access strips to enable public access to and along the CMA, in accordance with Policy 7.4.13 -1 and Chapter 18.***
4. ***The Regional Plan: Coastal will include provisions for maintaining or enhancing public access along the CMA, and from the water to publicly owned land in the coastal environment.***
5. ***Regional and district plans will include provisions which enable environmental benefits to be obtained by financial contributions (section 108, RM Act) where there are unavoidable adverse effects on public access to and along the CMA from proposals for subdivision, use and development.***

7.4.15 Reasons

The maintenance and enhancement of public access to and along the CMA is a matter of national importance under the RM Act. This can be achieved in three main ways: by enabling access from the land to the coastal edge, from the water to the foreshore and along the foreshore itself. Accordingly, the maintenance and enhancement of public access to and over other publicly owned land in the coastal environment (such as esplanade and other coastal reserves) is important to ensure that access to and along the CMA is maintained or enhanced.

While Policy 7.4.13 -1 provides for the maintenance and enhancement of public access, Policy 7.4.13 -2 identifies particular circumstances where it shall be enhanced. However, recognition is also given in Policy 7.4.13 -3 to those circumstances where public access may not be

appropriate for a range of conservation, Maori cultural, health and safety or other reasons.

The main mechanisms for creating public access to and along the coast are the esplanade reserve, esplanade strip and access strip provisions of the RM Act. In some cases this may not be possible or appropriate. However environmental benefits may be able to be obtained by financial contributions as provided for by section 108 of the RM Act. Wherever possible, financial contributions should be used to remedy or mitigate any actual adverse effects on public access at the site of the proposal, e.g. providing some alternative form of public access. However, this should not preclude the consideration of other options away from the site where this may result in a greater net benefit to the environment.

The mechanisms, and the circumstances where esplanade reserve, esplanade strip and access strip provisions should be used are described in Chapter 18. Preference is given in Chapter 18 to the setting aside of esplanade reserves on subdivisions, thus placing land in public ownership.

This preference acknowledges that the reasonably foreseeable needs of future generations must be recognised and provided for, and that access across the land/sea boundary is particularly important for Auckland, given the Region's strong identification with maritime activities. The ARC's Regional parks network plays an important part in facilitating access to the coast.

7.4.16 Policies: Recreation.

The following Policies and Methods give effect to Objective 7.3.7.

1. ***Recreational activities shall be provided for in appropriate locations and forms having regard to the provisions of Policy 7.4.10 and ensuring that the adverse effects on the environment are avoided, remedied, or mitigated.***
2. ***Coastal areas of special recreational value shall be identified and provision made for their maintenance or enhancement.***

7.4.17 Methods

1. ***The Regional Plan: Coastal and district plans will contain appropriate provisions to give effect to Policies 7.4.16 -1 and 2.***
2. ***The Regional Plan: Coastal and district plans will contain appropriate provisions to avoid, remedy, or mitigate the effects of recreational use on Areas of Special Value identified in Appendix B and Map Series 2 of this RPS, in a manner consistent with other provisions of this chapter.***
3. ***Local authorities, in consultation with DoC, Iwi authorities, interested agencies and groups, will, where it is necessary in order to assess the effects of recreation, or the impact on recreation of other activities and uses, survey and subsequently monitor recreational resources, pressures and conflicts in the coastal environment.***
4. ***The Regional Plan: Coastal and district plans will identify areas of special recreational value, and provide for the maintenance and enhancement of the recreational values and opportunities they provide.***
5. ***Local authorities will encourage recreational users of the coast to avoid, remedy, or mitigate the effects of their activities on the natural and physical resources of the coastal environment, and to avoid conflict with other users.***
6. ***Provision will be included in district plans for the setting aside of esplanade reserves or esplanade strips for the purpose of providing for public recreational use, in accordance with Chapter 18.***

7.4.18 Reasons

Recreation is one of the most extensive uses undertaken within the coastal environment of the Auckland Region. This ranges from active to passive pursuits. The large number of recreational users leads to the prospect that parts of the coastal environment will be subject to intense pressure, and that this is likely to increase in the future. In this respect there are certain areas within the coastal environment which are of such high recreational value to the Region that they should be identified and protected.

In order to carry out many recreational activities in the CMA of the Auckland Region, a wide variety of facilities and structures are necessary or desirable. These can include boat ramps, moorings, marinas, swimming platforms, jetties, wharves, boatsheds, changing rooms and boardwalks etc. To enable recreational activities to be undertaken it is necessary that plans make provision for recreational use and development. There is, however, the need to ensure that the adverse effects of this use and development are avoided, remedied, or mitigated. Policy 7.4.16 -1 refers to the need to have regard to Policy 7.4.10 (Subdivision, use and development) when considering the appropriateness of such use and development.

Due to the importance of recreation, it is considered necessary to provide Regional guidance to ensure that adequate provision is made, and the effects of other activities on it are appropriately managed. Recreational users of the coast most often depend on elements of both land and sea for their enjoyment. Therefore, it is important that integrated management of recreation across the land/sea boundary is achieved. The ARC and TAs must work closely to co-ordinate the management of coastal recreation.

Many recreational activities are permitted uses (e.g. boating, bathing, picnicking), and therefore not subject to control via the resource consent process. The cumulative effects of recreational use are, however, potentially major (e.g. littering, sewage disposal from boats, damage to coastal vegetation, conflicts between users detracting from public enjoyment). These effects arise from cumulative minor adverse effects of individual actions. It is considered that the most effective way to avoid, remedy, or mitigate these cumulative effects is to influence the choices made by individuals. Some methods that may be used by local authorities to achieve this include provisions of statutory documents, bylaws, esplanade reserves, public awareness programmes, provision of supporting facilities, use of signs, working with community groups and the use of voluntary beach and boat wardens.

The approach to managing coastal recreation is to provide for as wide a range of recreational uses as possible, while minimising conflicts between users, and avoiding adverse environmental effects.

7.4.19 Policies: Ports, Network Utilities and Other Water Related Activities

1. ***Port and other water related industrial and commercial activities and network utilities which depend upon the use of the natural and physical resources of the coastal environmental shall be provided for in a manner which is consistent with Policy 2.6.7: Regionally Significant Infrastructure or Services and Policies 7.4.10-1 through 10.***

7.4.20 Methods

1. ***Regional and district plans will include appropriate provisions to give effect to Policy 7.4.19-1.***

7.4.21 Reasons

The Ports of Auckland and Onehunga are significant physical resources and are of particular importance to the Auckland Region and to the wider New Zealand economy. They require the presence of deep water and navigable channels, anchorages and berthage and back-up areas to operate effectively and efficiently. In some instances, dredging of the CMA and further reclamation may be necessary to facilitate their continued operation.

There are many minor wharves and harbour structures located in the coastal environment which are important locations for cargo transport, ferry operations and other local needs. Various water related industrial and commercial activities such as ship building yards, vessel maintenance facilities, charter boat bases and fishing industry facilities also operate within the coastal environment. The geographic constraints of the Auckland Region also mean that network utilities may need to locate in the coastal environment and cross into the CMA.

Policy 7.4.19-1 provides for the subdivision, use and development of the coastal environment by those activities which are dependent upon the use of its natural and physical resources, recognising that the coastal environment of the Auckland Region is used for a wide diversity of social, economic and cultural purposes. The other provisions of this chapter in conjunction with relevant chapters of this RPS provide a framework for assessing the appropriateness of this subdivision, use and development.

7.4.22 Policies: Dredging and the disposal of dredged material.

The following Policies and Methods give effect to Objective 7.3 -8.

1. ***The need to maintain or enhance adequate water depths for the safe navigation and berthing of vessels or to provide access to facilities shall be recognised and provision shall be made for the dredging of appropriate areas of the coastal marine area.***
2. ***The natural character of the coastal environment shall be preserved and protected from significant adverse effects arising from the marine disposal of dredged materials or other solid matter.***
3. ***A precautionary approach shall be taken where potentially significant adverse effects, which cannot be fully assessed due to inadequate information or understanding, (particularly where there is a lack of scientific or technical knowledge), may arise from a proposal for the marine disposal of dredged materials or other solid matter.***
4. ***The disposal of dredged materials or other solid matter to the coastal environment shall be avoided, as far as practicable where, due to its volume, degree***

of contamination, physical composition or disposal method and location, such disposal is likely to result in the following:

(i) Significant adverse effects on habitats, coastal ecosystems and fisheries;

(ii) Significant alteration to natural processes;

(iii) Significant adverse effects on amenity values and the natural character of the coastal environment;

(iv) Significant adverse effects on the relationship of Maori and their culture and traditions with their taonga;

(v) Significant adverse effects on the social, cultural and economic wellbeing of the community.

(Refer also to Policy 7.4.10 for further direction relating to the subdivision, use and development of the coastal environment.)

5. In assessing proposals for the marine disposal of dredged material in the Hauraki Gulf and other parts of the Auckland coastal marine area where relevant, regard shall be had to the conclusions and recommendations of the Disposal Options Advisory Group (DOAG) in terms of:

(a) the disposal of significant quantities of dredged material;

(b) the disposal of highly contaminated dredged material;

The DOAG process is described in more detail in Section 7.4.24: Reasons.

7.4.23 Methods

1. The Regional Plan: Coastal will include appropriate provisions to give effect to Policies 7.4.22.1-5.

2. The ARC will support where appropriate the identification of suitable areas for the disposal of significant quantities of dredged material in the coastal marine area

3. In recognition of the impacts of urban stormwater on sediment quality and quantity, including harbour sediments adjoining areas where dredging is undertaken, the ARC and TAs will develop a Regional Stormwater Strategy.

Refer also to Policy 8.4.21 and Method 8.4.22.4

7.4.24 Reasons

Dredging of parts of the Auckland CMA has occurred in the past and will continue to be necessary in the future. The maintenance of adequate and approved water depths enables the use of the CMA for transport, recreational, defence and commercial activities. To date most maintenance dredging has occurred around the commercial port and defence areas (including Devonport Naval Base) and in marina basins. There have been a number of monitoring studies undertaken as part of these maintenance dredging consents. These have indicated that generally the effects of maintenance dredging are localised and temporary.

Capital works dredging of sediment in the CMA may be necessary to provide improved water depths for vessels at existing facilities or in existing channels, or as part of a new port, marina or other similar developments. The effects on the environment will depend on the locality, quality and quantity of the material to be dredged and the scale of the operation. It is an activity which can be provided for in appropriate circumstances and this is recognised by Policy 7.4.22.1.

However, the disposal of dredged material or other solid matter to the marine environment may have potentially significant adverse environmental impacts. The type and scale of effects are mainly dependant on the amount of material to be disposed of, the level of contamination, the physical characteristics of the material, the method of dredging and the disposal site and the method of disposal.

The impact of the disposal of significant quantities of dredged material into the Hauraki Gulf in particular has been the focus of public concern. The Hauraki Gulf plays an important role in the image and identity of Auckland. As well as being used for port and shipping purposes, it is of major recreational, fisheries, economic and amenity value to the community. The Gulf also has special value for Tangata Whenua of the Region. These values have led to central government to establish the Hauraki Gulf Marine Park Act 2000.

The Manukau and Kaipara Harbours are also important regional resources. The Port of Onehunga is located in the Manukau Harbour and both harbours are noted as being Areas of Significant Natural Heritage in Appendix B. They are water bodies having special value (ecological, social, economic, cultural and spiritual) for Tangata Whenua in the Region.

In 1993 the Disposal Options Advisory Group (DOAG) was set up to examine and report on the options available for the disposal of dredged materials. DOAG was formed from a wide range of public agencies, community organisations and Tangata Whenua together with technical support from the private sector. DOAG considered both technical information and

public concerns. In relation to marine disposal, DOAG concluded:

"The group considered that, if marine disposal was continued, it would recommend disposal move to a site north of Cuvier Island which was located in more than 100 m of water."

"The consequences of the above conclusions and recommendations are that the technical group gives preference to the following disposal options for the following categories of port dredging.

For highly contaminated dredged material:

(i) port reclamation

(ii) approved sanitary landfill.

For maintenance dredging that meets regulatory guidelines:

(i) port reclamation

(ii) marine disposal in water deeper than 100m."

The DOAG recommendations were made in relation to a particular proposal to dispose of dredged material in the Hauraki Gulf. However, it is appropriate that its conclusions and recommendations be taken into account in assessing proposals to dispose of similar types and amounts of dredged material in the Hauraki Gulf regardless of their source. This is recognised by Policy 7.4.22.5.

Policies 7.4.22.2 to 4 identify the matters that need to be addressed in the formulation of plan provisions and the assessment of proposals for the disposal of dredged material and other solid matter to the CMA.

The DOAG process identified sensitive areas in the Hauraki Gulf where the disposal of dredged material may have significant environmental effects. Method 7.4.23.2 recognises that a similar process may be useful for assessing the impact of marine disposal in the Manukau and Kaipara Harbours, where significant quantities of material are involved.

Stormwater discharges into the CMA are a significant source of contamination of sediments in some parts of the Region's harbours. Where dredging of these sediments is required, the disposal of the contaminated sediment is of concern. The Regional Stormwater Management Strategy undertaken jointly by the ARC and TAs addresses the issue of the urban stormwater contamination and includes those catchments which drain into those parts of the CMA that need to be regularly dredged. This is recognised in method 7.4.23.3.

7.4.25 Policies: Integrated management.

The following Policies and Methods give effect to Objective 7.3 -10.

1. ***Regional policy statements and regional plans of adjoining regional councils should be consistent with each other to the extent that they will achieve integrated management across the regional boundaries.***

2. ***In the preparation of regional and district plans, local authorities will have regard to the provisions of regional and district plans of adjoining local authorities to ensure integrated management of the coastal environment.***

3. ***Local authorities, Tangata Whenua and statutory agencies with resource management responsibilities in the coastal environment shall consider joint initiatives when:***

   (i) there is potential for significant cross-boundary adverse effects on the natural and physical values of the coastal environment; or

   (ii) the natural and physical values are of regional significance or greater; or

   (iii) the activities are of regional significance or greater; or

   (iv) the activities may contribute to significant cumulative adverse effects; or

   (v) this will result in consistent and efficient management of the coastal environment.

4. ***Sections 7 and 8 of the Hauraki Gulf Marine Park Act 2000 will be given effect to in the preparation of the relevant planning documents of the region, and had regard to when considering resource consent applications.***

7.4.26 Methods

1. ***Regional plans and district plans will include appropriate provisions to give effect to Policies 7.4.25 -1 and 7.4.25 -2.***

2. ***In order to promote consistent and sustainable management of the coastal environment, the ARC will prepare a Regional plan incorporating a Regional coastal plan. This plan will, over time, progressively include objectives, policies and rules as they relate to the functions of the ARC under section 30 of the RM Act.***

3. ***Local authorities will give effect to Policy 7.4.25 -3 through appropriate initiatives including, but not limited to,:***

   (i) preparation of joint plans;

   (ii) non-statutory studies;

   (iii) use of joint hearings;

   (iv) transfer of powers;

   (v) public education;

   (vi) consultation with adjacent local authorities;

   (vii) sharing information and knowledge gained by them about the coastal environment, particularly where it relates to coastal processes and/or to activities with previously unknown or little known effects.

(Refer also to Chapter 3 – Matters of Significance to Iwi)

4. ***The ARC will (jointly with the Hauraki Gulf Forum ("the Forum")) work on a project to identify how the provisions of the HGMPA could be further provided for in the relevant statutory documents of the Hauraki Gulf, including how to give effect to sections 7 and 8 of the Act as a NZCPS and a NPS.***

5. ***The ARC will work with the Forum to achieve integrated management of the Hauraki Gulf, and identify methods for improving the integration between the Forum's constituent parties on initiatives and actions to implement the Act, including both statutory and non-statutory methods.***

6. ***Local authorities will have regard to the provisions of sections 7 and 8 of the Hauraki Gulf Marine Park Act 2000 when considering resource consent applications within the Hauraki Gulf, its islands and catchments.***

7.4.27 Reasons

Policy 7.4.25-1 addresses the inter-regional cross boundary issue, by providing policy that encourages regional councils to ensure consistency in their various statutory documents. In this regard, it is important that the relevant regional councils recognise that the ecosystems of the Kaipara Harbour, the Mangawhai-Pakiri section of the coast, the Firth of Thames and the Awhitu Peninsula area extend across regional boundaries. Similarly, Policy 7.4.25-2 identifies the need for local authorities to take into consideration adjoining regional and district plans. This will provide for linkages across the MHWS boundary between regional and district councils as well as linkages across district boundaries within the Auckland Region. Integrated management can also be achieved by joint initiatives between local authorities, other statutory agencies such as DoC and MAF, and Iwi authorities. In addition, the sustainable management of fisheries is important to the Hauraki Gulf and needs to be addressed in an appropriate manner. Policy 7.4.25-3 lists the circumstances when joint initiatives are appropriate.

Section 64(2) of the RM Act enables a regional coastal plan to form part of a regional plan where this would promote the integrated management of land and water in the coastal environment. Examples of where such integration is considered desirable are: for the protection of natural character, Areas of Special Value, visual amenity, coastal hazards and particular works and activities. In addition Method 7.4.26-3 identifies a range of joint initiatives which may be implemented between local authorities. Such initiatives may range from the preparation of formal joint plans, including management plans through to informal studies and consultation, the use of joint hearing and public education programmes. The ARC may also transfer certain functions and powers for coastal management to other agencies in the Region, in accordance with section 33 of the RM Act. The extent and location of any transferred powers between the ARC and TAs will need to be negotiated.

The Hauraki Gulf Marine Park Act 2000 (HGMPA) recognises the national significance of the Hauraki Gulf and establishes objectives for its management. (ss7-8 of HGMPA). The purpose of the policy and methods listed above is to reflect the requirements of this Act and its links to the Resource Management Act 1991.

7.4.28 Policy: Significant resource management issues for Tangata Whenua.

This Policy gives effect to Objective 7.3 -9.

1. ***Maori cultural and traditional values shall be recognised and taken into account in the management of the coastal environment.***

(Refer to Chapter 3 – Matters of Significance to Iwi for methods, reasons and other relevant provisions.)

7.5 Environmental Results Anticipated

(a) Maintenance and enhancement of coastal water quality at a level which safeguards the life-supporting capacity of ecosystems.

(b) Protection of areas in the coastal environment which have special ecological, landform, landscape, geological or cultural significance from inappropriate subdivision, use and development.

(c) Protection of the coastal environment from inappropriate subdivision, use and development.

(d) The maintenance and enhancement of the amenity value of the coastal environment.

(e) Preservation of the natural character of the coastal environment.

(f) Continued and enhanced access to, and use and enjoyment of, the coastal environment by people and communities.

(g) Conflicts between competing uses in the coastal environment minimised.

(h) Irreversible and/or unpredictable adverse effects of use and development on the coastal environment avoided, remedied, or mitigated.

(i) The cumulative adverse effects of subdivision, use and development in the coastal environment avoided, remedied, or mitigated.

(j) The appropriate use and development of the coastal environment in a way, or at a rate, which enables people and communities to provide for their social, economic and cultural wellbeing and for their health and safety.

7.6 Monitoring

1. In addition to the monitoring carried out in relation to water quality, heritage and natural hazards, the ARC will collect, analyse and report regularly on the following in relation to the coastal environment:

   (i) Resource consent decisions and the compliance with conditions of consents approved by the ARC and the Minister of Conservation.

   (ii) Relevant monitoring results obtained by TAs, in accordance with a programme agreed between the ARC and each territorial local authority.

   (iii) Feedback obtained from the community by:

      (a) seeking comments from organisations with a specific interest in coastal issues;

      (b) periodic surveys and/or questionnaires;

      (c) recording public complaints.

2. The ARC may require monitoring as a condition of resource consents approved by the ARC and recommend the Minister of Conservation requires monitoring, as appropriate, as a condition of resource consents approved by the Minister. Where practicable, performance standards or other guidelines for monitoring will be set out in the Regional Plan: Coastal.

(Refer also to Method 6.6.1(v) in the Heritage chapter.)

8.1 Introduction

In the context of this chapter, water quality refers to both the character of water, encompassing the health and other values of ecosystems, and the sediments or contaminants that may be carried in/or deposited by that water.

Water quality is a significant issue in the Auckland Region. Auckland is a maritime Region with an extensive, often rugged, coastline, large harbours and estuaries and attractive islands of the Hauraki Gulf. The Region also has numerous lakes, rivers, streams, wetlands and aquifers. The quality of water can either enhance the values of these resources or degrade them with a direct effect on the quality of life of Aucklanders, visitors and all those who are resource users. Water is a resource which is sensitive to the impacts of activities on land or water. Hence, maintaining or enhancing its quality requires a comprehensive and integrated approach to its management.

The overall vision for water quality in the Auckland Region is as follows:

- water quality at beaches, rivers and lakes will be suitable for swimming;
- people will continue to enjoy the abundant resources of our beaches, rivers, streams and lakes for fishing and shellfish gathering, cultural, commercial and other purposes;
- natural ecosystems, valued for their own sake, will function without adverse effect.

Work towards this vision will seek to achieve:

- a steady reduction of sediment, sewage overflows and other contaminants into our waterways;
- the prevention of discharges of toxic and persistent contaminants which may have an adverse effect on aquatic ecosystems.

The ARC has primary responsibility for the protection of water quality in the Region, pursuant to section 30(1) of the RM Act and section 8 (a) of the Hauraki Gulf Marine Park Act 2000 (HGMPA). This section states that a regional council has the functions of:

RMA S30(1)

(c) The control of the use of land for the purpose of:

(ii) The maintenance and enhancement of the quality of water in water bodies and coastal water.

(f) The control of discharges of contaminants into or onto land, air or water and discharges of water into water; (within the CMA this function is jointly shared with the Minister of Conservation, section 30 (d) (iv)).

HGMPA s 8(a)

(a) The protection and, where appropriate, the enhancement of the life-supporting capacity of the environment of the Hauraki Gulf, its islands, and catchments.

The management of water quality has a strong regulatory focus. This is because the RM Act stipulates that the discharging of contaminants into water is prohibited, unless allowed by a resource consent or a rule in a regional plan or by regulation. Some activities are considered to be existing uses and these may continue until a regional plan says otherwise (section 20 of the RM Act).

TAs also have several functions that can affect water quality. District plans contain the framework and rules for land uses within each district. These include the location of activities, subdivision of land and rules on the use, storage, disposal and transport of hazardous substances. These can have implications for water quality. TA activities may also affect water quality through service provisions, such as local stormwater and sewerage systems and the maintenance of public drains. The Health Act also confers responsibilities on TAs relating to public health.

A high standard of water quality is needed to maintain the health of aquatic ecosystems and for a variety of other purposes. These include domestic uses of water; commercial uses of water in industry, agriculture, commercial fishing and aquaculture; recreational uses of water for activities such as swimming, shellfish gathering and fishing; scenic and tourism purposes; and its assimilative capacity for waste disposal. Water is of significant cultural importance to Tangata Whenua.

The Region's coastal, harbour and estuarine waters are generally of good quality. There are however significant localised areas, particularly in the urban estuaries and sheltered harbour areas, where water quality has been degraded. Water quality of the Region's freshwater lakes varies from relatively unaffected to severely impacted. Runoff from rural sources of wastes is considered the major influence. Groundwater quality is generally good in most of the Region, however in some areas it has been impacted by industrial and rural activities.

Many of the Region's streams have also been adversely affected as natural instream values have been destroyed by, among other influences, total removal of adjoining vegetation, stock damage and piping or channelisation of the water course. Many urban streams are severely degraded by discharges, including those from combined sewer overflows, and by urban stormwater and litter. Emergency discharges from sewage pumping stations and sewage reticulation faults, where they occur, contribute to this degradation.

Many activities have adverse effects on water quality. These effects include increased turbidity, removal of oxygen, smothering of habitats, changes in temperature and the addition of a variety of contaminants. This can lead to a decline in the diversity and abundance of aquatic species. There is potential for some of these effects to move up the food chain, resulting in less and/or contaminated food for birds and other animals. The accumulation of a potentially wide range of chemicals in aquatic species (which are dangerous to health when eaten by larger animals) and contaminants in water can also impact on users and the food chain. The result is that water can become unsuitable for domestic, commercial and other uses. The smell and appearance of water, particularly colour, is affected by pollution and this can also affect visual and recreational values of water resources. This can be costly in terms of economic impacts on, for example, property values, water-based tourism and recreational uses. The discharges from a large variety of activities often combine to result in cumulative adverse effects on water quality.

Contaminants can enter the soil and aquatic environment via a wide range of pathways and mechanisms. The environmental consequences of such discharges are equally diverse, both in a temporal and spatial sense. The main categories of contaminant discharge involve diffuse runoff from urban and rural land and from point sources approved through resource consent processes. The ARC uses, and will continue to use, a wide range of management approaches for setting the standards and achieving control.

Diffuse runoff will be controlled using a 'best practicable option' approach involving cleaner production, waste minimisation, discharge minimisation and an appropriate level of monitoring and surveillance (i.e., pollution abatement and control). Education will play a major role in achieving the environmental objectives. The ARC will continue to monitor advances in national and international non-point source controls and will review its approaches as appropriate.

All point source discharges will continue to be controlled in terms of the RM Act. Control of permitted and controlled activities will include the publishing of guidelines on issues such as sediment, stormwater and on-site sewage disposal. Other controls will take the form of descriptive standards, e.g., for dairy shed discharges and sewage pumping stations. Other point source discharges will be dealt with using 'limited discretionary' and 'full discretionary' controls. The adverse effects will be minimised by establishing numeric standards that protect identified resource values. These will be set using locally derived standards where these are available, or in the absence of these, international standards. International standards used by the ARC include those published by the US Environmental Protection Agency, Australian Water Resources Council and Environment Canada. In the case of complex effluents these will, in addition to numeric standards, be subject to complex effluent toxicity testing procedures (CETTP) involving standardised biological toxicity testing. Where toxicity is detected, applicants will be required to identify the toxic components and mitigate their adverse effects. Financial contributions will also be required, where appropriate, to fund works to protect water quality.

Discharges to large rivers and estuarine/coastal waters will be able to make use of 'mixing zones' as provided for in the RM Act, within which environmental standards may not be achieved. The size of such mixing zones will be determined using standard evaluation techniques taking into account the dispersion and dilution available, the characteristics of the contaminants and values to be protected. The values that will be used to determine the extent of any given mixing zone will include areas used for contact recreation, shellfish gathering, and areas containing sensitive ecosystems.

In terms of avoiding, remedying, or mitigating the adverse effects of stormwater and sewage discharges on receiving waters, there are substantial short- and long-term costs associated with any works which are undertaken for this purpose. In most cases, TAs will be the agency responsible for the implementation of such works and, because of the large financial costs involved, TAs will have to make decisions on priorities.

The role of the ARC in this process is:

- to document as far as possible the adverse effects of activities on water quality;

- to provide information from which the environmental benefits of avoiding, remedying, or mitigating such effects can at least be inferred;
- to work with the TAs and other affected parties to establish a strategy for addressing each issue. Each strategy will include a prioritisation of the works needed to achieve the desired outcomes and the appropriate time frames for their implementation. Establishing the priorities for works to address each issue (such as stormwater quality treatment) has been given emphasis in this first RPS. The strategies are to be developed through public consultation processes during the process of preparing and implementing the RPS and regional plans.

Once prioritisation of the works which need to be undertaken to address each issue have been established, TAs then have to decide how to allocate funds between all the issues. This requires a second level of priority setting, which involves making decisions on whether more funding should be allocated to one issue or to another (such as stormwater quality treatment versus upgrading sewage pumping stations). These funding decisions are debated through the yearly annual plan public consultation process, and the ARC participates in this process as appropriate.

Prioritisation of works at both levels is not an easy task. It involves consideration of:

- adverse effects of stormwater and sewage,
- sensitivity of receiving waters,
- cultural issues,
- public health issues,
- socio-economic effect of costs.

The ARC will work with TAs and other affected parties to develop appropriate decision-making processes to determine agreed priorities at both levels, for public and political consideration.

The ARC will continue to monitor the efficacy of its management approaches by using a wide range of scientifically based survey and monitoring methods to determine environmental quality. Discharge consents will continue to be regularly monitored to ensure they comply with standards. The results of all monitoring will be the subject of routine reports and a State of the Aquatic Environment Report will be published annually.

8.2 Issues

8.2.1 Many activities have adverse effects on water quality.

The main effects on water quality in the Auckland Region are a result of Auckland being the largest urban area in New Zealand. The processes of urbanisation and concentration of urban activities result in the Region's waters being continuously under pressure.

Development and Redevelopment

Development and redevelopment processes associated with urbanisation, which have adverse effects on water quality, include vegetation clearance, earthworks, the provision or upgrading of utility services, stream-works, the modification or construction of roads, motorways, and so on. Removal of vegetation, and increases in the extent of impervious surfaces, greatly increase the speed and volume of runoff. Modifications such as these change the patterns of stormwater runoff, and have profound effects on the amount of contaminants and sediments carried by stormwater. Poor stream management, including excessive modification of the natural habitat, also detrimentally affects instream habitat and biota, as well as aspects of water quality.

Urban activities, especially industrial and transport activities, are the main contributors of contaminants to stormwater. In Auckland, rain occurs frequently and is often heavy. The resulting stormwater flows carry high levels of contaminants including heavy metals, micro organisms, and organic material to the Region's water bodies and coastal waters.

Residential areas occupy the greatest proportion of urban land. In residential areas, household and garden chemicals such as solvents, fertilisers, pesticides, oil, cleaners and paints are frequently disposed of into stormwater drains or to ground. This often results in urban streams becoming contaminated. In addition, illegal connections of stormwater to sewerage systems can cause hydraulic overloading, leading to pumping station overflows and the discharge of untreated sewage to the Region's waterways.

From a Regional perspective, the main parts of the Region affected by urban activities (including industrial, transport and residential activities) are the estuarine areas and shallow harbour inlets adjacent to the most

intensively developed parts of the isthmus. These include the Tamaki estuary and middle Waitemata Harbour, and the north eastern Manukau Harbour. Many urban streams are also severely degraded. Lake Pupuke, because of its poor flushing and delicately balanced ecology, is highly sensitive to pollution generated by urban activities.

Transport Activities

Of the urban area, 40% is dedicated to motor transport (this area includes public and private carparks, garages and service stations as well as roads).

The deposition of materials such as petrochemicals and heavy metals, from motor vehicles onto roads and vehicle servicing areas, is a major source of water pollution. These contaminants are transported by runoff into stormwater systems and into the Region's water bodies and coastal waters.

It is estimated that about half of all air contaminants come from mobile sources. Exhaust emissions deposited or stripped by rainfall are a continual source of water quality degradation. Lead, zinc, copper, chromium, and hydrocarbons are the most common contaminants in urban stormwater. The largest producers of these are transport related activities. The main effects occur adjacent to the most densely urbanised parts of the isthmus – the Tamaki estuary, Manukau and Waitemata harbours.

Industrial and Trade Activities

Nearly all water pollution caused by industrial activities occurs through contaminants entering stormwater systems. The main causes are untidy yard practices, accidental spills, and lack of awareness in the workforce of the pollution consequences that can stem from actions on industrial sites. Other major contributing factors include inappropriate storage of products, new industries moving into premises which are unsuitable for their operation, illegal stormwater connections and inappropriate methods for disposal of industrial wastewaters.

The estuarine areas of the Manukau and Waitemata harbours, including the Mangere inlet, Tamaki estuary, and Whau River, are the main areas which have been detrimentally affected by industrial activities. Disposal of stormwater to ground soakage, particularly in industrial areas, has affected the water quality of the One Tree Hill – Onehunga, and Mount Wellington aquifers, and probably also affects other aquifers such as Papatoetoe and Western Springs. Groundwater quality in these areas can also be affected by leakage from above-and-below-ground storage tanks, and by accidental spills.

There are several industrial areas outside the metropolitan urban area (such as Silverdale and Waiuku) which lack adequate provision for disposal of trade wastes. Selection of such locations for industries generating trade wastes is considered inappropriate and can result in adverse effects on water quality in nearby streams and rivers.

Rural Activities

The most widespread and significant cause of water pollution in the rural parts of the Region is overland runoff. This is affected by faeces and urine from grazing stock, herbicide and pesticide use, fertiliser and soil conditioning and tillage practices. Pollution also arises from loss of riparian vegetation and damage to riparian margins and waterways by stock access. Where there is sediment generation and discharge from vegetation clearance and land disturbance activities, this is a further cause of pollution.

Point source pollutive discharges of high strength organic wastes can arise from dairying, piggeries and other rural industries. Leachate from silage stacks, although small in volume, can also have significant localised impacts.

High nitrate concentrations are found in volcanic aquifers at Pukekohe, Bombay and Glenbrook, and in the baseflow of streams which are spring fed from these aquifers. This is believed to be due to the shallow, unconfined and permeable nature of the aquifers, and the intensity of land use, with widespread use of fertilisers for market gardening.

Lakes such as Kuwakatai and Spectacle are susceptible to pollution from rural activities, as they have limited flushing and have already been significantly degraded by runoff from adjacent land activities.

Maritime Activities

Most adverse effects on coastal waters are caused by land based activities. However, degradation of coastal waters can also result from a number of common maritime activities. These include reclamations and foreshore works (particularly during construction), discharges of sewage and oily bilge water from boats, petrol/diesel from refuelling spillages, runoff from maritime industries

such as boat builders and general littering of waterways. The effects of most of these activities on water quality tend to be short-lived unless they occur on a significant scale and are ongoing in a localised area.

Antifoulants used to protect boat hulls enter waterways over a period of time either as a result of general leaching or during boat maintenance. The ARC is currently undertaking research to determine the ecological effects of antifoulants.

Disposal of dredgings has raised concerns partly because the sediments in the dredgings can, in some circumstances, be contaminated to varying degrees. Consideration is being given to the various disposal options which may be available in the future.

Sewage Reticulation and Disposal

There are some 87 sewage treatment plants in the Region. Auckland's major sewage treatment facilities are the Manukau and North Shore sewage purification works, which serve about 83% of the Region's population. The remaining 85, serving 17% of the population, are predominantly small facilities using a wide range of treatment and disposal systems.

The major sewage effluent outfalls are located in the Manukau Harbour (Manukau Wastewater Treatment Plant), off Castor Bay (North Shore Wastewater Treatment Plant), Tiri channel (Whangaparaoa Peninsula System) and off Orewa Beach (Orewa/Red Beach System). About 15 outfalls from other small types of treatment plants also discharge into the Manukau, Kaipara, Waitemata harbours and inner gulf.

The largest treated sewage discharges occur in the Manukau Harbour and off Castor Bay (Rangitoto Channel). The Manukau outfall has historically had a significant impact on water quality in the inner Manukau Harbour. However recent upgrading of the plant has led to a significant improvement in effluent quality and reduced impact on receiving waters. The North Shore outfall has been shown to have a limited impact on some east coast beaches under certain weather conditions, with most effects restricted to offshore waters.

Sewage discharges are assessed through the discharge permit consent procedure. The exceptions are the Manukau and North Shore wastewater treatment plants which have their own empowering legislation. These are deemed to have coastal permits under the RM Act, with a life of 10 years from enactment. At the expiry of these transitional consents, both activities will be required to be authorised by a range of consents under the Act. Both discharges have been the subject of detailed technical evaluation and public involvement on future disposal options.

The combined sewer system in the central isthmus area serves about 10% of the Region's population. Combined sewers are designed to overflow when it rains and this results in water pollution. Combined sewers discharge a mixture of wastewater and stormwater into the Waitemata Harbour and streams leading into it. Further urban intensification exacerbates the problem of overflows by increasing the volume of sewage and the quantity and rate of stormwater runoff. Other factors such as the age of the system also contribute to the problem. The main impacts occur in the downtown wharf area and in urban streams and the harbour edge between Point Chevalier and Achilles Point.

There are around 400 sewage pumping stations in the Region. A significant proportion of raw sewage discharges are derived from sewage pumping station overflows. These result from, among other causes, excessive infiltration to the reticulation system in wet periods, and breakdowns, including power failures. The result is generally localised and causes intermittent water quality impacts. The worst impacts occur in confined waters with poor dilution and dispersion. As many stations are sited adjacent to recreational areas, the aesthetic and potential public health impacts can be significant. Criteria have been developed for minimising overflows from sewage pumping stations. It is noted that, prior to the RM Act, the legal situation as to whether consents could be required for overflows from sewage pumping stations was ambiguous. It is now considered that the matter has been clarified under the RM Act, and consents can be required. The main impacts from sewage pumping stations have occurred in the Manukau and Waitemata harbours including the Tamaki estuary. Sewage pumping station and reticulation failures on the North Shore have resulted in intermittent degradation of water quality on East Coast beaches.

Outside the metropolitan urban areas septic tanks with on-site effluent disposal fields are commonly used for sewage disposal from individual dwellings, motels, rest homes and other small-scale commercial developments.

Provided that septic tank based systems are properly designed, installed and maintained, they are considered to be an environmentally sound method of effluent disposal. Localised problems do however occur at various times in rural and coastal communities as a result of cumulative impact. These are commonly due to a combination of poor soil types, higher densities of septic tank use, insufficient land for ground disposal and poor maintenance practices. There is a need for proactive management of septic tanks by TAs.

Solid Waste Disposal

There are more than 100 landfill refuse disposal sites scattered throughout the Auckland Region. The majority are closed sites which were constructed prior to the introduction of modern technologies to deal with groundwater and surface water protection, and which, therefore, did not provide for adequate leachate and stormwater collection and disposal. It is likely that there are a large number of other older landfills in the Region. However, the exact number and location of these is unknown. More recent landfills have been constructed to much higher environmental standards. Illegal private landfills and illegal dumping along waterways is also a widespread problem. Leachate from landfills has had localised impacts on water quality in several parts of the Region. It is potentially a major problem in terms of protecting groundwater quality.

8.2.2 Some parts of the Region are more susceptible to water quality degradation than other areas and/or have significant values that warrant special protection.

Streams, lakes and estuarine areas are particularly susceptible to water quality degradation as these are generally enclosed, or long and narrow, with poor flushing characteristics. Shallow, permeable, unconfined aquifers (e.g., volcanic aquifers) are sensitive to pollution as they receive direct and rapid recharge from the ground surface and are susceptible to any contamination of the recharge water. Deeper aquifers which are overlaid by and recharged from degraded aquifer systems are also susceptible to degradation.

Coastal waters adjacent to areas which have been extensively urbanised are also at high risk of degradation, due to the cumulative effects of urban activities. The impact of contaminant discharges on areas with good tidal flushing is difficult to determine given our current state of knowledge. Therefore these have been called susceptible to degradation, but indeterminate, on Map 5: Sheets 1 and 2.

Some water bodies and coastal waters have significant high ecological values and are susceptible to degradation. These areas are shown on Map 5 : Sheets 3 and 4.

Protection of surface waters used for potable water supply is considered important. Most of the water supply dams operated by Watercare Services Ltd are protected by vegetative buffers and restricted public access. This is not the case at Helensville, Warkworth, Wellsford and Hays Creek (Papakura) water supplies. Additional protection is needed to prevent degradation of these water supplies. It is noted that water bodies and coastal waters are also valued by the regional community for recreational, ecological, cultural, commercial and other reasons.

In these areas (which are listed in Table 8.1) additional methods, such as more emphasis on pollution abatement work and education programmes, and/or regulations (additional to those which apply to the rest of the Region) may be needed to ensure that water quality is adequately protected. For example, research may be required in some areas listed as priorities to investigate techniques to remedy poor water quality. More stringent rules may also need to be complied with. For example, a discharge which has a minor adverse effect can be a permitted or controlled activity (subject to appropriate conditions) for much of the Region. But it could be a discretionary or even prohibited activity if the proposed discharge is to a lake.

8.2.3 Water quality in some parts of the Region has already been degraded.

Water quality in some parts of the Region has already been significantly degraded. This is due to the historical location of polluting activities adjacent to estuarine areas and/or to the sensitive nature of some receiving waters. These areas are listed in Table 8.2. Water quality in these areas can be improved although, for some areas, a considerable time period (longer than the 10 year life of this document) will be needed before a significant improvement is achieved. In many instances, improvement can occur by ensuring that the activities which historically caused the degradation comply with modern standards, and by remedial work being carried out. The ARC intends to include provisions in a regional plan for improving the Region's degraded water bodies

and coastal waters. It will be prepared in consultation with affected parties and will include a range of methods to improve water quality including: pollution abatement control, stormwater and sewerage infrastructure upgrading and environmental monitoring.

8.2.4 Water quality is a significant resource management issue for Tangata Whenua.

In Maori culture water represents the tears of Ranginui, the life-blood of Papatuanuku, and is the domain of Tangaroa. To Tangata Whenua water must be managed in a holistic manner, and be nurtured as a living entity. Water quality matters of significance to Iwi authorities in the Auckland Region have been identified as:

The uses of water and associated habitats

Matters of concern to Tangata Whenua include protecting the mauri of water. Tangata Whenua state that mauri is the essence within water that ensures the continuation of life that dwells within it. In order for future generations to gain benefits from both the sea and freshwater, the mauri of water must not be defiled.

The degradation and integrity of water

Tangata Whenua have identified as a principle the desire to see all wastes derived from land returned to the land. Contaminants of particular concern are:

- Sewage and effluent discharges; rural, industrial and urban discharges; stormwater and sediment runoff; leachate from landfills; disposal of dredgings; sedimentation; burial of ashes at sea; discharges from boats; dumping of animal carcasses; and shelling and gutting fish and shellfish on the foreshore or on the water.
- Mixing of water from different sources is also spiritually offensive.

Manukau Harbour

The healing of the Manukau Harbour has a high environmental priority to the people of the Tainui waka and Te Kawerau a Maki and, in particular, the tribes of the Waikato.

Matters of significance include:

- the degradation and integrity of water, ecosystems and wider environs;
- the effects of the Mangere oxidation ponds on the mana and mauri of the harbour and Tainui;
- other inappropriate land uses around the harbour;
- provision for the taiapure application over the harbour.

Kaipara and Waitemata harbours

These harbours are of the highest priority to Ngati Whatua and Te Kawerau a Maki. Matters of significance include:

- a desire to restore the buffer of native vegetation around the harbour;
- the adverse effects of widespread siltation on ecosystems, in particular, shellfish;
- the effects of discharging hot geothermal water into the Kaipara Harbour;
- ensuring integrated management of the Kaipara Harbour.

Hauraki Gulf

The Hauraki Gulf is of high priority to the Tangata Whenua.

The matters of significance include:

- the adverse effects of siltation on ecosystems, in particular the habitats of shellfish;
- insuring integrated management of the Hauraki Gulf and Islands;
- the degradation and integrity of water ecosystems, sewage and effluent discharges (including those from vessels).

8.3 Objective

1. ***To maintain water quality in water bodies and coastal waters which have good water quality, and to enhance water quality which is degraded particularly for the following purposes:***
   - ***(i) Estuaries and harbours: protection of aquatic ecosystems, recreation, fishing and shellfish gathering, cultural and aesthetic purposes.***
   - ***(ii) Open coastal waters, including parts of the Hauraki Gulf: its natural state.***
   - ***(iii) Groundwater: water supply.***
   - ***(iv) Lakes, rivers and streams: protection of aquatic ecosystems, recreation, food gathering, water supply, cultural and aesthetic purposes.***
   - ***(v) Wetlands: protection of aquatic ecosystems.***

8.4 Policies, Methods and Reasons

All the following policies and methods are designed to achieve the Objective 8.3.
The methods listed in Section 1.9 in Chapter 1 will be used in conjunction with the policies and methods in this chapter.

8.4.1 Policies: General

1. ***Adverse effects on water quality caused by the discharge of contaminants (including non-point source discharges) shall be avoided, particularly the discharge of potentially toxic, persistent or bio-accumulative contaminants. Where it is not practicable to avoid discharges, they shall be adequately remedied or mitigated.***

2. ***Minimum standards for water quality in terms of section 69 of the RM Act shall be set where the use of minimum standards is shown to be the most appropriate means for achieving the purpose of the RM Act, having regard to their efficiency and effectiveness relative to other means.***

8.4.2 Methods

1. ***District plans, regional plans and the Regional Plan: Coastal will contain provisions which give effect to Objective 8.3 – 1 and Policies 8.4.1 – 1 and 2.***

2. ***All regional plans containing rules on the discharge of contaminants to water shall provide for a review of all discharge permits which are relevant to the issues/activities to which the plan applies. Where the standards set by the rules are not being met, and it is desirable that the standards are met, the ARC will review the conditions of those permits.***

3. ***The ARC will use the most efficient and effective method, including setting appropriate standards and/or measures of environmental quality as part of a regional plan for protecting significant water bodies and coastal waters and improving the region's degraded water bodies and coastal waters.***

8.4.3 Reasons

Ideally the best way to protect water quality is to avoid any adverse effects. However, this is not always practicable as almost all activities have an adverse effect of some sort on water quality. The approach adopted by the ARC is to require any discharge to be avoided where there are potential adverse effects. Where this is not feasible, the ARC requires the effect of the discharge to be mitigated as far as practicable. This often results in remedying the effects of past discharges. All discharges are required by the RM Act to be authorised by either rules in regional plans or by obtaining a resource consent from the ARC.

'Minimum standards' means the lowest level of natural water quality that is considered acceptable for any given use, including, but not limited to, those specified in the Third Schedule of the RM Act.

Policy 8.4.1-2 acknowledges that the RM Act makes provision for the setting of minimum water quality standards to protect particular values and uses. However, the Act also requires that, in adopting any particular method, alternatives be considered and the best option for delivering the desired environmental outcome be adopted.

It is considered that protecting water quality using a range of methods is the best approach. These include:

- Controlling contaminants at source through a comprehensive pollution abatement and control programme.
- Avoiding, remedying, or mitigating the adverse effects of stormwater runoff.
- Ensuring that discharge permits include appropriate conditions and comply with environmental standards. These standards will be included in regional plans.
- That where discharges occur, mixing zones are defined in such a way as to protect resource values.

Minimum standards should be applied in specific circumstances where these are shown to be the most appropriate method for achieving the desired environmental outcome.

Monitoring to ensure the efficiency of this approach will be undertaken where appropriate and will include:

- monitoring of contaminant levels in water, shellfish, finfish and sediments and measurement of biological response using a range of tools including baseline ecological monitoring;
- monitoring of land use practices to avoid, remedy or mitigate adverse water quality effects.

8.4.4 Policies: Development and redevelopment.

1. ***Land use intensification in urban areas shall only occur where adequate provision is made for:***

   (i) control of sediment discharges;

   (ii) control of stormwater discharges;

   (iii) collection, transport, treatment, purification and disposal of sewage;

   (iv) protection of the quality of groundwater recharge especially into aquifers used for water supply purposes;

   (v) protection of water quality and riparian margins;

   Note: Land use intensification in urban areas shall be in accordance with Policy 2.6.1.

2. ***Land use intensification in rural areas to countryside living or urban developments (whether reticulated or not) shall only occur where adequate provision is made for:***

   (i) the matters listed in 8.4.4-1;

   (ii) retention of vegetation (excluding plant pests) wherever practicable adjacent to water bodies and coastal waters;

   (iii) maintenance of normal access for biota throughout stream channels;

   (iv) protection of the intrinsic ecological values of aquatic systems.

   Note: Land use intensification of rural areas shall be in accordance with Policy 2.6.2.

3. ***Sewer overflows during wet weather caused by stormwater entry to sewerage systems shall be avoided.***

   Refer also to Policy 8.4.21 -2.

8.4.5 Methods

1. ***When proposals for land use intensification are initiated, sufficient investigations will be undertaken by the persons initiating such proposals to establish the feasibility of making adequate provision to deal with the matters listed in Policy 8.4.4 -1 and 8.4.4 -2. Those investigations must be documented as part of the proposed change, variation or application.***

2. ***Where land use intensification is proposed, the need to prepare a catchment management plan or structure plan (see Appendix A) will be determined by consultation and agreement between the ARC, relevant TA and persons initiating the proposal. The need for a plan will be determined by assessing the proposal in terms of the following criteria:***

   (i) the scale of the proposal;

   (ii) the sensitivity of the receiving environment;

   (iii) the potential for adverse effects, particularly cumulative adverse effects to water quality.

   The catchment management plan or structure plan will include the measures which are necessary to address the matters set out in Policy 8.4.4 -1 and 8.4.4 -2 and the implementation of those measures will be secured by means of resource consents and related conditions,and/or measures in district plans and/or regional plans.

3. ***Where land use intensification occurs in accordance with Policies 8.4.4 -1 and -2, district plans and district structure plans shall provide for the establishment and retention of riparian protection yards, wherever practicable, between land use activities and water bodies and coastal waters.***

   Refer also to Chapter 6 (6.4.10-11) and Chapter 18.

4. ***District plans shall not provide for land use intensification in sewered catchments that are at a maximum capacity for sewage disposal and/or have inadequate drainage (which is resulting in hydraulic overloading of the sewers) unless services are upgraded to an adequate capacity, or a commitment made to upgrading, sufficient to handle the demand that will result from the intensification.***

5. ***Where district plans are changed, varied or reviewed in ways which enable land use intensification, TAs will investigate and report on the overall adequacy of the existing and planned capacity of the wastewater reticulation and treatment system and stormwater utility systems, relative to the demands on those services which will arise from the planned intensification of land use. Documentation of those investigations will form part of the information supporting the proposed changes, variations or reviews.***

6. ***All catchments with sewerage reticulation will be investigated by relevant TAs to ascertain the extent of stormwater entry to sewers (including illegal stormwater connections and infiltration). A prioritised programme of source detection and remedial works will be developed and agreed upon jointly by the ARC and relevant TAs. Adequate consultation with Tangata Whenua shall be undertaken during the preparation of the programme.***

8.4.6 Reason

The purpose of Policy 8.4.4 -1 and the methods under 8.4.5 is to ensure that the potential adverse effects, including cumulative effects, of new development and redevelopment are considered prior to committing an area to further intensification and that adequate controls are implemented as development proceeds to avoid or mitigate adverse effects.

The matters listed in Policy 8.4.4 -1 need to be given consideration at a strategic level prior to changing district plans to enable further intensification to occur. Once the decision to develop an area has been made, the specific details of control measures that will need to be implemented to avoid, remedy, or mitigate adverse effects should be planned for in an integrated manner. The method by which this is achieved is through the preparation of catchment management plans and/or structure plans. The recommendations in these plans are given statutory effect through incorporating them in district and/or regional plans and/or through including conditions on discharge permit resource consents. The policy does not distinguish levels of priority for the matters listed, as these will vary from catchment to catchment.

It is considered important that the matters listed in Policy 8.4.4 -2 are given priority where land use intensification of rural areas is proposed, to avoid, remedy or mitigate adverse effects on water quality. In many urban areas these matters have already been compromised. Policies 8.4.10 and 8.4.21 are relevant to urban areas.

Methods 8.4.5 -4 to -6 are intended, first, to avoid sewage overflows from sewage reticulation and sewage pumping stations when development takes place ahead of the upgrading of services. Second, to mitigate the cumulative effects which result from incremental increases in impervious surfaces (which occur from the intensification of land uses) increasing the quantity and rate of stormwater runoff.

Illegal connections to sewerage systems, low gully traps and leaking manholes, cause adverse effects to water quality in the urbanised parts of the Region by causing hydraulic overloading, resulting in discharges from various components of the system. Method 8.4.5-3 requires these discharges to be reduced to a practical minimum to comply with sections 5 and 15 of the RM Act. Inspections for illegal connections need to be targeted to areas where direct entries are suspected or known to be a concern.

It is important to note that while the costs of detecting and correcting illegal connections and infiltration can be high, not doing so also has a high cost in maintaining infrastructure at levels above good minimum engineering design standards. These are over and above the environmental costs.

8.4.7 Policies: Stormwater and sediment discharges.

1. ***All new developments discharging stormwater, whether allowed as a permitted activity or by a resource consent, shall adopt appropriate methods to avoid or mitigate the adverse effects of urban stormwater runoff on aquatic receiving environments.***
2. ***The ARC will promote stormwater quality control on a catchment wide basis to avoid or mitigate the adverse effects of urban stormwater runoff on aquatic receiving environments.***
3. ***All land disturbance activities which may result in elevated levels of sediment discharge shall be carried out so that the adverse effects of such discharges are avoided, remedied, or mitigated.***

8.4.8 Methods

1. ***A strategy to prioritise catchments for retro-fitting within existing development will be developed and agreed jointly at a date to be agreed upon by the ARC and relevant TAs.***
2. ***The ARC will implement a Stormwater Quality Control Programme including public education, source controls and retro-fitting and could include rules in a regional plan to control stormwater.***
3. ***Policy 8.4.7 -3 will be implemented through the Proposed Erosion and Sediment Control Regional Plan, district plans, and resource consents and other methods such as those listed in Chapter 1.***
   Refer also to Chapter 12 – Soil Conservation.
4. ***The ARC will continue to study the quality of urban stormwater, its effects on the environment and the methods available for treatment to further improve the efficiency and effectiveness of controls.***
5. ***The ARC will encourage TAs to reduce stormwater contamination by adopting the 'best practicable option' for catchment wide stormwater quality control in consultation with the ARC.***

6. ***All new developments discharging stormwater, whether allowed as a permitted activity or by a resource consent, shall adopt the 'best practicable option' to achieve stormwater quality control.***

8.4.9 Reason

Stormwater Control

The impervious surfaces which result from new urban development affect the quantity, rate and quality of runoff discharged from these surfaces. Stormwater has been identified as a principal source of uncontrolled contamination of the Region's water quality. The ARC is responsible for authorising these discharges as either permitted activities or through resource consents. There are a number of techniques that can be implemented to avoid or mitigate adverse effects. These include education programmes, source controls and planning controls which can influence urban design and reduce the amount of impervious surfaces or retain natural stream character and riparian vegetation. Structural controls, such as wet detention ponds, sand filters and grass swales, may also be appropriate where the scale of development allows for these. Where it is not practicable for a development to provide controls, it is appropriate that a financial contribution under section 108 of the RM Act will be imposed to provide funds for the implementation of public sector initiatives. The ARC has produced a design manual to assist in the selection and design of structural controls which are considered to be practicable options.

Implementing controls which mitigate the effects of stormwater contamination from existing areas will require retro-fitting, that is, installing the controls retrospectively. In some catchments, catchment-wide stormwater treatment devices may be the best practicable option for stormwater control. The ARC recognises that opportunities for retro-fitting controls into areas of existing development may be limited by physical and financial constraints. There are, however, both planning and structural techniques that can be used to improve stormwater quality from existing urban catchments. In any event, the suite of techniques applied should represent the best practicable option.

To ensure the resources needed for retro-fitting are allocated optimally, it is prudent to develop a strategy that identifies a ranking of priority catchments throughout the Region. The priority may be based on the contaminant load from the catchment and/or the sensitivity of the receiving environment. An effective strategy can only be developed in conjunction with the TAs. A joint strategy will provide the necessary detail on the catchments and the necessary commitment to retro-fitting. The detail on the level of contamination and the demonstration of the best practicable option can be best obtained through comprehensive catchment studies.

Notwithstanding the need to prioritise catchments for retro-fitting stormwater quality controls, where significant re-development is proposed in an existing urban catchment, the opportunity needs to be taken for retro-fitting. The term 'best practicable option' (BPO) is defined in the RM Act. It is recognised that BPO means the best method for preventing or minimising effects on the environment, having regard to the sensitivity of the specific receiving environment.

Sediment Control

In any one year, hundreds of hectares of land are exposed for development purposes. Very high levels of sediment from these operations can result in adverse effects on water quality. ARC studies indicate that the most significant contributors of sediment are those construction activities associated with urban development. These are usually short-term in duration. Other short-term activities resulting in elevated sediment levels include stream works, roadworks and vegetation clearance (such as that associated with logging operations). Longer term operations of concern include cleanfills and quarries.

The Proposed Erosion and Sediment Control Regional Plan specifies how controls will be directed to avoid or mitigate elevated sediment levels. Controls will vary, e.g., apply to activities within a defined Soil Conservation Protection Area, or may be targeted to specific areas of concern such as parts of a catchment. They will involve a variety of methods ranging from education, liaison, development of guidelines, codes of practice and best management methods, regulation through the RM Act and development of minimum earthworks strategies. An active research component will be part of this programme to ensure management initiatives are appropriately directed. The emphasis of the sediment control programme, as expressed in the regional plan, will vary as a result of information gained from ongoing research and performance monitoring. Ongoing active and full consultation will occur through a variety of methods in order that changes required as a result of new information can be accommodated.

8.4.10 Policies: Industrial, trade and rural production and processing activities.

1. ***All industrial, trade and rural production and processing activities shall be carried out in a manner which:***

   (i) prevents wherever practicable the adverse effects of discharges and wastes;

   (ii) prevents wherever practicable unauthorised or accidental discharges and ensures that when these occur, they are detected quickly, so that immediate action is undertaken to reduce the extent of any discharge.

2. ***Industrial and trade activities producing trade wastes shall be located in areas where trade wastes can be disposed of to a trade waste sewer, unless adequate systems are in place to ensure trade wastes are contained and regularly collected for approved treatment and disposal.***

3. ***Industrial and trade activities which directly adjoin water bodies and coastal waters shall be separated from them, wherever practicable, to avoid adverse effects to cultural and amenity values, and to minimise adverse effects of discharges and wastes.***

   Note: People carrying out industrial, trade and rural production and processing activities are expected to be aware of their responsibilities under the RM Act and to give effect to these policies.

8.4.11 Methods

1. ***District plans will contain provisions which give effect to Policies 8.4.10 -1, 2 and 3.***

2. ***Methods for industry, trade, and rural production and processing activities to achieve Policy 8.4.10 -1 include:***

   (i) the design and implementation of effective containment systems;

   (ii) the implementation of cleaner production;

   (iii) effective site management practices including:

      (a) good housekeeping

      (b) the identification and review of past problems

      (c) preventative maintenance

      (d) stock inventory and rationalisation

      (e) spill prevention systems;

   (iv) spill contingency and response;

   (v) waste minimisation and appropriate disposal;

   (vi) staff education.

   Note: Some of the principles of cleaner production are outlined in Policy 15.4.1 -3.

3. ***Methods to achieve Policy 8.4.10 -3 include bunding, cut-off drains, fencing and riparian planting.***

4. ***The ARC will prepare and implement an Industrial and Trade Pollution Programme to avoid, remedy, or mitigate the adverse effects of discharges from industrial and trade activities.***

5. ***The ARC will include provisions in a regional plan to avoid, remedy, or mitigate the adverse effects of discharges from rural production and processing activities.***

6. ***The ARC and TAs will investigate, evaluate, and if appropriate, implement methods to track the locations of industries with a high pollution potential.***

   Refer also to Chapter 15 – Waste, Chapter 16 – Hazardous Substances and Chapter 17 – Contaminated Sites.

8.4.12 Reasons

Policy 8.4.10 -1 requires discharges and wastes to be avoided or mitigated in accordance with sections 5 and 15 of the RM Act. Cleaner production and waste minimisation lessens the quantity and noxiousness of substances on-site. This means that if an accidental discharge occurs, adverse effects on water quality will be lessened. Good site management such as bunding, spill contingency planning and maintenance of equipment, etc. reduces the potential for spills, and ensures that if any accidental discharges do occur, the extent and duration of the discharge is minimised.

Urban and rural industrial and trade activities producing trade wastes should be located in serviced areas so that such wastes can be discharged to an appropriate treatment facility. If these activities are located in an unserviced area, trade wastes need to be suitably stored and collected for appropriate treatment. The preferred option is for these activities to locate in serviced areas, as there is more potential for pollution to occur if trade wastes are stored and collected. However, it would be unfair to require this of existing and proposed new industries which have established appropriate collection and disposal systems. Accordingly, Policy 8.4.10 -2

provides for discharge and/or trade waste permits to be granted, where appropriate, to enable flexibility as to the option chosen to avoid adverse effects.

In areas where there has historically been no barrier or separation between industries and water bodies/ coastal waters, there has been a tendency for the storage of equipment and substances directly adjacent to water bodies/coastal waters, resulting in water pollution from spillages and litter. The aim of Policy 8.4.10 -3 is to discourage these practices.

Urban and rural industrial and trade activities have a responsibility to avoid, remedy, or mitigate the adverse effects of discharges from their activities. A number of methods can be used to achieve this, including the implementation of effective containment systems, the use of cleaner production, spill contingency and response and good site management practices.

The ARC will assist in this through the development of an Industrial and Trade Pollution Programme and a regional plan for rural activities. The Industrial and Trade Pollution Programme will consider methods (including the development of codes of practice and guidelines, implementation of a regional plan and an education programme) and determine the most efficient and cost effective courses of action. The regional plan for rural activities will include methods to avoid or mitigate discharges from activities such as dairy sheds, piggeries, factory farms, silage stacks and pesticides, fertilisers and herbicides. Both will be prepared in conjunction with user groups. The ARC will also continue to carry out pollution abatement work to complement the above methods.

8.4.13 Policies: Maritime activities.

Refer to Chapter 7 – Coastal Environment for other policies relating to the coastal environment.

1. ***Adverse effects of discharges from maritime activities shall be avoided, remedied, or mitigated.***
2. ***The introduction of undesirable aquatic species via discharges (including ballast water) shall be avoided.***

8.4.14 Methods

The ARC will include provisions in the Regional Plan: Coastal to control discharges to the CMA. With regard to ballast water, the ARC advocates measures at a national level to avoid the introduction of undesirable aquatic species.

8.4.15 Reasons

Maritime activities are generally those activities which are located in the CMA and discharge directly to the CMA, and include:

(i) discharges of water and sediment as an integral part of the activity of dredging and the disposal of dredgings;

(ii) discharges from vessels and off-shore installations;

(iii) discharges from marinas, marine farms, foreshore structures and reclamations;

(iv) discharges of water and sediment as an integral part of the activity of sand, shingle, and mineral extraction.

Where discharges from activities on land occur to other water bodies as well as to coastal waters, rules will be included in regional plans. The Regional Plan : Coastal and regional plans will be cross-referenced to each other, as appropriate. Discharges to the CMA will also need to comply with any minimum standards detailed in the Regional Plan: Coastal. A method is included in the Regional Plan: Coastal on ballast water discharges as the introduction of undesirable marine organisms through ballast from foreign vessels is potentially a significant threat to water quality. While there is overlapping jurisdiction, the ARC considers that management appropriately lies with the Ministry of Agriculture and Fisheries under the Biosecurity Act.

The Maritime Transport Act 1994 provides that all New Zealand and foreign oil tankers and any off-shore installation and oil transfer site in the CMA, will be required to prepare and implement oil spill contingency plans. The ARC is required to appoint an on-scene commander and prepare and implement a Regional Marine Oil Spill Contingency Plan.

8.4.16 Policies: Sewage reticulation and disposal.

1. ***Discharges of raw or treated sewage to water bodies or coastal waters (excluding sewage discharges from vessels and combined sewer overflows) shall only be allowed where it can be demonstrated that:***
    - ***(i) the option of disposing of sewage to water bodies or coastal waters better meets the purpose of the RM Act than any other disposal method including disposal onto land, and is the 'best practicable option';***

(ii) there has been consultation with Tangata Whenua in accordance with tikanga Maori and due weight has been given to sections 6, 7 and 8 of the RM Act; (Refer also to Chapter 3 – Matters of Significance to Iwi)

(iii) there has been consultation with the affected community in determining the suitability of the treatment and disposal system;

(iv) the volume of the discharge and the level of contaminants has been minimised to the greatest extent practicable;

(v) the discharge after reasonable mixing will not give rise to any or all of the following effects:

(a) the production of any conspicuous oil or grease films, scums or foams, or floatable or suspended materials;

(b) any conspicuous change in the colour or visual clarity;

(c) any emission of objectionable odour;

(d) any significant adverse effects on aquatic life;

(e) any significant adverse effects on amenity values;

(f) any significant degradation in the microbiological quality of the receiving environment, which would adversely affect fish and shellfish;

(g) any significant adverse effects on the current and reasonably foreseeable use of the receiving environment for recreational purposes and the suitability of fish and shellfish for consumption;

(vi) the location of the discharge is such that:

- *significant adverse effects on the identified values of any Coastal Protection Area 1, Tangata Whenua management areas, or significant freshwater ecosystems shall be avoided;*
- *adverse effects on the existing or foreseeable use of the receiving water for recreation or the collection of shellfish for human consumption shall be minor;*

The following matters will be considered in assessing the significance of adverse effects on the use of the receiving waters for recreation or collection of shellfish for human consumption:

(a) cultural and spiritual values;

(b) the nature and suitability of the waters for recreation or collection of shellfish for consumption;

(vii) all the matters listed in the Fourth Schedule of the RM Act have been fully considered in determining the effects of the discharge on the environment.

2. Combined sewers shall be upgraded to reduce overflows to a practical minimum.

8.4.17 Methods

1. The ARC will prepare a strategy or include provisions in a regional plan to:

(i) require the operators of sewage pumping stations to submit a programme to the ARC for approval to manage and/or upgrade facilities so as to avoid, remedy, or mitigate the adverse effects of discharges;

(ii) avoid, remedy, or mitigate the adverse effects of discharges from on-site effluent disposal systems.

(iii) the ARC will prepare a strategy or include provisions in a regional plan to require Combined Sewer Overflow (CSO) operators to submit a programme to the ARC for approval to upgrade combined sewers, to ensure discharges from combined sewer overflows and the effects of these overflows are minimised as far as practicable. The programme will include time frames for upgrading, and a monitoring programme.

Note: Where different parts of a CSO system are operated by more than one authority, preparation and implementation of this Policy should be carried out jointly, with the responsibilities and duties of each authority defined.

Refer to Policies 8.4.4 -1, 2 and 3. and Policy 8.4.21 -2.

3. The ARC will encourage TAs to undertake proactive septic tank management programmes.

8.4.18 Reasons

The Transitional Regional Plan contains rules for on-site effluent disposal and these rules will be replaced by provisions in a regional plan prepared under the RM Act. Rules in a regional plan or strategy will include methods to reduce discharges from sewage pumping stations. A regional plan is not proposed for sewage treatment plants, as these need to be assessed on a site-specific basis.

Policy 8.4.16 -2 and Method 8.4.17 -2 require Combined Sewer Overflow operators to prepare and implement a programme to upgrade combined sewer overflows to an adequate standard. The reasons for establishing time frames for the preparation and implementation of the programme, as indicated in the method, are:

- that further investigations are needed to ensure that the techniques to be used to comply with the policy and method are the most appropriate;
- the costs involved are substantial and appropriate time frames need to be set to enable the work to be funded.

8.4.19 Policies: Solid waste disposal.

Refer to Chapter 15 – Waste: Policy 15.4.4.

8.4.20 Methods

The ARC will include provisions in a regional plan to avoid, remedy, or mitigate the adverse effects of discharges from solid waste disposal activities.

8.4.21 Policies: Areas susceptible to water quality degradation/ areas that are already degraded/areas that have significant values.

1. ***In identifying new areas for urban development outside the Metropolitan Urban Limits and, in the case of rural and coastal settlements, the extent of existing urban zones, catchments which drain to areas susceptible to degradation (as detailed in Tables 8.1 and 8.2 and Map Series 5 Sheets 1 – 4) shall be avoided unless the best overall option determined by the process outlined in Policies 2.6.1(1) and (2) indicates otherwise and the adverse effects of new urban development (and, where appropriate, existing urban development) on water quality in that catchment will be remedied or mitigated.***
2. ***In determining where it is appropriate for existing urban development to remedy or mitigate its adverse effects under Policy 8.4.21(1), consideration will be given to the significance of the adverse effect on water quality and the sensitivity of the receiving environment.***
3. ***Priority shall be given to maintaining, and where possible improving, water quality in areas which are susceptible to degradation and/or have significant values (as listed in Tables 8.1 and 8.2 and shown in Map Series 5 – Sheets 1-4).***
   Refer also to the policies under 7.4.7.
4. ***Existing native vegetation on the riparian margins of estuarine, wetland and coastal areas and lakes and streams listed in Tables 8.1 and 8.2 shall be retained, in accordance with the policies of Chapter 6 – Heritage.***

8.4.22 Methods

1. ***District plans, regional plans, and annual plans where appropriate, will give effect to Policies 8.4.21 -1, 2 ,3 and 4.***
2. ***Methods for the ARC and TAs to achieve Policy 8.4.21 -3 include:***
   - ***(i) pollution abatement and control work, including focus on controlling contaminants at source;***
   - ***(ii) stormwater quality control including retro-fitting in existing urban areas;***
   - ***(iii) drainage remediation programmes for illegal connections and combined sewer discharges, particularly for degraded urban streams and aquifers;***
   - ***(iv) techniques to reduce nitrate contamination;***
   - ***(v) riparian management techniques to protect water quality;***
     Refer also to Chapter 6 (6.4.10-11) and Chapter 18.
   - ***(vi) water quality education programmes.***
3. ***The ARC will promote the use of riparian management techniques.***
4. ***Methods for implementing Policy 8.4.21 – 2 will include the development of a Regional Stormwater Management Strategy which considers stormwater management issues in both new and existing urban areas. This strategy will be developed jointly by the ARC and the Region's TA s.***

8.4.23 Reasons

Policy 8.4.21 -1 enables urban development to proceed in proximity to the areas listed in Tables 8.1 and 8.2 , in accordance with Policies 2.6.1 and 2.6.2 in the Regional Overview and Strategic Direction Chapter 2.

Policy 8.4.21-3 and Method 8.4.22-2 require a greater level of protection to be given to the areas which have been found through ARC investigation and monitoring programmes to be particularly susceptible to water quality degradation and/or have significant values.

For areas which are susceptible to water quality degradation this does not mean that these waters have no assimilative capacity, as it is accepted that the degradation may be due to factors which are not affected by the input of certain contaminants or under certain discharge regimes. Recognition of these factors enables resources to be allocated in an effective and efficient manner. These include the following:

Riparian Management

The ARC is investigating the use of riparian management techniques to avoid, remedy, or mitigate the effects of diffuse runoff, and protect and enhance aquatic habitats, in urban and rural areas. Riparian management techniques have three main components. These are retirement or protection of the riparian margin, establishment of suitable vegetation and ongoing management. The aim of the present investigation is to assess which techniques will be the most effective in the Auckland Region. All the options for implementing these techniques and the costs involved will be assessed prior to their implementation.
(Refer also to Chapter 18 – Esplanade Reserves and Strips.)

Research on Nitrate Contamination of Aquifers

The ARC is assessing the source of nitrate contamination in the volcanic aquifers in the Franklin district. If effective land use management techniques can be found to reduce contamination, an assessment of the costs involved and options for implementation will be carried out prior to their implementation.

Explanation of Tables 8.1 and 8.2 and Map Series 5

Tables 8.1 and 8.2 and Map Series 5 : Maps 1-4 detail water resources that are degraded, susceptible to degradation or have significant values. They have been generated from the ARC's existing resource quality database with input from other data sources where available including: Marine Habitat Mapping for the Auckland Region (NIWA, 1994), the Waitemata and Manukau Harbour Maritime Planning Schemes (Conservation and Habitat Zones), Sites of Special Wildlife Interest: National Habitat Register (DoC) and Wetlands of Ecological and Representative Importance (DoC). They represent our current state of knowledge of the quality of the Region's aquatic resources. They contain more information on significant aquatic ecosystems in coastal waters than in freshwater. The ARC in consultation with relevant agencies will carry out further work to identify significant freshwater ecosystems including developing a regional evaluation methodology.

The ARC accepts that the current database does not allow definitive statements to be made about every waterway and that amendments will be required as further information comes to hand.

A range of criteria were used to determine which water bodies were significantly degraded including :

(i) bacterial indicator organisms;

(ii) trace metal levels in sediments;

(iii) synthetic organic contaminant levels i n sediments;

(iv) suspended sediment levels.

The levels of contaminants were compared to national guidelines for environmental protection or internationally accepted criteria where national guidelines were not available.

8.4.24 Policy: Significant resource management issues for Tangata Whenua.

Maori cultural and traditional values shall be recognised and provided for in the management of water quality.
(Refer to Chapter 3 – Matters of Significance to Iwi for methods, reasons and other relevant provisions.)

8.5 Environmental Results Anticipated

(a) Water quality will be maintained or improved in streams, lakes, wetlands, groundwater and coastal waters that have good water quality.

(b) Water quality will be maintained or improved in the parts of the Region where water quality has been degraded.

(c) Maori cultural and traditional values will be recognised and provided for in the management of water quality.

8.6 Monitoring

The procedures that will be used to monitor the effectiveness of the objectives, policies and methods in this chapter include:

(i) Long-term baseline surveys for freshwater and saline water quality, biological resources and air quality.

These will indicate whether water quality is being maintained and improved as per Objective 8.3 and Policies 8.4.1 and 8.4.21.

(ii) Other monitoring programmes, pollution abatement control and special surveys targeted at specific problems will be undertaken as necessary.

(iii) Compliance monitoring of ARC discharge permits and land use consents, including monitoring of cumulative effects.

This monitors the effectiveness of Objective 8.3 and Policies 8.4.1 to 8.4.24.

(iv) Monitoring of district plans and annual plans and TA land use applications, and monitoring of the results of ARC submissions;

This monitors Policies 8.4.4 to 8.4.24.

(v) Reviews of objectives, policies and methods in ARC plans.

The ARC's annual monitoring results are available to the public, upon request.

Table 8.1.

Water bodies/coastal waters susceptible to water quality degradation and/or with significant values.

See Map Series 5.

Shallow, permeable, unconfined volcanic aquifers.

Surface waters used for potable water supply at:

- Ohirangi Stream (Helensville)
- Mahurangi River (Warkworth),
- Hoteo River upstream of Wilson Road (Wellsford),

and those parts of the:

- Hays Creek Stream
- Waitakere River
- Nihotupu River
- Huia River
- Cosseys Creek
- Mangatawhiri River
- Wairoa River
- Mangatangi River

  and their tributaries above their respective water supply dams.

Areas susceptible to degradation because of tidal flushing characteristics, or indeterminate due to higher flushing characteristics.

- Lakes susceptible to degradation.
- Wetlands.
- Marine habitats of significant value.

Water bodies and coastal waters, including the Hauraki Gulf, which are identified in regional plans as being of high value for ecological, cultural, recreation, amenity, water supply, shellfish gathering, marine farming, and other values.

Table 8.2.

Water bodies/coastal waters with significantly degraded water quality.

See Map Series 5 .

Areas of the Manukau and Waitemata harbours, including the Tamaki estuary, as shown on Map Series 5 , Sheets 1 and 2.

Shallow, permeable, unconfined volcanic aquifers in the Franklin district, East Tamaki and Mount Smart/Penrose.

Lakes Kuwakatai, Slipper and Spectacle.

The following urban streams:

- Annes Creek
- Cox's Creek
- Edgars Creek
- Glendowie Stream
- Greenmount Stream
- Unnamed creek at the corner of Bowden – Carbine Road, Mt Wellington
- Meola Creek
- Motions Creek
- Newmarket Gully
- Omaru Creek
- Otahuhu Creek
- Otara Creek
- Oteha Stream
- Papakura Stream (lower)
- Puhinui Stream
- Southdown Stream
- Wairau Creek

The following rural streams:

- Ngongetepara Stream
- Hays Stream
- Whangapouri Stream
- Otara Stream (upper)

9.1 Introduction

Water is essential to the environment, and to the social, economic and cultural wellbeing of people and communities in the Auckland Region. The demands on the Region's water resources are not easy to satisfy and may conflict with one another.

Demands to consume or use water include metropolitan bulk potable water supplies, industrial users, rural town use, agriculture, horticulture, individual domestic use and stock watering. Water is also used for its capacity to assimilate contaminants. Lakes and rivers are valued for the freshwater ecosystems they support, scenic values and for swimming, fishing and other forms of recreation which give them amenity value.

Water is of cultural and spiritual significance to Tangata Whenua. The importance of water to Tangata Whenua is referred to in Chapter 8 – Water Quality (8.2.4). In addition to those matters, Iwi have expressed concern that:

- the mixing of water from different sources is culturally and spiritually offensive to some Iwi;
- sufficient water levels should be retained in water bodies to ensure the protection of the mauri and mana of the water and associated ecology, and the mana of the Tangata Whenua;
- the customs and traditions of Tangata Whenua associated with water in relation to marae, papakainga and mahinga kai should be recognised;
- the passage of native fish should be provided for where structures are placed in waterways;
- recognition should be given to the use of geothermal water for tikanga Maori;
- significant cumulative adverse effects of taking Tainui ancestral water for Auckland municipal supply.

Because the Auckland Region straddles a narrow part of the North Island with few places more than 20 km from a harbour or the sea, river catchments and recharge zones of aquifers (rock formations from which water can be abstracted) are not extensive. The water bodies are often relatively limited in relation to the demands placed upon them by the large population and intensive use in the Region.

Conservation of water and its more efficient use by all water suppliers and users can reduce demand, diminish conflicts of use, and avoid or mitigate adverse environmental effects.

The management of water use has a strong regulatory focus. Part III of the RM Act establishes different presumptions to govern water use from those applying to the use of land. The taking, damming or diversion of water is prohibited unless allowed by a resource consent or by a rule in a regional plan. Exceptions to this include the taking of water for an individual's reasonable domestic and stock watering needs or for fire-fighting. The taking of geothermal water for use for tikanga Maori is also an exception. The exceptions however are subject to there being no adverse effects on the environment. The Resource Management Act defines water as including fresh water, coastal water (sea water) and geothermal water, but excluding water in any form while in any pipe, tank or cistern.

The ARC has the function under section 30(1) of the RM Act of:

"(c) The control of the use of land for the purpose of:

(iii) The maintenance of the quantity of water in water bodies and coastal water.

(e) The control of the taking, use, damming, and diversion of water, and the control of the quantity, level, and flow of water in any water body, including:

(i) The setting of any maximum or minimum levels or flows of water.

(ii) The control of the range, or rate of change, of levels or flows of water.

(iii) The control of the taking or use of geothermal energy."

TAs have the functions under section 31 of the RM Act of implementing policies to achieve integrated management of the effects of the use of land and associated natural and physical resources and for controlling effects of land use. Land uses may have effects on the demand for water, or the quantity of water in water bodies. TAs must be sensitive to these effects.

Managing the taking and use of water involves three related processes:

- quantifying how much water is in the lake, or naturally flowing in the stream or aquifer;
- determining how much water can be abstracted without adverse effects (water availability) and/or how much will be retained in the water body to protect instream values such as ecological, cultural, social and economic requirements;
- determining allocations for various users including resource consent applicants, based on water needs, efficiency and priority of use.

9.2 Issues

The limited nature of the Auckland Region's water bodies, in relation to the high abstractive demands placed upon them, creates four significant issues for management and allocation of these resources. These are:

9.2.1 Land use can affect the quantity of water in streams, lakes and aquifers, and largely influences the demand to take, divert or dam water.

Land use changes and practices such as urbanisation, afforestation and major drainage works can reduce the quantity of water contributing to streams, lakes and aquifers, and can also affect water quality. In addition, the ways in which land is used largely determine the pressures to take water, to divert streams, and to impound water in dams.

Afforestation of pasture in a catchment may reduce stream flows by up to 50% depending on forest type, particularly in small catchments. Afforestation can also reduce recharge to aquifers. The reasons for these effects include interception of rainfall by, and evaporation from, the forest canopy, increased transpiration and changes to infiltration rates.

The extent of land covered by impervious surfaces, and different stormwater disposal methods affect how much rainwater infiltration recharges aquifers. This is especially significant in the urban areas of Auckland and Manukau cities where aquifers are utilised for water supply purposes (e.g., Onehunga, and Western Springs aquifers), and also in other parts of the Region. It is important that TAs give proper consideration to these matters when managing the effects of land use in an integrated manner, as required by section 31 of the RM Act.

Changing land uses can lead to demands for water which exceed the quantity that the stream or aquifer in the area can sustain. Failure to consider the likely future requirements of land use activities for water can result in demands to abstract unsustainable volumes from streams or aquifers, inefficient use of resources, and damage to natural values. It is therefore important to give consideration to water availability at an early stage in land use planning.

9.2.2 Demand for surface water equals or exceeds availability in parts of the Auckland Region.

Use and development of surface waters can include abstraction of water, discharge of contaminants for assimilation by water bodies, damming, diversion and land drainage. Such changes can affect the values of water bodies which are to be protected in terms of Part II of the RM Act, including ecological, cultural, recreational and amenity values. Use and development of surface waters can cause changes in water levels and flows and can result in reductions to water depth, velocity, wetted area and assimilation capacity. These can, in turn, lead to increased algal growth, increased temperatures, oxygen depletion, changes in composition of ecosystems, loss of habitat and degradation of fisheries. The amount of surface water available for abstraction is determined from natural stream flow less a residual stream flow for instream uses.

In some surface water catchments of the Auckland Region, conflict arises between the competing demands for protection, use and development. For some streams and lakes in the Auckland Region (e.g., Kaipara River, Rangitopuni Stream, Waitakere River, Mauku Stream, Slipper and Spectacle lakes) current allocations are equivalent to the quantity available.

9.2.3 Demand for groundwater equals or exceeds availability in parts of the Auckland Region.

In some aquifers of the Auckland Region conflict arises between the competing demands for abstractive use and for protection of spring flow, water levels, water quality and recharge of other aquifers. For some aquifers in the Auckland Region (such as Omaha and parts of the Kumeu sandstone aquifers) current allocations and abstraction are equivalent to the quantity available.

Water levels in unexploited aquifers are normally in a state of equilibrium. Recharge of aquifers occurs directly as a result of rainfall or by leakage from other aquifers which have a greater water pressure. Leakage to aquifers at lower pressure, discharge from springs to surface water or discharge to the sea at the coast are the outflows that balance recharge. In response to abstraction, a new equilibrium water level may be established in aquifers.

In the Auckland Region the main rock types which function as aquifers are greywacke, Waitemata Group sandstone, volcanic basalt, Kaawa Formation sand/shell, and recent sediments such as sand and gravels. The water storage and water yielding ability varies within and between aquifers.

Geothermal fields occur in the Region at Parakai, Waiwera, Whitford and Great Barrier Island. Hot water rapidly rises from depth through fractures in the rocks to provide bore production temperatures of up to 65°C.

Shallow volcanic aquifers are an important part of the entire groundwater/surface water system in Franklin district. Water levels in these unconfined (unpressurised) aquifers are the controlling influence on spring flow and on recharge of underlying deep volcanic and Kaawa Formation aquifers. The major streams are spring-fed from the shallow volcanic aquifer and during summer low flows are often in high demand.

Management of Auckland's aquifers (including those used for municipal supply) therefore includes the:

- protection of aquifer water quality, including prevention of salt-water intrusion at the coast;
- protection of geothermal aquifers from ingress of cold groundwater or seawater which would reduce bore production temperatures;
- prevention of long-term decline of aquifer water levels.

The quantity available for abstraction is determined from a portion of total aquifer recharge.

Where discrete aquifers overlie regional boundaries, as is the case with the Kaawa formation aquifer and Pukekohe plateau volcanic aquifer, both of which are in south Auckland, co-ordination is needed between the regional councils involved.

9.2.4 Competition for water between abstractive users has to be resolved where demand for water exceeds the quantity that the water body can sustain.

This may be addressed by controlling increased demand for water, establishing priorities of water use, and improving efficiency of use. Abstraction of coastal water is not presently an issue for the Region.

Changing land uses can lead to demands for water which exceed the quantity that can be abstracted from local streams or aquifers on a sustained basis. It is therefore important to consider water availability at an early stage in land use planning.

To give effect to urban and rural development strategies, and make the most efficient use of existing infrastructure, services and natural resources, it may be necessary to establish priorities for allocation of water which give preference to some existing or potential users in particular catchments or aquifers. Water shortages in certain areas will have implications for future urban or rural development.

Water conservation is also an integral part of this issue. If efficient use and conservation of water is not practised, water users relying on their own supplies from streams, lakes or bores, and those on municipal supplies, may consume more water than necessary. This means that less water is available for other users. An important part of demand management is a knowledge of water needs. If accurate water needs are known, then water permit holders can be allocated no more water than is necessary.

9.3 OBJECTIVES

1. *To maintain water levels and flows sufficient to protect the:*
   - *(i) natural character,*
   - *(ii) cultural, amenity and intrinsic values, and*
   - *(iii) aquatic habitats and ecosystems,*

   of streams, rivers, lakes and wetlands.
2. *To maintain water levels and flows of aquifers in the long term so as to retain adequate spring flow, prevent seawater intrusion at the coast, and to maintain temperatures in geothermal aquifers.*

3. *To manage the use of water so as to enable people and communities to provide for their present and future social, economic and cultural wellbeing, and for their health and safety, while being consistent with Objectives 9.3-1 and 9.3-2.*

9.4 Policies, Methods and Reasons

9.4.1 Policies: Land use and water resources.

The following Policies and Methods give effect to Objectives 9.3 -1 and -2.

1. *Land use activities that affect the quantity of water contributed to streams, rivers, lakes, wetlands or aquifers shall be managed so as to:*
   - *(i) protect the quantity of water in water bodies which have high amenity, cultural or ecological values;*
   - *(ii) avoid or mitigate flooding and erosion;*
   - *(iii) enhance water quality;*
   - *(iv) protect highly used water bodies.*
2. *Planning for changes or intensification of land use shall have particular regard to current water availability and priorities for allocation of available water resources.*
   See also Chapter 2 – Regional Overview and Strategic Direction, Policy 2.6.4 -1 (iv).

9.4.2 Methods

1. *The ARC will give effect to Policy 9.4.1-1 and -2 by seeking the inclusion of appropriate provisions in district plans or, where desirable, through the provisions of regional plans.*
2. *The ARC will record and make available to the public, appropriate information on current water availability for significant or priority surface water catchments and aquifers.*
3. *TAs should give effect to Policies 9.4.1 – 1 and -2 by the inclusion of appropriate provisions in district plans.*

9.4.3 Reasons

Maintaining the quantity and quality of water in water bodies.

Under section 30(1)(c)(iii) of the RM Act, regional councils have the function of controlling land use to maintain the quantity and quality of water in water bodies. This is best managed, however, through the exercise by TAs of their responsibilities to control the effects of the use, development or protection of land in terms of section 31 of the Act.

If the quantity of water in water bodies is not maintained by land use control, less water is available to users and for the protection of the water body.

A range of land use activities, including changes of primary production regimes, such as the replacement of pasture land with more dense vegetation (e.g. exotic or indigenous forest), urbanisation (resulting in increases to impervious surfaces), land drainage, and disposal of stormwater to the ground, can affect the quantity and quality of water which reaches streams, rivers, lakes, wetlands and aquifers. Areas of concern in the Auckland Region include significant wetland habitats (e.g., Te Henga wetland), lakes in the Kaipara peninsula and Mangawhai areas and some of the more highly used or valued surface water catchments and aquifers including, but not limited to, the Rangitopuni Stream and Clevedon Valley aquifer – Ardmore hills recharge area.

However, runoff from forest may be of better quality than that from agricultural land, and have less sediment and nutrients. Established forests attenuate flood flows.

For shallow volcanic aquifers (e.g., Auckland isthmus), disposal of stormwater to ground soakage increases the proportion of rainfall recharging the aquifer. However, the aquifers are susceptible to contamination from poor quality urban stormwater. The ARC is promoting treatment of all stormwater that is disposed of by ground soakage and containment of contaminants at source.

Control of the effects of land use in a manner which achieves integrated management of natural and physical resources may require consideration of a range of factors, including, for example, maintenance of the quantity of recharge to aquifers, and adverse effects such as degradation of the quality of groundwater.

Land use planning and demand for water.

Changing land uses can lead to demand for water which exceeds the quantity that the stream or aquifer in the area can sustain.

The diverse water needs for urban development, industry and agricultural land uses must be taken into account in the processes of planning and managing the effects of land use.

In areas where groundwater and surface water is

approaching full allocation, there may be a need for a reticulated water supply from a distant source before urbanisation or rural land use intensification can occur. This situation exists in a number of areas such as Kumeu and Omaha. The productive potential of prime soils on rural land, such as those at Pukekohe, may be compromised due to a shortage of water if such land is further urbanised.

In order for TAs to give effect to the policies, the ARC must make available information on water availability for significant or priority water bodies which merit protection for their high values or which are highly used.

9.4.4 Policy: Water availability.

The following Policy and Methods give effect to Objective 9.3 -1 and -2.

The availability of water in water bodies and coastal water for taking, use, damming or diversion shall be determined on the following basis:

(i) A precautionary approach shall be taken.
(The precautionary approach is outlined in Chapter 1.)

(ii) The following matters shall be recognised and provided for:

- ***(a) the ability of the water body to sustain the abstraction;***
- ***(b) the relationship of Tangata Whenua and their culture and traditions with their ancestral water, waahi tapu and other taonga;***
- ***(c) preservation of the natural character of the coastal environment, streams, rivers, lakes and wetlands and their margins;***
- ***(d) protection of indigenous vegetation and habitats of indigenous fauna in streams, rivers, lakes, wetlands and the coastal environment;***
- ***(e) maintenance of the natural flow variability in streams, rivers, lakes and wetlands.***

(iii) Particular regard shall be had to the following matters:

- ***(a) kaitiakitanga;***
- ***(b) maintenance and enhancement of the recreational, scenic, amenity and intrinsic values of streams, rivers, lakes and wetlands;***
- ***(c) maintenance of water quality including sufficient capacity for streams, rivers, lakes and wetlands to assimilate contaminants;***

See also Chapter 8 – Water Quality policies.

- ***(d) the security of a specific quantity of water being available in streams, rivers, lakes and wetlands during periods of low flow;***
- ***(e) estimates of aquifer recharge;***
- ***(f) maintenance of aquifer water levels adequate to ensure continued recharge between aquifers;***
- ***(g) maintenance of outflow from aquifers at the coast to prevent salt-water intrusion;***
- ***(h) retention of adequate spring flow from shallow aquifers which provide base flow for streams;***
- ***(i) avoidance of land subsidence and structural damage to aquifers;***
- ***(j) maintenance of geothermal aquifer water levels to prevent cold groundwater or seawater intrusion and reduction in aquifer temperatures;***
- ***(k) avoidance of long term decline of aquifer water levels;***
- ***(l) the extent of the overlap, if any, of catchments and aquifers with regional council boundaries.***

(iv) The principles of the Treaty of Waitangi (Te Tiriti o Waitangi) shall be taken into account.
(Refer also to Chapter 3 – Matters of Significance to Iwi.)

9.4.5 Methods

1. The ARC will record and make available to the public, appropriate hydrological and other information such as the following:

- ***(i) For selected surface water bodies: flow regimes, water levels, water quality, aquatic habitat, indigenous vegetation, indigenous fauna and other uses.***
- ***(ii) For selected aquifers: extent, thickness, water levels, transmissivity and storage coefficient parameters, chemical character and temperature.***

2. The ARC may impose conditions on consents which require consent holders to record and forward to the ARC, as appropriate, information on water use and the effects of that use on the adjacent environment. Consent holders may also be required to record water level, temperature, quality information, and other information as required by the ARC.

3. ***The ARC will identify in the ARC Annual Plan, those catchments and aquifers for priority investigation and ongoing monitoring within that year.***

4. ***The process for determining the availability of water for abstraction from a water body which is identified as having priority for investigation will be as follows:***

   (i) A non-statutory Water Resource Assessment Report (WRAR), which is part of the catchment planning process, will be prepared (see Appendix A). In the process of preparing the WRAR the ARC will:

      (a) consult with the Tangata Whenua, and persons interested or affected (see Appendix D – for consultation);

      (b) refer any issues which are not resolved by consultation to a Hearings Commission, which will receive and hear submissions and evidence from any person interested, deliberate thereon, and recommend any changes which it considers should be made to the WRAR.

   (ii) If any issue then remains unresolved at the completion of the hearings process, either appropriate provisions will be included in a regional plan to give effect to the findings of the study or, any consent applications relevant to the study will be notified. The plan, provisions, or consents will proceed in accordance with the statutory processes set out in the RM Act.

   (iii) Where all issues are resolved by (i)(a) above, Water Resource Assessment Reports will be regarded in the resource consent process. Where the process proceeds to (b) the WRAR will be superseded by the provisions of any relevant regional plan.

5. ***Non-statutory ARC Water Resource Assessment Reports will, as appropriate:***

   (i) describe the area and water resource to which the assessment report applies;

   (ii) identify issues that affect the use, development or protection of the natural and physical resources;

   (iii) provide information on quantities of water available for abstraction including the setting of any minimum water levels or flow regimes;

   (iv) evaluate alternative strategies for addressing the issues including priorities of allocation, economic instruments, and assessment of efficient use;

   (v) propose ongoing monitoring or investigation of the water resource;

   (vi) have a review or expiry date on the assessment report.

9.4.6 Reasons

Information

Assessment of water availability is an essential step in achieving sustainable management of the Region's water resources. Only when the amount of water that can be abstracted from a water body, without long term depletion of the resource or causing significant adverse effects to it, is known can prudent decisions be made about the granting of resource consents to take, divert or dam. Policy 9.4.4 identifies the factors which are to be taken into account in deciding how much water is available from any water body. This process of assessment is particularly important for those water bodies which are likely to be subject to greatest demand. Long-term stream flow records are necessary to estimate flows during droughts of particular recurrence intervals. Long-term records of aquifer water levels, as a response to use, are important to refine estimates of groundwater availability. Adequate and accurate hydrological and other information is essential for reliable estimates of water availability.

Section 35 of the RM Act requires the ARC to gather information and keep records on significant water resources of the Region to enable it to carry out its regulatory functions. The ARC maintains a network of automatic water level recorder stations for measuring stream flow, lake levels and aquifer water levels. The value of Tangata Whenua customary knowledge is recognised.

Sections 108(3) and (4) of the RM Act allow consent conditions which require holders to supply to the ARC information relating to exercise of the consent.

In order for water permits to be effective management tools and for water to be allocated on the basis of efficient use, water use must be known. Compliance with permit conditions and allocations must be enforced. Accurate metering of water use is the only effective way of achieving this.

Water use information is also fundamental to refining

water availability for aquifers. Holders of water permits may also have to make provision for the ARC to measure bore water levels and take water samples. They may also have to collect other information, such as temperature, if required.

Priority investigations

Some water resources need particular priority in terms of the resources of the ARC and other users. This is because the water resource is in high demand from abstractive users, or because a high value is placed on particular ecological, recreational or scenic features.

The preparation of the ARC Annual Plan, which sets budgets for the year, is a public process open to submissions before final decisions are made. It is an appropriate mechanism for prioritising the application of ARC resources.

Water Resource Assessment Reports

Once a catchment or aquifer has been identified for priority investigation it is necessary to identify the resource values to be conserved or protected, and the management problems of the catchment or aquifer. The controls on use that are necessary to avoid, remedy, or mitigate adverse effects must be formulated in an integrated and cost effective manner. This may be achieved through the preparation of a Water Resource Assessment Report (see Appendix A).

The process of consultation during preparation will enable Tangata Whenua and persons interested or likely to be affected to express their concerns about any particular water resource. These concerns can then be considered within the context of sustainable water resource management.

The outcome of the reports may be given effect in several ways. They may provide guidance in processing resource consent applications under section104(1)(i) of the RMA. They may also be used in applications for Heritage Protection Orders and Water Conservation Orders, in preparation and implementation of regional plans or be incorporated in district plans.

The ARC has completed Water Resource Assessment Reports for at least 15 surface water catchments and 14 groundwater aquifers. These reports will be reviewed prior to their expiry in order to assess their effectiveness and refine estimates of water availability.

Criteria

Some of the criteria in Policy 9.4.4 are mandatory by virtue of sections 5, 6, 7 and 8 of the RM Act.

Sustainable surface water availability must be determined from natural stream flow less a flow for instream values. These instream values include cultural and Tangata Whenua concerns, fisheries, recreation, the stream's natural character, indigenous vegetation and fauna, habitat, scenic, amenity and intrinsic values. Natural flow variability is important for stimulating migration of fish and maintaining acceptable ecological conditions in streams. All these values have different requirements of stream flow.

There is no simple method to relate instream values to actual stream flow requirement, which must be based on physical data and a process which takes into account intrinsic values of ecosystems and the non-consumptive values of the community. Availability assessments are subject to revision based on continually updated information and methodology.

Streams in the Auckland Region are quite variable in their flows, even from similar sized catchments. This is due to differences in rainfall, topography, geology, vegetation and physical characteristics.

Abstractive uses also vary considerably, for example, whether they are continuous or intermittent, for the irrigation season or for year round municipal supply. Similarly, the quantity of water stored in ponds or behind dams is also variable.

Any estimate of surface water availability should not be an arbitrary proportion of stream flow but must be determined by the criteria in Policy 9.4.4, if adverse effects are to be avoided. Changes in water levels or flows can lead to reduced water depth, velocity, wetted area and assimilation capacity. These can in turn encourage algal growth, increased temperatures, oxygen depletion, changes in composition of ecosystems, loss of habitat, degradation to fisheries and loss of recreational opportunities.

Sustainable groundwater availability must be determined, not from aquifer storage but, from aquifer recharge less an allowance for spring flow, leakage to other aquifers and outflow at the coast.

Aquifers in the Auckland Region are often part of multi-aquifer/surface water systems and may be connected to the sea at the coast. Water levels in shallow unconfined

(unpressurised) aquifers are the controlling influence on spring flow, which often provides a major proportion of summer stream base flow. Leakage from one aquifer to another may provide a major proportion of recharge. Aquifers display seasonal variations in water levels as a response to climate and abstraction.

Any estimate of groundwater availability must be determined by the criteria in Policy 9.4.4 if adverse effects are to be avoided. Such effects include perennial springs ceasing to flow in summer, salt-water intrusion in coastal aquifers, and long-term decline in bore water levels.

If the total allocation for a water body is in excess of sustainable water availability, then allocations will need to be reduced to comply with water availability.

Some catchments and discrete aquifers overlap regional council boundaries and co-ordination is therefore necessary between councils. Examples include the Kaawa Formation aquifer, Pukekohe plateau volcanic aquifer, and the catchments of the Mangatangi, Mangatawhiri and Tutaenui streams. These water bodies overlap the boundary between the Auckland and Waikato Regional councils.

9.4.7 Policies: Allocation and use of water.

The following Policies and Methods give effect to Objectives 9.3 -1, 2, and -3.

1. ***The conservation, efficient use and reuse of the Region's water shall be promoted.***
2. ***Priority shall be accorded to uses of water which give effect to the RPS strategic direction and the regional development policies (see Chapter 2).***
3. ***The taking, damming, diversion and use of available water as determined by Policy 9.4.4, shall be controlled so that:***
   - ***(i) Actual or potential adverse effects on the environment, including effects on other authorised water users, the water body, ecosystems, and amenity values, are avoided, remedied, or mitigated.***
   - ***(ii) The relationship of Tangata Whenua and their culture and traditions with their ancestral water, waahi tapu and other taonga is recognised and provided for.***
   - ***(iii) Particular regard is had to:***
     - ***(a) kaitiakitanga;***
     - ***(b) promoting efficient use of water;***
     - ***(c) avoiding, remedying, or mitigating adverse effects of dams, weirs and other instream structures on the environment including but not limited to reduction in flows, obstruction to the passage and migration of any indigenous fauna; bank or bed erosion or aggradation; flooding or restricting the drainage of any property;***
     - ***(d) providing, in the case of fresh water, for the individual's reasonable domestic needs and for the individual's animal's drinking water;***
     - ***(e) providing, in the case of geothermal water, for tikanga Maori for the communal benefit of the Tangata Whenua of the area;***
     - ***(f) encouraging multiple use of streams, rivers, lakes and aquifers.***
   - ***(iv) The principles of the Treaty of Waitangi (Te Tiriti o Waitangi) are taken into account.***

9.4.8 Methods

1. ***The ARC will promote the conservation, efficient distribution and use and reuse of water through:***
   - ***(i) the resource consent process,***
   - ***(ii) seeking provisions in district plans,***
   - ***(iii) public education programmes,***
   - ***(iv) the promotion of pricing mechanisms,***
   - ***(v) preparation of a regional strategy dealing with water availability and conservation.***

   (Refer also to Method 2.6.2 – 4 in Chapter 2 – Regional Overview and Strategic Direction.)
2. ***The ARC will control the taking, damming, diversion, use and allocation of water by means of:***
   - ***(i) The resource consent process, and consent transfer, having regard to Water Resource Assessment Reports where these are applicable (see Policy 9.4.4, Method 9.4.5 and Appendix A).***
   - ***(ii) Regional plan provisions where appropriate.***
   - ***(iii) Monitoring any taking of fresh water or geothermal water as provided for by Policies 9.4.7-3(iii)(d) and (e) to ensure that no adverse effects occur.***

9.4.9 Reasons

Conservation and efficient water use

Conservation and efficient water use can apply to all water users. In promoting conservation and efficient use of water, not only must natural water bodies be considered, but also reticulated municipal supplies and use of rainwater in tanks. Encouraging the conservation and efficient use of water by domestic households, industry, agriculture and other consumers can reduce conflicts of use and increase the utilisation of the available water.

A significant proportion of municipal supply water is lost through leakage and this should be reduced. Water audits by major water users and suppliers will be encouraged, to identify areas of wastage and opportunities to conserve or use water more efficiently. The use of rain water in tanks should be considered, but with due regard given to any potential effects on public health.

Reuse of treated stormwater and wastewater for non-potable supply to industrial users and irrigators should be examined. A separate treated wastewater reticulation system may be developed for areas of largest demand in the vicinity of wastewater treatment facilities. If used for irrigation, potential surface water and groundwater contamination must be avoided. Appropriate discharge consents will be required.

Storage of winter runoff in off-stream dams makes more efficient use of annual rainfall than taking from run-of-stream flow, and is encouraged.

Efficient water use also leads to efficiencies in energy used to pump water and lower flows in waste treatment and disposal systems.

Activities which take or use water in order to produce goods or provide services will be expected to bear the costs of avoiding, remedying, or mitigating the effects of taking or using water. This should encourage users to take, or retain as an allocation, only the minimum quantity required for the activity. This should improve efficiency of water use.

Priority of water use

Management of water resources needs to integrate with other resource issues. The taking and use of water may give effect to the RPS strategic direction. The strategic objectives and policies provide the framework for this, and are further developed through specific policies on urban growth management (including defined metropolitan urban limits), countryside living, and on rural areas.

In particular, the policy on rural areas specifically includes reference to the management of the use of rural land with regard to the availability and sustainability of water resources. The same policy also states that consideration should be given to alternative locations (including locations in urban areas) for activities which give rise to adverse effects on the environment.

Any proposed or existing activity for which the allocation of water is sought should avoid, remedy or mitigate any adverse effects on the environmental values that the Strategic Direction of the RPS seeks to protect.

Control of water use

In managing and controlling water use, the ARC is required by sections 5, 6, 7 and 8 of the RM Act to consider effects on the environment, kaitiakitanga, Tangata Whenua values, instream values and uses, protection of indigenous fauna habitat and efficient use and development of water resources.

Policy 9.4.7 -3(iii)(d) and (e) and Method 9.4.8 – 2(iii) acknowledge the provisions of section 14 (3) (b) and (c) of the RM Act, where a consent is not required to take and use water for an individual's reasonable domestic and stock drinking needs, or geothermal water in accordance with tikanga Maori, provided that there are no adverse effects on the environment. ARC monitoring and enforcement must ensure that no adverse effects occur.

To use and develop water resources in an efficient manner, and to avoid adverse effects upon the environment, regard must be had to residual flows/levels required to sustain the instream/groundwater management objectives. The quantities granted in permits must be based on efficient use and must not exceed the quantity that the applicant requires on a daily and, where appropriate, annual basis.

If total allocation for a water body is in excess of sustainable water availability, allocations will need to be reduced to comply with water availability.

Conditions placed on water permits may specify the location of the activity, purpose of water use, and any monitoring of water use and its effects upon the water resource. Water permits for dams may have conditions regarding flood spillways, low flow bypasses and provision for passage of fish.

An assessment of effects for a consent to take groundwater may require an aquifer (pump) test on the bore to show that the bore can sustain the required yield in the long-term and that there are no unacceptable effects upon other authorised users or the aquifer as a whole.

Multiple use of water enables people and communities, rather than just individuals, to provide for their wellbeing, health and safety.

Economic instruments available for managing use of water resources include annual resource use charges to consent holders pursuant to section 36 of the RM Act and trading permits pursuant to transfer provisions of section 136 of the Act. Annual consent holder charges have the effect of encouraging users to relinquish unused water allocations making it available to other users. Transfer of permits between users in the same aquifer or catchment may also promote more efficient use of available water.

TAs should recognise the effects of demand for reticulated municipal supply on natural water bodies, and consider economic incentives for water conservation.

9.4.10 Policy: Significant resource management issues for Tangata Whenua.

Maori cultural and traditional values shall be recognised and taken into account in the management of water conservation and allocation.

(Refer to Chapter 3 – Matters of Significance to Iwi for methods, reasons and other relevant provisions.)

9.5 Environmental Results Anticipated

The following environmental results may be anticipated from implementation of the policy and methods.

(a) Sufficient water will be maintained in streams, rivers, lakes and wetlands to protect the ecosystems' natural character and intrinsic values, as well as the non-consumptive values that the community places on them.

(b) Aquifer water levels, temperature, spring flow and quality of groundwater at the coast are maintained at acceptable levels because the total quantity of water that may be used is based on natural replenishment of aquifers.

(c) Communities and people can provide for most of their present and future consumptive water needs because of efficient use of available water resources and appropriate land use and development.

(d) Maori cultural and traditional values are taken into account in the management of water conservation and allocation.

These results will mean the water resources in the Auckland Region will be maintained and enhanced in a sustainable manner.

9.6 Monitoring

The following monitoring is necessary in order to evaluate the suitability and effectiveness of the policies and methods.

(i) Groundwater static water levels in long-term monitoring bores measured continuously or manually.

(ii) Groundwater quality including bores near the coast.

(iii) Bore production temperatures in the case of geothermal groundwater.

(iv) Stream water levels from which flows can be calculated need to be measured continuously in key catchments.

(v) Surface water quality, indigenous vegetation, indigenous fauna and other uses of streams and lakes.

(vi) Metered water use records provided by consent holders.

(vii) Compliance of consent holders with consent conditions.

(viii) Maintenance of a register of complaints relating to the quantity of water in streams, lakes and bores.

(ix) Appropriate involvement of Tangata Whenua in the monitoring (a) to (h).

10.1 Introduction

Air of an acceptable standard is a prerequisite for the personal health and wellbeing of individuals, and for the functioning of all organisms. Maintaining and, where necessary, enhancing this resource is imperative in order to ensure its sustainability for present and future generations.

Pollutants emitted into the atmosphere can degrade a region's air resource. Air pollutants can affect public health, cause local nuisances, and detract from the amenity value of the Region. Some air pollutants may also have global environmental impacts.

Air pollutants in large metropolitan cities originate from a variety of sources including industry, vehicles and domestic activities. The Auckland Region is the most populous in New Zealand and contains several significant areas of industry. The potential therefore exists for adverse effects on the Region's air quality.

The quality of air in any region is determined by the balance between the rate of input of pollutants and the rate at which those pollutants are dispersed or removed from the air. The latter is a function of the meteorology (air stability and wind speed) of the Region since this determines dispersion and fallout rates – these are physical factors over which we have no control. The rate of input of pollutants is a function of various human activities which, by contrast, can be controlled to a large degree.

Auckland's maritime environment usually ensures relatively high mean wind speeds, good ventilation, and rapid dispersal of pollutants. During some periods, however, particularly the winter months, the atmosphere is stable, pollutants disperse slowly and air pollution levels increase. Furthermore, in some parts of the Region, land uses that generate significant levels of air emissions are located in close proximity to other land uses sensitive to such emissions. Under these circumstances, even good ventilation may not prevent air pollution problems occurring.

In the Auckland Region, international ambient air quality standards are only occasionally exceeded. However, as the Region's population increases, so too will pressure on the atmosphere to assimilate pollutants. Given our involuntary exposure to air and the life-supporting capacity of air, it is appropriate to adopt a precautionary approach (refer to Chapter 1) in the management of the Region's air resource.

Management of the air resource requires a network of sites for monitoring the ambient or background levels of air pollutants and for monitoring climate since, as discussed above, the climate of the Region plays an important role in determining air quality. In order to safeguard the life-supporting capacity of air, it is necessary to have standards against which ambient levels of pollutants can be compared. However, present air quality and climate monitoring networks are inadequate for air quality management. Furthermore, there are no ambient air quality standards for the Region. Many overseas standards have been developed as targets or long-term goals for already highly polluted environments. For this reason, international standards may not be appropriate for the New Zealand environment.

In order to determine the most effective means of protecting air quality, it is also necessary to have current data on the proportion of emissions from different sources in the Region. However, a comprehensive inventory of emissions in the Auckland Region has not been conducted since 1973.

By virtue of sections 30(1)(d)(iv) and 30(1)(f) of the RM Act, control of discharges of contaminants to air is a function of a regional council. Section 15 prevents such discharges from industrial and trade premises except as permitted by a resource consent or a rule in a regional plan. It also enables such discharges from other places or sources (whether moving or not) to be regulated by the provisions of a regional plan. The Department of Health previously performed this function through administration of the Clean Air Act 1972. The Clean Air Act was repealed with the introduction of the RM Act on 1 October, 1991.

A regulatory system of licensing and compliance monitoring of industry was established in 1973 under the Clean Air Act whereby industrial processes were classified as either Part A, B or C, depending on their nature and size. This classification is still used as an interim measure. Clean air licences previously held by industries under the Clean Air Act are deemed to be air discharge permits (resource consents) under section 385 of the RM Act.

At the time of preparation of this RPS the ARC has responsibility for Part A industries, and has transferred to the TAs responsibility for the smaller Part B and C industries. The ARC has yet to determine its policy on future transferral of responsibility for discharges to air.

10.2 Issues

10.2.1 Discharges of contaminants can directly affect local air quality, but can also contribute to cumulative adverse effects on Regional air quality.

Aggregated discharges from all activities can result in cumulative effects on Regional air quality, such as degradation of visibility and formation of photochemical smog. Past studies of Regional air quality have been limited and very little information is available on the nature and extent of these cumulative effects, or the relative contribution of sources of contaminants. However, a clear understanding of these phenomena is necessary to ensure that control programmes are well focused and effective in maintaining and, where necessary, enhancing air quality.

10.2.2 A number of activities cause adverse effects to air quality in the Auckland Region. These include:

1. Motor vehicles

Motor vehicles are the largest single source of air pollution in metropolitan areas yet there are no controls on vehicle emissions in the Region or elsewhere in New Zealand. Motor vehicle emissions can affect public health, welfare and property. They detract from public amenities, are precursors to photochemical smog, implicated in global climate change, and contribute to water pollution in the Region. Motor vehicle emissions are not subject to resource consents.

The overall magnitude of vehicle emissions is affected by the size and activity patterns of urban Auckland. Auckland's sprawling development and heavy reliance on private motor vehicles lead to significant quantities of emissions and adversely affect air quality in the Region.

2. Industry

Emissions from industry have the potential for significant adverse effects on the health of people living and working in close proximity. Collectively, industries contribute a significant quantity of emissions to the Region's airshed. Such emissions, if odorous or visible, may also detract from amenity values.

Industrial emissions are controlled through resource consents. In keeping with the RM Act, each consent application is assessed to ensure there will be no significant adverse effect on the environment. However, it can be difficult to quantify adverse effects from a single point source, particularly its contribution to Regional cumulative effects. A precautionary approach of prevention (where appropriate) or minimisation of adverse effects within specified criteria is required, where there are no prescribed limits for the discharge of contaminants from industry and no New Zealand standard methods for sampling discharges from stacks or the determination of stack heights.

There has been a lack of air quality considerations in land use planning. Many air pollution problems have arisen due to poor planning in the past which has resulted in increased sensitivity of adjacent land uses. An example of this is the location of residential properties in close proximity to industrial areas. With the tendency for TAs to encourage mixed zoning, this situation has been intensified.

3. Open burning

Emissions from the open burning of waste are the largest single cause of air quality complaints in the Region. As well as producing local nuisance conditions, the emissions from open burning can be detrimental to health, welfare and property. At present, only North Shore City and Manukau City Councils regulate open burning.

4. Domestic heating

Emissions from domestic fireplaces and solid fuel burning appliances can cause local nuisance conditions, affect public health and welfare, and detract from public amenities. Collectively, these sources contribute significant quantities of contaminants to the urban airshed. Moreover, emissions from these sources are greatest during the winter months when atmospheric conditions are less conducive to the dispersion of pollutants.

5. Agrichemical spray drift

Spray drift from the application of agrichemicals such as pesticides, herbicides and insecticides to agriculture,

horticulture, forestry, and during roadside weed control operations in urban areas can cause local nuisance conditions, and therefore complaints, and may affect public health and wellbeing.

10.2.3 The discharge of chlorofluorocarbons, halons, methyl chloroform, and carbon tetrachloride in the Region contributes to depletion of stratospheric ozone.

Ozone depletion will result in increased ultraviolet radiation which may threaten primary productivity, particularly that of phytoplankton and crops, and may increase the incidence of skin cancer and eye cataracts.

10.2.4. The discharge of greenhouse gases, namely carbon dioxide, methane, ozone, chlorofluorocarbons and nitrous oxide, in the Region may contribute to changes in global climate.

Such changes on a global scale may, in turn, affect the Region by way of changes in weather patterns and sea level.

10.3 Objectives

1. ***To avoid, remedy, or mitigate deterioration of air quality in the Region.***
2. ***To avoid, remedy, or mitigate the adverse effects that arise from the discharge of contaminants to air, including those from:***
   - ***(i) motor vehicles;***
   - ***(ii) industrial or trade premises;***
   - ***(iii) open burning of waste;***
   - ***(iv) domestic fireplaces and solid fuel burning appliances;***
   - ***(v) the application of agrichemicals.***
3. ***To reduce the discharge to air of:***
   - ***(i) contaminants which are known to deplete stratospheric ozone, including chlorofluorocarbons, halons, methyl chloroform and carbon tetrachloride;***
   - ***(ii) greenhouse gases which contribute to global warming, including carbon dioxide, methane and chlorofluorocarbons.***

10.4 Policies, Methods and Reasons

10.4.1 Policies: Management of the air resource.

The following policies and methods give effect to Objective 10.3-1.

1. ***Cumulative effects of discharges on Regional air quality including, but not restricted to, adverse effects on visibility and formation of secondary pollutants such as ozone, and levels of primary pollutants such as carbon monoxide, or particulates, shall be minimised.***
2. ***A precautionary approach to air quality management shall be adopted where relative contributions of sources of contaminants and the nature and extent of the adverse effects are uncertain.***
   (The precautionary approach is outlined in Chapter 1)

10.4.2 Methods

1. ***The ARC will undertake a programme of research to establish the major sources of pollutants in the Region that result in adverse effects on visibility.***
2. ***The ARC will undertake a programme of research to establish the severity, extent and frequency of photochemical smog formation in the Region.***
3. ***The ARC will extend the current ambient air quality monitoring network in the Region to a minimum adequate level sufficient to monitor the concentration and distribution of primary pollutants in the Region.***
4. ***The ARC will extend the current climate monitoring network in the Region to a minimum adequate level sufficient to monitor the transport of air pollutants within the Auckland Region.***
5. ***The ARC will undertake an inventory of current air emissions in the Region. The inventory will be reviewed after five years.***
6. ***The ARC will promulgate appropriate primary and secondary air quality standards for the Auckland Region.***
1. ***The ARC will review any provisions in the RPS and any regional plan that relate to sources of contaminants shown to have adverse effects on Regional air quality.***

10.4.3 Reasons

In order to avoid, remedy, or mitigate any cumulative effects on air quality such as deterioration in visibility or photochemical smog formation, it is necessary to identify and quantify the sources and their relative contribution to the air pollutants responsible for the problem. However, many air quality issues that arise from cumulative effects of particular contaminants are only poorly understood or cannot be readily quantified. A precautionary approach is appropriate until the interaction between contaminants and the receiving environment has been determined. In many cases, this can only be done by observation of long-term trends, but delays in taking action because of insufficient data should be avoided. There is also a preventative element to the precautionary approach. It is always more difficult and expensive to clean up a problem after it has occurred than to prevent the problem reaching unacceptable levels in the first place.

A comprehensive monitoring programme is a key element to Regional air quality management. The methods stated above are to ensure sufficient monitoring of ambient air quality, climate parameters, and air emissions is carried out, and that appropriate ambient air quality standards can be established.

There are six ambient air quality monitoring sites in the Region, located in Penrose, Queen St, Mt Eden, Mt Albert, Northcote and Henderson. They collectively monitor levels of carbon monoxide, lead, total suspended particulates, PM10, oxides of nitrogen and sulphur, non-methane hydrocarbons, and smoke. There is presently no ambient air quality monitoring in south Auckland. The Penrose monitoring site is the only one located in any of the Region's industrial areas. Ozone is a common pollutant in many large mid-latitude cities yet it is not monitored in the Auckland Region. An adequate monitoring network is necessary in order to establish that discharges of contaminants to air are being managed in a manner which gives effect to the purpose of the RM Act.

Ambient air quality standards in overseas countries are generally specified for contaminants which are ubiquitous in the atmosphere and in the highest concentrations. These include carbon monoxide, lead, oxides of nitrogen and sulphur, suspended particulates, and ozone. The Ministry for the Environment has finalised and released ambient air quality guidelines. However, Regional air quality is generally better than that represented by the guideline values. Adopting these guidelines as standards could allow pollution levels to rise gradually, until the guideline levels are reached. It will be more appropriate to adopt a two-tiered approach. Levels which define the minimum acceptable air quality (bottom line standards) should be determined. A second set of standards should then be defined that would ensure protection of existing air quality where this is already better than the acceptable level. This is the basis of Method 10.4.2 – 6.

The ARC requires climate data for two air quality management applications. First, real-time wind speed and direction data assist in identification of air pollution sources. Second, actual climate data, as opposed to theoretical climate data, are often required for the mathematical modelling of pollutant dispersion. Wind data are collected by New Zealand Meteorological Services Ltd at eight locations in the Region. Hourly wind speed and direction are measured only at Whenuapai, Auckland Airport, and Ponsonby Rd in the inner city.

The majority of air pollution complaints received by the ARC arise due to emissions from the three main industrial pockets in the Region, namely Onehunga/ Penrose/Mt Wellington, Avondale, and Wiri. Similarly, most of the applications for air discharge permits are for sites in these areas. Wind data measured at the Auckland Airport meteorological station are likely to be reasonably representative of conditions in the Wiri and Onehunga/ Penrose industrial areas. However, wind data measured at Whenuapai, Auckland Airport, or Ponsonby Rd are unlikely to be representative of the Mt Wellington and Avondale industrial areas. Method 10.4.2 – 4 is intended to address this inadequacy.

In order to allocate the ARC's resources in the most effective manner, it is important to know the relative proportions of emissions from each of the different sources. Moreover, the emission data must be collected and stored in such a way that they can be frequently and regularly updated. This is the basis of Policy 10.4.2 – 5.

Methods 10.4.2(1) – (7) provide the tools to implement and prioritise the programmes referred to in later Methods 10.4.5, 10.4.8, 10.4.11, 10.4.14 and 10.14.17. Taken in aggregate, these Methods will further facilitate the adoption of an equitable approach in the Region in terms of all sources of emissions to air.

10.4.4 Policy: Motor vehicle emissions.

The following policy and methods give effect to Objectives 10.3-1 and 2.

Adverse effects of emissions of contaminants to air from motor vehicles shall be minimised by:

(i) Implementing strategic policies to promote patterns of land use activities which minimise the need to travel, and take account of local climatic conditions.

(ii) Promoting more efficient transport modes (including, but not restricted to, passenger rail and rail freight, buses and ferries, cycling and car-pooling).

(iii) Encouraging the use of less pollutive transport modes (such as walking and cycling).

(iv) Bringing into effect measures to reduce emissions of contaminants at source (emission control systems including catalytic converters, motor vehicle emission testing and tuning requirements, and encouragement to use alternative fuels, such as natural gas and LPG).

See also Chapter 2 – Regional Overview and Strategic Direction, and Chapter 4 – Transport.

10.4.5 Methods

1. The ARC will consult with TAs, governmental agencies, and other interest groups as to the most effective means to reduce the production of greenhouse gases arising from land transport and the effects of vehicle emissions on air quality and community health and wellbeing, and the joint establishment of realistic programmes and targets to achieve these. In particular, the ARC and TAs will co-operate to initiate a programme of voluntary testing of motor vehicle exhausts emissions and an education programme to:

(i) promote regular tuning and maintenance of motor vehicles;

(ii) promote the use of alternative fuels and unleaded petrol;

(iii) promote awareness of the production and consequences of motor vehicle emissions;

(iv) promote awareness of alternative transport options, including but not restricted to, public transport such as rail, buses and ferries, cycling and car pooling.

2. The ARC will strongly endorse the removal of lead from all grades of petrol available for distribution through retail outlets.

3. The ARC will take a strong advocacy role, requesting central government to establish:

(i) emission standards for motor vehicles as a matter of urgency;

(ii) compulsory motor vehicle emission testing and compliance as a matter of urgency;

(iii) requirements making installation and maintenance of emission control systems, including catalytic converters, mandatory on all new motor vehicles, and on any imported secondhand motor vehicles originally fitted with emission control systems.

4. The ARC will provide a role model through replacement and maintenance of its vehicle fleet.

10.4.6 Reason

Motor vehicle emissions include carbon dioxide, carbon monoxide, oxides of nitrogen, lead compounds, hydrocarbons, sulphur dioxide, fine carbon particles (smoke) and products of incomplete combustion. Although motor vehicle emissions in the Auckland Region have not recently been quantified, in other metropolitan areas it has been shown that motor vehicles are the largest single source of air pollutants. A reduction in the quantities of pollutants from motor vehicles is therefore the most effective means of protecting the air resource. The projected growth rate in motor vehicles of 3% per annum is a further incentive for reducing emissions.

The strategic directions for Regional development are designed to minimise the need for people to travel by maximising the proximity of their destinations, in particular, their place of work. This should reduce fuel use and therefore reduce emissions. Encouraging the use of public transport, shared use of vehicles, and non-polluting transport modes will also reduce emissions.

Measures are required to reduce motor vehicle emissions 'at the tailpipe'. Vehicle tune-ups can reduce emissions by up to 30% while also improving vehicle fuel economy. A voluntary programme of motor vehicle emission testing is proposed, such as that run by the Canterbury Regional Council. This involves testing exhaust emissions to ensure that they meet acceptable standards. However, it is essential that the tests be conducted to represent actual emissions. Many idle tests are not adequate and can give a false indication of the vehicle's performance.

Emission control technology (such as catalytic converters) that is mandatory overseas has yet to be introduced in New Zealand. Catalytic converters can reduce emissions of carbon monoxide, hydrocarbons (including benzene) and nitrogen oxides by between 80 and 90% or better. In most modern motor vehicles, the emission control system is an integral part of the fuel injection system. However, the sensors and catalysts are rendered non-functional by the presence of lead in petrol. Many vehicles are unable to run on Unleaded 91 and cannot have emission control systems installed or, in the case of imported vehicles, must have them removed. It is essential that New Zealand remove lead from all grades of petrol as soon as possible to allow unrestricted introduction of this technology that is now standard elsewhere in the developed world. The government's decision to remove lead from petrol is therefore strongly endorsed.

About 60 – 70% of new vehicles are purchased as fleet vehicles. The ARC should set an appropriate role model in its own vehicle fleet policies, and encourage similar policies to be adopted by other agencies operating vehicle fleets.

However, emission criteria and an appropriate monitoring/ compliance programme need to be established to ensure that emission control systems, where fitted, are properly maintained and operating effectively. Because motor vehicles are destined for a national rather than regional market, emission criteria should be set, and enforced, on a national basis by central government.

Motor vehicles powered by alternative fuels such as liquid petroleum gas and compressed natural gas have lower hydrocarbon, carbon monoxide, particulate, and carbon dioxide emissions than petrol-driven vehicles. This is particularly the case for vehicles designed to run exclusively on these fuels (there are some efficiency losses associated with dual fuel vehicles).

In some circumstances, the use of diesel can have similar advantages, particularly as a similar standard of emission control technology is being developed for diesel as for petrol fuelled engines. However, without emission controls and correct maintenance, the advantage of diesel vehicles is rapidly offset by an increase in particulate emissions containing toxic materials. Other cleaner technologies such as hydrogen powered and electric vehicles are being developed overseas and may become viable in the foreseeable future.

10.4.7 Policies: Industrial emissions.

The following policies and methods give effect to Objectives 10.3-1 and 2.

1. ***Adverse effects due to discharges to air from industrial and trade premises in the Auckland Region will be minimised and shall comply with criteria for such discharges specified in Regional or District Plans, regulations or conditions of resource consents.***
2. ***Sufficient monitoring of industrial discharges shall be undertaken to demonstrate compliance with regional rules, regulations or conditions of resource consents.***
3. ***Industrial emission testing shall be carried out according to standard test methods as specified in regional or district plans, regulations or conditions of resource consents.***
4. ***Adequate separation distances shall be maintained between industrial or trade premises that discharge, or have the potential to discharge, noxious, dangerous, offensive or objectionable contaminants to air and adjacent land uses.***
5. ***Odour standards and standard methods for the measurement of odour shall be established.***

10.4.8 Methods

1. ***The ARC will introduce provisions in a regional plan to give effect to Policies 10.4.7 – 1 to 5.***
2. ***TAs will make adequate provision in district plans to give effect to Policies 10.4.7 – 1, 4 and 5.***
3. ***The ARC will take a strong advocacy role in requesting central government to establish as a matter of urgency:***
   - ***(i) National emission standards and national guidelines for design ground level concentrations for the discharge of contaminants to air from specific industrial or trade premises.***
   - ***(ii) National guidelines for standard methods for sampling discharges of contaminants (including odorous contaminants) to air from industrial or trade premises.***
   - ***(iii) National guidelines for standard methods for determination of industrial stack heights.***
   - ***(iv) Source performance criteria for the discharge of contaminants to air from industrial or trade premises.***

10.4.9 Reasons

The most significant point source discharges generally arise from industrial or trade processes. Discharges from any activity are subject to the provisions of section 17 of the RM Act which places a duty to avoid, remedy, or mitigate adverse effects on any person undertaking an activity. However, in a developed urban area such as Auckland, discharges have effects on both local and regional air quality. Degradation of regional air quality generally arises through the cumulative effect of all discharges in a Region. While most applicants for discharge permits can demonstrate the scale and significance of local effects, their contribution to degradation of regional air quality cannot be readily quantified. Similarly, the environmental effects of many contaminants are either unknown or poorly understood. Therefore, it is appropriate to adopt a precautionary approach to discharges to air from industrial point sources. This is best achieved through a policy of prevention or minimisation of adverse effects within criteria specified in regional or district plans, regulations, or conditions of resource consents. The criteria provide minimum performance standards to be attained by industrial or trade processes and are not to be viewed as limits to pollute up to. The most effective method to avoid cumulative adverse effects is to minimise the quantity of contaminants discharged into the receiving environment.

Under section 35 of the RM Act, the ARC has a responsibility to monitor the effectiveness of any policy statement or plan, and the exercise of resource consents. Criteria referred to in Policy 10.4.7 – 1 must be able to be both monitored and enforced. Monitoring discharges can be complex and it is important that standard reference test methods are used where possible. These can be specified in the criteria relating to discharges.

Where sensitive land uses are not sufficiently separated from industries, amenity and quality of life in the adjacent area may be reduced due to odour or dust emissions. Good pollution control technology and sound practice is not an adequate substitute for buffer distances to segregate noxious and offensive industry from other sensitive land uses. Equipment failure, accidents and unusual weather conditions can lead to emissions affecting properties beyond the boundaries of the source premises. Also, costs of control equipment can sometimes be prohibitive. Provision of an adequate separation or buffer distance allows uncontrolled episodic emissions (which occasionally occur despite consent conditions and pollution control technology) to dissipate without adverse effects on sensitive land uses. Such buffer distances must be preserved after the industry has been built.

TAs have delegated authority to deal with some industrial or trade activities and have the option of setting performance standards for air contaminants such as odour. It is appropriate that provisions relating to separation distances and criteria for air discharges be included in district plans. These need to be consistent with the criteria set out in regional plans to ensure integrated management of these issues. This is reflected in Methods 10.4.8 – 1 and 10.4.8 – 2.

In order to adequately assess and regulate proposed and existing discharges to air, the ARC requires industrial emission limits, design ground level concentrations, standard methods for sampling of discharges and for determining stack height requirements, and source performance criteria for specific industries. With New Zealand's small population base and limited resources, there are serious diseconomies in developing such standards region by region. The ARC requests that central government address these requirements as a matter of urgency. It is important, however, that regional councils, TAs and interest groups have input to this process.

With respect to Method 10.4.8 -1, the Air Quality Regional Plan may include:

- emission limits and design ground level concentrations for industrial discharges;
- standard methods for sampling discharges and determining stack heights;
- criteria for the classification of industrial or trade premises as permitted, controlled, discretionary, non-complying, or prohibited activities;
- buffer distances;
- source performance criteria for industrial discharges.

Contaminants discharged from industrial or trade premises can cause adverse effects because of toxicity or odour. It is not possible to characterise the individual contaminants of odorous emissions from some premises (e.g., printing plants). Such emissions must be assessed in

terms of the collective odour units discharged. However, New Zealand has no established methods of odour measurement nor odour standards. Without these, it is difficult to ensure that there will be no adverse effects from the discharges.

Methods of measurement and standards for odour are tools that are or will be required by many of the regional councils. The ARC therefore considers that central government should formulate odour standards and methods of measurement of odour in consultation with regional councils, TAs, and other affected parties.

10.4.10 Policy: Open burning.

The following policy and methods give effect to Objectives 10.3-1 and 2.

Adverse effects due to discharges to air from open burning of waste in the Auckland Region shall be minimised.

Refer also to Chapter 15 – Waste, Policies 15.4.1 -1 and 15.4.1 -2.

10.4.11 Methods

1. ***The ARC will include rules in the Air Quality Regional plan to stringently control and, where appropriate, prevent open burning.***
2. ***The ARC and TAs will provide information for the public describing the environmental and health effects of emissions from open burning of waste, and the alternatives available.***

10.4.12 Reasons

Open burning is used to dispose of domestic waste, to remove scrub, trees, and tree stumps on new subdivisions in rural/residential areas, to dispose of scrap materials in industrial areas, and to dispose of waste at landfill sites. While open burning may be a convenient means of waste disposal, it has significant adverse effects on the air resource.

Open burning discharges large quantities of contaminants to air, including smoke, ash, carbon monoxide and odour. Nearly half of the particulates generated by open burning are in the inhalable size range. The level of carbon monoxide in the neighbourhood of a residential open fire can be as high as in an urban street with heavy traffic. The soiling and odour characteristics of dense smoke from open burning cause local nuisance conditions, particularly in or adjacent to residential development. Small scale back yard burning is the greatest single source of air pollution complaints received by TAs. Open burning adjacent to roadways can pose a significant visibility hazard. Impacts can be exacerbated when synthetic materials are burned. Materials containing chlorine, such as polyvinyl chloride (PVC) found in many plastics, can generate no fewer than 75 potentially toxic materials. Open burning of wastes that contain such materials can produce air pollution of sufficient quantity and of such characteristics and duration as to be potentially injurious to health. There may therefore be reason for concern about the health implications of allowing open burning in urban areas. Only two of the seven TAs in the Region at present control open burning, and there is therefore a need for a consistent approach.

The references to policies in the Chapter 15 – Waste relate to concepts of waste minimisation including waste reduction, recycling and reuse. Most waste disposed of by open burning is organic in origin and practical alternatives exist such as organic composting, shredding and mulching. Minimising the amount of waste requiring disposal will also reduce the need to burn it.

The ARC is committed to avoiding the adverse effects that arise from the open burning of waste. Subject to a full analysis of the options available to achieve this objective, rules to regulate open burning will be introduced in the Air Quality Regional plan. Means of providing for such activities as the need to burn noxious plants, or fires for hangi, will be considered as part of the analysis under section 32of the RM Act.

10.4.13 Policy: Domestic heating.

The following policy and methods give effect to Objective 10.3-1 and 2

The discharge of contaminants to air from domestic fireplaces and solid fuel burning appliances shall be minimised.

10.4.14 Methods

1. ***The ARC will undertake a programme of research on appropriate methods for minimising the discharge of contaminants to air from domestic fireplaces and solid fuel burning appliances. The ARC and TAs will implement any practical controls identified in the programme of research.***
2. ***The ARC together with the TAs will provide advice on ways of minimising emissions from domestic fireplaces and solid fuel burning appliances.***

10.4.15 Reasons

Pollutants from domestic fireplaces and solid fuel burning appliances are similar to those from open burning. A reduction in the emission of pollutants from domestic fireplaces and solid fuel burning appliances will avoid or mitigate nuisance conditions. It will also protect amenity values, and public health and welfare from the adverse effects of emissions from these sources.

There is a New Zealand Standard which specifies criteria for approval of appliances in terms of air emissions (NZS 7403:1992 Domestic solid fuel burning appliances – Method for determination of flue gas emissions). However, there is no requirement that appliances installed in the Region comply with this standard. Specifying rules in the Air Quality Regional Plan requiring all installations of new domestic solid fuel burning appliances to be approved according to this standard may be an appropriate and relatively simple way to achieve the stated objective.

Any rules specified in the Air Quality Regional Plan referring to the installation of domestic fireplaces and solid fuel burning appliances will have regard to the requirements of the Building Act 1991.

There are a variety of measures which the public can undertake to maximise heat obtained from fuel combustion while simultaneously reducing air emissions.

These include ensuring there is sufficient air flow and mixing in appliances, and burning dry, well seasoned wood. Such practices will reduce the nuisance and adverse health effects of emissions from these sources. In addition to emission controls, the height and position of the discharge stack should ensure adequate dispersion of the contaminants discharged.

10.4.16 Policy: Agrichemical spray drift.

The following policy and methods give effect to Objectives 10.3-1 and 2.

Adverse effects that arise from the application of agrichemicals shall, as far as practicable, be minimised.

10.4.17 Methods

1. ***The ARC, in consultation with TAs, governmental agencies, user groups and other interest groups will undertake a review of methods to minimise the adverse effects of the application of agrichemicals. The ARC and TAs will implement any practical controls following the review.***

2. ***The ARC will promote integrated pest management practices that include the use of alternatives to agrichemicals and avoid agrichemical overuse, inappropriate application techniques and spray or vapour drift.***

3. ***The ARC will provide a role model through its own pest management practices.***

10.4.18 Reasons

The ARC has a responsibility under the Act to ensure that adverse effects from the discharge of contaminants are avoided, remedied, or mitigated. This includes drift from spray or the aerial application of agrichemicals. Adverse effects due to agrichemical spray drift can be avoided in the future through land use planning which considers the sensitivity of adjacent land use. Buffer distances between urban development and horticultural, agricultural or forestry land uses which require spray application of agrichemicals may need to be prescribed in regional or district plans. Mitigation of existing adverse effects from spray drift can be achieved through measures such as an industrial code of practice, appropriate standards for equipment, and spray exclusion zones.

The Parliamentary Commissioner has released a report on agricultural and horticultural chemical sprays[1] and the Taranaki Regional Council has commissioned a report on this issue. The ARC will assess these reports, together with any other relevant material, and act accordingly.

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1 *Management of Agrichemical Spray Drift; Office of the Parliamentary Commissioner for Environment, December 1993.*

The ARC has an ongoing role, particularly in the interim, to promote best practice for the use of agrichemicals. This includes encouraging integrated pest management and selection of the best option for agrichemical application. To this end, the ARC must be an appropriate role model through its own pest management practices.

10.4.19 Policy: Ozone depleting substances.

The following policy and methods give effect to Objective 10.3-3.

Measures by central government to prevent the discharge to the atmosphere of ozone depleting substances (ODSs), as defined in the Ozone Layer Protection Act 1990, will be supported.

10.4.20 Methods

1. ***The ARC will undertake an education programme to:***
   - ***(i) Promote awareness of the adverse effects of releasing ODSs to the atmosphere.***
   - ***(ii) Promote good housekeeping practices in industry with respect to the use, reuse, recycling, storage and safe disposal of ODSs.***
   - ***(iii) Promote awareness and use of the industrial chlorofluorocarbon collection, storage, and disposal programme operated by the Ozone Protection Trust.***
2. ***The ARC will take a strong advocacy role in requesting central government to enforce the provisions of the Ozone Layer Protection Act 1990 as a matter of urgency.***

10.4.21 Reasons

There is scientific evidence that ozone depletion is taking place in both the northern and southern hemispheres. There is little doubt that chlorofluorocarbons (CFCs), halons, methyl chloroform (also known as 1,1,1-trichloroethane), and carbon tetrachloride are responsible for ozone depletion. It is imperative that policies are instituted at the regional, national, and international levels to address this pressing global issue.

CFCs are used as refrigerants, in the manufacture of plastic foam products, in aerosol sprays, and as solvents in industrial cleaning processes. Halons are used in fire-fighting equipment. Methyl chloroform is used as a metal degreasing agent, and in adhesives. Carbon tetrachloride is used in analytical laboratories but its use in this country is negligible. The development of alternatives to these ODSs is progressing rapidly. Some of the substitutes still have the potential to deplete the ozone layer but are far less damaging.

New Zealand does not produce any ODSs, so that consumption can be controlled by restricting imports. This is the basis of the Ozone Layer Protection Act 1990 which also controls the sale of ODSs, associated technology and goods made using ODSs. The Act has phase-out schedules for ODSs and also makes it an offence to release any ODS to the atmosphere while servicing, modifying or dismantling any refrigeration or air conditioning equipment or fire extinguishers. Enforcement of the Act is the responsibility of the Ministry of Commerce. It is imperative that the ministry enforces the provisions of the Act as a matter of urgency since this is the only regulatory mechanism available to address this issue. The ARC's role is one of education.

An Ozone Protection Trust has been set up by the refrigeration industry. The trust raises levies to pay for the collection, storage, and destruction of CFCs. The ARC will promote the use of the trust's services.

10.4.22 Policies: Greenhouse gases.

The following policies and methods give effect to Objective 10.3-3.

1. ***Operators of industrial or trade premises shall, where practicable, adopt measures that reduce the discharge of carbon dioxide.***
2. ***Adoption of greenhouse gas offsets shall be promoted as a mechanism to, as far as practicable, reduce regional greenhouse gas emissions.***
   (Also refer to the following Policies 10.4.1-1, 10.4.4-1 and 10.4.17; and Policy 15.4.1 -2 in Chapter 15 – Waste.)

10.4.23 Methods

1. ***The ARC will promote energy efficiency measures such as optimisation of process flows, product redesign, retrofitting heat recovery equipment to coal and gas fired boiler flues, steam heat recovery, and co-generation.***
2. ***The ARC will take a strong advocacy role, requesting central government to promulgate a National Policy Statement on greenhouse gas emissions, setting sector based reduction targets and methods to be adopted.***

3. ***The ARC will investigate methods for promoting the use of equitable, sector based offsets for greenhouse gas emissions.***

Refer to Methods:
10.4.2 -2
10.4.17 -1
10.4.5 -1
Chapter 15 – Waste: Methods 15.4.2 -3 and 7.

10.4.24 Reasons

The planet has a habitable climate due to the presence of greenhouse gases, namely water vapour, carbon dioxide, methane and nitrous oxide. Greenhouse gases trap some of the sun's energy and effectively maintain global air temperatures at an average of 15 degrees Celsius. Without these gases, the mean global air temperature would be about minus 18 degrees Celsius. Thus, any alteration in the concentration of these important gases could alter our climate.

Greenhouse gases have increased in concentration over the last 130 years, largely due to human activities. Some manmade pollutants, such as chlorofluorocarbons and ozone, have also been found to have greenhouse potential. It has been postulated that this increase may alter climate, but the matter is the subject of ongoing research and much scientific debate. This phenomenon is commonly referred to as the "enhanced greenhouse effect". Because there is an incomplete understanding of climatic processes, the magnitude of changes in climate which may occur in response to increased concentrations of greenhouse gases is uncertain. Also, ecological responses to climate change are difficult to assess.

Even so, measures could be adopted to reduce greenhouse gas emissions which would have environmental and economic benefits for the Region. Such measures could be justified on this basis alone and are worthy of adoption regardless of the eventual nature and magnitude of any change in climate. This is a 'no regrets' approach.

The two greenhouse gases that have the greatest contribution to the enhanced greenhouse effect are carbon dioxide and methane. In New Zealand, 46% of the total energy related to carbon dioxide emissions arises from the transportation sector, 36% are from the industrial sector, while the residential and commercial sectors each contribute 9%. Methane emissions are largely from agriculture with a small contribution from landfills.

In 1989-90, agriculture contributed the same amount of carbon dioxide and methane as the transport sector. Furthermore, when calculated over a 20-year period, methane accounts for 62% of New Zealand's greenhouse gases, whereas carbon dioxide accounts for only 19%. However, the potential for reducing emissions of methane from the agriculture sector (sheep and cattle) is particularly small given our agriculture based economy. By contrast, our potential for reducing carbon dioxide emissions from the transport and industrial sectors is much greater, particularly since regional councils are responsible for strategic and transport planning and for controlling emissions from industry.

The policies and methods stated above target the main sources of greenhouse gases that fall within the ARC's jurisdiction, namely transport (carbon dioxide), industry (carbon dioxide, chlorofluorocarbons and methane) and landfills (methane).

A voluntary programme of vehicle emission testing and public education will reduce emissions of contaminants from motor vehicles including carbon dioxide. While tuning of motor vehicles produces a greater ratio of carbon dioxide to carbon monoxide, because the engine runs more efficiently, it consumes less fuel. There is a net benefit reduction in carbon dioxide emissions from a well-tuned engine. Further net reductions are possible through reductions in the total number of vehicle kilometres travelled. This can be achieved through improving vehicle occupancy and patronage of public transport in the short term, and urban planning in the long term.

Carbon dioxide emissions from the industrial sector are largely a function of the amount of fossil fuels used to produce energy. A reduction in energy use through energy efficiency measures will therefore reduce carbon dioxide emissions. Similarly, the production of aluminium, steel and glass are energy intensive processes. Recycling these products will reduce energy consumption and, therefore, carbon dioxide emissions. Furthermore, any process which reduces energy use will be of economic interest to industry. It is acknowledged that major energy users have already instituted some energy efficiency improvements where these are cost effective, and are exploring further measures as part of establishing sector based voluntary agreements with central government. In addition to source reduction

of greenhouse gas emissions, net reductions can be achieved by providing appropriate offsets. An offset is a method of compensating for an increase in emission from a particular source by reducing greenhouse gases by another means. Examples include offsetting carbon dioxide emissions by utilising landfill gases (methane), co-generation and remediation through development of carbon sinks such as tree planting. Providing for offsets is best done equitably on a per sector basis rather than on an ad hoc basis through the resource consent process. To this end, the ARC advocates that central government promulgates a National Policy Statement, specifying equitable sector based reduction targets and methods of implementation.

10.5 Environmental Results Anticipated

The environmental results anticipated from implementation of the stated policies and methods are:

(a) Air quality will be maintained in areas where existing air quality is good; and maintained and improved in areas where air quality is degraded.

(b) Energy production and use will be more efficient in the industrial and transport sectors.

(c) Minimisation and, where appropriate, reduction of discharges to air.

(d) A net reduction in emissions of ozone depleting substances and greenhouse gases.

10.6 Monitoring

The procedures that will be used to monitor the effectiveness of this document as a means of achieving the stated objectives and policies include:

(i) Analysis of the data recorded at each of the six ambient air quality monitoring sites located in Penrose, Mt Albert, Mt Eden, Queen St, Northcote and Henderson, and at all new ambient air quality monitoring sites.

(ii) Analysis of compliance monitoring data for discharge of contaminants to air from industry.

(iii) Analysis of the emissions inventory data.

(iv) Analysis of data on the use of public transport and unleaded petrol.

11.1 Introduction

The Auckland Region, like much of New Zealand, is at risk from a range of natural hazards. The irregular occurrences of natural hazard events means they are often poorly understood. Many of the land use management decisions made in the past have tended to exacerbate the risk[1]. With the continual growth of the Auckland Region, it is important that public authorities recognise the risk from hazards and undertake co-ordinated responses to ensure the long-term reduction in risk posed to the Region.

Natural hazards are defined within the RM Act as:-

"Natural hazard means any atmospheric or earth or water related occurrence (including earthquake, 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."

Throughout the Auckland Region natural hazards occur in varying severity, in location, and in time. Each hazard poses a different risk to human safety and wellbeing (including public health), infrastructure, and the environment. To deal with the risks posed by natural hazards the RM Act (sections 30, 31 and 35) gives functions to the ARC and TAs aimed at the avoidance or mitigation of the resulting impacts. These functions include developing and placing controls, such as policies and rules, within planning documents or resource consents to ensure adequate measures are taken to protect human life, property and the environment from the impacts of natural hazards. In addition to the function of regional councils and TAs towards the avoidance or mitigation of natural hazards, it may be possible in some cases to remedy the effects of some natural hazards (e.g., beach nourishment to remedy the effects of coastal erosion).

In developing policies and rules aimed at dealing with the risks and impacts of natural hazards, it is recognised that a 'partnership' between development and nature must be established. This partnership must aim at keeping people away from hazards, rather than hazards from people.

The most commonly occurring natural hazards in the Auckland Region are flooding (from both overflow and inundation), both in rural and urban areas, and erosion/land instability. Impacts of erosion/land instability are generally limited to smaller areas and are not Regionally significant. TAs have a number of existing controls for these hazards, which are referenced in district plans, and exercised mainly under the Building Act 2004 and the Resource Management Act 1991. The ARC has traditionally worked with these councils towards compatible policy.

The coastal environment is particularly susceptible to natural hazards. Within the Auckland Region the primary hazards arising from coastal processes include erosion, inundation of low lying areas, land instability, rising mean sea level and tsunami. These hazards may occur individually, or combine to create a cumulatively more significant hazard.

The sustainable management of the coastal environment with respect to natural hazards should involve the consideration of the particular hazard in the wider context (both above and below MHWS, and over longer time periods), to ensure appropriate methods are used to avoid, remedy, or mitigate natural coastal hazards, while protecting the natural character and processes of the coastal environment.

The least frequently occurring natural hazards include earthquakes, volcanism, tsunami, various meteorological effects (cyclones, tornadoes, drought) and fire. While of low frequency, they are potentially of major Regional significance and not easily dealt with through land use control strategies. The risks of these natural hazards are poorly understood. The Civil Defence Emergency Management Act 2002 sets out how the region will jointly manage natural (and non-natural) hazards. This Act requires Local Authorities to plan for hazards across the key areas of reduction, readiness, response or recovery. This ensures that these infrequently occurring natural hazards are dealt with by contingency controls such as civil defence and insurance systems.

11.2 Issues

11.2.1 Natural hazards pose a risk to people, property, infrastructure and the environment in the Auckland region

Much of the Region is at risk from one or more natural hazards. In particular, flood damage has had significant impacts in catchments such as the Kaipara River, Hingaia stream, and Opanuku stream. There are innumerable smaller urban catchments in which the

1 *Risk = Consequences x Likelihood*

risks posed by flooding are serious. Often these risks are exacerbated by the inappropriate location of buildings and infrastructure in flood prone areas or by flood peaks heightened by an increase in impermeable surfaces in urban catchments. (Infrastructure includes essential lifelines such as transport, water, wastewater, stormwater, telecommunications, and power. The consequence of infrastructure failure as a result of a natural hazard often poses significant and widespread risk to the community in addition to the risk posed by the hazard event itself.)

Serious coastal erosion is occurring around the Region, creating a risk to property and infrastructure. Destruction of property at Omaha in the late 1970s provided a graphic demonstration of the Region's vulnerability to coastal erosion hazards. Almost the entire length of the Auckland coastline is subject to a landwards regression. The area that is likely to be susceptible to the coastal erosion hazard along the Auckland coastline is highly variable due to a number of factors, such as the variability in wave clmiate and the competency of the underlying material. A broad scale assessment, or regional overview, of areas susceptible to coastal erosion in teh Auckland Region over the next 100 years has indicated that for beach environments the areas 'likely' to be susceptible to erosion range from 6 metres landward of the vegetation line at stable beaches with low/limited sand dune systems, to 55 metres at more variable beaches with highly developed dune systems. for cliff areas the assessment has indicated the 'possible' areas susceptible to erosion effects, extending landward from the toe of the cliff, range in width from about 5m in low, competent volcanic cliffs to 235m in high, weakly consolidated cliffs. Site specific analysis is required to determine the actual area susceptible to coastal erosion at any particular site. With continual pressure for development along the coastal margins and with predicted sea level rises associated with global climate changes, the risk is likely to increase in the future.

Land instability occurs as a result of steepness, and because of the existence of a number of inherently unstable geological units, which are widely distributed in the Region.

Cyclones also affect the Auckland Region, bringing high wind speeds and heavy rainfall. These events can cause flooding, coastal erosion and instability all at the same time. In addition, they often cause damage to essential lifeline utilities such as power and telecommunications. Severe cyclones, causing effects such as flooding, winds, storm-surge and landsliding that are beyond those planned for in District Plans, affect the Auckland Region on average once every 100 years.

Although the frequency of occurrence is much less than the above natural hazards, the impacts of major natural hazard events, such as volcanic activity or earthquakes, would be extremely catastrophic for the Region. Historic volcanic eruptions in Auckland have occurred at different locations about once every 1000 years and tsunami waves of 1-3 metres may occur about once every 75 years.

Many natural hazards are not well understood in terms of location, frequency, magnitude and consequences. As a result risk avoidance or reduction mechanisms may be difficult to justify because of gaps in knowledge and understanding, giving rise to increased risk.

Often the level of information required to assess the degree of risk of natural hazards requires a greater level of expenditure than is currently undertaken by TAs. In these situations a precautionary approach is appropriate

In addition, many people have two common misconceptions of risk: many people do not understand that events occur randomly so that (for example) a recent major event is taken to indicate that the next one will not occur for some years; and many people do not appreciate that an extreme event (e.g. 1% AEP) has a significant chance of occurring in their lifetime. These misconceptions can also result in behaviours and decisions that increase risk.

Traditional approaches to natural hazard management have involved the protection of people and the environment from natural hazards. Some of these measures, such as flood protection schemes and seawalls, may themselves have an adverse impact on the environment.

11.3 Objective

To avoid, remedy, or mitigate the adverse effects of natural hazards on human life, property, infrastructure and the environment, while minimising the adverse effects of measures implemented to reduce the risks of natural hazards.

11.4 Policies, Methods and Reasons

11.4.1 Policies

The following policies and methods give effect to Objective 11.3.

1. ***Natural hazard management shall be integrated and co-ordinated between the ARC and TAs within the Auckland Region, and with adjoining regional councils.***

2. ***Before provision is made enabling development or redevelopment of land, including intensification of land use, any natural hazards, particularly flooding, land instability and coastal hazards, and measures to avoid or mitigate their adverse effects shall be identified.***

3. ***Except as provided in 11.4.1.4 below, development shall only be allowed in the 1% AEP flood plain when:***

    a. ***Any adverse effects of a 1% AEP flood event on new buildings, are avoided or mitigated; except in urban areas, when any adverse effects of the 1% AEP flood event on the habitable floors of new buildings are avoided;***

    b. ***Any new building, structure or reclamation will not;***

        i. ***Divert overland flows, or***

        ii. ***Increase runoff volumes to create a new flood hazard, or***

        iii. ***Accelerate, worsen or exacerbate existing flood hazards;***

    unless any adverse effects, including potential cumulative effects, on other properties are avoided or mitigated;

    c. ***Any hazardous substance stored as part of the development, or during the construction, will not create a hazard or significant adverse effect.***

4. ***A district plan may provide for an alternative flood standard to that set out in 11.4.1.3 to cater for existing hydrological constraints (including, topographical and geological conditions, the nature of existing development, and the adequacy of overland flow paths), and provided that the alternative district plan provisions shall:***

    a. ***Require flood protection to a standard that is no less stringent that the 2% AEP; and***

    b. ***The adverse effects of the 2% AEP flood event on the habitable floors within the development are avoided; and either;***

        i. ***The adverse effects of the development on flood hazards are contained within the boundary of the site; or***

        ii. ***Any adverse effects on flood hazards on other properties are not permitted by the district plan.***

    (See Appendix D for the definition of AEP)

5. ***Development that results in changes in the volume of stormwater runoff during a flood event with a greater probability than 1% AEP shall not accelerate, worsen or exacerbate the adverse effects of a flooding hazard unless any adverse effects on other properties are avoided or mitigated.***

6. ***Where development or use exists within areas susceptible to natural hazards, construction of mitigation works shall be allowed only where people, property, infrastructure and the environment are subject to risk from hazards, the works are the best practicable option, and any adverse effects on the environment are avoided, remedied or mitigated. The abandonment or relocation of existing structures and the use of non-structural solutions shall also be considered among the options.***

    (See also Chapter 7 Coastal Environment)

7. ***Any works or structures within the 1% AEP flood plain or overland flow path(s) shall not create or exacerbate a flood hazard, during a flood event with a greater probability than 1% AEP, either at the site or at any location upstream or downstream of the works or structures; unless:***

    a. ***The adverse effects of the flood hazard are avoided, remedied, or mitigated; or***

b. The work or structure is required to avoid, remedy or mitigate the adverse environmental effects of a flood event;

Works may include (but are not limited to) earthworks, riparian planting, piping of streams and the construction of culverts, bridges, retaining walls.

8. Development shall not be allowed in areas subject to erosion/land instability unless it can be demonstrated that the adverse effects can be avoided or mitigated.

9. In the coastal environment, new subdivision, use or development should be located and designed, so that the need for hazard protection measures is avoided.

10. A precautionary approach shall be used (including the development and implementation of plans) in avoiding or mitigating the adverse effects on people, property, infrastructure and the environment of earthquake, volcanic activity, sea level rise, tsunami and global climate change.

11.4.2 Methods

1. The ARC will gather information and undertake or commission research at a regional scale on natural hazards and their risks and impacts. This information shall be made available to TAs and the general public through a natural hazards database. This will include volcanic, tsunami, earthquake, cyclone, and coastal hazards including the effects of sea level rise and climate change.

2. TAs will gather information and undertake or commission research on natural hazards, their risks and impacts at a district/city scale, and make this information available to all persons through a natural hazard database. This will include flooding, land instability, coastal hazards and active faults.

3. The ARC will investigate methods to avoid, mitigate or respond to natural hazards and make this information available to TAs and the general public.

4. The ARC and TAs will jointly advocate through the Auckland Civil Defence and Emergency Management Group methods to avoid or mitigate the adverse effects of natural hazards on the environment.

5. The ARC will co-ordinate the management of natural hazards throughout the Region by developing guidelines and strategies, and ensuring consistency among TAs, by co-ordination of action in respect of natural hazards which extend across local boundaries, and by co-ordination of action with the appropriate regional council in respect of natural hazards which extend across regional boundaries.

6. TAs will give effect to these policies by including objectives, policies, rules and other methods of implementation within district plans to control any actual or potential effects of the use, development or protection of land for the avoidance or mitigation of natural hazards.

7. The ARC will implement objectives, policies, rules and other methods with respect to any actual or potential coastal hazards arising from the use, development or protection of land in the coastal marine area, through the provisions in the Regional Plan - Coastal, which will encourage subdivision, use and development in the coastal environment to locate in appropriate areas.
See also Chapter 7 - Coastal Environment.

8. TAs will implement objectives, policies, rules and other methods with respect to coastal hazards through provisions in district plans, including the use of esplanade reserves and strips and coastal setbacks for the purpose of avoiding, or mitigating natural hazards.
See also Chapter 18 - Esplanade Reserves and Strips.

9. TAs will ensure that flooding, instability and coastal hazards are assessed before any new areas are rezoned in ways that enable intensification of use, or where development is likely to cause adverse effects. This should be done as part of a wider planning process or structure planning process (as described in Appendix A).

10. The ARC will (for example by advocacy and through Regional Plan provisions) promote a comprehensive catchment-wide approach to flood management.

11. The ARC will regulate diversions and discharges of stormwater in order to avoid or mitigate adverse effects of flooding and erosion, through the Regional Plan provisions and resource consent process.

12. TAs will undertake day to day flood management functions. These functions may include (but need not necessarily be limited to): monitoring of flows

and water levels, issuing warnings to the public and alerting civil defence, operation of floodgates, and infrastructure maintenance such as clearing of debris from culvert inlets and other hydraulic structures.

13. ***Within the 1% AEP flood plain and overland flowpaths TAs and ARC will control reclamation and storage of materials likely to be moved by flood events, and ensure that development within the area is located in such a manner as to avoid or mitigate adverse effects of flooding and erosion.***
14. ***The ARC and TAs, through the resource consent process, building permits, and monitoring and enforcement procedures, will ensure that any lawfully established hazard mitigation work is adequately constructed and maintained. Construction and ongoing maintenance of hazard mitigation works is the responsibility of the owner.***
15. ***The ARC and TAs will develop and carry out coordinated educational strategies aimed at providing the general public with a greater understanding of natural hazards, their associated risks, how these risks are being addressed and how to be prepared for an emergency.***
16. ***The ARC and TAs will co-ordinate activities and provide for planning related to civil defence emergency management across the areas of reduction, readiness, response and recovery to avoid or mitigate the effects of natural hazards.***

11.4.3 Reasons

Sections 30 and 31 of the RM Act give the ARC and TAs similar functions in relation to the avoidance or mitigation of natural hazards. The RM Amendment Act 1993 enables the RPS to define the respective responsibilities of regional and territorial councils. It is important to clarify the respective roles of these agencies in order to avoid public confusion and to ensure that natural hazards management is undertaken at optimum efficiency and effectiveness.

While most natural processes that cause coastal hazards originate in the CMA, their adverse effects are usually expressed on the land above Mean High Water Springs (MHWS) where regional councils and TAs both have respective responsibilities. In order to achieve integrated and co-ordinated management of coastal hazards in the Auckland Region, these responsibilities need to be clearly identified.

The ARC will ensure consistency of approach and maintenance of standards across the Region adn the development of guidelines and strategies. By virtue of its responsibilities under sections 14 and 15 of the RM Act, the ARC regulates diversions and discharges of stormwater that occur as a result of development. Because of the TAs' involvement in land use planning and the control of building development, it is more appropriate that they control stormwater discharges, subject to attaining standards adopted across the Region. The ARC intends to establish such standards while also continuing to allocate direct control to TAs via the catchment-wide network discharge consents granted under teh proposed Auckland Regional Plan: Air, Land and Water. Any such allocations shall be based on the production of integrated catchment management plans produced on a catchment-by-catchment basis.

Responsibility for the construction and maintenance of mitigation works should be borne by the owner or their successors. The relevant consenting authority above MHWS (territorial local authorities) and below MHWS (regional council) should ensure this is undertaken to an adequate standard through resource consent conditions and that appropriate legal mechanisms (such as bonds or covenants) are in place to provide for on-going maintenance of works undertaken by private persons.

The RPS requires that TAs will take responsibility via their district plans for ensuring that redevelopment or intensification is discouraged in known hazard zones. For presently undeveloped areas (e.g., rural), where the land use may change (e.g., urbanised), no new development will be permitted in the 1% AEP flood hazard zone, unless the hazard can be avoided by, for example, setting floor levels above the flood hazard level. Any development that is permitted should not accelerate or worsen the known hazard or divert flow onto other properties. Access to and from buildings should be maintained during flooding for purposes of evacuation.

The community has accepted a level of flood protection equivalent to a 1% AEP for a number of years, and it is considered appropriate to maintain this standard. The RPS policies and methods, formulated under the RMA, take a long term (intergenerational) view and consider a wide range of effects. Therefore it can be more restrictive than the standards imposed under the Building Act.

Traditionally, the management of risk from natural hazards in New Zealand has revolved around mitigation

works, or the physical protection of people, property and the environment from the effects of hazards. A typical response to flood risk, for example, is to attempt to prevent flood events from inflicting damage on the environment. The erection of stopbanks is a classic example. Whilst protection works are generally of immediate success, they only afford protection up to their design capacity. Yet this is frequently ignored by public authorities who at times permit development in areas 'protected' by structural works. The resulting damage when the design capacity of the works is exceeded is often catastrophic.

In the future the approach in the Auckland Region to natural hazard management will be one of emphasising avoidance, or prevention, as opposed to protection. This chapter recognises that hazard events are natural occurrences and that the risk is created by locating activities in inappropriate places. However, where there are existing areas at risk from natural hazards, reduction or mitigation of the risk must be undertaken.

Mitigation works can have significant environmental effects and should be considered as the least desirable option for hazard control, except where there is an unacceptable risk to people and their property, infrastructure, and the environment. In assessing any mitigation works, it is necessary to assess the benefits afforded versus any potential adverse effects on the environment.

Some structures, notably culverts and some bridges, occupy not only the 1% floodplain but parts of the stream channel proper. Depending on their design, they may obstruct flood flows, especially during larger events. The design of these structures needs to ensure that they do not exacerbate the flooding risk.

Piping of streams is generally done to prevent nuisance flooding and removes any flooding hazard up to the capacity of the pipe system. Overland flow paths are then needed for flows from yet larger events in excess of the pipe system capacity. The design of the overland flow paths needs to ensure that the flooding risk is not exacerbated for these events.

Mitigation works such as riparian planting generally improve freshwater habitat and stabilise stream channels. However, they may also modify the stream channel's hydraulic performance in high flows. In particular, riparian planting of bare or grassed stream banks will increase the channel's flow resistance. Planning of such mitigation works needs to ensure that they do not exacerbate the flooding risk. This may affect the choice of plant species.

Coastal protection measures have the potential to worsen the adverse effects of coastal hazards, and adversely affect many aspects of the coastal environment. Softer solutions (planting, beach nourishment, etc.) often prove to be more effective in mitigating or remedying the adverse effects of hazards and better preserve the natural character, landscape and amenity values of the coastal environment. Coastal protection measures should be avoided unless they are the best practicable option. Refer also to the NZCPS and the Auckland Regional Plan – Coastal.

To implement controls that avoid, reduce, or mitigate the risk and/or effects of natural hazards, an assessment of these hazards must be undertaken. Hazards of a regional scale should be assessed by the regional council and information made available to all. Local hazards that require site specific investigation and that can be addressed through land use planning should be assessed by territorial authorities and information be available at a local or site-specific scale.

Generally, development of land, and the form in which it takes place, is allowed through the district plan and/or resource consents. The Building Act (2004) requires a building consent authority to refuse consent if land is subject to, or could worsen, a natural hazard unless adequate provision has been made to protect the property or restore any damage In order to effectively control the impact of natural hazards on the environment, TAs must ensure that risks, and likely effects of locally important natural hazards are defined prior to development, and measures adopted to deal with these. A number of techniques have been developed for assessing and controlling these hazards including:

- Flood routing and flood plain delineation procedures. (Most consulting firms have standard or proprietary programmes for this.)
- Calculating runoff quantities and flow rates. (ARC has developed a methodology set out in Technical Publication 108: "Guidelines for Stormwater Runoff Modelling in the Auckland Region".)
- Coastal erosion sensitivity indexes and hazard mapping techniques. (DoC has established methodologies and national databases in this area.)

- Geotechnical instability assessments including seismic response. (Standard, internationally used engineering and geological tests are available.)
- Sea level rise estimates. (Intergovernmental Panel on Climate Change (IPCC) provides estimates of the rise in global mean sea level. The ARC provides information on the best available local estimates.)

Many of these techniques have been developed by central government organisations for national use, and these are recommended as initial starting points for analysis. Other methodologies are easily obtained through universities or consulting firms. (The ARC has in the past provided a lead in the preparation of flood management plans and intends to continue this approach for coastal, seismic and atmospheric hazards.)

It is important for TAs to prioritise assessments and controls towards natural hazards that pose the greatest risk and are best able to be addressed through planning and engineering techniques. TAs should utilise local Civil Defence and Emergency Management assessments to determine which hazards pose the greatest risk within their city or district. Information on risk assessment methodology can be found in the Hazard Guideline No. (ARC Technical Publication No. 106). For this reason, Policy 11.4.1 does not preclude, restrict or prevent any TA from requiring the protection of floors, not otherwise defined as a habitable floor, of new buildings within urban areas from any adverse effects of a 1% AEP flood hazard event.

Other hazards such as seismic events, volcanism, severe meteorological conditions, tsunami and sea level rise also pose threats to the Regional environment. The scale and locale of effects of these are comparatively difficult to determine and therefore should be considered on a regional scale. The ARC will provide guidance on assessment and avoidance or mitigation techniques to the Region on these hazards, develop a regional natural hazards database, and establish risk assessment models for this purpose.

TAs will also develop local databases for the purpose of maintaining property specific hazards information in an accessible format for both staff and the general public, including the production of Land Information Memorandums and Project Information Memorandums. It is not the intention of these methods to require TAs to undertake more information gathering on natural hazards than what currently occurs.

The issue of climate change and its predicted impacts, including sea level rise, intensification and increasing regularity of extreme weather events, has national as well as Regional significance. The ARC will actively encourage national research in this area.

Generally it is considered that planning and engineering controls can be exercised through district plans and resource consents to ensure:

- Restriction of development from zones which have active hazards (e.g., coastal cliff tops and cliff bases or stream banks). In many locations this can be done through establishing coastal and riparian setbacks, to allow retirement of land to natural vegetation.
- Development is not adversely affected by hazards (e.g., requiring engineering stability reports and designs).
- Development does not increase the risk and adverse effects of hazards (e.g., enforcing strict vegetation clearance controls, ensuring floor heights of buildings are above flood levels of concern, controlling development in areas which have potential problems such as land instability).
- Use of vegetative techniques wherever possible to reduce hazard risks and/or effects of hazards (maintaining appropriate vegetation in catchments, planting of coastal cliffs or sand dunes).

In dealing with natural hazards where little information is available, it is considered prudent to use a precautionary approach, e.g., the NZCPS policies. This is particularly important when dealing with the effects of global climate change and subsequent sea level rise trends. Further, in light of MfE documents discussing global climate issues, the most recent estimates from the Inter-governmental Panel on Climate Change, as well as national and regional estimates, will be used in determining the likely change in sea level.

Civil Defence Emergency Management plans and educational strategies are considered important components of dealing with the effects of natural hazards especially those that occur infrequently and in unpredictable or widespread locations. Both the regional and territorial authorities will co-operate in Civil Defence Emergency Management planning as stipulated in the CDEM Act (2002), across the 4Rs; Risk Reduction, Readiness, Response and Recovery.

11.5 Environmental Results Anticipated

(a) The impacts of natural hazards on people, property, infrastructure, and the environment will be avoided or mitigated.

(b) The costs to the community of dealing with the effects of natural hazards will be reduced.

(c) improved public awareness of the potential risks posed by natural hazards.

(d) The adverse effects of natural hazard mitigation measures on the environment will be avoided or mitigated.

11.6 Monitoring

(i) Regular monitoring of compliance with conditions on Regional resource consents, including comprehensive diversion and discharge consents, will be undertaken to ensure that flooding problems caused by new development are avoided.

(ii) The establishment of monitoring procedures will provide warning of volcanism and a record of the Region's seismicity, so as to facilitate contingency procedures and minimise adverse effects.

(iii) Coastal hazard assessment procedures will assist in the identification of coastal hazard zones and act as a base line for the avoidance of development in hazard areas.

12.1 Introduction

Soil resources have made an important contribution to the growth, prosperity and diversity of the Auckland Region. The Region's variety of agricultural and horticultural uses and its rich natural heritage are based on the continued availability of these resources. In the Auckland Region, moderate to high value soils form a higher proportion of the Region's area than is the case for New Zealand as a whole. The New Zealand Land Resource Inventory (NZLRI) includes 25% of the area of the Auckland Region in Land Use Capability (LUC) Classes 1, 2 and 3,[1] compared with 15% for New Zealand as a whole. When Class 4 (moderate value) land is included, the Auckland Region's proportion rises to 40%, compared with 25% for New Zealand.

In the Auckland Region, the presence of New Zealand's largest metropolitan area has led to a significant loss of prime agricultural land. The total area of prime agricultural land was 115,000 ha of which 27,000 ha or 24% has been urbanised. A significant portion of the rest has been lost under roads and structures or compromised by an intense subdivision or development pattern.

For all practical purposes soils are a non-renewable resource. Soil forming processes occur over thousands of years to produce a suitable medium for plant growth. Soil resources are very difficult to replace. Once soils are lost they may be gone forever. It is therefore of key importance to prevent soil loss; that is, to conserve it in the first place.

For these reasons it is essential to protect soils from both natural and induced forms of degradation, and ensure that they are managed in a sustainable way so that their productivity and versatility can be preserved for future generations. Sustainable management of soil implies the utilisation of that resource for a variety of purposes, while maintaining its inherent physical, chemical and biological properties. This includes the pattern of subdivision and development imposed on the land.

Soil conservation may be defined as "the management of land to maintain New Zealand's soil and water resources to provide the widest range of sustainable benefits for the needs and aspirations of present and future generations" (See Appendix D). It aims to maintain the versatility of the land, maximise the benefits derived from intrinsic values of the land, and maximise the sustainable present and future production from the land.

Regional councils have responsibility for establishing and implementing objectives, policies and methods for achieving the integrated management of the natural and physical resources of a region(Section 30(1)(a) of the RM Act). In addition, Section 30(1)(c) enables regional councils to control the use of land for the purpose of soil conservation, and Section 31 enables territorial authorities to establish, implement and review objectives, policies and methods to achieve the integrated management of the effects of the use, development and protection of land and associated natural and physical resources in the district

12.2 Issues

12.2.1 The Region must manage the soil resource to ensure versatility and productive potential is not further compromised by inappropriate land use and development.

It is essential for the future wealth and wellbeing of the Region that this trend does not continue to diminish this finite resource.

12.2.2 The ability of the Region's soils to sustain a variety of uses is being diminished due to soil degradation.

Degradation is the loss of soil's physical, chemical or biological properties by one or more of a number of processes. The loss of any of these properties may seriously compromise a soil's productive capability. Degradation is caused by, or accelerated by, inappropriate land management practices.

Soil degradation can be very rapid, and while it can be reversed this is usually difficult and slow to achieve. Once deterioration becomes irreversible, it renders the resource unavailable, or suitable for only a smaller range of uses for current or future production.

Soil degradation processes include the following:

1. Soil erosion

Soil erosion is a natural process by which soil is gradually eroded by water or wind from the earth's surface, then replaced in the soil forming process. Accelerated soil erosion, however, is due to inappropriate land management activities and will result in a rapid loss of soil, far in excess of the slow soil forming process. The net result is depletion of the soil resource. While the

1 *For a description of the Land Use Capability Classes, see Appendix D – Definitions.*

soils of the Auckland Region are less erodible overall than most regions of New Zealand, half of the Region's agricultural land is erosion prone.

2. Loss of soil structure

Soil structure, or the way soil particles are held together, is critical to soil properties such as drainage and fertility. Soil structural degradation is the breakdown of the soil's physical structure by frequent saturation, surface crusting, sub-surface pan formation or structural disintegration. These processes are accelerated by inappropriate land management practices such as excessive cultivation, vehicle compaction or stock trampling (pugging).

3. Loss of soil fertility

Soil nutrient decline occurs through physical removal of nutrients by soil erosion or runoff, leaching of nutrients from the profile, chemical bonding such as phosphate fixation, immobilisation of nitrogen and phosphate within soil's organic matter, harvesting of plant or animal products, and the transfer to other sites, e.g., via dung or urine and volatilisation to the atmosphere of, e.g., nitrogen.

4. Chemical contamination

Chemical contamination of soil resources can occur as a result of the manufacture, storage, use and disposal of chemicals and hazardous substances, particularly cumulative and non-biodegradable substances, including pesticides, heavy metals and hydrocarbons. Where contaminant levels are excessive, the ability of soils to support healthy ecosystems may be compromised and off-site effects, including the contamination of receiving environments, may occur.

Policies and methods relating to the location, investigation and remediation of contaminated land are stated in Chapter 17 – Contaminated Sites.

5. Topsoil removal

This includes the removal of topsoil from areas where the soil was formed and its relocation to other areas. This is normally done in order to sell high quality topsoil for urban uses.

6. Off-site effects

Three forms of soil degradation; namely soil erosion, chemical contamination and nutrient loss, have significant off-site effects in the Auckland Region. These processes result in the discharge of sediment, chemical contaminants and excess nutrients to receiving water.

Sediment is the single largest pollutant of Auckland's waterways. It is eroded from the earth's surface then discharged into streams, rivers, estuaries and harbours where it is either deposited or suspended within the water column. The effect of sediment on biota, amenity and commercial values of the water degrades the water resource.

Chapter 8 – Water Quality deals with this issue in more detail.

12.3 Objectives

1. ***To protect the versatility and productive potential of the region's soil resource.***
2. ***To protect the natural long-term health, stability and potential productivity of soils in the Region.***
3. ***To avoid, remedy, or mitigate adverse effects of activities that result in soil degradation. To minimise the effects of soil degradation on the water quality of receiving environments.***

12.4 Policies, Methods and Reasons

12.4.1 Policies

The following Policies and Methods give effect to Objective 12.3 -1.
See also Chapter 2 – Regional Overview and Strategic Direction.

1. ***The use and development of the soil resources of the Region shall be managed so as to protect and maintain their versatility and productivity so far as practicable.***

12.4.2 Methods

1. ***Regional and district plans will give effect to the above policies.***
2. ***The ARC will take a lead role in co-ordinating the development and updating of a regional database which will identify the versatility and productive potential of the Region's soil resources.***

12.4.3 Reasons

Elite and prime land (as defined in Appendix D) is an important resource in the Region due to its high versatility and productive potential. Auckland already has lost significant areas of this soil resource to inappropriate use and development.

Soils are a primary resource in the rural area. There are some activities which are appropriately located in a rural area, but which do not depend on soils. Rather they seek the other qualities of a rural area such as being free of settlement for a utility or having high amenity for a tourist activity. Activities which do not depend on soil resources should be discouraged from locating on land of high versatility or productive potential.

There are also some activities which depend on soil resources but do not require elite or prime land such as golf course greens. Such activities should also be directed away from elite or prime land, onto land of lesser versatility. This approach will ensure that the versatility and productive potential of the Region's soil resource remain.

It is recognised, however, that circumstances still arise where it is necessary, in the regional or national interest, to compromise areas of elite or prime land by activities which are not dependent on the primary production potential of the soil resource. Justification for such uses should demonstrate that a particular location is necessary to meet the requirements of the RM Act.

The above policies are also designed to quantify the soil resource, and ensure instruments are implemented in both regional and district plans to give the greatest protection to the most versatile and productive soils.

12.4.4 Policies

The following Policies and Methods give effect to Objectives 12.3-2 and 3.

1. ***The clearance of protective vegetation from land identified as having a moderate to severe erosion potential shall be controlled to avoid soil erosion.***
   See also Chapter 6 – Heritage.

2. ***The excavation and transfer of topsoil shall be controlled to minimise soil degradation.***

3. ***The adverse effects of soil degradation will be avoided where practicable. Where complete avoidance of the adverse effects of activities that result in soil degradation is not practicable, those effects shall be remedied, or mitigated.***

4. ***Sustainable land use practices shall be encouraged and promoted in order to avoid, remedy or mitigate soil degradation in the Region and to minimise adverse effects on the water quality of the receiving environment.***
   See also Chapter 8 – Water Quality.

5. ***When addressing issues of soil conservation, management of those issues shall be co-ordinated between adjoining regional councils.***

12.4.5 Methods

1. ***Regional and district plans will give effect to Policies 12.4.4 -1.***
   Methods 12.4.5 -2 through 8 give effect to Policy 12.4.4 – 3.

2. ***The ARC will take a leading role in co-ordinating the development of a regional database to identify those areas susceptible to soil degradation using the New Zealand Land Resource Inventory as base information and other information as it becomes available.***

3. ***The ARC will promote and assist land care and other self-help programmes in the Region to better achieve wise land management techniques.***

4. ***The ARC will provide a soil conservation advisory service to landowners and other relevant parties to promote soil conservation and associated sustainable land use practices.***

5. ***The ARC will undertake an education programme to inform relevant parties of the land use practices that cause soil degradation, the effect of that degradation on the environment, and the alternative options available to remedy, or mitigate these problems.***

6. ***Incentives will be used, where appropriate, to promote and implement soil conservation remedial, or mitigation activities.***

7. ***The ARC will:***

   (i) carry out assessments of the soil conservation issues within a catchment or subcatchment, and produce management plans as required;

   (ii) develop a prioritising system, such that high risk catchments can be identified and addressed first;

   (iii) promote integration of soil conservation with other resource management issues within the Region.

8. ***Where the results of the monitoring programme proposed in 12.6(i) indicate that the methods outlined above are not adequately achieving the objectives of this RPS, the ARC will incorporate provisions in a regional plan to ensure soil degradation and associated adverse effects on water quality are avoided, remedied, or mitigated.***

12.4.6 Reasons

Soil erosion is a major source of soil degradation within the Auckland Region. The objectives, policies and methods contained in this Chapter aim to identify those areas most susceptible to soil erosion, then encourage a commitment from landowners and the community to control it.

The most effective form of control is prevention. Where vegetation such as indigenous forest already exists on identified erosion-prone areas, then it should be retained. As the primary land use planning and control documents, it is appropriate that regional and district plans invoke instruments to control the removal of protective vegetation on steeper LUC Class 6, 7, and 8 land. These instruments are also appropriate for the control of the excavation and transfer of topsoil.

Where vegetation has already been removed, appropriate land management activities, such as indigenous revegetation, or planting with exotic species, will be encouraged. These strategies particularly apply to steeper LUC Class 6 land exhibiting a moderate erosion potential, and Class 7 and 8 land, which exhibit a severe erosion potential.

On gentler land, encouragement of appropriate land management activities, such as erosion control planting of critical areas, open planting of susceptible areas, and appropriate grazing and other land management practices, will assist sustainable land management objectives.

It is envisaged that a largely educational/advisory approach will be used to address these issues.

The Regional Landcare and other self-help programmes recognise the importance of encouraging landowners to assume ownership of their own soil conservation problems. It will involve the provision of technical support, facilitation and co-ordination of services. The educational programme will complement landcare and advisory services by preparing and distributing guidelines, conducting workshops, etc. to promote soil conservation and sustainable land management.

The Soil Conservation Advisory Service will promote wise land management techniques by informing landowners about the land use practices that cause soil degradation, and alternative management programmes.

A total catchment approach is considered to be an appropriate way to achieve integrated resource management. It is considered that for most catchments the current approach of provision of education, advocacy and advisory services will be sufficient. The Landcare approach, whereby landowners take ownership of the problem and implement solutions, is considered to be more effective in the long run. Should such methods not adequately achieve the objectives of this Regional Policy Statement, a more regulatory approach is signalled, in the possible implementation of regional plans. The incentives possible include Regionally funded subsidy assistance (where a Regional benefit is demonstrated) joint ventures and cost sharing. Non-financial incentives, such as administrative support, may also be appropriate. It is recognised that whilst these tools are not appropriate in every instance, there will be circumstances where they will be very effective. Full consultation with all affected parties will be required prior to introduction of any such incentives.

Land development has been identified as a source of accelerated surface erosion, leading to the generation of sediments and their discharge to receiving waters. A Regional Plan for sediment control already exists to regulate these activities in terms of erosion and sediment control requirements, as required in Chapter 8 – Water Quality 4.8 – 3.

12.5 Environmental Results Anticipated

(a) Conservation of the versatility and production potential of the Region's soils, particularly high quality soils, for sustainable productive use.

(b) The more efficient use of the Region's soil resource to ensure sustainability.

(c) The avoidance or mitigation of soil erosion, soil structure and fertility decline, and soil contamination processes.

(d) A reduction in the amount of sediment being discharged to the Region's waterways.

12.6 Monitoring

(i) The ARC will monitor changes in the use and condition of the soil in the Region, particularly the extent and severity of soil degradation. The monitoring programme will also identify any changes in the sustained productive capacity of soil resources which will result in updating of the database established in 12.4.2 – 2.

(ii) Through its baseline water quality monitoring programme, the ARC will monitor impacts of off-site products of soil degradation processes in the Region's waterways.

13.1 Introduction

Minerals are essential for the development of the Region. Minerals of economic value which occur in the Auckland Region are primarily aggregates which are used by the construction industry. Other minerals do occur (e.g., ilmenite in the sands on the Region's west coast, and silica sand on land in the vicinity of the Kaipara Harbour) but are not currently the subject of significant extractive activities.

Most mineral deposits are fixed in location, unevenly distributed, and generally a non-renewable resource. The transportation of minerals involves high monetary costs and a significant environmental impact. Adverse environmental effects may also result from the extraction of minerals, and some of these effects may be significant. Consumption of aggregates and other mineral products is correlated with population growth and the form and rate of urban development. Even during periods of low growth, the maintenance of infrastructure and buildings ensures a continuing demand for mineral products. Average consumption of 5.7 tonnes per person per annum occurred in the 1986 to 1991 period. With the Region's population already in excess of 1 million by 1995 and expected to grow, a sustained demand for aggregates is expected.

There are some 60 quarries in the Region, producing rock, sand and shingle. Most of these are small, with the great majority of production coming from a few large quarries. Construction for housing, industrial development and infrastructure, to support continued growth of the Region's population gives rise to a steady demand for aggregates within the Region.

Section 5(2) of the RM Act promotes the management of the use, development and protection of natural and physical resources (including minerals) in a way, or at a rate, which enables people and communities to provide for their social, economic, and cultural wellbeing and for their health and safety. However, section 5(2)(a) of the RM Act excludes minerals from the requirement to sustain the potential to meet the reasonably foreseeable needs of future generations.

In terms of section 30 of the Act, activities involving exploration for, or extraction of, minerals give rise to a range of issues including soil conservation, discharges of contaminants to air and water, and therefore come within the functions for which regional councils have responsibility. In addition, by virtue of section 30(d)(ii) extractive activities in the CMA are controlled by regional councils in conjunction with the Minister of Conservation.

In terms of section 31 of the Act, the effects of mineral extraction as a land use (such as noise, vibration, visual effects including glare, traffic generation) are controlled by TAs.

The granting of permits to extract minerals which are owned by the Crown (petroleum, coal, precious metals and other Crown owned minerals) is controlled by the Ministry of Commerce through the provisions of the Crown Minerals Act 1991. That Act is concerned with achieving efficient use of those resources and providing a financial return to the Crown as owners of the resource. The extraction of shingle, sand and shell from the CMA is the only allocation function in terms of minerals which occurs under the RM Act.

13.2 Issues

13.2.1 Mineral extraction can have a range of adverse effects on the environment.

Extraction of minerals involves processes which create effects such as sediment laden water, noise and vibration. These effects can be site specific, off-site, short- or long-term, and/or cumulative. The relationship of Maori and their traditions and culture with their ancestral taonga may also be adversely affected. Extractive operations often have drastic effects on landforms, and these may place limitations on the use of sites after extraction activities cease. Extraction processes need to be planned and managed carefully. Some of the adverse effects can be remedied or mitigated. Spent extraction sites may present ongoing problems in terms of reduced amenity values, hazards to public safety or health, and damage to natural values. It is seldom practicable to restore extraction sites to their original state. Early planning for after-use can avoid or mitigate many of these effects and enable some flexibility of long-term use of sites when extraction activities cease. Spent extraction sites offer an opportunity for community amenities to be provided, e.g., Mt Smart and Eden Gardens, or wildlife habitats to be established. Some effects of mining, such as spoil dumps, may need to be managed long after the activity has finished.

In the Hauraki Gulf Islands and in particular on Great Barrier Island, mining, other than quarrying is not considered to be an appropriate activity in terms of the wider environmental outcomes sought through this policy statement.

13.2.2 Competing activities and values can impose increased environmental and monetary costs on the community for minerals which are needed for development in the Region. This also gives rise to inter-regional issues, as the Auckland Region becomes increasingly dependent on the mineral resources of adjacent regions.

Sources of aggregates within or close to the city have largely been worked out, or extractive activities curtailed because of nearby urban development and rising community expectations regarding environmental quality. In addition, changes in community values may remove some sources (such as Auckland's volcanic cones) from consideration. There is, however, a sustained demand in the Auckland Region for aggregates for construction and maintenance purposes, and this must now be met from sources more distant from urban Auckland.

The Auckland Region is becoming increasingly dependent on the aggregate resources of adjacent regions. Transporting large volumes of aggregates (Auckland's annual consumption is of the order of 6 million tonnes) involves high monetary costs, in addition to the costs of extraction, and a significant environmental impact, for both Auckland and adjacent regions. In these terms, cost is a function of the distance of users of aggregates from the point of extraction. There are existing and potential sources for extraction of aggregates in the Region, however, which could provide for Auckland's requirements for many years to come. Protection of these deposits to ensure their continued availability is a significant factor to be considered in managing the form and direction of development in the Region.

13.3 Objectives

1. ***To avoid, remedy, or mitigate the adverse effects on the environment of mineral prospecting, exploration, extraction, processing and transportation.***

2. ***To ensure that mineral extraction activities and mineral deposits which are presently or potentially valuable for development in the Region are not unnecessarily compromised, and the region's need for rock material continues to be met.***

13.4 Policies, Methods and Reasons

13.4.1 Policies

Policies 1 and 3 below give effect to Objective 13.3-1. Policies 2 and 4 give effect to Objective 13.3-2.

1. ***Mineral prospecting, exploration, extraction and processing will be avoided in those locations where these activities would:***

   (i) have significant adverse effect on the significant values of:

   (a) natural or cultural heritage,

   (b) the natural character of the coastal environment (including the coastal marine area) wetlands, and lakes and rivers and their margins,

   (c) have significant adverse effects on elite land,

   (d) exacerbate the effects of natural hazards.

(Refer to Chapter 6 – Heritage and Chapter 7 – Coastal Environment) See also Chapter 2 – Regional Overview and Strategic Direction; Chapter 3 – Matters of Significance to Iwi; Chapter 6 – Heritage; Chapter 7 – Coastal Environment; Chapter 8 – Water Quality; Chapter 10 – Air Quality; Chapter 11 – Natural Hazards; and Chapter 12 – Soil Conservation.

2. ***The development and use of land in the Region will be managed so as to:***

   (i) Protect existing mineral extraction sites from activities which would unduly limit their operations, to the detriment of the regional environment, including its economy.

   (ii) Protect areas of minerals which have the potential to provide cost-effectively for the Region's future needs from activities which may compromise the ability to extract, or provide access to, those deposits.

   (iii) Provide for the option to extract mineral resources during the development, or redevelopment of urban areas.

3. ***Mineral extraction and processing, including remedial measures, and long-term management and use of sites after mineral extraction ceases, will be planned and undertaken in ways which avoid or mitigate adverse effects on the environment.***

4. ***Minerals management shall be integrated and co-ordinated between the ARC and TAs within the Auckland Region and with adjoining regional and territorial councils.***

13.4.2 Methods

1. *The ARC will prepare:*
   - (i) *An evaluation of :*
     - (a) *the location of actual and known potential mineral resources available to the Region;*
     - (b) *the foreseeable demand for mineral resources of the Region.*
   - (ii) *An assessment of the effects which extraction activities have or are likely to have on:*
     - (a) *pollutive discharges to land, water or air;*
     - (b) *ground and surface water flows;*
     - (c) *the coastal environment;*
     - (d) *the transportation of minerals;*
     - (e) *significant natural heritage resources and intrinsic values of ecosystems;*
     - (f) *visual and amenity values;*
     - (g) *the Regional economy;*
     - (h) *significant cultural heritage values, including places and features of value to Iwi;*
     - (i) *prime agricultural land.*
2. *The ARC will, on completion of the process outlined in Method 13.4.2 (1) above, review the Policies and/or Methods in this chapter in the light of the additional information and determine whether regional plan provisions are the most appropriate mechanism to record and implement policy that is derived from this process.*
3. *District plans and any relevant regional plans will contain provisions requiring mineral extractors to provide for the use of the site after extraction processes cease, so as to minimise present and future adverse effects on the environment. The fulfilment of such rehabilitation and aftercare responsibilities shall be secured by means of bonds or like measures.*
4. *District plans and any relevant regional plans will make provision for and manage mineral prospecting, exploration, extraction, processing and the transportation of minerals. Such provisions could include rules which allow, regulate or prohibit mineral extraction activities.*
5. *District plans and any relevant regional plans will make provision for the potential extraction of mineral resources should they become available through the development, or redevelopment of urban areas.*
6. *District plans and any relevant regional plans, will include the following criteria for assessing proposals:*
   - (i) *The extent to which extraction methods and operations make efficient use of the resource .*
   - (ii) *The extent to which reuse can be made of existing material.*
   - (iii) *The extent to which alternative sources of suitable material are reasonably available, particularly where seabed, lakebed or riverbed is involved.*
7. *The ARC will promote the options available for the reuse and recycling of mineral resources, including alternative sources, and make this information available to the TAs and general public.*
8. *The ARC will support policy facilitating the continuing availability of aggregate resources (where appropriate) in adjacent regions.*
   - (i) *The extent to which extraction methods and operations make efficient use of the resource*
   - (ii) *The extent to which reuse can be made of existing material.*

13.4.3 Reasons

There will continue to be competition for resources between mineral extraction activities, and other activities and values. Changing activity patterns and values have led to extractive activities having to utilise mineral deposits at increasing distances from urban Auckland. This tendency is likely to continue, but its adverse effects (in terms of premature abandonment of extraction sites, the opening of additional sites, and the added costs of extraction and transport) can be reduced.

This can be done by ensuring that new extraction operations and locations in the Region, which may provide a future supply of minerals close to the market, and are not impacting on significant natural or cultural resource values, and existing extraction

operations, are identified and their present and potential value to the Regional community considered in the processes of managing growth and change.

The Regional evaluation will identify appropriate mineral extraction areas for protection on one hand, and highly valued and Regional resource areas on the other, where extraction activities would not promote the sustainable management of other resources. Mapping at a scale sufficient to identify mineral extraction and natural physical resource areas will be necessary. Mineral resources (particularly aggregate) outside the Region will increasingly be relied on to provide Auckland's needs. The significance and availability of these resources also need to be considered when evaluating whether the Region's resources will be sufficient to meet foreseeable demand.

Extraction of sand from the Waikato River bed (Waikato Region) will cease in the near future. This is likely to increase the demand for extraction of sand and shingle from within the CMA of the Auckland Region. There are significant sand resources on the western and north eastern coasts of the Region. The natural processes of coastal erosion and accretion are susceptible to human interference, and coastal areas have high natural resource and amenity values. Although marine sand is in some instances a naturally replenishing resource, it is also a very sensitive one, so extraction must be managed cautiously.

Mineral extraction and processing activities inevitably have an environmental impact. Adverse effects may include noise and dust, danger and vibration from blasting, alteration to groundwater flows and water quality effects, elimination of habitat and vegetative communities, impact on Maori ancestral taonga, impact on agriculture and recreation, long-term scarring and alteration to the natural landform and after-use effects. Some future sites may also involve the loss of prime soils.

It is also important that mineral extraction activities are planned and managed so as to avoid or mitigate both the effects of extraction operations in the short term, and the long-term consequences of extraction, including restoring extraction sites to a safe condition. Other options, such as habitat restoration, should also be considered at the planning stage. Fulfilment of conditions to bring this about should be secured at the time consents are granted for the extractive activity – The extraction industry should bear any costs involved.

In order to minimise the effects of mineral extraction on the environment, minerals should be used efficiently including reuse, recycling, consideration of alternative sources(e.g., steel slag is already being used for drainage and roading purposes), and use of resources under sites about to be redeveloped. The urban consolidation and infrastructure policies of this RPS are the most effective means of demand management to minimise the effects of mineral extraction.

Regional plan provisions may be necessary if adequate management of the region's mineral resources is not effectively achieved through district plan provisions.

13.5 Environmental Results Anticipated

(a) Areas with significant environmental values will be protected from mineral extraction activities.

(b) Existing and future mineral extraction operations will continue, where appropriate, without significant adverse effects.

(c) The potential to utilise important mineral deposits within the Region will not be unnecessarily compromised.

(d) Sites where extraction activities have ceased will be left in a condition so that they do not give rise to any significant adverse effects.

13.6 Monitoring

In co-operation with TAs and the mineral extraction industry the following will be monitored:

(i) Significant effects on the environment caused by mineral extraction, processing and transportation.

(ii) Assessment of likely requirements for minerals.

(iii) The extractable potential of existing extraction sites, and significant deposits identified for future utilisation.

(iv) The output of minerals from extraction activities in the Region.

14.1 Introduction

Pests are causing significant adverse impacts on many aspects of our regional environment, in particular our natural heritage resources, agricultural resources and human health and enjoyment.

The Auckland Region has a diversity of plant and animal life including birds. However, not all wildlife is beneficial. Trees and forests that were once home to indigenous birds and invertebrates, including insects, have been cleared. Where remnants remain, introduced animals such as mustelids, ship rats and feral cats prey on birds or their eggs, and compete for food. Other introduced animals such as goats and possums graze or browse on indigenous plants which cannot sustain such activity. Some of these 'pests', such as possums, can also spread disease to domestic animals. In New Zealand, with over 600 rare animals and plants including 11% of the world's rare birds on 0.2% of the world's land area, the impact of pests is a significant issue.

A number of plants, mainly but not exclusively introduced species, have also proven to be pests. These plants successfully compete with more desirable species, endangering their survival and reducing the diversity that ensures successful adaptation to change. They also degrade pasture and crops. Colonisation by weed species can also have an adverse visual impact. Some plant species are the subject of public complaints on health grounds.

Over 600 exotic plant species have naturalised in the Auckland Region over the last 150 years.

The ARC is currently responsible for the control of noxious plants and agricultural pests under the transitional provisions of the Noxious Plants Act 1978, and the Agricultural Pest Destruction Act 1967. The Biosecurity Act 1993 modifies these responsibilities. The Biosecurity Act promotes a different approach to pest management and requires that individual pest management strategies be prepared for each pest. The pest is to be defined by the individual pest management strategies and can include any organism excluding humans. In line with the biosecurity legislation, the collective term "pest" will be used to describe both animal and plant pests in this document. A pest can generally be described as an organism that is capable of causing at some time a serious adverse and unintended effect on people and/or the natural environment.

The approach in this chapter is to highlight pest management as a significant resource management issue. The Biosecurity Act will be the primary delivery mechanism for achieving the stated objective, policies and methods of this chapter. Regional pest management strategies will be prepared that identify plant and animal pests and propose control programmes. Other mechanisms may also be used to achieve the stated objective. Whilst it is accepted that the outcomes from this work are necessary to help achieve the objectives of other chapters, in particular the heritage chapter, it is considered appropriate to have such a significant issue separately identified and the policy direction outlined.

14.2 Issues

14.2.1 Pests cause damage in areas of high conservation value.

Damage to areas of high conservation value is caused by a range of pests, including possums which selectively browse and ultimately kill vulnerable species. The damage caused by possums on indigenous forests and coastal pohutukawa is particularly noticeable along parts of the east coast of Rodney district and in the southern part of the Region from Clevedon to Orere Point. In the Hauraki Gulf Islands where there are no (e.g. no possums on Great Barrier) or few pests, it is important that the pest free status is retained. Other pests (both plant and animal) can have an impact on natural values. For example, climbing asparagus (Asparagus scandens) and wild ginger (Hedychium spp) can adversely affect indigenous forest by smothering plants, inhibiting growth and modifying habitat permanently. The adverse effects of animal pests has already been noted in the introduction. It is because of this damage that the concept of pest free areas and maintenance of this status becomes so important.

In addition to terrestrial pests, exotic marine organisms are potential pests which could harm natural ecosystems and also cause damage to the seafood industry.

14.2.2 Pests adversely affect agricultural resources.

Pests have the potential to cause significant damage to agricultural resources such as forestry, horticulture, soil conservation plantings and pasture. In particular, possums, rabbits and hares can damage these resources whilst some species of plant, e.g., nodding thistle

(*Carduus nutans*), nassella tussock (*Nassella trichotoma*) and Australian sedge (*Carex longebrachiata*) displace grass and reduce the amount of available pasture. Other plants such as water hyacinth (*Eichhornia crassipes*) and Senegal tea (*Gymnocoronis spilanthoides*) can restrict water flows and cause flooding problems.

Animal pests (primarily possums) but potentially cats, mustelids and pigs, can also be vectors for bovine tuberculosis (TB). The presence of TB in New Zealand could threaten the nation's access to export markets for dairy and meat products. It should be noted that there is a national pest management strategy for the management of bovine TB.

14.2.3 Pests have the potential to affect human health and wellbeing.

Plants such as green cestrum (*Cestrum parqui)* and woolly nightshade (*Solanum mauritianum*) are toxic to humans and animals. There is also significant public concern over the possible relationship between privet (*Ligustrum spp*) and asthma. Animal pests such as possums may spread giardia and leptospirosis.

Wasps, while not a pest under current legislation, can affect natural values and human activities.

14.3 Objective

To minimise the adverse effects of pests on the environment.

14.4 Policies, Methods and Reasons

The following policies and methods give effect to Objective 14.3.

14.4.1 Policies

1. ***Pests will be managed to achieve the following:***

   (i) minimise the impact of pests on areas of high Regional or local, natural, recreational, scenic, social or historic value;

   See Chapter 6 – Heritage, and Appendix B.

   (ii) minimise the impact of pests on agricultural resources;

   (iii) minimise the impact of pests on the health and safety of people and communities;

   (iv) achieve and maintain the pest free status of discrete geographical areas, in particular island habitats.

2. ***Potential pests shall be identified and managed to avoid damage to the environment.***

3. ***Multi-species pest management strategies shall be prepared where an integrated approach would be most efficient and cost effective.***

4. ***In carrying out its functions with respect to pest management, the ARC shall have particular regard to kaitiakitanga and shall recognise and provide for the relationship of Maori and their culture and traditions with their ancestral lands, water, sites, waahi tapu and other taonga.***
   (Refer also to Chapter 3 – Matters of Significance to Iwi)

5. ***The introduction of undesirable marine organisms should be avoided.***

14.4.2 Methods

1. ***The ARC will prepare and implement pest management strategies using techniques such as pest destruction programmes, regulation and education.***

2. ***The ARC will determine the priority of pest management strategies according to the criteria set down in the Biosecurity Act and their degree of feasibility, effectiveness, and affordability.***

3. ***The ARC will consult with the Regional community, including constituent TAs, on priorities for the preparation of pest management strategies.***

4. ***The ARC will place priority on strategies aimed at maintaining pest free status or eradicating pests of low incidence subject to the criteria stated in Method 14.4.2 -2 above.***

5. ***Pest Management Officers will be required to carry out surveillance and reporting on potential pests establishing in the Region. Where a potential pest is identified, appropriate action will be taken under the Biosecurity Act. This may include preparation of a pest management strategy.***

6. ***The ARC will complete a regional database identifying areas of significant conservation value and their vulnerability to adverse impacts from pests, acknowledging the wide range of pests that are causing damage.***

7. ***The ARC will continue with an education programme to increase public awareness of the problems caused by pests and encourage self-help in relation to pest management.***

8. ***The ARC will lobby central government to undertake the imposition of effective controls to prevent the introduction of undesirable marine organisms via ballast water discharge within New Zealand waters.***

9. ***The ARC will advocate to central government that appropriate funding should be allocated to research into the most effective and efficient methods of managing pests.***

10. ***The ARC will lobby central government for better controls on imported plants with potential to cause impacts on natural values.***

14.4.3 Reasons

The RM Act requires that regional councils address significant resource management issues affecting the natural and physical resources of the region in the RPS, as stated in section 62(a) of the RM Act.

The purpose of the RPS is stated as:

> *"... providing an overview of the resource management issues of the region and policies and methods to achieve integrated management of the natural and physical resources of the region."* [RM Act, section 59]

The ARC has the function of:

> *"the preparation of objectives and policies in relation to any actual or potential effects of the use, development, or protection of land which are of regional significance."* [RM Act, section 30 (1)(b)]

The RM Act also requires the RPS to have regard to management plans and strategies prepared under other acts where they have a bearing on resource management issues, as stated in the RM Act section 61 (2)(a)(i).

This RPS has identified significant resources which can be adversely affected by pests including the remaining natural heritage resources identified in Chapter 6 – Heritage. In carrying out its responsibilities to manage these resources, pest management is recognised as a significant issue and the above objective, policies and methods have been developed to set out the policy direction which the ARC intends to follow. The Biosecurity Act will be the primary mechanism for achieving the stated objectives.

The Biosecurity Act requires that pest management strategies be prepared for each pest. The strategies can be either national or regional. It is the strategy that identifies the pest and the proposed control programme along with the agency which will be responsible for the strategy and how it will be funded.

The ARC will take a proactive role in developing strategies and will consult with the Regional community, including constituent TAs, on priorities.

Work has already been started in terms of the possum control programme with the preparation of a Regional database to identify the areas of high conservation value which are at the greatest risk from possum attack. In order to be cost-effective, pest control must be targeted at those areas where there is an unacceptable risk from the impact of pests on the conservation values identified. Priorities for control can, therefore, be set, justified and sustained using the ranking system set out in the database. The methodology for this ranking system has already been established. DoC also uses a similar methodology to prioritise possum control work on the conservation estate at a national level. The ARC will work closely with the Auckland conservancy to ensure a co-ordinated and efficient Regional strategy.

Whilst the database at present only considers the impacts of possums, it can be expanded to consider the impacts of a range of pests to achieve integrated management of pests.

It has been recognised that some pests already established in the region will never be eradicated and that potential new pests are arriving all the time. It is therefore considered important to protect areas which may be free of a particular pest, e.g., Great barrier island and waiheke island have no possum populations. It is also considered important to focus on pests which can realistically be eradicated, i.e., Low incidence pests and also on proactive surveillance to prevent new pests establishing.

14.5 Environmental Results Anticipated

(a) Reduction in the damage from possums in areas of high conservation value.

(b) Control of the spread of plants that are identified as pests, and the eradication of those pests where it is considered:

- desirable
- feasible
- affordable.

(c) Achieve and maintain pest free status of discrete geographical areas, in particular island habitats.

(d) Avoid the introduction of undesirable marine organisms via ballast water discharge.

14.6 Monitoring

(i) The work in conservation areas will be monitored by using pre- and post-evaluation as a measure of the control efficiency, and long-term monitoring of indicator species to monitor overall effectiveness.

(ii) A register of complaints/enquires will be kept as an indicator of the public concern relating to pests.

(iii) Plant pest infestation levels will be recorded. Trends in infestation levels and the number of properties complying with control requirements will highlight the effectiveness of the control strategies.

(iv) Pest free status of areas will be monitored.

15.1 Introduction

Currently Auckland generates approximately 650,000 tonnes of solid waste each year, most of which is disposed of at landfills throughout the Region.

In order that sustainable management of the Region's resources is achieved and that actual or potential adverse environmental effects from waste disposal are avoided or mitigated, both the quantity and toxicity of waste being generated and requiring disposal need to be reduced. New Zealand is somewhat behind many overseas countries in adopting general waste minimisation principles and in ensuring the environmentally acceptable management of residual wastes.

The RM Act states that regional councils have the responsibility to achieve the integrated management (that is, a complete or holistic approach) of natural and physical resources of their respective regions. With regard to waste management, they are responsible for the control of any discharges of contaminants to land, air or water. TAs are similarly empowered to achieve integrated management of their respective districts' natural and physical resources.

Other current statutory provisions under the Local Government Act 1974 (LG Act) give the ARC the ability to provide refuse facilities in the event that private industry or TAs are unable to do so. The LG Act also gives regional councils the responsibility for ensuring that there are adequate facilities available for the disposal of hazardous waste. This chapter states those broad issues associated with the management of waste, and the disposal of solid waste in the Auckland Region. It is necessary for this chapter to be read in conjunction with other chapters of the RPS including Chapter 3 – Matters of Significance to Iwi, Chapter 7 – Coastal Environment, and Chapter 8 – Water Quality.

15.2 Issues

15.2.1 Large quantities of waste are generated in the Auckland Region.

The large quantities of solid waste generated in the Auckland Region represent a high level of resource consumption and wastage. This must be addressed by the Regional community which must endeavour to make more efficient use of natural and physical resources while avoiding, remedying or mitigating any adverse effects on the environment.

The solution lies with waste management principles such as waste minimisation and cleaner production, which are expressed in central government policy. They are summarised in the waste management hierarchy as follows:

- reducing the quantity and/or toxicity of the waste generated;
- reusing as much of the waste stream as possible;
- recycling wherever possible;
- recovering resources from waste (e.g., waste to energy);
- residual waste disposal in an environmentally acceptable manner.

Some of the steps in the hierarchy have already been implemented (e.g., recycling) within the Region. However, other steps, such as waste reduction, require further discussion and development.

15.2.2 Adverse environmental effects arise from the disposal of waste.

The location and operation of waste disposal sites is an issue of local and regional significance because of the environmental impacts of such sites. These impacts include odour; discharges of contaminants to air, water or land; noise and traffic. This issue has become further complicated since the establishment and operation of waste disposal facilities can now be undertaken by both TAs and private industry.

Closed landfills can also have adverse effects on the environment, and these are addressed in Chapter 8 – Water Quality, and Chapter 17 – Contaminated Sites.

Previous studies have suggested that some 60,000 tonnes of hazardous waste are generated in the Auckland Region each year, yet approximately 25% of this quantity is unaccounted for in terms of disposal. It is likely that much of this unaccounted hazardous waste and other unwanted or redundant chemicals are being disposed of in a manner contrary to the RM Act.

15.3 Objectives

1. *To minimise the quantity of waste being generated and disposed of within the Auckland Region in order to promote the sustainable use of natural and physical resources.*

2. *To avoid, remedy, or mitigate actual or potential adverse environmental effects arising from waste management activities.*

15.4 Policies, Methods and Reasons

15.4.1 Policies

The following policies and methods give effect to Objective 15.3 -1.

1. ***The total quantity of commercial and industrial solid waste requiring disposal per dollar of GDP shall be reduced by 10% by 1998 from a base level in 1993/94 of 405,000 tonnes.***

2. ***The total quantity of domestic solid waste requiring disposal per capita shall be reduced by 10% by 1998 from a base level in 1993/94 of 245,000 tonnes.***

3. ***The principles of cleaner production and the waste management hierarchy including:***

   (i) reduction of waste material being generated;

   (ii) reuse of waste material;

   (iii) recycling of waste material;

   (iv) recovery of waste material (e.g., waste to energy);

   (v) residual waste disposal in an environmentally acceptable and cost-effective manner;

   shall be promoted for application throughout the Region.

4. ***Integrated waste management strategies shall be promoted to local authorities and industry throughout the Region.***

15.4.2 Methods

1. ***The ARC, in conjunction with TAs, will develop and maintain a Regional monitoring programme which will address:***

   (i) The development of a Regional database on the types and quantities of domestic, commercial and industrial waste being generated and disposed of in the Auckland Region.

   (ii) The exchange of information between local authorities, on the types and quantities of domestic, commercial and industrial waste being generated and disposed of in territories across the Auckland Region.

   (iii) The implementation of the Waste Analysis Protocol (WAP), as released by the MfE, across the Region.

2. ***TAs will develop and implement appropriate policies which will incorporate waste minimisation and cleaner production strategies and methods, such as domestic waste surveys, according to the WAP, that will enable local and Regional waste reduction targets to be measured and achieved.***

3. ***The ARC will develop and implement a Regional education strategy which will promote the following:***

   (iv) The adoption of integrated waste management practices through the waste management hierarchy by the general public.

   (i) The implementation of the principles of cleaner production in specified industries.

4. ***TAs will implement education programmes for the promotion of waste minimisation and cleaner production within their district.***

5. ***The ARC will promote or undertake research and evaluation into waste management technologies, in order to develop and expand a research, information and advisory service to the Regional community and TAs.***

6. ***The ARC will support and promote forums for liaison between the ARC, TAs, other regional councils, and where appropriate other interested parties such as industry, community groups and Tangata Whenua to address:***

   (i) Significant district, regional and inter-Regional waste management issues.

   (ii) The development of integrated waste management strategies by local authorities and industry.

   (iii) The integrated regulation and monitoring of solid and non-solid wastes produced and disposed of within the Auckland Region.

7. ***The ARC will advocate the formulation of national policies, a regulatory framework, and a National Policy Statement, where appropriate, in order to promote and encourage consistency in waste management practices and regulation across New Zealand.***

8. ***The ARC will advocate the use of economic instruments where appropriate.***

9. ***The ARC will set an example by adopting and implementing waste minimisation and cleaner production initiatives for its own operations.***

15.4.3 Reasons

The objective of reducing the quantity of Auckland's solid waste is linked to the RM Act's key purpose of the sustainable use of natural and physical resources. Auckland's growing industrial base is leading to increased consumption of natural and physical resources and, correspondingly, to higher quantities of waste materials requiring appropriate disposal.

The waste reduction target of 10% is an achievable and realistic goal. It represents a significant step to establishing long-term waste reduction (65,000 tonnes/annum based on 1993/94 figures).

The generation of waste is influenced by a range of variables. For example, economic growth will normally result in corresponding increases in commercial/industrial waste generation, while a larger population will generate more domestic waste. As a result, the 10% commercial industrial target is linked to GDP which is an indicator of economic activity, while the domestic waste reduction target is linked to the size of the waste generating population.

To achieve the 10% commercial/industrial waste reduction target by 1998, significant waste reduction efforts must be made by industry. This will require considerable long-term commitment and planning on behalf of industry and local government.

The achievement of a 10% domestic waste reduction will require ongoing education and promotion of waste management issues in the Regional community.

The intent of the waste reduction targets is to effect a reduction in the amount of all wastes requiring disposal rather than encouraging the conversion of solid to liquid or airborne wastes.

Methods to achieve waste reduction include cleaner production initiatives and the promotion of the integrated waste management hierarchy, which address and attempt to minimise the generation of all forms of waste. Practical difficulties exist in measuring liquid and airborne wastes, while a nationally consistent methodology for measuring solid wastes is presently in place. Therefore, efforts for measuring the waste stream are concentrated in the solid waste area.

Monitoring of the waste stream will be undertaken to provide regular updates on progress towards the 10% reduction targets.

Waste reduction targets after 1998 will be developed in consultation with the TAs and other interested parties at that time.

The successful attainment of the proposed waste reduction targets is contingent on the co-operation of TAs, industry groups and the Regional community. If sufficient co-operation to make the proposed reductions is not achieved, the ARC will lobby central government for the imposition of appropriate legislative measures to enable waste reductions to be achieved. The ARC will also review the efficiency and effectiveness of the education strategy and cleaner production initiatives etc. which will be utilised to implement Methods 15.4.2-2, -3 and -4 if the proposed reduction targets are not achieved.

The role of environmental monitoring, data collation and research for regional councils is well defined by section 35 of the RM Act.

The frequency and range of monitoring programmes will depend on the level of information required to allow accurate evaluation of waste generation and disposal rates in Auckland. Relevant and up-to-date information in a readily accessible form is essential for progressive decision-making by local authorities.

The development of a database, rationalising Regional waste information, will mean that this data can be used to achieve a number of objectives. However, in terms of economy of scale and ensuring consistent processing of data from across the Region, the ARC is the most appropriately placed agency to undertake the establishment and management of such a database.

The analysis of waste volume data is a complex process since the quantity of waste being generated and requiring disposal is dependent on several social and economic factors. Increased business activity will increase the amount of resources consumed within the Region and, correspondingly, the quantity of waste. A similar situation could arise as the Region's population expands. It is important, therefore, to examine the underlying trends in waste generation and disposal which may require examination of data over several years, rather than a single year.

TAs will have the responsibility to use the information gathered by the ARC in their decision-making process. The data will assist in the development of policies that need to be established, so that waste minimisation and cleaner production strategies are accepted by the community. Appropriate methods need to be implemented to enable local waste reduction targets to be achieved.

The ARC will promote these ideas through an education strategy and by an advisory and information service to the public. Key industries will be targeted with education campaigns containing specific and relevant examples of waste minimisation and cleaner production. TAs will also provide education programmes on these ideas at a more local level.

Individual companies attempt to maximise resource use efficiency and thereby reduce resource consumption and operating costs. The ARC and TAs can, through a waste audit process, assist businesses in identifying potential wastage of available resources and indicate which waste minimisation techniques can be implemented. Such cleaner production and waste minimisation initiatives will result in savings of monetary and other resources for the participating businesses, as has been experienced both overseas and in New Zealand.

As part of the ARC's research and advisory service to the public, a waste register and exchange system will be refined. It will allow those wastes produced by one industry to be provided to another industry as valuable raw or primary resources. The waste register and exchange system will provide a contact for respective businesses to alleviate their waste disposal problems. It will also assist others in resource acquisitions and contribute to reducing the overall amount of waste requiring disposal.

Regular meetings between the ARC and TAs' representatives working within the waste management field, will facilitate information sharing and assist in the development of a co-operative approach to waste management issues. Similarly, regular communication with other regional councils throughout New Zealand will assist in the clarification of issues, the dissemination of information and allow for a co-ordinated approach to and lobbying of central government so that necessary resources and support are available to the regions.

The ARC is committed to the public consultation process and therefore wishes to consult the wider community on issues of Regional significance. A wide range of Iwi, industry and local authority views on waste management issues can be canvassed through various forums.

15.4.4 Policy

The following policy gives effect to Objective 15.3 -2.

All waste generators, transporters and disposers shall transport, store and dispose of all residual wastes, including controlled and hazardous waste, in a manner which avoids, remedies, or mitigates actual or potential adverse environmental effects.

See also Chapter 17 – Hazardous Substances.

15.4.5 Methods

1. ***The ARC will investigate the need for, and if necessary include, provisions within a regional plan, in consultation with relevant organisations which will address:***
   - ***(i) The regulation and integrated monitoring of waste disposal facilities and all companies engaged in waste management activities.***
   - ***(ii) The implementation of a Region-wide tracking system for specified hazardous waste.***
   - ***(iii) In conjunction with TAs, the implementation of procedures to avoid, remedy, or mitigate actual or potential adverse environmental effects arising from illegal disposal of waste and other inappropriate waste management activities.***
2. ***The ARC, in conjunction with TAs and in consultation with other relevant parties, will investigate and if necessary introduce Regional guidelines or statutory controls for the transportation of general, controlled and hazardous waste.***
3. ***The ARC will compile, publish and maintain a Register of Authorised Facilities listing all businesses permitted to accept, treat and dispose of solid and non-solid general, controlled and hazardous waste.***

15.4.6 Reasons

If required, a regional plan will establish procedures for the integrated monitoring and regulation of the waste management industry. It is an important step

in the avoidance, remediation, or mitigation of adverse environmental effects arising from the transport, treatment and disposal of wastes. Similarly, integrated waste management and, concurrently, integrated pollution control, will lead to better management of natural and physical resources, a key focus of the ARC under section 30 (1) (a) of the RM Act.

A Regionally consistent approach is required in monitoring waste management practices, so that technically and environmentally sound waste management facilities are constructed and operated. For example, guidelines on landfills have been released by the MfE and will be incorporated in the Region's guidelines on disposal options for all wastes.

In order for a comprehensive management system for hazardous substances or waste to be developed, an inter- and intra-regional tracking system may need to be implemented. This will enable the collation and analysis of data on the quantities and/or types of hazardous waste imported, exported or produced in the Auckland Region, as well as where these are eventually disposed of. The Regional system will be integrated into a nationwide tracking system, when the latter is implemented.

Public access to published information, such as the Register of Authorised Facilities, will assist them in identifying which options are available for disposing of their waste in a responsible manner.

Currently there are no standardised procedures for local authorities to monitor and enforce action on illegal waste disposal activities. It is proposed that the ARC and TAs will develop strategies on how illegal waste disposal activities are to be assessed and appropriate action will be determined accordingly.

15.4.7 Policy

This policy and these methods give effect to Objective 15.3-2.

The development and operation of appropriate waste management facilities and technologies for the Region's current and foreseeable disposal needs for general, controlled and hazardous wastes shall be co-ordinated and promoted so as to avoid the potential adverse environmental effects of a shortage of appropriate disposal facilities.

15.4.8 Methods

1. ***The ARC will, in conjunction with TAs and adjacent regional councils, encourage the establishment and operation of environmentally sound waste disposal technologies in the Auckland Region.***
2. ***The ARC, in conjunction with TAs, will provide for the collection of unwanted agricultural and household hazardous waste and other hazardous waste as identified from time to time, through individual collection programmes and/or permanent drop-off facilities.***

15.4.9 Reasons

The physical resources (including all structures, as defined by the RM Act) required for waste management are limited. Therefore the ARC has a role in ensuring, through the resource consent process, that existing sites are maintained in an efficient and sustainable manner.

While the ARC no longer has a direct service responsibility for the disposal of waste in Auckland (with the exception of hazardous waste) the council needs to fulfil a role in the strategic planning for future facilities and technologies. This may be in the form of education or promotional programmes, advocacy or other appropriate measures.

The inappropriate storage or illegal disposal of agricultural chemicals and household hazardous waste can lead to adverse environmental effects. To prevent this from occurring, the ARC and TAs will continue to provide for the collection of these waste materials from the Regional community. Concurrently the ARC will promote the principles of waste minimisation regarding hazardous waste, to reduce the long-term costs of hazardous waste storage and disposal.

15.5 Environmental Results Anticipated

(a) The efficient use of the Auckland Region's natural and physical resources, and the reuse of waste material with an overall reduction in the quantities of waste being generated and requiring eventual disposal.

(b) A reduction in the actual or potential adverse environmental effects arising from waste management activities, particularly waste disposal.

(c) An educated regional community, which is aware of the importance of waste minimisation, cleaner technology and of the necessity for appropriate end disposal of residual waste material.

15.6 Monitoring

See Method 15.4.2.

16.1 Introduction

In the past hazardous substances were only used in specialised areas in society (such as explosives in mining, or solvents in industrial use). Their implications for people and the environment were not well understood. Today the use of such substances has become a common part of day to day life, with the potential for their effects to impact the health and safety of people and the environment.

Hazardous substances are defined in the RM Act as any substance which may impair human, plant or animal health or may adversely affect the health or safety of any person or the environment.

The definition presents some difficulties in practical usage – for example, it does not define the circumstances, quantities, or concentrations under which a substance may be hazardous for land use planning purposes.

The Auckland Region contains the largest quantities of hazardous substances of any region in New Zealand. In particular, large quantities are currently contained in the Penrose, Rosebank, Wiri and East Tamaki industrial areas and at the Freemans Bay tank farm.

This is of particular concern because the Region's industrial areas are the work places for a large number of people. In many instances they are located close to residential areas and valued environmental areas. The Region's groundwater aquifer system, and the Waitemata and Manukau Harbours including their associated waterways are examples of valued environmental areas.

At present there are a number of other agencies which also have statutory functions in respect of hazardous substances under other legislation. These are outlined later in this chapter.

The measures set out in this RPS are additional to the provisions applying under other legislation. The legislation applying to hazardous substances is presently being revised. The provisions of this RPS applying to hazardous substances may need to be updated when new legislation is enacted. The RM Act gives the ARC and TAs similar responsibilities in relation to the management of adverse effects of the storage, use, disposal, or transportation of hazardous substances. The RM Amendment Act 1993 enables this RPS to define the respective responsibilities of regional and territorial councils.

16.2 Issues

16.2.1 Potential adverse effects arise from the use of land for the storage, use, disposal and transportation of hazardous substances.

In sufficient quantities, and dependent on their particular physical properties, hazardous substances can become dangerous to the extent of being explosive, toxic or flammable when inappropriately handled, stored, transported or released into the environment. In these circumstances, hazardous substances can cause one or more of the following: adverse effects to the health and safety of people, to sensitive species, habitats or ecosystems, contamination of land and water, including water supplies, and destruction of property.

Hazardous substances can enter the environment through sewerage and stormwater systems, by domestic and commercial wastes and air emissions. Some enter the environment more directly, through spills, leakages or accidents.

16.2.2 Adverse environmental effects arise from the disposal of hazardous wastes.

The disposal of hazardous wastes both from contaminated land and the waste stream is dealt with in Chapter 15 – Waste.

16.2.3 Inappropriate use and/or disposal of hazardous substances has resulted in contaminated sites.

The clean-up of contaminated land is dealt with in Chapter 17 – Contaminated Sites. Measures to avoid the contamination of land or water are also covered in Chapter 8 – Water Quality.

16.3 Objective

To prevent or mitigate risks to the health and safety of people and communities, and to prevent or mitigate adverse effects on the natural and physical environment from activities using, storing, disposing or transporting hazardous substances.

16.4 Policies, Methods and Reasons

The following policies and methods all give effect to Objective 16.3.

16.4.1 Policies

1. ***The responsibility for developing objectives, policies, and rules relating to the control of the use of land for***

the prevention and mitigation of any adverse effects of the storage, use, disposal, or transportation of hazardous substances shall be:

(i) The ARC's for:

(a) the co-ordination of the management of hazardous substances for the purpose of integrated management in the Auckland Region;

(b) activities which use, store, dispose, or transport hazardous substances in the CMA.

(ii) The TAs' for:

(a) all other activities which use, store, dispose, or transport hazardous substances not in the CMA, including the assessment of land use consents.

2. *The assessment of any land use consent application required for the storage, use, disposal, or transportation of hazardous substances shall include consideration of the manner in which any potential adverse effects of the hazardous substances on the environment will be prevented or mitigated.*

3. *The use of land in proximity to existing hazardous facilities shall be controlled:*

(i) to prevent proposed new activities presenting significant risks to public health and safety;

(ii) to prevent new activities imposing significant limitations on existing facilities.

4. *Proposed facilities for the use, storage, disposal or transportation of hazardous substances shall be designed, developed, and managed so as to prevent, as far as practicable, and where not practicable mitigate the contamination of land, water or air.*

5. *Routes that are preferred for the transportation of hazardous substances shall be identified and promoted within the Auckland Region.*

16.4.2 Methods

1. *In considering any land use consent for the use, storage, disposal or transportation of hazardous substances, the consent authority shall have regard to the following matters in addition to any other matters which it is required by the RM Act to have regard to:*

(i) The reasons for choosing the location, with particular regard to the compatibility of the activity for which consent is sought, with existing and likely future activities in the vicinity, in terms of safety, prevention or mitigation of adverse effects, and, where it is likely that the activity will result in any significant adverse effect on the environment, any feasible alternatives for the location of the activity.

(ii) Details of, and justification for, transport routes proposed to feed to and from those routes identified in the district plan, with particular regard to population density, peak traffic flows and the ease of access for emergency vehicles, areas of significant environmental value (including water supply catchments and aquifers), and taking into account the transport safety equipment or systems proposed to be used.

(iii) Any current circulars or guidelines published by the ARC, MfE, Department of Labour, or other governmental agencies, relating to the development of activities using hazardous substances.

(iv) Current codes of practice adopted by industry which are relevant to the activity being assessed.

(v) The following matters as part of the assessment of environmental effects:

(a) identification of all hazards associated with the operation of the proposed potentially hazardous development;

(b) analysis of such hazards in terms of their consequences to people, property and the natural environment including water supplies from surface waters and aquifers, and their likelihood of occurrence;

(c) assessment of risks from the operation of the potentially hazardous development in terms of location and implications for land uses in the vicinity;

(d) the nature and quantities of hazardous substances used and stored on the site and transported to and from the site;

(e) the type of plant and equipment in use;

(f) the adequacy of proposed technical and site management safety systems;

(g) the surrounding land uses or likely future land uses;

(h) the interactions of the above matters.

2. The ARC will:

(i) Investigate the need for, and if necessary include provisions within, a regional plan in consultation with relevant organisations, which will set minimum standard requirements for facilities using or storing hazardous substances that will prevent hazardous substances entering land, water or air.

(ii) Prepare non-statutory guidelines, in conjunction with TAs and other agencies, to provide the range of issues and studies expected to be covered in the consideration of environmental risk impacts, and to assist in the decision-making process for consents relating to activities using hazardous substances.

The following guidelines will be produced:

(a) industry emergency planning guidelines;

(b) spill contingency guidelines;

(c) fire safety study guidelines;

(d) environmental risk assessment guidelines;

(e) guidelines for hazardous facilities and activities;

(f) guidelines for hazard analysis;

(g) guidelines for hazard audits.

(iii) Endorse a hazardous facility screening procedure and promote its adoption in district plans.

(iv) Advocate for the use of cleaner production methods, including the promotion of the reduction of the use, production, and storage of hazardous substances with particular regard to toxic, persistent, and bioaccumulative substances.

(v) Advocate for the use of smaller or more appropriate inventories of hazardous substances.

(vi) Participate in the preparation and review of district plans.

(vii) Identify routes that are preferred for the transportation of hazardous substances in liaison with TAs, as outlined in Method 16.4.2-3(ii).

(viii) articipate in education programmes for the successful implementation of the policies.

(ix) Make submissions to central government on hazardous substance issues appropriate to the Auckland Region, and advocate for nationally consistent hazardous substance policies.

(x) Liaise with appropriate organisations regarding cross-boundary issues.

(xi) Undertake research into the adverse effects hazardous substances have on the environment, as is necessary for the ARC to effectively carry out its functions under the RM Act.

(xii) Advocate methods to reduce adverse effects on the environment.

3. TAs will:

(i) Include within district plans, objectives, policies and methods of implementation, including consent procedures, relating to the control of the use of land for the prevention or mitigation of any adverse effects of the storage, use, disposal or transportation of hazardous substances. Conditions and criteria for site protection and emergency planning will be included.

(ii) Identify and promote routes within their districts that are preferred for the transportation of hazardous substances in liaison with the ARC, adjoining TAs and other parties as appropriate. The identification of such routes will take into account the following factors:

(a) the avoidance (so far as practicable) of areas of high population density and/or which would be unable to be evacuated quickly in the event of an accident;

(b) the avoidance (so far as practicable) of areas of significant environmental value;

(c) peak traffic flows and the ease of access for emergency service vehicles.

(iii) Advocate methods to reduce adverse effects on the environment.

16.4.3 Reasons

Roles of regulatory agencies

Sections 30(1)(c) and 30(1)(d)(v), and 31(b) of the RM Act enable regional councils and TAs to exercise similar responsibilities in respect of hazardous activities. Section 62(1)(ha) enables Regional Policy Statements to determine which local authority shall have responsibility for the prevention or mitigation of adverse effects of the storage, use, disposal or transportation of hazardous activities in all parts of the Region. In addition to the provisions of the RM Act, other legislation establishes certain responsibilities with regard to hazardous substances, as indicated in Table 16.1 (page 16-6).

Anything decided or pursued through the RM Act cannot be in conflict with requirements arising from other legislation, for example:

- The Department of Labour administers the Dangerous Goods Act 1974, through its own or TA dangerous goods inspectors by inspecting premises in terms of packing, marking, handling, carriage, storage and use of dangerous goods.
- Crown Health Enterprises employ Health Protection Officers and Medical Officers of Health who enforce the Toxic Substances Act 1979 on behalf of the Ministry of Health.

TAs have hazardous substance control responsibilities via several pieces of legislation. Responsibilities include controlling the siting of activities involving hazardous substances, and controlling storage. They may also control the routing of vehicles carrying hazardous substances. It is therefore appropriate in terms of efficiency that TAs be the consent authority for land uses involving hazardous substances.

Managing Risk

Management to prevent or mitigate risk requires a broader response than simply the adoption of engineering safety codes. It is also necessary to determine whether the location chosen for an activity which uses, stores, transports or disposes of hazardous substances is compatible with the existing and likely future surrounding land uses, in terms of health and safety considerations, and whether appropriate emergency planning and appropriate site management systems are brought into effect.

Regional guidelines are proposed as the most efficient method of facilitating the assessment and management of risks to the environment from hazardous substances. Any guidelines produced will be reviewed from time to time, and will be made consistent with or be replaced by any central government guidelines that may be produced.

The specification of trigger quantities is a fundamental step in the management of risks from facilities using hazardous substances. A potential adverse effect on the environment can only occur where there is an inventory of hazardous substances of significant size. The trigger quantity for hazardous substances approach is adopted so that activities that have the potential for adverse environmental effects can be readily identified. The ARC is committed to reviewing available methods for determining trigger quantities of hazardous substances at regular intervals.

Many codes of practice prepared by industry groups or other organisations are designed to prevent or mitigate adverse effects on the environment from the storage, use, disposal or transportation of hazardous substances and will be considered during the assessment of any applications for consents for discretionary activities involving hazardous substances.

When processing any application involving the use, storage, transportation or disposal of hazardous substances, consent authorities will need to consider all of the factors affecting risk, including appropriateness of the location for the proposed activity as required by the Fourth Schedule of the RM Act. Method 16.4.2 (1)(v) provides guidance on specific matters which should be addressed in such an assessment of risk. Risks may be controlled by separation distance or by safety systems. Safety systems can incorporate hardware or software, or a combination of both. Hardware includes appropriate structural engineering design and control systems designed to achieve safety. Software includes management systems and procedures. Where a land use resource consent is not required on the basis of the quantity or type of hazardous substances involved in the proposed activity, no risk assessment is required.

TAs are given the responsibility of controlling activities involving the storage, use, disposal, or transportation of hazardous substances The TA may take into account the potential adverse environmental effects either by resource consent or by permitting activities in which the likely adverse environmental effects are prevented or mitigated as described above.

TA district plans shall also control the use of land in proximity to existing hazardous facilities to prevent the imposition of significant risks to public health and safety and the imposition of limitations upon existing facilities, in accordance with Policy 16.4.1 (3).

If Regional consistency in minimum standard requirements for hazardous facilities can be satisfactorily achieved through district plans, it may not be necessary to include provisions relating to hazardous facilities within the proposed regional plan. However, if such Regional consistency is unable to be achieved, provisions within the proposed regional plan will be added to fulfil the integrated management of hazardous substances function imposed upon regional councils by the RM Act.

Table 16.1: Hazardous Substances – Roles of Agencies

Class	1	2, 3, 4	5	6	7	8	9
Substances Group	Explosives	Flammable Substances	Oxidising Substances	Toxic Substances	Radioactive Substances	Corrosive substances	Environ-mentally Hazardous Substances
Legislation (Principal Act)	Explosives Act 1957	Dangerous Goods Act 1974	Dangerous Goods Act 1974	Toxic Substances Act 1979 Pesticides Act 1979	Radiation Protection Act 1965	Toxic Substances Act 1979	Various
Registration or Licensing Authority	Labour Dept	Labour Dept TAs	Labour Dept TAs	Ministry of Health – Pesticides Board	Ministry of Health (National Radiation Laboratory)	Ministry of Health	Various
Monitoring Authority	Labour Dept	Labour Dept TAs	Labour Dept TAs	Ministry of Health – Designated Officers	Ministry of Health (National Radiation Laboratory)	Ministry of Health – Designated Officers	Various

Preventing or Mitigating the Contamination of Land

The potential for contamination of land and water bodies from activities involving hazardous substances can be avoided or mitigated. Good site management reduces the potential for spills onto the natural environment. Methods such as containment, spill contingency planning, equipment maintenance, housekeeping procedures, etc. can avoid or reduce the potential adverse environmental effects from the risk of spills and leakages of hazardous substances.

Section 1.9 in Chapter 1 – Introduction refers to the general duty of the ARC to respond to pollution events such as from the storage, use, disposal or transportation of hazardous substances.

16.5 Environmental Results Anticipated

(a) Prevention or mitigation of the potential adverse effects to people and property from the storage, use, transportation and disposal of hazardous substances.

(b) Reduced number of incidents of adverse environmental effects from hazardous substances.

(c) Prevention or mitigation of contamination of the natural environment from new facilities using, storing or transporting hazardous substances.

(d) Appropriate siting or control of potentially hazardous facilities.

(e) improved community and industry awareness of potential risks posed by activities using, storing or transporting hazardous substances.

16.6 Monitoring

Consent authorities shall require an activity or facility owner to investigate, and report to the TA and ARC in writing, any incident involving hazardous substances that results in adverse effects to the natural environment, property damage, or actual or potential adverse effects to the health or safety of any persons.

The ARC will establish and maintain a database which will include information on the properties of hazardous substances and this will be available for Regional use.

17.1 Introduction

A contaminated site is an area where the quality of the soil, groundwater or surface water resources has been compromised as a result of land use practices (predominantly from the manufacture, storage, use and disposal of chemicals and hazardous substances).

Section 15 of the RM Act restricts the discharge of contaminants, in the following terms:

"1. No person may discharge any –

(a) Contaminant or water into water; or

(b) Contaminant onto or into land in circumstances which may result in that contaminant (or any other contaminant emanating as a result of natural processes from that contaminant) entering water; or

(c) Contaminant from any industrial or trade premises into air; or

(d) Contaminant from any industrial or trade premises onto or into land –

unless the discharge is expressly allowed by a rule in a regional plan and in any relevant proposed regional plan, a resource consent, or regulations.

2. No person may discharge any contaminant into the air, or into or onto land, from –

(a) any place; or

(b) any other source, whether moveable or not-

in a manner that contravenes a rule in a regional plan or proposed regional plan unless the discharge is expressly allowed by a resource consent or allowed by section 20 (certain existing lawful activities allowed)."

The ARC has the function of controlling the discharge of contaminants into or onto land, or into air or water, by virtue of sections 30(1)(d)(iv) and 30(1)(f) of the RM Act. TAs have a more general function of controlling the actual or potential effects of the use, development or protection of land. In addition, the ARC and TAs have functions under the RM Act to prevent or mitigate the adverse effects of the storage, use, disposal or transportation of hazardous substances.

Enforcement procedures are available to regional councils and TAs to require compliance with regulations, rules or resource consents. They are also available to require a person to avoid, remedy, or mitigate any actual or likely adverse effect on the environment caused by or on behalf of that person, or relating to any land of which the person is owner or occupier.

17.2 Issues

17.2.1 There are a significant number of contaminated sites in the Region which may have an adverse effect on human health and the natural environment.

The use of chemicals and hazardous substances in a range of industries and activities has resulted in the contamination of sites within the Region. A significant number of these sites are old landfills which have received industrial waste and domestic refuse. These contaminated sites may have adverse effects on public health and the environment.

Initial assessments conducted on behalf of the MfE suggest that there are potentially more than 1700 contaminated sites in the Auckland Region. However, this assessment has targeted sites that are, or have been, occupied by industries that have historically been associated with site contamination problems, rather than actually identified contaminated sites.

The issue of contaminated sites is gaining greater public awareness, especially since the introduction of the RM Act. The importance of site assessments and environmental audits, particularly in regard to the rezoning, redevelopment, or purchase of industrial land, is now recognised. The potential risk to public health and the natural environment from these sites is also recognised.

17.2.2 There is a potential for sites to become contaminated in the future.

Historical site contamination has resulted from contaminating land use practices and land management. The avoidance of future contamination of sites, therefore, is dependent on the management of potentially contaminating industries and practices. This management involves a wide range of features which include cleaner production, waste minimisation, the suitable disposal of contaminants and contaminated material, and pollution prevention procedures in general.

17.3 Objectives

1. *To remedy or mitigate any adverse effects of existing contaminated sites.*
2. *To ensure that appropriate remediation standards are achieved for contaminated sites.*
3. *To avoid sites becoming contaminated in the future.*

17.4 Policies, Methods and Reasons

17.4.1 Policies

The following policies and methods give effect to Objectives 17.3 -1, 2 and 3.

1. ***All confirmed contaminated sites in the Auckland Region shall be identified and classified on a register.***
2. ***Remediation of a contaminated site shall be required where the level of contamination renders the site unsuitable for its existing or likely future use, or the site has an actual or likely adverse effect on the wider environment.***
3. ***Remediation standards for a contaminated site shall be consistent with the existing and likely future use of the site and shall consider the risk to the environment posed by the site.***
4. ***Awareness of the issues relating to existing contaminated sites and the avoidance of future contaminated sites shall be promoted.***
   Note: Policies relating to the avoidance of future contaminated sites are stated in Chapter 8 – Water Quality, Chapter 10 – Air Quality, Chapter 12 – Soil Conservation, Chapter 15 – Waste and Chapter 16 – Hazardous Substances.

17.4.2 Methods

1. ***The ARC will co-ordinate the development and maintenance of the register of confirmed contaminated sites in the Region in conjunction with the TAs, industry groups, public health agencies, and other affected parties. This process will include:***
   - ***(i) The investigation of sites for contamination where appropriate.***
   - ***(ii) The development of an information exchange and regular update procedure in conjunction with TAs and other agencies as appropriate.***
   - ***(iii) The development of procedures for recording and tracking the locations and ownership of contaminated sites.***
   - ***(iv) The development of procedures for public access to the contaminated site register.***
2. ***The register will include the following:***
   - ***(i) Sites that have been assessed and confirmed as contaminated, including levels of contamination.***
   - ***(ii) Levels of priority for sites identified in (i) with respect to the risk to human health and the environment associated with each site.***
   - ***(iii) Remediation standards where site remediation has been carried out.***
3. ***The ARC will advocate the establishment of national policies for the management of contaminated sites, and support the development of national guidelines for contaminated site investigation, remediation and management.***
4. ***he ARC will develop procedures and guidelines for the remediation of contaminated sites in consultation with government agencies, public health agencies, TAs, industry groups and other affected parties. The development of procedures and guidelines has commenced and will be ongoing.***
5. ***The ARC will liaise with the TAs and public health agencies to ensure a co-ordinated approach to contaminated site management.***
6. ***The ARC and TAs will require offending parties or landowner/occupier to conduct investigation and remediation of a contaminated site. Transport and disposal of contaminated material should be conducted in accordance with policies in Chapter16 – Hazardous Substances and Chapter 15 – Waste.***
7. ***The ARC will co-ordinate the compilation of historical information on industrial sites for inclusion on TA site files.***
8. ***The ARC and TAs will encourage or require the adoption of codes of practice that have been developed in conjunction with industry groups.***
9. ***Pollution abatement measures will be undertaken by the ARC and TAs.***
10. ***The ARC and TAs will undertake an ongoing education programme to promote:***
    - ***(i) awareness of contaminated sites and contaminated site issues;***
    - ***(ii) cleaner production, waste minimisation, appropriate handling of hazardous material, and appropriate waste disposal methods.***

17.4.3 Reasons

The need to identify and track contaminated sites is fundamental to the avoidance or mitigation of the effects of such sites on public health and the environment. A central register is the most appropriate mechanism for recording information about contaminated sites, and the register would include a prioritising system so that higher risk sites can be assessed and addressed first.

TAs require access to the information that will be held in the Contaminated Site Register, and on historical industrial land use, for their individual districts to enable them to adequately fulfil land information requests. As the TAs hold land ownership details, it is appropriate that they develop procedures for cross-referencing the Contaminated Site Register with their ownership databases so that ownership of contaminated sites can be tracked. It is clear that efficient methods of information exchange must be developed between the ARC and TAs so that the information pertaining to contaminated sites is easily available to the public. Other methods of providing the public with information about contaminated sites will be considered. These include contaminated site updates as part of a State of the Environment report.

A number of procedures and guidelines are available throughout the world for the evaluation and remediation of contaminated sites. Some of these are based on achieving specified standards of remediation, such as those for the protection of drinking water. Others are based on a risk assessment approach which looks at the likely future uses of a site and assigns criteria for remediation to a standard consistent with the likely future use. These procedures and guidelines will be evaluated to develop an approach that is appropriate for the Auckland Region. A risk-based procedure is likely to be adopted. It should not only consider the public health risk and future uses of the site, but also environmental aspects and the protection of surface and groundwater resources where appropriate. For example, sites that have the potential to have an adverse impact on potable water supplies are high risk and consequently have a high priority for remediation.

It is important that there is a nationally consistent approach to contaminated site management and this will be advocated by the ARC. Issues that will be advocated by the ARC for consideration by central government include contaminated site liability, funding for 'orphan' site remediation and the development of alternative treatment technologies.

The remediation of contaminated sites will in general be conducted by the landowners, and enforced by the ARC and TAs using powers under the RM Act, including those outlined in sections 30, 314, 322, and 338 of the RM Act. However, joint remediation projects between the ARC, TAs and site owners may be appropriate in some instances.

The ARC will liaise with both the TAs and the public health agencies to ensure that a coordinated approach to contaminated site management occurs throughout the Region.

Policies and methods relating to the avoidance of future contaminated sites are located in Chapter 10 – Air Quality, Chapter 8 – Water Quality, Chapter 16 – Hazardous Substances, Chapter 15 – Waste, and Chapter 12 – Soil Conservation, and are related in general to the protection of public health and the natural environment.

Guidelines and codes of practice which require industries to follow appropriate methodology and handling standards (such as the Code of Practice for the Design, Installation and Operation of Underground Petroleum Storage Systems) may be used to develop rules in regional plans. This will enable a consistent approach to dealing with industry groups and provide a set of criteria for the design and operation of future installations.

17.5 Environmental Results Anticipated

(a) Avoidance and mitigation of the adverse effects of contaminated sites through improved knowledge of the location and extent of contamination at sites, and with appropriate levels of remediation achieved for sites.

(b) Minimisation of the number of future contaminated sites due to compliance with Regional and District Plans, codes of practice/guidelines, clean production, waste minimisation, pollution abatement programmes and public education.

(c) Reduced pollution events through compliance with Regional and District plans, codes of practice, and public education.

17.6 Monitoring

17.6.1 The effectiveness of these policies will be monitored by:

(i) The Contaminated Sites Register, especially with regard to the number of sites that have been identified and remediated.

(ii) Compliance monitoring of consents and regional plans.

(iii) Monitoring of pollution complaints.

18.1 Introduction

This chapter outlines the mechanisms for identifying present and future needs for the setting aside of esplanade reserves or esplanade strips and related access strips. Policies to determine the need for such provision are to be found in earlier chapters of the RPS – mainly in Chapter 6 -Heritage, Chapter 7 – Coastal Environment, Chapter 8 – Water Quality, and Chapter 11 – Natural Hazards.

18.1.1 Section 229 of the RM Act.

Part X of the RM Act includes provision for the setting aside of esplanade reserves and the establishment of esplanade strips along the margins of the sea (the coastal marine area (CMA)), lakes (of greater than eight hectares in area) or rivers (whose beds have an average width of three metres or more), and for access strips. Section 229 of the RM Act enables esplanade reserves and strips to be established for the following purposes:

"(a) To contribute to the protection of conservation values by, in particular,-

(i) Maintaining or enhancing the natural functioning of the adjacent sea, river or lake; or

(ii) Maintaining or enhancing water quality; or

(iii) Maintaining or enhancing aquatic habitats; or

(iv) Protecting the natural values associated with the esplanade reserve or esplanade strip; or

(v) Mitigating natural hazards; or

(b) To enable public access to or along any sea, river or lake; or

(c) To enable public recreational use of the esplanade reserve or esplanade strip and adjacent sea, river or lake, where the use is compatible with conservation values."

Generally, these provisions come into play when land adjoining lakes, rivers or the sea is subdivided, although they can be implemented at any time by negotiation between the local authority and landowner. They provide one set of mechanisms for managing the margins of lakes, rivers and the CMA. Other measures may also be used, including the provisions of other legislation.

18.1.2 Esplanade reserves.

Esplanade reserves are required to be set aside along margins of lakes, rivers or the sea when land is subdivided into lots of less than four hectares in area, unless such a requirement is varied by means of a rule in a plan or a condition of a resource consent. Esplanade reserves may also be secured in relation to a resource consent, where the setting aside of an esplanade reserve is necessary to achieve the purposes of the RM Act in relation to the effects likely to arise from the development being approved. The setting aside of an esplanade reserve may be secured as a financial contribution, as provided by section 108(9) of the Act.

Reclamations, once they have been carried out pursuant to a resource consent, must be the subject of a survey plan. Such a plan is required to show an esplanade reserve if such a reserve has been required as a condition of consent. Esplanade reserves are generally required to be 20 metres in width, unless this width is varied by a rule in a plan or a condition of a resource consent. Where a greater width than 20 metres is taken, the landowner is to be compensated for the land over and above the 20 metre width. Sections 237E to 237H of the RM Act set out the circumstances where compensation is required and the procedures by which landowners and the TA determine the amount of compensation.

Esplanade reserves are vested in the TA as a local purpose reserve for esplanade purposes under the Reserves Act 1977. The classification of an esplanade reserve may be changed by following the processes set out in the Reserves Act for that purpose.

Esplanade reserves may be set aside where land bounded by the sea, a lake or a river is being subdivided into new lots more than four hectares in area, and a rule in a plan so requires. The local authority shall compensate the landowner for all of the land included in the reserve in accordance with the procedures in sections 237E-H of the RM Act.

18.1.3 Esplanade strips.

Esplanade strips may be established as an alternative to esplanade reserves. Esplanade strips are created by means of easements registered against the titles of land adjoining lakes, rivers or the sea. The land subject to the easement continues to be owned by the landowner, and by virtue of the easement becomes subject to a number of conditions. Some of the conditions are mandatory (specified in the Tenth Schedule to the RM Act) and some may vary according to the purpose(s) which the esplanade strip is to serve, and the circumstances prevailing in respect of that particular strip. Compensation is payable for the establishment of esplanade strips in the same circumstances as apply to the taking of esplanade reserves. In addition, esplanade strips may be established pursuant to a resource consent or a reclamation, in similar terms as those for the establishment of esplanade reserves.

Esplanade strips may be created at any time by agreement between the local authority and landowner.

18.1.4 Access strips.

Access strips provide a means of creating access over private land, and offer a means of enabling access to esplanade reserves or esplanade strips which would otherwise be inaccessible by land or sea and thus not accessible to the public. They may be established by the same means as esplanade strips, are subject to essentially the same required conditions, and may also be subject to conditions relating to the particular circumstances of the access strip. Compensation is payable to the landowner for the establishment of access strips (see sections 237E-H of the RM Act.)

18.1.5 Variation or cancellation of esplanade or access strips.

The RM Act provides for the variation or cancellation of esplanade strips or access strips by a process which is essentially the same as that for an application for a resource consent.

18.2 Issues

18.2.1 Esplanade reserves, esplanade strips and access strips are mechanisms which may be used to facilitate the sustainable management of the margins of lakes, rivers and the sea, but there are choices in the way in which they can be applied which will influence their effectiveness.

While section 229 of the RM Act sets out the purposes for which esplanade reserves and strips can be established, the Act also provides flexibility for TAs to determine the size and location of any esplanade reserve or esplanade strip and the circumstances under which it may or may not be established. These decisions affect the ability of this management mechanism to achieve its intended purpose.

Decisions to take esplanade reserves or establish esplanade strips and access strips at the time of new subdivision can facilitate or inhibit public access to lakes, rivers and the sea and access along their margins. This in turn can encourage or discourage recreational use of these margins. Equally the width of any esplanade reserve or strip will influence its usability by the public for access and recreational purposes.

In areas already subdivided, the creation of esplanade reserves and esplanade strips may be more limited and may need to be established by a process of negotiation between the landowner and the TA.

Use of appropriately located and managed esplanade reserves and strips, which are of a suitable width, can contribute to the protection of conservation values, both within the esplanade reserve or strip itself, on the land behind it or in the adjacent river, lake or stream. They can also provide for the operation of biological and physical processes by accommodating fluctuations in the natural movement of the banks of lakes and rivers and the shoreline of the CMA, thereby mitigating the effect of natural hazards.

Esplanade reserves and strips may form part of a wider area of significant natural value and accordingly they need to be managed as part of the larger habitat. They may also form an important link between land and water habitats and may provide opportunities for appropriate riparian management to reduce the discharge of contaminants, including sediment, from the land into the river, lake or stream.

Decisions made at the time of subdivision and development to waive the need for esplanade reserves or esplanade strips or to reduce their width, or to establish them only in limited and unconnected locations, may compromise or completely negate their effectiveness as a management tool for meeting their intended purpose.

18.2.2 Esplanade reserves, esplanade strips and access strips can achieve wider resource management objectives.

Although section 229 prescribes the purposes of esplanade reserves and esplanade strips, the establishment of reserves and strips for these purposes can also have consequential resource management outcomes. In particular, esplanade reserves, esplanade strips and access strips can give effect to the provisions of sections 6, 7 and 8 of the RM Act.

This is recognised in the relevant chapters of this RPS, including Chapter 6 – Heritage, where provision is made for the protection of natural, cultural and landscape values.

Refer to Section 18.4.3 Reasons for more detailed cross-references.

18.2.3 There is a lack of esplanade reserves, esplanade strips and access strips in some parts of the Auckland Region and a lack of continuous linkages between existing reserves and strips.

Parts of the Auckland Region are well served by a network of esplanade reserves, esplanade strips and access strips, while other areas have few or no esplanade reserves or strips along the margins of rivers, lakes or the sea. This may be due to the rural nature of the land and the retention in holding of greater than four hectares, or because historical subdivision occurred without provision being made for esplanade reserves.

There is a need to expand the linkages between existing esplanade reserves and strips and to develop new linkages in areas where these are absent. The establishment of continuous linkages around the margins of lakes, rivers and the sea requires the use of a number of mechanisms. These can include the establishment of formal protected areas under the Reserves Act 1977, the creation of esplanade reserves and strips under the RM Act or the use of covenants and access arrangements under other legislation such as the Queen Elizabeth II National Trust Act 1977.

The development of continuous linkages around the margins of the Region's coast, its major lakes and along appropriate stretches of its rivers provides for improved public access to these areas and facilitates their management for conservation, recreation or other related purposes.

18.3 Objectives

1. ***To ensure that provision is made for esplanade reserves and esplanade strips in a way which achieves their purposes as described in section 229 of the RM Act.***
2. ***To recognise the ability of esplanade reserves and strips described in section 229 to achieve the purpose and principles of Part II of the RM Act.***
3. ***To allow for the establishment of access strips where these are necessary to enable any existing or proposed esplanade reserve or esplanade strip to fulfil any of the above purposes.***
4. ***To encourage the establishment of continuous linkages along the margins of lakes, rivers and the sea.***

18.4 Policies, Methods and Reasons

The following policies and methods give effect to Objectives 18.3-1 to 4.

18.4.1 Policies

1. ***Where the intrinsic values and/or imminence of change to patterns of land use or development make it necessary or desirable, esplanade reserves, esplanade strips or access strips shall be established and maintained.***

2. *Before significant development or redevelopment of land is enabled, the need for esplanade reserves or esplanade strips to be set aside for any of the purposes in section 229 of the RM Act shall be identified, and provision made for these to be established where appropriate.*

3. *In implementing Policies 18.4.1.1 and 18.4.1.2 consideration shall be given to whether esplanade reserves, due to their greater permanence, would be preferable to other alternatives, such as esplanade strips.*

4. *A greater or lesser width than 20 metres may be set aside as an esplanade reserve or established as an esplanade strip, or the requirement for an esplanade reserve or strip may be waived, where an assessment of the values of the margins of the lake, river or sea in that particular locality establish that:*

   (i) the objectives of section 229 for which the reserve or strip is required will be better or equally achieved by providing a lesser width, or better achieved by providing a greater width; or

   (ii) for reasons of public safety, or for the protection of conservation values, or to ensure a level of security consistent with the purpose of a resource consent or other exceptional circumstances it is undesirable that a reserve or strip be provided.

5. *The decision whether to set aside an esplanade reserve or to establish an esplanade strip will be made in each instance with regard to:*

   (i) the relative cost-effectiveness and appropriateness of the two methods; and

   (ii) the objectives to be achieved in the particular situation; and

   (iii) the relevant provisions of this RPS.

6. *The ARC may provide financial assistance to TAs towards the establishment of esplanade reserves or esplanade strips or access strips relating to such esplanade reserves or strips, where it is satisfied that such provision:*

   (i) is necessary for the implementation of the relevant objectives and policies of this RPS (determined with particular reference to Chapter 6 – Heritage and Chapter 7 – Coastal Environment); and

   (ii) will achieve the protection and/or use of coastal or heritage resources which are, in the opinion of the ARC, Regionally significant in terms of their actual or potential value for recreation, conservation, or public access purposes.

7. *Continuous linkages around the coast and along the margins of rivers, lakes and streams shall be created as far as practicable by the use of appropriate mechanisms.*

18.4.2 Methods

1. *The need for esplanade reserves or esplanade strips will be assessed by planning processes such as those outlined in Appendix A, and the provision to be made will be identified in district plans.*

2. *Provision for the setting aside of esplanade reserves, or for the establishment of esplanade strips will generally be made in district plans, in a manner consistent with the above objectives and policies, and with the provisions of relevant chapters of this RPS.*

3. *Where Regionally significant resources or values are likely to be affected by the setting aside of esplanade reserves or esplanade strips, the ARC will be included by appropriate means in the processes of determining the need for such provision and of establishing reserves or strips.*

4. *TAs will advise the ARC of any application to waive or to reduce the width of any esplanade reserve where:*

   (i) the application is publicly notified under section 93 of the RM Act; or

   (ii) the application relates to any land adjoining the CMA, or a lake or river over which the ARC exercises control under section 13 of the RM Act in recognition of the role of the ARC as an affected party under section 94(2).

5. ***In implementing Policy 18.4.1.7 above, DoC, TAs and other relevant agencies will consider the use of alternative legislation, including the Conservation Act 1987, the Reserves Act 1977, the NZ Walkways Act 1990 and Te Ture Whenua Act 1993 as well as the RM Act.***

18.4.3 Reasons

The foregoing provisions are referred to in Chapter 6 – Heritage, Chapter 7 – Coastal Environment, Chapter 8 – Water Quality and Chapter 11 – Natural Hazards of this RPS. Each of these chapters makes reference to the management of the margins of lakes, rivers or the CMA, and includes cross-references to this chapter. Particular policies which recognise the role of esplanade reserves and strips include:

Chapter 6 – Heritage:

Policies 6.4.4 -2 and -3 and Method 6.4.5 -4 relating to the maintenance and enhancement of public access to heritage resources.

Policy 6.4.2 -2 which identifies mechanisms for the preservation and protection of heritage resources.

Chapter 7- Coastal Environment:

Policies 7.4.13 -1 and -2 and Methods 7.4.14 -1 and -3 relating to the provision of public access to and along the CMA and publicly owned land in the coastal environment.

Chapter 8 -Water Quality:

Policy 8.4.4 -1 and Method 8.4.5 -3 relating to the establishment of riparian protection yards.

Policy 8.4.21 -3 relating to requirements for urban development in areas susceptible to water quality degradation or areas that have already been degraded.

Chapter 11 – Natural Hazards:

Method 11.4.2 -12 relating to the use of district plan provisions, including esplanade reserves and strips for coastal hazard management.

The need for provision to be made for esplanade reserves or strips can and should be assessed before development or redevelopment is initiated. It is best done at the time that provision is made in district plans enabling change of significant magnitude to occur, as part of the structure planning process (See Appendix A). In assessing future needs, the long-term future must be considered, and sufficient provision made to cater flexibly for future generations. This is recognised by Policies 18.4.1-1 and 2 and Method 18.4.2 -2. Once the needs have been identified, provision to secure the necessary setting aside of esplanade reserves or strips should be included in the district plan. This may be done when a plan is prepared or reviewed, or the necessary provisions may be introduced at other times by way of variation or change.

Reserves will generally be preferred to strips (Policy 18.4.1 -3) because of the greater permanence of esplanade reserves than esplanade strips (the RM Act includes a procedure for variation or removal of the latter, which may be initiated by landowners),

The opportunities to secure provision of esplanade reserves or strips usually arise when land is subdivided, and the means of implementation therefore lies primarily with TAs. Such provision may also be effected as a condition of the granting of a resource consent, in situations where the provision of an esplanade reserve or strip is necessary to avoid, remedy or mitigate effects of the development. Policy 18.4.1 -5 provides guidance on the circumstances when esplanade reserves and strips should be established, while Policy 18.4.1 -4 provides criteria for assessing the circumstances when esplanade reserves or strips may be waived or their width changed from 20 metres.

Policy 18.4.1 -6 envisages that, where the values or resources which are the subject of esplanade reserves or strips are of Regional significance, the ARC may contribute to the cost of establishing esplanade reserves or strips. In each case the ARC will have to be satisfied that the criteria of Policy 18.4.1 -6 are met, and also those established by section 664A of the Local Government Act. Section 664A enables such contributions to be made, provided such provision is directly related to the functions of the regional council, and in the opinion of the regional council is generally for the benefit of the inhabitants of the region.

Although district plans are the primary mechanism for determining the strategy for the establishment of esplanade reserves and strips within each TA, this strategy must not be inconsistent with the provisions of

this RPS. Methods 18.4.2 -3 and 18.4.2 -4 recognise that certain resources or values are of Regional significance and the ARC should be consulted in the provision of reserves and strips where this will affect such Regional resources or values. ARC involvement in this process can be by:

(i) Consultation and formal submissions in the preparation of district plans and in plan variations and changes.

(ii) Submissions to notified applications relating to esplanade reserves and strips.

(iii) Consultation under section 94(2) as an affected party in terms of the adjacent CMA, lake or river.

(iv) Informal consultation and provision of technical advice on any effects on the values of the esplanade reserve or strip or adjacent water body.

Section 93 of the RM Act outlines the process for notification of applications for resource consents, while section 94 provides a framework for determining when applications need not be notified. In determining whether any application to waive or reduce the width of an esplanade reserve or strip should be publicly notified, TAs should consider the extent to which the general public may be adversely affected by the proposed waiver or reduction.

While certain parts of the Auckland Region are well served by esplanade reserves, other parts require additional reserves or strips. Objective 18.3-4 and Policy 18.4.1 -7 encourage the creation of continuous linkages around the margins of lakes, rivers and the sea, while Method 18.4.2 -5 acknowledges that these linkages can be established for a range of purposes and under a range of legislation.

18.5 Environmental Results Anticipated

(a) The conservation values and recreational use of, and public access to the margins of lakes, rivers and the CMA are protected.

(b) A continuous linkage of esplanade reserves, strips and land protected under other mechanisms is established around the margins of lakes and rivers and the CMA.

(c) Natural and cultural heritage values and landscape values are maintained by appropriate esplanade reserves, esplanade strips and access strips.

18.6 Monitoring

1. In addition to the monitoring carried out in relation to heritage, coastal environment, water quality and natural hazards, the ARC will monitor at appropriate intervals:

   (i) the creation of esplanade reserves, esplanade strips and access strips, including the granting of any waivers or reductions in width;

   (ii) the establishment of continuous linkages around the margins of lakes and rivers and the CMA.

Appendix A

Planning Processes

Introduction

This appendix outlines a number of planning processes which are used in the Auckland Region to support the effective management of development in the region's rural and urban areas. These include statutory and non statutory methods. Some methods, for example, strategic planning, that previously did not have a statutory base, have now been recognised in legislation in amendments to the Local Government Act (LGA) 1974, the LGA 2002, with its requirements for Long Term Council Community Plans (LTCCPs) and the LGAAA 2004. The focus in this Appendix is on those methods where there is limited statutory or other guidance, in particular structure planning.

The Auckland Region is characterised by continuing growth. Development has widespread effects on the environments, both positive and negative. Responsibility for growth management and its adverse effects, is shared by the ARC, other TAs, the Minister of Conservation, developers and the community. Growth pressures led to the 1988 Auckland Regional Planning Scheme bringing into effect metropolitan urban limits (MULs) to contain the expansion of urban Auckland, and requirements for the sequencing and structure planning of future urban areas. The MUL continues to be a crucial management tool.

In the last decade or so, growth has moved from a predominant focus on peripheral urban expansion, to the situation today where more than 50% of growth occurs in existing urban areas through redevelopment and intensification. Structure planning has relevance to existing urban areas, areas to be urbanised and to rural areas, where some development may occur.

In the mid 1990s, the ARC, in co-operation with the region's TAs, established the Auckland Regional Growth Forum. The Forum considers strategic growth issues across the region from a regional sustainable development perspective, and supports district planning within a regional context. The 1998 LGA Amendment provided statutory recognition of the Forum and its work on a regional growth strategy and this is retained in the LGA 1974. The Regional Growth Strategy, launched by the Forum in late 1999 provides a vision for the region out to 2050, a growth concept to fulfil the vision, and sector agreements at the sub-regional level to support implementation. The 2005 changes to this RPS and to the region's district plans seek to give effect to the growth concept. The Auckland Regional Land Transport Strategy, and reviews of this, are also crucial to the effective implementation of the growth strategy.

The Regional Growth Forum enables a high level of partnership and consultation across the local authorities within the region, and a means of working through issues, and ensuring consistent regional approaches, where appropriate. The Regional Land Transport Committee is another formal consultation mechanism that supports regional integration. Informal mechanisms include the Auckland Mayoral and other forums. Joint officials groups, involving senior staff from councils and at times from central government, also support improved regional outcomes.

The LGA 2002 now also requires councils to develop LTCCPs that contain community outcomes. This gives statutory recognition of the importance of strategic planning, and of councils working with their communities. Outcomes from these plans can set key directions and have major implications for Council Annual Plans, Asset Management Plans and RMA planning documents.

At the regional level work to underpin strategic planning includes preparation of forecasts of land requirements for housing, jobs and related activities, economic and social information, the evaluation of transport needs, the preparation, evaluation and consultation on development options. Strategic planning also includes guidance for councils and stakeholders on key outcomes, such as for integrated catchment management planning and structure planning. Such planning may occur at the city or district level and reflects the development pressures and degree of change, as well as the range of infrastructure and community services such councils may provide. It is important that council budgets reflect LTCCPs, and provide for the effective implementation of strategic, including resource management, outcomes.

Planning Processes

Type of process	Responsibility	General scope and outputs
Strategic regional planning	Auckland Regional Council	Strategic planning at the regional level includes preparation of forecasts of land requirements for housing, jobs and related facilities, and the articulation and evaluation of a range of development options. Evaluation of options will lead to the formulation of objectives and policies designed to guide development in the Region towards directions and a form which give effect in appropriate ways to the purposes and principles of the RM Act. Evaluation will include consideration of the following: ❍ effects on land, water and air resources; ❍ economic effects, including capital works and operating costs; ❍ effects on heritage values; ❍ social effects. The process leads to the determination of a strategic direction for the Region, which is expressed in the Regional Policy Statement, and will be reflected in regional plans prepared under the RM Act. It will also be important to ensure that the annual work programmes and budgetary commitments of local authorities detailed in the annual plan process under the Local Government Act are consistent with the strategic directions for the Region.

Type of process	Responsibility	General scope and outputs
Strategic district planning	TAs	The approach to strategic planning by TAs will vary from district to district, depending on the nature of the development pressures and change which is expected to occur in the future. TAs not only provide regulatory services, but may also deliver to the community a wide range of infrastructural and community services (i.e., the provision and operation of social and cultural facilities and services). The general aim of strategic district planning is to bring into effect corporate objectives and polices which will ensure that the whole range of regulatory responsibilities and service delivery functions at district level are provided consistently, cost-effectively, and in a manner which meets community expectations and fulfils statutory obligations. Where significant development pressures are anticipated, strategic district planning will include preparation of forecasts of land requirements for housing, jobs and related facilities, and the articulation and evaluation of development options for the district. Where development patterns are established and limited development is expected in the foreseeable future, strategic district planning may be focussed mainly on determining the level of resourcing necessary to achieve appropriate levels of service. In both situations, the evaluation will include a similar range of matters as occurs at the regional level. Within a Region, it will be important to ensure that the developmental aspects of strategic planning at the district level are consistent with the strategic objectives and policies for the Region. To a large extent this may be achieved through the processes established by the RM Act, and through the annual plan process under the Local Government Act through which local authorities establish yearly work programmes and related budget commitments. Consistency with regional objectives and policies will also be facilitated by a high level of consultation between local authorities within the Region.

Type of process	Responsibility	General scope and outputs
Integrated Catchment Management Planning	TAs: the Auckland Regional Plan: Air, Land and Water includes policies on the development of Integrated Catchment Management Plans (ICMPs) by TAs. At times the ARC may be involved in developing an ICMP. The Plan also anticipates preparation of Network Management Plans (NMPs) by stormwater & wastewater network utility operators.	Identifies and describes the important characteristics of a catchment in which resource management problems already exist or may occur as a result of expected changes. The expected changes may include urban development or redevelopment, or other major changes in activity patterns. Integrated catchment management planning will promote the integrated and sustainable management of diversions, discharges and associated river and lake bed activities. Guidance on ICMPs is provided in Policy 5.4.10 of the Proposed Auckland Regional Plan: Air, Land and Water. The ARC is also developing a best practice guide on ICMPs.

Type of process	Responsibility	General scope and outputs
Structure planning	TAs	1. Structure planning is both a strategic planning tool, a design tool and a comprehensive planning process with public and technical input. It tests more general planning assumptions from higher level more strategic documents, builds on relevant technical assessments, and provides a basis for future development options/scenarios, and a preferred option. It may identify where more detailed work, including master plans may be needed. Structure plans guide future development and redevelopment through being an input into more detailed master plans and subdivision plans. 2. In the Auckland region structure planning is used for the: • Identification and consideration of land which is to be urbanised; • Identification and consideration of the location and scale of residential, commercial or industrial (re)development to be provided for, or that has been provided for but has not yet occurred, and where density, amenity and other outcomes could be enhanced; this includes land both within and outside High Density Centres and Intensive Corridors, and in commercial or other areas; at times it may involve small but significantly located parcels of land of around 5,000 square metres or more, or larger areas; and • Identification and consideration of rural land which may or may not be appropriate for rural development, including countryside living. 3. Structure planning will consider: • Effective ways to educate, inform and consult the community and to involve key stakeholders, including the ARC and landowner(s); • The broader strategic context, including the relationship of the structure plan area, with the surrounding area both within the city/district, and the sub-region; • Growth needs within the wider city/district and sub-regional area, and how to ensure the structure plan area effectively integrates with these; • How to ensure the structure plan integrates with the wider district and sub-regional strategies;

Type of process	Responsibility	General scope and outputs
		• Any relevant national RMA documents, such as the New Zealand Coastal Policy Statement, other national policy statements and national environmental standards; • The need to give effect to the Regional Policy Statement requirements, particularly Chapter 2 but also including other chapters; • Any relevant regional plans; management plans; regional, sector, city or district strategic policy and plans; including Long Term Council Community Plans (LTCCPs); • How to achieve integrated land use and transport outcomes, the objectives of the Regional Land Transport Strategy, the Passenger Transport Plan and the Land Transport Programmes of ARTA, TA's, Transit New Zealand and ONTRACK; • Recognition of strategic transport issues, strategies and plans, including planned public transport improvements and the strategic roading and rail networks; • Local transport and accessibility issues, and in particular the need for safe and attractive walking environments, with good links to public transport and local facilities and amenities, and for cycling provision, and for good integration between the local and strategic transport network; • Consideration of the content of integrated transport assessments, in accordance with Appendix J; • The natural character of the land (steepness, natural hazards including flood proneness or propensity to erosion or slippage vulnerability of ecosystems, and existing vegetation patterns); • The existence of features or values which warrant protection or preservation (such as sites of significance to Maori, other cultural heritage sites, natural heritage including indigenous vegetation, sensitive areas such as stream valleys and estuaries, and regionally significant or outstanding landscapes), and the need for open space and green networks;

Type of process	Responsibility	General scope and outputs
		• The feasibility of creating green networks, environmental restoration and/or other means to protect biodiversity, and the requirement for the establishment and retention of riparian protection yards, esplanade reserves or marginal strips between land use activities and water bodies and coastal waters; • The location and scale of infrastructure, including water and sewerage systems, adequate treatment of stormwater, and recognition of regionally significant infrastructure. In particular, structure planning should consider how these fit within integrated catchment management plan/s for the area, and any necessary changes to improve outcomes. • The provision for adequate levels of social infrastructure (including open space) in the context of wider regional and sub-regional networks. • The existence of or potential for natural hazards including flooding, erosion, land slips/instability, coastal hazards, subsidence, sea-level rise, and active faults. 4. In areas to be (re-)urbanised structure plans will also consider: • The preferred urban form and design of the area, whether this fits efficiently and effectively with the values of the wider city/district and sector of the region, including existing urban character and aesthetic coherence; • How to achieve the optimal densities, in High Density Centres and Intensive Corridors, particularly those served by public transport; • The maintenance and enhancement of urban amenity values, throughout the change period and into the longer term; • The type of urban edge or boundary (hard or soft) to be created, its appropriateness to the structure plan and wider city/district, sector and region, and how transitions between and within the area to be (re-)urbanised and other areas with different activities and uses, and/or different densities are to be managed. 5. In areas to remain rural, structure plans will also consider*:* • The rural population strategy for the relevant sector, city/district, and structure plan area. This strategy should include information on the current development potential available, and whether this potential is consistent with the protection of key environmental values;

Type of process	Responsibility	General scope and outputs
		• How to ensure that any development meets the requirements of Chapter 2 and other RPS chapters; • The avoidance of urban activities in rural areas, and whether the area is appropriate for that type of activity including development; • The maintenance and enhancement of rural amenity values and character of the area, within the wider city/district, sector and region; • Acknowledgement that rural areas are working areas and the avoidance of conflicts, including reverse sensitivity effects, between a range of rural activities and countryside living; where avoidance is not possible, effective management must be able to be realistically achieved; • The location, scale and significance of identified physical rural resources such as productive soils and mineral resources, and how these may be affected by any proposed development; • The potential adverse and beneficial effects on the environment of different options, and whether the location, scale and extent of any options for countryside living give effect to the RGS and RPS outcomes and policies; • The most appropriate types of countryside living (whether this should be scattered throughout the structure plan area, or located in one or more specific locations); • Explicit evaluation of the trade-offs between general rural amenity values and character, and the creation of countryside living with its different amenity values and character (through closer subdivision and potentially changing land use patterns), and the future risks to general rural amenity values and character through the likelihood of pressure for urban type services, and/or further subdivision; • Techniques to ensure an equitable (as far as practicable) and consistent evaluation of the tools available for the management of countryside living opportunities, including transferable development rights, and the use of covenants to provide certainty regarding protection of key environmental values into the longer term.

Type of process	Responsibility	General scope and outputs
		6. The process will produce a plan that guides development so that the form and intensity of development is consistent with the strategic outcomes for the sector (north, west, central and southern), broader local area, and appropriate to the character of the land in the structure plan. 7. For example, in urban areas the Structure Plan will identify the key desirable urban design (including structure) outcomes and the future pattern of significant landuses, including: • Values to be protected, and land uses consistent with such protection that may support local character and amenity values; • The scale and intensity of development, having regard to the urban density required to support the public transport (see Appendix H); • Key infrastructure requirements including roads, schools, open space, including reserves and land required for public access and other community utilities and facilities, and the timing of their availability; • Arterial and local roads, the range of public transport modes, and the transport network, and how traffic will be managed in the area; • Safe and attractive walking and cycling routes, and their integration with land uses, public transport, and the transport network; • High Density Centres and Intensive Corridors and/or other commercial, industrial or mixed use areas and their integration with the transport system, with the wider urban area, and vice versa; • Land to be reserved for environmental protection purposes, including hazard avoidance and mitigation, flood protection and green networks and their integration with the wider area.

For more information on structure planning refer to "An ARC Guide to Structure Planning: A Regional Practice and Resource Guide 2005".

Appendix B

Significant Natural Heritage Areas and Values

Introduction

1. The natural heritage areas of regional significance in the Auckland Region were first published in the Auckland Regional Planning Scheme (ARPS)(i.e., those that were the subject of Policy 7.28 of ARPS) have been carried into this RPS. These areas are the subject of Method 6.4.2.2 of the heritage chapter. The notes have been edited to a limited extent only, to remove statements no longer applicable or accurate. The locations of these areas are mapped in Volume II of the RPS (See Map Series 2, Sheets 1-3).

2. Only areas of regional significance are included in this appendix, so their reference numbers are not sequential – some areas which were numbered in the ARPS are omitted. Unless otherwise stated in the notes, values recorded in this appendix are considered to be of regional importance.

3. This appendix is not considered to be a complete record of all significant natural and physical heritage resources in the Auckland Region.

   Readers are referred to the ARPS for documentation regarding the original creation of the annotations and maps.

4. Readers are referred to the Proposed Regional Plan: Coastal for further detailed information on coastal environment values.

The following abbreviations and symbols are used in the annotations

ACC	Auckland City Council
ARC	Auckland Regional Council
a.s.l.	above sea level
B.P.	before present
cumecs	cubic metres per second
NWASCO	National Water and Soil Conservation Organisation
OSNZ	Ornithological Society of New Zealand
RFBPS	Royal Forest and Bird Protection Society
sp., spp.	species (singular, plural)
WRPS	Waitakere Ranges Protection Society

❍ Notes about freshwater environments or species

☐ Notes about terrestrial environments or species

☒ Notes about coastal or marine environments or species

◆ Geological or landform notes

Annotations to Maps

❍ 4 LAKES SLIPPER, SPECTACLE AND TOMARATA are all dune lakes impounded by Holocene dune sands. Some enrichment of Lakes Slipper and Spectacle is evident, partly due to wastes supplied from adjacent farm land. The fern *Loxsoma cunninghamii* is found in the vicinity of Lake Tomarata and a significant freshwater wetland is situated on the southern and eastern margins of this lake. Lake Tomarata still retains a relatively unpolluted clear water environment although ease of access, the boat launching ramp and picnic facilities have encouraged swimming, skiing and powerboating which may need to be controlled in the future. Bird species around the lakes include banded rail, mallard duck, pukeko and possibly bittern.

☒ 8 BIRDS OF PAKIRI AREA include white-faced heron, blue reef heron, banded rail and pied stilt. New Zealand dotterel and variable oystercatcher breed in the area.

◆☐☒ 9 OKAKARI POINT to MANGAWHAI HARBOUR (Pakiri beach) is the only exposed east coast surf beach free of housing and backed by extensive sand dunes and dune lakes. As a wild and scenic coastline, it is of regional significance and should be protected. The endemic sedge, pingao (*Desmoschoenus spiralis*), is found on the dunes along the Pakiri coast.

☒ 12 CAPE RODNEY to OKAKARI POINT MARINE RESERVE. This reserve was gazetted in 1975 as New Zealand's first marine reserve. This area has a great diversity of near shore, reef-dwelling marine organisms in a clean silt-free environment which contrasts with much of the inner gulf area. Gordon and Ballantine

(1976) contains a comprehensive summary of the geology, climate, hydrology and biology of this area, and its regional significance. Continuing study of the area is going on at the adjacent University of Auckland Marine Research Laboratory. This reserve is considered to be of national importance.

□ 15 OMAHA ECOLOGICAL AREA (Mt Tamahunga). This steep, elevated (330 m) area is covered mainly in broadleaf-podocarp forest with young kauri throughout. In gullies there are dense stands of taraire, kohekohe and towai.

The native frog *Leiopelma hochstetteri* inhabits this forest. It is the most primitive of all living anurans and has no free-swimming tadpole stage. It is known to be in the Waitakere and Hunua Ranges and in Dome Forest Stewardship Area (and outside the Region, in the Coromandel Range) and is considered to be a nationally threatened species. The ecological area is considered to be of national importance.

Omaha Ecological Area is on the New Zealand walkway north-south route.

This area is administered by the Department of Conservation.

◆ 16 MANGATAWHIRI BARRIER-SPIT (OMAHA) is composed of unconsolidated Holocene coastal sediments deposited either side of an initial barrier-ridge. The landform records the episodic depositional history of the area.

The present phase is characterised by erosion along the ocean beach, accentuated by the recent residential development involving a lowering of the dune topography. Ministry of Works and Development profile data (1965-68) indicates the 'elastic' nature of the beach front and the expected magnitude of change in beach dimension, 10-20 m per decade, which increases towards the distal end of the spit under the influence of current and tidal movements at the harbour entrance. The inherent mobility in the plan position of a fixed vertical such as high water mark is the fundamental reason why contemporary erosion at Omaha is a problem, given the establishment in 1968 of a fixed property boundary related to the then high water mark. A beach protection plan has been implemented in an attempt to stabilise the eroding beach.

The Omaha Spit attracts a wintering flock of New Zealand dotterel.

□ 17 LOWLAND KAHIKATEA SWAMP FOREST. This area has one of the best examples of this type left in Northland and Auckland; such forests are quite rare. This stand is of high quality with an intact canopy and an almost intact understorey although damage by stock is occurring. Its value is also increased as it is part of an intact vegetational sequence from estuarine salt marsh to forest; such sequences are now very rare. Because of its high ecological and scientific values, this example of this sequence is of national importance and is worthy of preservation. It is in private ownership.

□ 20 DOME FOREST STEWARDSHIP AREA comprises 401 hectares of regenerating native forest and is dominated by a 336 m high flat-topped mountain, the Dome. The forest is a broadleaf-podocarp type with kauri, rimu, miro, totara and kahikatea mixed with taraire, puriri, kohekohe, and towai throughout. Subcanopy species include young canopy trees and a thick cover of mapou, nikau, ponga, rewarewa, rangiora and mingimingi. To the east of the Dome a small island of mature kauri still exists, giving an indication of the original composition of the forest.

The forest has added scientific value due to the presence in damp valleys of the native frog, *Leiopelma hochstetteri*. This frog is also found elsewhere in the Region (see note 15). This area is considered to be of national significance.

The Department of Conservation administers this forest.

☒ 21 The KAIPARA HARBOUR is one of the three areas in the Auckland Region which is of national and international ornithological significance, attracting

tens of thousands of birds each year from the South Island and from the arctic and subarctic regions. Regular large-scale movement of birds occurs between the Kaipara and Manukau harbours and the Firth of Thames. With its extensive tidal flats, mangroves and salt marshes, it is an important feeding area for waders such as godwit, knot, South Island pied oystercatcher, wrybill and pied stilt. The harbour and shore areas also support pied shag, white-faced heron, red-billed gull, caspian tern, white-fronted tern, mallard duck, cattle egret, welcome swallow and white heron. The black stilt and fairy tern are seen occasionally.

☒ 22 TAUHOA SCIENTIFIC RESERVE comprises 291 hectares, 75-80% of which is dense mangrove forest. It is one of only two such significant reserves in New Zealand and is administered by the Department of Conservation. It was vested in the University of Auckland in 1949 and classified as a flora and fauna reserve. It is open to the public but entry may be restricted to scientific groups if necessary. The reserve is considered to be of national importance.

☒ 24 GUM STORE CREEK has a rich assemblage of habitats – mangroves, mudflats, sand banks, scrub and freshwater wetlands. It is an important shag roosting area.

☒❍ 25 The TAPORA COAST has an unusually rich variety of habitats, making this an area of national and international significance for bird life: freshwater wetlands, pingao on mobile sands, salt marshes, mangroves and islands of hard sand. With its hard sand areas and coastal margins, it is a major roosting area in the Kaipara Harbour for waders. The OSNZ survey made in March 1978 resulted in sightings of the following species: South Island pied oystercatcher, New Zealand dotterel, banded dotterel, wrybill, godwit, turnstone, knot, pied stilt, grey plover and eastern golden plover. Also eight species of water birds were seen. Many of the roosting areas in the Kaipara have been destroyed by reclamation. The Tapora coast together with Jordan's and Oyster point are the major roosts remaining on the eastern side of the harbour. Sand Island is a wildlife management reserve now administered by the Department of Conservation. The area between Waikiri Creek and Te Ngaio Point was allocated to the Department of Conservation in 1987 for administration as a stewardship area.

☒◆ 26 PAPAKANUI SPIT is a mobile sandspit enclosing Waionui inlet. The spit is administered by the Department of Conservation. This area is an outstanding wildlife habitat within the Region and is of national importance. It also has areas of pingao. It is important as a breeding and roosting area for the New Zealand dotterel and the fairy tern. The spit was important as habitat for caspian tern, however the birds have moved to other parts of the Kaipara Harbour, possibly as a result of disturbance from activities on the spit. The spit itself borders the Papakanui Stewardship Area which is managed by the Department of Conservation , gazetted as an Air Weapons Range and used by the New Zealand Defence Force.

☒ 27 WAIONUI INLET is an important estuarine habitat with a rich diversity of bird life including the fernbird. The estuarine fringes are notable for the succession of plant communities between the tidal flats and dune areas.

◆ 28 KAIPARA SAND DUNES. The South Kaipara dune barrier is a complex sedimentary structure built at the same time and in the same manner as the Manukau barrier. The Holocene dune of the South Kaipara barrier, with only an incipient soil cover, extends 3.5 km inland from the western shore line. Dune belts 5 (youngest) to 1 (oldest) represent 5 stages of progradation during periods of sea-level regression alternating with periods of transgression. They illustrate fluctuations in the overall fall in post-glacial sea level from approximately 10,000 years ago until the beginning of this century (Schofield 1960; 1975).

❍◆ 29 NORTHERN UNCONSOLIDATED DUNE AREA. The area is a varied complex of low and high sand landforms. The high unconsolidated dune rises to over 60m and is unique in the Region. The dunes have significant native vegetation and bird life. Wetlands within this area have rich botanical associations and contribute to habitat variety. The area is attractive for off-road vehicle recreation, and should be regulated to prevent conflict with the natural processes and character of the area. Because of the rich and varied land form and rich biological associations, this area is of national significance. It should be protected from development and other activities which would detract from its natural character.

□ 30 COAL SEAM HILL BIOLOGICAL AREA is a striking kanuka-covered land form rising 30m above the surrounding dune land which, prior to sand stabilisation, had an island-like appearance. The hill has a small seam of coal containing sub-fossil remains of broadleaf and coniferous trees. At the hill-top there is a well concealed flat-bottomed 'crater-like' basin. This basin is entirely surrounded by stable vegetated sand slopes, although two small 'blow-ins' are permitting sand spillage into it.

The slopes and rim of the basin are covered with kanuka forest composed of a kanuka canopy with a shrub layer of small kanuka with scattered mingimingi, *Coprosma, Myrsine divaricata, Corokia cotoneaster* and broom.

The actual basin is dominated by the presence of one massive puriri, flanked on the fringes by 15m high kanuka, scattered cabbage trees and a tall subcanopy of *Lophomyrtus obcordata,* houpara, karamu and *Myrsine divaricata*.

This land is protected by a covenant.

❍ 31 KAIPARA DUNE LAKES. This extensive system of lakes is regionally significant in that it provides an open, shallow freshwater habitat for a number of threatened species of wildlife as well as for more common ones.

During the 1970s some of the lakes dried up considerably. Therefore the larger, deeper lakes – Kereta, Kuwakatai, Ototoa, Okaihua – have become of critical importance to wildlife. While the levels of water in the smaller and shallower lakes fluctuate seasonally and from year to year, they remain significant habitats for birds. In addition to the four lakes mentioned above, Kereta South I, Otakanini Topu South, and the Okiritoto Stream and swamp are of very high value for wildlife. Pukeko, pied shag, little shag, little black shag, black shag, mallard duck, grey duck, grey teal, white-faced heron, black swan, paradise duck, New Zealand shoveler, pied stilt, caspian tern, kingfisher, bittern and harrier are among the species found in the dune lakes area. The fernbird, bittern, and New Zealand scaup – the numbers of which are on the decline throughout New Zealand because of the continual drainage of fresh-water wetlands – are also found around the lakes. The OSNZ has noticed a decline in the number of New Zealand scaup over the last few years. Small numbers of dabchick breed here. The dune lake system provides the specialised habitat which is required by these threatened species and, as such, warrants preservation.

❍ 32 LAKE OTOTOA may be the only water body in the Region where freshwater crayfish, koura (*Paranephrops planifrons*) , are abundant. (See note 31.)

The following bird species are known from the lake (from OSNZ, 1978 Surveys): little shag, pukeko, black swan, black shag, white-faced heron, pied shag, little black shag, dabchick, kingfisher, harrier, mallard duck, grey duck, bittern. (See note 31.)

❍ 34 LAKE KUWAKATAI is valued for its wildlife significance. The following birds have been recorded (from OSNZ, 1978 Surveys): pukeko, mallard duck, pied shag, black shag, little shag, grey duck, paradise duck, white-faced heron, dabchick, little black shag, bittern, black swan, shoveler duck, rosella parakeet, pied stilt, harrier. There is also a pied shag colony on this lake.

It is significant because it is unusual to find such colonies on freshwater lakes. Some little shags are also found in the colony.

☒ 36 MURIWAI AND RANGITIRA BEACH TOHEROA BEDS. This is the only location for toheroa in the Region. The shellfish population normally fluctuates between 2-5 million but in recent years stocks have dwindled to well below this level due to a number of factors including over exploitation, natural population fluctuations, wave action and vehicular damage to the sand habitat. The viability of the habitat may be dependent on freshwater seepage from the dune lakes.

The toheroa population is too low to support an open season. The Ministry of Agriculture and Fisheries which administers the beds continues to monitor toheroa numbers.

☒ 37 MURIWAI AND RANGITIRA BEACHES are long, exposed surf beaches with sandy shores, backed by sand dunes, often covered with pingao. Birds of the coast line include the variable oystercatcher, New Zealand dotterel, banded dotterel, pipit, pied stilt, white-fronted tern, little black shag, little shag, white-faced heron, blue penguin, and caspian tern.

☒☐ 38 MOTUREMU ISLAND is a scenic reserve administered by the Department of Conservation. It is a significant area for eastern golden plover and the endangered kaka beak. Pied stilts and grey faced petrels are known to breed in the area. This area is considered to be of international importance.

☐ 39 ATUANUI STEWARDSHIP AREA (MOUNT AUCKLAND). An indigenous state forest since 1887, this area of podocarp/kauri/hardwood forest, although logged, has never been damaged by fire. Rimu and kauri are found in scattered groups and are regenerating throughout. Kahikatea and totara are also seen in scattered locations. Associated with this is a dense mosaic of hardwood species including taraire, karaka, puriri, kohekohe, hinau and kowhai. There are many epiphytes and lianas, and a rare orchid *Yoania australis* is found beneath the taraire. The forest is considered to be of national importance.

The Mt Auckland section of the New Zealand walkway passes through the Glorit farm settlement, through the forest via the Mt Auckland summit (305m) and a small area of exotic afforestation.

☒ 40 JORDAN'S FARM AND OYSTER POINT. Due to reclamation there are few remaining roosting areas in the Kaipara Harbour. The Tapora coast is one of the major roosts (see note 25). Jordan's Farm and Oyster Point are the only major ones in the southern part of the harbour where up to 10,000 birds roost during the summer, and are therefore of national and international importance. The following species have been sighted: South Island pied oystercatcher, New Zealand dotterel, banded dotterel, wrybill, godwit, turnstone, knot, grey plover, and eastern golden plover. Pied stilt are known to breed in the area.

☒☐ 43 KAUKAPAKAPA ESTUARY SCIENTIFIC RESERVE has been set aside as it is a significant area of regenerating kauri. It is an important habitat area for wildlife with a colony of shags and other species of birds nesting. The 209 hectare forest is administered by the Department of Conservation.

◆ 45 PARAKAI GEOTHERMAL FIELD. This is the hottest geothermal water resource in the Region. Hot water is presently abstracted at an average rate of about 560 cubic metres per day at up to 65°C. There are no surface springs.

It is estimated that the field can sustain up to 700 m^3/day draw off.

☒ 47 MAHURANGI HARBOUR. This area is a regionally important centre for oyster farming. The catchment should be managed to maintain water quality. Several oyster farms are located within the harbour. Mangroves are significant and important in this harbour. The upper reaches of the harbour are bordered by remnants of kahikatea swamp forest. Much of the land of the northern side is reserve land.

☒ 58 THE WEITI ESTUARY is notable for the series of chenier-type shell spits which have formed within the estuary. These have been used to derive a sea level curve for the last 10,000 years and are considered to be internationally significant landforms. The estuary is not a significant wading bird feeding ground, but the shell spits are a good high tide roosting site for the wading birds that feed in the adjacent intertidal areas to the south and for the coastal birds that use the estuary itself. The most seaward shell bank is particularly important as one of the key breeding grounds in the Region for the threatened New Zealand dotterel.

☒ 59-61 WITHIN THE WAIWERA, WENDERHOLM AND PUHOI area there is a considerable variety of intertidal substrates which together form a complex array of habitats supporting a variety of animal and plant communities. The communities living on the wave-cut platforms at Wenderholm have been found to be diverse and in good condition. The mobility of the substrate on the open beach at Wenderholm means that benthic organisms tend to be confined to subtidal areas. Along the hard shores here the natural marine area adjoins an important area of coastal taraire forest on a headland or peninsula. The intertidal flats within the Waiwera and Puhoi estuaries are used as a feeding ground by a variety of wading birds, many of which use these estuaries as a stepping stone in their travels. Many of these birds roost on the sandy area at the entrance to the Waiwera Estuary at high tide. A variety of other coastal birds feed and roost within this area. A limited amount of saltmarsh and mangrove line the Waiwera Estuary, but it is still a good habitat for coastal fringe birds because of the presence of the freshwater Straka's Dam on the boundary. The saline vegetation areas in the Puhoi Estuary are more substantial and are some of the best in the Rodney ecological district.

◆ 62 WAIWERA GEOTHERMAL FIELD. Abstractions of geothermal water from this field average at about 1150 cubic metres/day at up to about 53°C. The capacity of the resource is estimated at 1300 cubic metres/day. Hot springs on the beach ceased in the 1970s due to declining water levels in the field.

☒ 63 OREWA ESTUARY is a moderately sized estuary with a variety of habitats for plants and animal communities in the marine area. About 85% of the estuary is made up of intertidal banks upon which migratory wading birds feed. They use this estuary as a stepping stone in their travels. A range of coastal birds, particularly shags, also feed within the estuary as do a number of species of waterfowl that utilise the estuary and the adjacent oxidation ponds on the southern margins. The mangroves and saltmarsh that occupy the remaining parts of the estuary are a habitat for secretive coastal fringe birds particularly where adjoining terrestrial vegetation provides shelter for the birds at high tide and potential nesting sites.

☐ 68 TIRITIRI MATANGI ISLAND. Grazing animals were removed from this island in 1972 and the plant succession from pasture is being studied. In limited areas succession has progressed from grass land to manuka and kanuka to mapou dominance and further to kohekohe and mahoe. Pohutukawa are now appearing in former grass land and bracken areas. The lack of possum and kikuyu grass makes the island suitable for research on forest regeneration. The absence of rats (other than kiore) and mustelids makes the island of considerable value as a wildlife refuge. It is thus ideal for the study and introduction of native fauna. Numerous bird species breed on the island – tui, spotless crake, little blue penguin, pukeko, grey-faced petrel, fantail, grey warbler, silvereye, kingfisher, pipit, and harrier. It is the nearest island to Auckland inhabited by the bellbird. The red crown parakeet was

introduced in 1974 from aviary-reared stock. Saddleback were also introduced in 1985, and are breeding successfully. Diving petrel and sooty shearwater nest on the rock stacks. Kaka, tomtit and pigeon visit the island.

This island is part of the Hauraki Gulf Maritime Park. There is now open access and people freely visit to experience the wide variety of forest and shore birds found close to Auckland. Since 1984, school groups and members of the public have been involved in tree planting (at a rate of about 37,000 trees per year) to recreate coastal forest in a joint project run by the Department of Conservation and the World Fund for Nature.

☒☐ 69 THE NOISES, which include Motuhoropapa Island, Otata Island, Maria Island and David Rocks, are small and unpopulated. They have a diverse and abundant bird life, which depends on their comparative inaccessibly, lack of predators and the plentiful marine life available in surrounding waters and on the foreshores. Norway rats were present on Maria Island for a number of years, although it now appears that since 1962 these have been eradicated by the (then) Wildlife Service. Norway rats were also originally present on Motuhoropapa and Otata islands, and were eradicated in 1962, and again in 1993.

Unfortunately there are now a number of environmentally damaging plants which are undermining the natural values of this island group. For example, *Rhamnus alaternus* is on Motuhoropapa Island, Phoenix canaeriensis on Otata Island, and mile-a-minute and boxthorn are present on Maria Island.

Maria Island is one of the few places in the Auckland Region where the white-faced storm petrel breeds. Birds commonly seen in the Noises include kingfisher, blue reef heron, red-billed gull, black shag, pied shag, little shag, white-fronted tern and gannet. The black-backed gull, harrier, welcome shallow, little blue penguin and the less commonly seen grey-faced petrel breed on the islands. The grey warbler, fantail and silvereye are abundant and are known to breed on the islands. Tui, morepork and shining cuckoo are occasionally seen.

The vegetation on some of these islands is close to primitive conditions, but others in the past have suffered from burning. Now the important species are pohutukawa, karo, houpara, tawapou and coastal mahoe (*Melicytus novae-zelandiae*).

Such habitats are of regional and national importance.

☐ 74 RIVERHEAD ECOLOGICAL AREA. This is the last stand of indigenous forest of an appreciable size left in the Riverhead Forest. The most striking feature of the block is its variability with forest types being exhibited from a relatively simple kanuka-Gahnia association to highly complex podocarp forest, and all intermediate stages of 'nursery' kanuka-hardwood and scrub-hardwood types. In addition, a coastal forest type is also present.

The two-tier kanuka-*Gahnia* association grades into a number of kanuka-scrub-hardwood types, one of which contains a canopy layer of kanuka with subcanopy and shrub layers of mapou, mahoe, toro, kohuhu, lancewood, hangehange and karamu. Another type consists of emergent rewarewa and putaputaweta with scattered kanuka over a dense mamaku and ponga subcanopy with the same broadleaf species as above.

The simplest type of coastal forest consists of a dense canopy of puriri and nikau with tree ferns mixed throughout the subcanopy.

The most complex of the forest types in the area is podocarp forest. Here canopy layers vary from more or less pure kauri, kahikatea or totara stands to mixtures containing kauri, rimu, totara, tanekaha, miro and even matai. Shrub and ground layers are similarly well developed and contain a number of species not commonly found within the other associations such as maire, *Alseuosmia macrophylla, Corokia buddleioides* and *Gleichenia cunninghamii*.

The indigenous fern, *Loxsoma cunninghamii*, which is found in only a few other areas in the Region, grows in this reserve.

□ 76 LOOKOUT BIOLOGICAL AREA. This area, the dominant vegetative cover of which is kanuka forest, is a representative remnant of a type once found in the area. Where the kanuka canopy is absent, a scrub-hardwood forest has developed.

The kanuka forest has a definite three-tier structure consisting of a canopy layer of kanuka up to 15m high, a dense thicket layer of *Pseudopanax* spp. and a low scrub tier of *Coprosma* spp. and mingimingi. Modifications of this basic pattern are common where rewarewa, kohuhu, akeake are added to the canopy, mapou, mahoe to the subcanopy and kawakawa, *Corokia cotoneaster* and ferns to the ground storey.

The scrub-hardwood association is characterised by mahoe, karamu, hangehange, mapou, five-finger and scattered emergent rewarewa, akeake, kohuhu and cabbage trees. Rangiora, kawakawa and *Coprosma* spp. are found in the subcanopy.

This land is protected by a covenant.

□ 77 HODGES BASIN BIOLOGICAL AREA. This area contains valuable 'relic' groves of typical coastal forest once common in the area. The common pattern is one of dense groves of coastal forest in the sheltered hollows with a kanuka overstorey fringing these on the ridges and slopes.

The pockets of coastal forest contain groups of large karaka, old puriri and emergent rewarewa with kohekohe, wharangi, mangeo, akeake, titoki and ngaio scattered throughout.

The kanuka forest has isolated cabbage tree and rewarewa emergents with a shrub tier of divaricating *Coprosma* spp., *Myrsine divaricata* and mingimingi.

This land is protected by a covenant.

□❍ 78 LAKE OKAIHAU BIOLOGICAL AREA. This reserve contains the best example of true coastal forest still remaining in Woodhill, as well as areas of kanuka-broadleaf scrub and raupo swamp.

The coastal forest consists of a dense canopy layer formed by karaka, puriri, pohutukawa and titoki. Nikau and kawakawa alone are common as ground to subcanopy species. The older trees are blanketed by orchids, ferns, *Astelia* spp., and lianas. On the fringes of these dense groves, a subcanopy layer of broadleaf trees, including kohekohe, whau, turepo, houpara, karamu, wharangi, mahoe and the occasional kowhai and ngaio occurs beneath the more scattered canopy of karaka. A shrub layer of nikau, kawakawa, hangehange, and *Coprosma rhamnoides* occurs in these areas.

The kanuka-broadleaf scrub areas occur on the eastern side of the reserve and consists of about equal portions of kanuka and broadleaf species throughout. The latter includes mahoe, wharangi, karamu, akeake, lancewood, mapou, rangiora, hangehange and cabbage trees.

The swamp areas around Lake Okaihau are chiefly raupo dominated although flax, *Juncus* spp. and *Cyperus ustulatus* are common. Broadleaf shrubs such as karamu, rangiora, hangehange and cabbage trees border the areas.

This land is protected by a covenant.

BIRDS OF LAKE OKAIHAU AREA (OSNZ 1978 Survey) include: mallard duck, pukeko, pied stilt, paradise duck, white-faced heron, rosella parakeet, little shag, black shag, harrier, and black swan. It is a valuable area for wildlife.

□☒ 80 MURIWAI GANNET COLONY on Motutara Island (known locally as Sugarloaf), a small rock stack off the headland at Muriwai beach, is a spill-over from the larger colony on Oaia Island. Motutara Island has become overcrowded. Repeated attempts by the birds to nest on the mainland, though at first thwarted by interference from humans and dogs, have since been successful. There are now two mainland gannet nesting colonies. All colonies are considered to be of national importance. Restraining fences have been built to protect the colonies and a viewing platform has been provided.

◆ 82 ANDESITIC PILLOW LAVA FLOWS. This lava has been deposited under water to form a heap of cylindrical bodies like a pile of pillows. The examples at Maori Bay are the best in New Zealand and among the best in the world; they are therefore of national significance. The pillow lavas are extremely well formed. They include a number of very large individual pillows, deposited in 1500m depth of water. A second series of pillows exposed in the cliffs at the south end of Te Henga are also well preserved. The largest has a diameter of 8m (av. 1-2m) and is deposited under shallower water than those at Maori Bay. These two features provide useful comparative material for the study of pillows formed under different conditions (Searle 1964; WRPS 1978).

☒☐ 83 ERANGI POINT, the high promontory north of the Waitakere River, supports the only mainland spotted shag nesting colony in the North Island. There are two grey-faced petrel colonies on Ihumoana Island and Kauwahaia Island north and south of Erangi Point. This petrel (oi) is a burrow dweller and needs protection from rats, cats, people and other predators. Erangi Point is considered to be of national importance.

☒❍◆ 84 TE HENGA-WAINAMU AREA. Swamp lands, lakes, dunes and native forest provide a complex of habitats with rich and diverse flora and fauna not found elsewhere in the Region. The area is considered to be of national importance and worthy of protection.

Te Henga marsh covers some 80 hectares and is the largest coastal freshwater swamp within 120 km of Auckland. It contains virtually all of the notable northern-swamp plant species including large monocotyledons. It provides the required habitat for a number of animal species. This swamp illustrates seral succession related to the depth of the substrate from the water table. Adventive water lilies (*Nymphaea* spp.) and the water fern *Azolla pinnata* are found colonising the open water margins. In shallow waters are found the tall spike rush (*Eleocharis sphacelata*), the native swamp millet (Isachne australis), and a milfoil (*Myriophyllum propinquum*). Raupo (*Typha orientalis*), Baumea spp. and swamp millet are the dominant species found in areas where the water is a few centimetres deep. Cabbage trees, flax and manuka are found on the margins or islands within the swamp. Te Henga marsh supports up to 15 native bird species. Some of these are not common, in particular, the fernbird, bittern, marsh crake, spotless crake, and banded rail require protection. Those common species found in the swamp include grey ducks, mallard ducks and pukeko.

Te Henga marsh is of high ecological value as such habitats are increasingly rare. It is worthy of protection from drainage, infilling, and waste materials with high oxygen demand on nutrient values, as any such action could cause irreversible damage to this ecosystem. Parts of this swamp have been purchased with the aim of preservation. The Royal Forest and Bird Protection Society owns approximately 30 hectares of it. The Auckland Acclimatisation Society owns 2 blocks totalling 13 hectares. The balance remains in private ownership.

Lakes Waiataru, Kawaupaku, and Wainamu and the lake at the junction of the Waiti and Te Aute streams have been formed by the damming of deep stream valleys by wind-blown Holocene sands. In recent years the Te Henga dunes have been stabilised by vegetation in the area behind the foredune. This has cut off the supply of sand to the inland dunes resulting in accelerated removal of sand from the western parts of the inland dunes and the exposing of large areas of bare rock. The advance of the dune into Lake Wainamu will probably stop as the sand supply runs out. In 1979, 154 hectares around Lake Wainamu, which is the largest natural lake in the Waitakere Ranges were acquired for reserve purposes through joint funding by the then Department of Lands and Survey, Waitemata City Council, Auckland Regional Authority, and the Waitakere

Ranges Protection Society and the Queen Elizabeth II National Trust. The reserve, adjoining the Cascades Kauri Park, has a range of habitats – lake shore, sand dunes, pasture and native forest. Some of the dune area near the lake is a Waitakere City Council reserve, set aside for the purpose of preservation.

Pingao (*Desmoschoenus spiralis*) and silvery sand grass (*Spinifex hirsutus*) are found on the two large dune areas which remain in their natural state. On the humus-rich sand around the mouth of the Waitakere River there is a distinctive maritime plant community which includes a native herb, milfoil, arrowgrass and *Gunnera arenaria*. Birds which can be seen on the beach and dunes include New Zealand dotterel, banded dotterel, pipit, black-backed gull and red-billed gull. Pied stilt are regularly seen in the small lagoon near the mouth of the main stream. There is a spotted shag colony on Erangi Point.

☐ Scrublands and forest types in the area are varied. The most widespread type is dominated by manuka and kanuka; on the cliffs and promontories flax and cabbage trees with numerous native herbs dominate. On the series of fossil sand dunes to the north-east of Lake Kawaupaku, there occurs an unusual type of scrub dominated by manuka and kanuka associated with coprosmas, kowhai, mingimingi and a number of less common species such as rohutu (*Lophomyrtus obcordata*), poataniwha (*Melicope simplex*) and weeping matipo (*Myrsine divaricata*). Nikau and cabbage trees occur in the hollows, and pohutukawa coastal forest around Erangi Point, Ihumoana and Kauwahaia Islands. Surrounding Lake Kawaupaku the coastal forest is comprised of tawapou, karaka, pohutukawa, kohekohe, mahoe and mangeao. To the north of Te Henga swamp there is a kauri-podocarp forest where standards of kauri rickers dominate the ridges. A mixture of rimu, kahikatea, tawa and titoki is found in the gullies. Approximately 70 hectares of this forest are owned by the Royal Forest and Bird Protection Society. The scrub areas support silvereye, fantail, grey warbler and tui. In addition to these, the native forest areas have rosella parakeet, shining cuckoo, morepork and pigeon.

☒ 85 BULL KELP (*Durvillea antarctica*) is rare in the Region. It is found in significant quantities only along the west coast between Te Henga and Piha.

☒◆☐ 87 The WAITAKERE RANGES. These hills of Miocene volcanic rock rising to 475m above sea level are the major landform feature west of the urban area and provide water catchment supply areas and outdoor recreation facilities for the Region. It is a botanically rich area containing 20% of all New Zealand's flowering plant species and 60% of all New Zealand fern species. There are a few species which do not extend beyond the borders of the Waitakere Ranges – the local kowhai (*Sophora microphylla* var. fulvida), a forget-me-not (*Myosotis petiolata*) and *Hebe bishopiana*. A large number (43) of regionally threatened plants are found in the Waitakere area. The uncommon orchid *Yoania australis* is dependent on taraire forest and is still found in the Waitakeres.

In spite of extensive milling and clearing in parts for farming, the greater portion of the ranges is clad in native forest, some nearly virgin. Forest unaffected by milling, or only lightly logged, covers about one-fifth of the Waitakeres. Areas which have developed beyond the tea tree stage, and forest which was heavily milled but not burnt, cover more than a third of the ranges. Most is in the Piha – Anawhata – Bethells area. Tea tree makes up about one third of the vegetative cover (Esler 1974).

The unmilled forest has kauri as its most distinctive tree. The kauri tree grows singly or in small clusters, frequently, but not always, on the crests of ridges. Between the widely spaced crowns of mature kauri, emerge rimu, northern rata, miro, totara, tawa, tanekaha and rewarewa. Dense stands of kauri rickers are also found. A very distinctive set of plants grow with kauri grass and species such as tawari,

kawaka, *Dracophyllum latifolium* and the ferns *Gleichenia cunninghamii* and *Schizaea dichotoma* which are more likely to be found with the kauri than away from it. There are parts of the unmilled forest where kauri is not common. In the upper Nihotupu catchment there is a fine stand of rimu and northern rata with no kauri.

The cut-over forest is of variable age, and comprises northern rata with small quantities of tawa, rewarewa, rimu, totara, puriri and kahikatea. The distinctive feature of the canopy is the variety of crown shapes and shades of green. There are many component species such as mahoe, heketara, kohuhu, mapou, coprosmas, tree ferns and nikau. The climbers, supplejack and kiekie, are abundant.

Coastal forest is not extensive but fragments are encountered in many places. Pohutukawa dominate with associates such as flax, *Astelia banksii*, *Gahnia lacera*, kawakawa, kowhai, tawapou, houpara, rangiora, the ferns *Asplenium oblongifolium* and *Polystichum richardii*, the succulent *Peperomia urvilleana* and the renga lily. In the more sheltered gullies pohutukawa forest grades into the forest of the interior through a zone comprising kohekohe, karaka, wharangi and whau.

The vegetation around Welsey Spragg Memorial includes quantities of *Dracophyllum sinclairii, Persoonia toru* and *Gleichenia circinata* and a smaller amount of flax. This plant community approaches what is called gumfield shrubland which is becoming increasingly rare in the Region.

Differences among tea tree communities result from variations in age, topography (altitude, aspect, slope), proximity to the coast and the effect of grazing cattle. Manuka (*Leptospermum scoparium*) dominates sites adjacent to the coastline, being more resistant to wind-borne salt c.f. kanuka, (*Kunzea ericoides*) found further inland. Tea tree communities represent a transitional stage in the succession towards mature forest, and some are now giving way to kauri or rimu dominated forest (Esler and Astridge, 1974).

Birds which live in the forest include grey warbler, silvereye, fantail, tui, pigeon, rosella, morepork, shining cuckoo, kingfisher, kaka (seasonal) and tomtit. New Zealand falcon and long tailed bats have been reported from the Karekare area.

The forest gecko and native frog *Leiopelma hochstetteri* (both depleted species) are found in the Waitakeres. Two species of native land snail, *Rhytida greenwoodi* (southern) and *R. dunniae* (northern), are found throughout the ranges; a large variety (over 100 species) of smaller snails are numerous. *Paryphanta busbyi*, the large carnivorous kauri snail, can be found in some areas.

The Waitakere Ranges are considered to be of national and international importance.

◆☒ 88 WHATIPU BEACH is an unconsolidated mobile sand area of dense black sand with large admixtures of titano-magnetite characteristic of west coast harbour entrances of the Region. The beach has a history of rapid progradation and recession. High water mark was along the cliff-line in the 1840s and 1930s, and near the present position (about 1 km west) in the 1960s and further out in the 1950s (Williams 1977; Esler 1974). The remote wilderness character of this area is protected by ARC policies of foot access only to the area.

Whatipu is an important nesting area for the white-fronted tern and a feeding area for the caspian tern and blue reef heron. Pingao is also found on the mobile sands, and a diverse range of freshwater wetlands are found on the sand flats close to the coastal cliffs. The area as a whole is considered to be of national importance.

☒ 90 The HUIA AREA is characterised by a diversity of estuarine and salt marsh habitats, scrub, coastal forest, pasture and kauri dominant rain forest. At the end of the lower Huia dam, in the water catchment area, there is a small area of native forest containing a rich variety of species some of which are rare. At the salt

marsh at Huia a small weevil (*Peristoreus australis*), previously only found in the South Island, has been discovered. A newly discovered species of moth has been found in the area living in the flowers and leaves of the marsh ribbonwood. Blue reef heron, pied stilt, oystercatcher and white-faced heron are found on the intertidal flats of Huia Bay.

☐ 95 KAIPATIKI ESCARPMENT. These steep south-facing slopes are partly within a reserve area and contain extensive areas of high quality native vegetation consisting of kauri and mixed podocarp-broadleaf forest. The area contains some large kohekohe, puriri, kahikatea and taraire trees with abundant kauri and beech trees. The presence of beech trees, *Nothofagus truncata*, makes the area of special interest.

☐ 97 SMITH'S BUSH, now dissected by the motorway, has an outstanding grove of giant puriri (some up to 6m in girth) and thousands of slender, conical kahikatea as well as smaller numbers of taraire, kowhai, titoki, karaka, tawa and totara. Ground ferns, climbing ferns, sedges and grasses are also found in the reserve.

☐ 98 KAURI POINT is the most prominent tree clad headland in the Waitemata Harbour.

☐ 99 CHELSEA BUSH, now confined to the stream areas, is a remnant of the kauri mixed forest which was once common in the Region. Here kauri and hard beech can be seen growing together and near the reservoir a fine stand of the sedge, *Eleocharis sphacelata*, can be found.

THE WAITEMATA HARBOUR

☒ 91 UPPER WAITEMATA HARBOUR CREEKS. Brighams, Rangitopuni, Paremoremo, Lucas and Hellyers creeks in the upper reaches of the Waitemata Harbour offer largely unspoilt tidal inlets with hill sides of regenerating native forest in places, particularly in the area of Lucas and Paremoremo creeks.

The forest cover consists of kauri on the ridges with puriri and kahikatea dominants on the slopes and in the gullies. The coastal forest is comprised of pohutukawa, kowhai and karaka dominants. Hard beech is also found along the Hellyers Creek escarpment.

The extensive sheltered intertidal areas retain large quantities of soft sediment derived from the watershed. The mangroves and salt marshes are important as wildlife habitats. Birds which can be found in the area include black shag, kingfisher, ducks and white-fronted tern. The ARA/NWASCO Upper Waitemata Harbour Catchment Study provided detailed information on the environment and sensitivity of the catchment above the Greenhithe bridge.

❍☒ 100 BIRDS OF THE UPPER WAITEMATA HARBOUR. Birds which are commonly seen throughout the Waitemata Harbour include pied shag, little black shag, little shag, pied stilt, black-backed gull and red-billed gull. Pukeko, mallard duck and kingfisher are commonly found in the tidal creeks and mangroves. The caspian tern can often be seen in the sheltered waters of the upper harbour where they feed on fish caught by diving. The white-fronted tern is found in the vicinity of Hobsonville and Whenuapai. Banded rail are not common but can be seen in some of the mangrove areas. The white-faced heron is commonly found around the tidal flats of the upper harbour where it finds an abundant supply of food in the mangroves. Blue reef herons can be seen in small numbers in the outer harbour area. White herons can on rare occasions be seen at Pollen Island. The black shag is also seen occasionally around the Te Atatu peninsula. The South Island pied oystercatcher is common in numbers of up to 500. As many as 180 banded dotterel have been sighted on Pollen and

Traherne islands. Wrybills are present in season as are godwits. Since 1978 the New Zealand dotterel has made a return to the harbour and has nested successfully in three areas.

☒ 101 HOBSONVILLE. Opposite Kaiwhanake Point is a shell bank that attracts a variety of waders. In 1981 this area had a wintering flock of New Zealand dotterel. This is also one of the two major roosts

in the Waitemata Harbour for godwit in the summer and for South Island pied oystercatcher in the winter. The area has no public access except by boat. New Zealand dotterel have nested here but not successfully.

☒ 102 TE ATATU NORTH. At the tip of the mangrove area is a series of small shell banks. These are major roosting areas for waders in the Waitemata Harbour, particularly godwit. New Zealand dotterel and caspian tern have successfully nested here in recent years.

☒ 103 SOLDIERS BAY, with its sand flats, mangroves, shell bank, saltmarsh and bulrush swamp, has great potential for wildlife, recreational and educational purposes. Pied stilt, white-faced heron, kingfisher, gulls, white-fronted tern, caspian tern and, occasionally, gannet can be seen in the area.

☒ 104 TE ATATU – WHAU RIVER. On the east side of the Te Atatu peninsula south of Harbour View Road there are extensive, clean, high-tidal sandflats, healthy mangroves, a prominent shell bank and a high-tidal salt marsh along the shoreline. Such a combination is unusual to find in the Waitemata Harbour and is one of the few worthy of wildlife reserve status. However, the shell banks are deteriorating due to constant use by motorcycles and few birds roost here. The off-shore area remains a major feeding ground. Gulls, terns, pied stilt, white-faced heron and kingfisher are seen in this area.

The mangroves and salt marshes in the Whau River are also worthy of preservation.

An extensive and ecologically healthy area of mangrove and salt marshes can be found in the Henderson Creek. This area is readily accessible and contains good examples of the natural communities for educational purposes.

Kingfisher, pied stilt, white-faced heron, red-billed gull, black-backed gull, pied shag, black shag, welcome swallow, and pukeko are among the birds seen in the area.

☒◆ 105 POLLEN AND TRAHERNE ISLANDS. These low-lying islands with extensive shell banks, mangroves and salt marshes comprise an important wildlife area in the Waitemata Harbour. While the shell banks at the northern end of Pollen Island are lower than they have been, shell banks have developed 50m off-shore on the harbour side of Pollen Island and are significant roosting areas. Traherne Island is also an important roosting area for birds and is the main roost for banded dotterel and wrybill in the Waitemata Harbour. New Zealand dotterel and fernbird nest in the area. The fernbird colony which survives represents an extremely valuable avian resource. This species is now rare in the Auckland area. The tidal mud barrier on the southern side has probably been very important in preventing access of predators and deterring access by people. The south end of Pollen Island is the only known locality in New Zealand of the minute ant, *Mayriella abstinens*; it is also the type of locality for a new species of psyllid, *Anomalopsylle* which is less than 1mm long. Limiting public access is essential to the preservation of this important wildlife area. The Pollen Island locality is a proposed marine reserve and is considered to be of national importance.

☒◆ 106 TE TOKAROA (BLACK) REEF is a basaltic lava flow, probably from Mt Eden (possibly Mt Albert) which extends into the Waitemata Harbour. It provides a range of habitats and flora and fauna "which is unique both within the Waitemata Harbour and throughout New Zealand" (Larcombe 1973, 339). Extensive salt marshes and mangrove communities associated with the reef enhance the great educational value of this area.

◆ 107 TANK FARM is a former freshwater crater lake formed by explosive eruptions and surrounded by steep tuff rings. With rising sea level this crater has been breeched by the sea, and provides sheltered intertidal mangrove and salt marsh communities important as fish and bird habitats. Tank Farm is of regional significance.

❍◆ 108 LAKE PUPUKE is also formed in a volcanic explosion crater which has been preserved by its tuff sides. The nearly circular freshwater lake has a surface area of 100 ha and is over 50m deep in the centre. The lake is enriched but supports a variety of fish and bird life including pied shag, ducks, black swan, pukeko, white-faced heron, Canadian geese (all of which breed on the lake), tui, fantail, silvereye, and grey warbler.

☒ 109 SHOAL BAY, north of a line east of the Northcote motorway interchange, is an important feeding and roosting area. Caspian tern, New Zealand dotterel, pied stilt, white-faced heron, pukeko, kingfisher and gulls can be seen in the area. There are only two significant roosting areas remaining in the bay – a shell bank on the Takapuna side, and another on the motorway side. The latter is the only roosting area used by the New Zealand dotterel between Traherne Island and Browns Island and is a nesting area for the New Zealand dotterel, caspian tern and pied stilt. These shell banks deserve protection not only in their own right and for their ornithological value but also because of the protection they afford coastal margins, salt marsh and mangrove communities. The Wairau and Milford catchments drained through the Shoal Bay valley before the Pupuke eruptions blocked the valley.

◆ 110 MOUNT VICTORIA (TAKARUNGA) is a steep scoria cone, the largest north of the harbour with a summit crater breeched towards the south east from whence lava flowed into the Waitemata valley.

◆ 111 NORTH HEAD (TAKAPUNA). This notable landmark at the entrance to Auckland Harbour has been considerably eroded by the sea and in the recent past (5000 years ago) has been an island. The lower part of the mount is composed of tuff beneath the central scoria cone from which a small lava field flowed.

❍☒ 113 BIRDS OF HOBSON BAY include white-fronted terns, gulls, kingfishers, white-faced herons, pied stilts, mallard ducks and pukeko. The native pigeon can also be seen in the area.

☒◆ 114 ORAKEI BASIN is a phreatic explosion crater which formed a freshwater crater lake (maar) which has been breached to form a tidal mudflat. Subsequently the basin has been closed off by the railway embankment and the water level and flushing of the basin is now controlled. Little shags, pied shags, and little black shags nest around the basin. This volcanic features is considered to be of national importance.

☐ 115 PUREWA VALLEY contains remnants of coastal forest and one of the finest examples of mangrove forest in the Auckland area with some trees up to 4m in height. Several patches of eelgrass, now a rather uncommon species in the Waitemata Harbour since its devastation by disease in the 1950s, are found on the tidal flats. There are some old kanuka, cabbage trees, kowhai and pohutukawa. The forest on the steep northern valley side has a valuable and instructive botany, zoology and geology. ACC and local groups have undertaken the protection and enhancement of this area. Birds of the area include mallard ducks, pied stilts, kingfishers, blue reef herons, grey warblers, tui and pukeko.

◆ 118 to 131

VOLCANIC LANDFORMS OF THE AUCKLAND AREA. The Auckland volcanic field is notable because of the very large number of individual volcanoes set in so small an area, and for the small size of the individual volcanoes. Volcanic activity was thought to be restricted to the last 60,000 years of geological history. Recently other methods of dating indicate that the oldest eruptions may have occurred up to 150,000 years ago. Only a few sites such as Albert Park, Symonds Street and perhaps Pupuke are older than 50,000 years; others such as Albert, Roskill, Three Kings, Panmure, Taylors, Victoria, North Head, Hobson, St John, and Pukaki probably date from the period 20,000 – 50,000 B.P.; while Eden, Wellington, One Tree

Hill, Smart, Mangere, Green Hill, Wiri and Browns Island are less than 20,000 years old. Only Rangitoto Island has been active in historic times. Searle (1964), and Searle and Davidson (1975) give details of volcanic activity in the Region. Short notes on individual features are given below.

Many of the features identified as contributing to the regional significance of Auckland's volcanic landforms have been damaged by infill, drainage, quarrying or other development. However the remnants may retain high scientific value as partial or exposed records of geological activities. In these cases protection is sought for those remaining values which are not within operative quarry zones or where quarrying is an existing or approved use.

◆ 118 MOUNT ALBERT (Owairaka). "Poor, pathetic, decapitated Albert – what can be said of its mutilated torso other than it was once a beautiful scoria cone" (Searle and Davidson 1975). Lava flows from it, streamed mainly to the north to reach the present coast near the Oakley interchange, and at Meola Creek.

◆ 119 MOUNT ROSKILL (Puketapapa) a small but complex scoria cone; small lava flows extended south and east to the Oakley Creek.

◆ 120 THREE KINGS (Te Tatua a Riukiuta). Now almost completely quarried away, the Three Kings area provided a miniature but complete collection of volcanic structures – scoria cones, tuff cones, and craters; explosion pits, horseshoe rings and breached craters; dykes and flows, tuff, scoria and lapilli beds. There is also an extensive 200 m cave system with individual chambers up to 10 m wide. The primary heritage feature of value is the remaining cone which is a reserve, and the quarried face of the tuff ring.

◆ 121 ONE TREE HILL (Maungakiekie). One of the largest of all the volcanoes in the Auckland volcanic field. The summit peak of the scoria mound overhangs a small elliptical crater and appears to be a remnant of a larger structure destroyed in later eruptions. Two large breached craters in the north and west were the sources of vigorous lava flows and resulted in the spectacular amphitheatres of One Tree Hill. One Tree Hill is considered to be of national importance.

◆ 122 MOUNT EDEN (Maungawhau). A complicated scoria cone structure with three main craters in a row, giving an oval shape. Basaltic lavas flowed in all directions filling valleys and depressions and causing massive landscape changes. Lava flows towards Khyber Pass and Newmarket piled up to form a thick pedestal to the mountain, which is today exposed in the quarries below Auckland Grammar School. Mt Eden is considered to be of national importance.

◆ 123 MOUNT ST JOHN (Te Kopuke). A simple scoria cone formed on associated lava flows, with a typical saucer-shaped crater formed by the deposition of scoria around the vent, and not from an explosive blast.

◆ 124 MOUNT HOBSON (Remuwera). A small scoria mound with a minor ash-covered lava flow, probably the last member of the Eden cluster to erupt. An armchair-shaped scoria mound formed from fire-fountaining in the north, while lava flowed to the south over swampy land towards the present day railway.

◆ 125 AUCKLAND DOMAIN is one of Auckland's oldest volcanic sites. The sports grounds occupy the explosion crater, while the museum and hospital stand on portions of the tuff ring. A small scoria cone, Pukekaroa, forms a knoll behind the Winter Gardens within the main crater (castle-and-moat). There are number of small lava vents and a further scoria cone remnant at Outhwaite Park. The volcanic features of the Domain are considered to be of national importance.

◆ 126 MOUNT WELLINGTON (Maungarei). The most recent site of mainland activity (about 9000 years ago). Scoria and lava deposits overlie tuff deposits from early eruptions. Lava flows streamed from various points to Penrose and thence

to the Manukau Harbour. While the entire Mt Wellington volcanic complex is of geological interest, much of the lava flow has been modified by urban and industrial development, and consequently the primary heritage value is the remaining scoria cone which is reserved. Mt Wellington is considered to be of national importance.

◆ 127 PANMURE BASIN. A tidal maar formed by a phreatic eruption resulting from the contact of magma with ground-water. The basin is a nesting area for the pied shag and white-faced heron. The volcanic feature of Panmure Basin is considered to be of national importance.

◆ 128 MOUNT RICHMOND (Otahuhu). A vast 'castle-and-moat' volcano in which the scoria mount 'castle', composed of a coalescing cluster of cones and craters of small size but considerable complexity, lies against one wall of the tuff moat.

◆❍ 131 ONEHUNGA SPRINGS tap groundwater from below One Tree Hill lava flows. Three springs are known, located in Bycroft and Grotto streets and Captain Springs Road.

☒◆ 134 MANUKAU FORESHORE. The foreshore and shoreline area from Mangere Bridge westward along Kiwi Esplanade is an important roosting area for seabirds and wading birds. The western part of this land is now reserved as Ambury Regional Park.

The coastline to the west is an important bird habitat, being a particularly rich feeding ground and roosting area. Over the last 30 years, 86 species have been sighted in the area, many of which are overseas migrants. Species which breed here include the white-faced heron, banded rail, shoveler duck, pied stilt and welcome swallow. The feeding grounds are also used by waders such as the South Island pied oystercatcher, wrybill, banded dotterel, godwit, knot, turnstone, and golden plover. Dabchicks, paradise ducks, white herons, little egrets, royal spoonbills, black-fronted and New Zealand dotterels are seen occasionally. Rare visitors include the black-fronted tern, black stilt and black-billed gull. Two small islands just off shore in the oxidation ponds and in the Manukau Harbour are being kept clear of vegetation to provide more roosting space in an attempt to keep the birds away from the airport. The foreshore area is considered to be of national importance.

◆☒ 135 PUKETUTU ISLAND is a volcanic island joined to the mainland by a causeway. Early explosive eruptions formed a large crater and widespread tuff ring. In the centre of the island was a cluster of coalescing cones piled upon one another, but reaching only 70m above sea level. Lava flows filled the moat between the cone and tuff ring. A small lava field was built and now surrounds the island except where wedges of tuff separate flows. The main areas on the island of value in terms of geological heritage are the remaining volcanic cones, undisturbed areas of tuff ring, the unmodified lava flow surfaces and the intertidal lava reefs which extend into the sea on the western side of the island. These intertidal lava reefs are also of value for coastal bird species and for their association with small saline wetlands. Bird species which utilise the island include stilt, oyster catcher, spoonbill, dotterel and wrybill. In the rehabilitation of the quarried areas of the island, consideration of returning surfaces so that they resemble their original contour is recommended.

◆ 138 MANGERE LAGOON is a sea invaded maar with a tiny scoria cone, now surrounded by sludge lagoons associated with the Mangere Waste Water Treatment Plant.

◆ 139 MANGERE MOUNTAIN erupted about 18,000 years ago. A huge scoria mound has filled the explosion crater from a number of central vents. Lava escaped from the crater through a breach in the east and the adjacent breached crater (playing field). A small lava dome in the main crater may be a 'tholoid' extruded from a vent beneath. Ash covered lava surrounds the mound extending northwards to form the Manukau Harbour foreshore. Mangere Mountain is considered to be of national importance.

◆ 142 BURIED FOREST. When Maungataketake erupted about 29,000 years ago, the tuff buried an extensive area of surrounding forest. A well-preserved sample of this ancient vegetation has been exhumed by the sea at Ihumatao and lies exposed on the wide tidal flats which are littered with the remains of forest trees. Some fallen trunks are more than 20m long and show no sign of branching at that height, while other stumps are up to 4m diameter. Today the preserved timber of the trees looks not unlike that of modern drift logs on a beach. The Ihumatao buried forest is considered to be of national importance.

☒ 143 THE WIROA ISLAND artificial roost is currently a major wrybill roost in the harbour and is widely used by other birds including gulls. The roost has been constructed to attract birds away from the airport approaches and thus reduce the collision hazard.

☒ 144 PUHINUI CREEK area is comprised of a variety of habitats including extensive shell banks, intertidal mudflats, mangroves and extensive shoreline salt marsh. Thousands of international migratory birds and New Zealand endemic waders feed on the mudflats and use the shellbanks as a high tide roost. Banded rails, and fernbirds inhabit the saltmarsh. Part of the area is a wildlife refuge. The water quality of the Puhinui Stream should be maintained and adverse effects on valued natural heritage features from activities on adjoining land and in the coastal marine area should be avoided.

◆ 145 PUKAKI LAGOON is a simple circular explosion crater with a tuff ring breached on the seaward side by a narrow channel. The crater was formed during a single burst of activity which piled up a tuff cone on top of a low flat area. The crater became tidal when the sea level rose to become filled with mud, but has recently been drained. This landform has been only slightly damaged and it is an excellent example of a circular explosion crater. The crater, virtually unspoiled by urban development, is a splendid natural amphitheatre.

◆ 146 CRATER HILL east of Pukaki is larger and less regular, the tuff ring having been destroyed by subsequent eruptions to the north east as far as the present railway line at Papatoetoe. The inner slopes of the tuff ring have also been eroded back by a freshwater and at times swampy lake. These processes make it unique in the Auckland field and protection, at least in part, is therefore warranted. A strip section down the inside of the crater showing the processes of construction would be appropriate. The area has been exploited as a source of peat, the eastern side modified by a road and parts of the area have been quarried. Crater Hill is considered to be of national importance.

◆ 147 MOUNT ROBERTSON (Sturges Park). A wide explosion crater with a gently sloping tuff ring was the first structure built and constituted the major unit of the volcano. Part of the Otahuhu commercial area is built on one edge of this ring. As explosions ceased, lava rose in the vent and a very short spasm of splashing and spouting created a low cone in the centre of the crater forming a castle-in-moat structure, which today provides an ideal setting for sports fields. The remaining volcanic features are considered to be of national importance.

◆ 150 WIRI LAVA CAVE which is 280m in length is unique as it is the only Auckland example embodying several features in their most perfect form. These are smooth, gas-flazed rock surfaces, lava stalactites, circular tube gas vents, ridging on the floors and contraction gaps at the base of walls. The cave is considered to be of international importance.

☒ 160 THE TAMAKI ESTUARY is a regionally important wildlife habitat. It is a large river estuary where considerable areas of intertidal flats have accumulated and a sand-shell spit (Tahuna-Torea, see below) has built up near the entrance. There are a number of other roosting sites (notably Pakuranga Creek Roost and the Tamaki RIver East Roost), which are used by hundreds of wading birds which feed in the estuary. Intertidal banks (such as the

Tamaki East Bank) contain extensive beds of shellfish and are important feeding grounds for these birds.

◆ There are also a number of geological features of note along the banks of the estuary. At one point is a small geological exposure of *rhyolitic co-ignimbritic accretionary lapilli* from the Taupo Volcanic Zone, which is exposed as a thin bed near the base of an eroded low sea cliff. The site is considered to be nationally important. The Waiouru Tuff Mound has an indistinct, crater-like depression about 300m in diameter. The crater is breached to the SW by tidal creeks and has an 8m terrace along the Tamaki River. It is one of the oldest members of the Auckland volcanic field, and is considered to be regionally important.

◆ 160a TAHUNA-TOREA (GLENDOWIE SANDSPIT). 'The gathering place of the oystercatcher.' A large stable depositional feature probably dating back to the Pleistocene, it is in dynamic equilibrium (in its natural state) with subtle changes occurring in response to wind, wave and tidal action. Recent excavation and dumping at the proximal end may change this balance.

☒ ❍ The estuarine area behind the spit has been dammed and developed by the Tamaki Estuary Protection Society, as a brackish pond for feeding and roosting birds. A freshwater wetland has also been developed as a breeding and feeding area. The area provides an interesting complex of marine, intertidal, freshwater and terrestrial habitats for a wide range of birds. It has added value because of its proximity to, and ready access for, a large number of people.

Birds which frequent the area include the South Island pied oystercatcher, pied stilt, godwit, knot, turnstone, golden plover, banded dotterel, New Zealand dotterel, wrybill, black-backed gulls, red-billed gulls, caspian terns, pied shags and little shags; white-faced heron and blue reef heron also feed on the tidal flats.

The grey warbler, fantail, silvereye, and kingfisher along with numerous introduced species can be heard if not seen while walking along the spit. The pipit visits in the winter, the shining cuckoo in the spring.

☐ Along the sandspit there are several patches of the native shore convolvulus (*Calystegia soldanella*), and springy mattress-like native pohuehue (*Muehlenbeckia complexa*), and the ribbonwood (*Plagianthus divaricatus*).

The salt marsh at Tahuna-Torea is found on the seaward margins of mangrove communities and is essentially unmodified, consisting of glasswort (*Sarcocornia quinqueflora*), salt-meadow primula (*Samolus repens*), starry-flowered Selliera radicans, sea rush (*Juncus maritimus*) and the jointed rush (*Leptocarpus simplex*).

Impounded within the brackish pond of the estuary are a series of low-lying banks stabilised with rushes which are believed to be pre-European fish traps. These unique features deserve protection from siltation flooding and vegetation change.

☒☐ 161 MANGEMANGEROA, TURANGA AND WAIKOPUA are tidal creeks flowing into one large bay, which has a complex of intertidal mud, sand and shell banks. The intertidal banks are a very rich feeding ground and important mid-tide roost for many hundreds of a variety of international migratory and New Zealand endemic wading birds, including a number of threatened species. Large shellbanks at various locations at creek mouths, behind the beach, or near Motukaraka Island are or have been used as high tide roosts by these birds and a variety of other coastal bird species.

In the shelter of the shellbanks and the creeks grow areas of mangroves and saltmarsh, some of it judged to be the best in the Hunua ecological district. There are two major gradations from saline vegetation into terrestrial vegetation. One is from mangroves into the coastal ponga and taraire and kowhai forests. The second grades from mangroves into saltmarsh into coastal shrublands on islands in the Turanga Creek. The saline vegetation

fringing the creeks provides high quality habitat for threatened secretive coastal fringe birds, particularly where it abuts terrestrial vegetation, which provides shelter for the birds at high tide and potential nesting sites.

☐ 163 CLEVEDON-MARAETAI HILLS. A large stand of native forest is found in this area. The pre-European vegetation cover probably consisted of two major forest community types: kauri-hard beech and podocarp-broadleaf. Over the last 100 years the area has been burned and logged. Today kauri is dominant in many parts and regeneration is good. Many seedling species can be found such as tanekaha, rewarewa, kohekohe, taraire, rimu, miro, and totara. Over 100 native vascular plants are found in the area. The chief botanical value lies in the large amount of hard beech (*Nothofagus truncata*) contained both in more or less pure stands and mixed with kauri. The kauri-beech forest type is nationally rare and considerable regeneration which has occurred over the last 100 years, with growth rates comparable to those kauri on the same site, seem likely to ensure the persistence of the kauri-hard beech forest in the area.

There is a varied and abundant native insect and bird life.

☒◆ 165 MOTUKOREA (BROWNS ISLAND) is the relic of a much larger structure created when sea levels were low and the harbour dry land. Remnants of a very large tuff cone are preserved in the north eastern ridge and cliffs.

The scoria mound is a complex of coalescing cones, while the associated lava field is now beneath the sea. The New Zealand dotterel breeds here. Two or three pairs of black-backed gulls nest on the island. Reef herons and variable oystercatchers have been sighted. The island is administered by the Department of Conservation, and the volcanic features are considered to be of international importance.

☒◆ 167 RANGITOTO ISLAND is of international significance as a volcanic landform because each stage, from the initial colonisation of raw basalt and scoria to the formation of scrub to immature forest, can be seen. It is the youngest and largest of the Auckland volcanoes having been active at least within the last 400 years. The greater part of the island is a low dome built up by successions of basaltic lava flows, surmounted by a cluster of scoria mounds and cones, the last built of which has a deep central crater. The lava field contains no soil in the usual sense of the word, although rich, fine, dark powder is accumulating in the fissures. Yet, more than 200 species of native ferns and flowering plants grow on the island. Dominant among the trees is pohutukawa; kohekohe, mangeao, puriri, rewarewa, rata, puka, five-finger and manuka are also found. There are knee-deep growths of kidney fern and nearly a score of orchids. There are many mosses and lichens and, in winter and spring, a blue-green algae.

☐ Birds found on the island include fantail, hawk, silvereye, grey warbler, blue reef heron, caspian tern, kingfisher, pipit, white-faced heron and nests of the little blue penguin. There are a number of breeding colonies of black-backed gull scattered in the bare lava. Black-backed gulls obtain only a small proportion of their food from traditional feeding areas on tidal flats. In the past, over 10,000 gulls migrated daily from Rangitoto to feed on rubbish tips throughout the urban area. However, the improvement of rubbish disposal techniques in Auckland has resulted in a reduction in the number of black-backed gulls on the island.

This island which is part of the Hauraki Gulf Maritime Park is close to the mainland and readily accessible by many who live there. It provides sheltered anchorage, swimming, fishing, walking, bird watching and opportunities for general nature study. Rangitoto Island is a conspicuous and important landmark which is visible from many parts of the Region and contributes much to Auckland's natural setting.

☒ 169 HAURAKI GULF and ISLANDS. The combination of warm climate, sheltered waters and numerous islands of the Hauraki Gulf makes it a unique marine recreational area and one of the most important amenities of the Auckland Region. Many of the smaller islands and the remote or inaccessible parts of the large islands play an important part in the preservation of native flora and fauna, and as such deserve protection. One of the most attractive features of the gulf islands is the cleanliness and clarity of their surrounding waters. The quality of the gulf's waters has enhanced their value for aquatic sports such as swimming, diving, fishing and boating. It has also fostered the rich marine life which supports the gulf's sea birds. Pipi, cockles and tuatua are still plentiful in the gulf; mussels and rock oysters have been greatly reduced in number due to over exploitation. It is important that the water quality of the Hauraki Gulf is protected.

The wide range of values of the Hauraki Gulf and islands – ecological, scenic, recreational, cultural, spiritual, historical and economic – make it of regional and national importance.

☒❍☐ 186 TE MATUKU BAY is an estuarine area on the sheltered southern side of Waiheke Island. The extensive intertidal flats, shell banks, and low-lying islands offer a variety of habitats for a range of plant and animal communities. The extensive intertidal areas are a rich feeding ground for large numbers of international migratory and New Zealand endemic wading birds, including substantial numbers of a considerable variety of threatened species. These birds roost on the shell spit in the outer reaches of the bay at high tide, along with a variety of other coastal birds which feed in the waters of the bay. In the shelter of the upper reaches of the estuary there are extensive areas of mangroves and saltmarsh growing in association with terrestrial vegetation on the low-lying islands. The saline vegetation grades into the freshwater raupo wetland and kauri-tanekaha forest in the best such sequence on the island. The saline vegetation and associated freshwater vegetation provide high quality habitat for threatened swamp birds and secretive coastal fringe birds particularly where the wetlands abut terrestrial vegetation which provides shelter for the birds at high tide and potential nesting sites. This area is considered to be of national importance.

☒❍ 187 AWAAWAROA BAY is an estuarine area on the sheltered southern side of Waiheke Island. There are extensive intertidal areas which are a feeding ground for a relatively large number of a variety of wading bird species. These birds roost on the associated shellbanks at high tide, along with a range of coastal birds which feed in the waters of the area. In the shelter of the upper reaches of the estuary there are substantial areas of mangroves and saltmarsh. The saline vegetation grades into the best freshwater raupo wetland on the island.

☒ 188 FRENCHMANS CAP is a nesting site of the blue reef heron which is threatened by competition with the more aggressive white-faced herons, an immigrant from Australia about 30 years ago. Black-backed gulls, white-fronted terns and a pair of caspian terns are also known to breed here. This important habitat deserves to be protected.

☒☐ 191 PONUI ISLAND is a large privately owned island which has been farmed for many years. It is an attractive combination of pasture, native forest and unspoilt coastline with sheltered bays. There are dense stands of young kauri with some tanekaha, and in the valleys taraire, tawa and kohekohe are regenerating.

Spotted shags and white-fronted terns roost north of Bryants Bay in the north east of Ponui.

Around the headlands in the north west the pied shag, little shag and blue reef heron

are frequent visitors. Other birds found on the island include the pigeon, tui, kaka, North Island brown kiwi, spotless crake, bittern and pukeko. The island is a wildlife refuge.

☒☐ 201 The FIRTH OF THAMES, extending south from the Hauraki Gulf to the Hauraki Plains, is one of the three areas in the Auckland Region which is of national and international ornithological significance, attracting tens of thousands of birds each year from the South Island and from the arctic and subarctic regions. The east and west coasts of the Firth of Thames are very different: in the east the shore is steep and rocky; to the south and west the water is shallow and at low tide broad intertidal flats and many square miles of eutrophic ooze are exposed. The stretch of coast from Kaiaua to Miranda offers ideal conditions particularly for the wading birds. The shell banks which have built up over centuries are crowded with birds each day when tides are high. The Taramaire and Miranda shell banks are extremely popular roosting grounds for birds feeding on the extensive tidal flats and in the swampy paddocks: knots, wrybills, oystercatchers, godwits, pied stilts, red-billed gulls, black-backed gulls, white-fronted terns, caspian terns, turnstones, New Zealand dotterels, and black shags.

There are also extensive salt marshes and associated lagoons which form a vital part of the wading bird's habitat by providing shelter and food for many. Such areas should be protected from drainage, siltation and rubbish disposal. The short grass of the farm paddocks bordering the area is favoured by the banded dotterel and the New Zealand dotterel. The swamp areas also attract mallard ducks, pied stilts and herons. Approximately 50% of the bird species along the coast have increased in numbers since 1950; the remaining species have stayed nearly constant.

☐ Coastal indigenous scrub and cliff vegetation, pohutukawa, puriri, karaka and kowhai can be found between Matingarahi and Miranda; remnants of coastal forest are occasionally encountered, with species of rewarewa, tanekaha, kauri, puriri and taraire.

☒ Commonly observed bird species in the Firth of Thames include the South Island pied oystercatcher, variable oystercatcher, New Zealand dotterel, wrybill, godwit, knot, turnstone, red-necked stint, black-backed gull, red-billed gull, caspian tern, white-fronted tern, curlew sandpiper, arctic skua, black shag, mallard duck, white-faced heron, banded dotterel, welcome swallow and pied stilt. Less common species are the black swan, grey teal, shoveller, banded rail, black stilt, little tern, bittern, mongolian dotterel, large sand dotterel, oriental dotterel, Asiatic whimbrel, Asiatic black-tailed godwit, terek sandpiper, pectoral sandpiper, broad-billed sandpiper, white-winged black tern, white heron, royal spoonbill, grey plover, little whimbrel and marsh sandpiper.

The study and protection of the birds of the area is the prime interest of the members of the Miranda Naturalist Trust which was formed in 1975. The trust has built bird observatories near Miranda Stream and the Taramaire Stream reserve. This trust also fosters the study of the vegetation, geology, marine ecology, zoology and archaeology of the area.

☐ 205 MATAITAI STATE FOREST is important as an example of the nationally rare kauri-hard beech association. Tawa forms the bulk of the canopy with scattered kauri, hard beech and tanekaha found throughout. Rimu and miro occur spasmodically. In other areas of the forest the canopy consists of manuka with groups of emergent kauri, tanekaha and hard beech.

This land is administered by the Department of Conservation.

◆❍ 206 The HUNUA RANGES are a deeply dissected, upfaulted block of Jurassic siltstone, sandstone, and argillite of the Waiheke group (greywacke). The ranges are bounded on the west by the

Wairoa fault and the east by the Hauraki graben. To the south, the Mangatangi fault divides the ranges from the lower Waikato basin and in the north the block is partly truncated by the Clevedon splint fault. Mount Kohukohunui (688m) is the highest point in the ranges. These elevated, forest covered hills provide an important catchment area for Auckland's urban water supply. The reservoirs are now wildlife habitats, with the Upper Managatwhiri Reservoir of regional significance for its wildlife. Notable species using the lake and its margins include ducks, white-faced heron, black shag, little shag and bittern. The reservoirs also support native fish such as koaro, banded kokopu, long and short finned eels, as well as rainbow trout.

◆ The Hunua Falls, a waterfall with a 30 m drop, cascades over a basalt plug which has intruded through the Wairoa fault. It is considered to be regionally significant.

☐ 207 INDIGENOUS FOREST OF THE HUNUA RANGES covers 20,000 hectares much of which is protected as a regional park considered of national and international importance. The major indigenous forest types are tawa-podocarp, kauri-hard beech-tanekaha, and taraire, with localised areas of coastal and montane scrub forest (Barton, 1972).

Tawa-podocarp forest occupies a wide range of sites totalling 75% of the entire forest area; the principal species is tawa with scattered emergent rimu, northern rata, kahikatea, totara and miro. Associated understorey species include rewarewa, hinau and pukatea, with kohekohe, usually with nikau and ponga becoming subdominant in drier areas. Kauri-hard beech-tanekaha forest species, in varying combinations, are dominant on the most of the ridge tops and drier land below 240m; hard beech tends to favour the cooler southern slopes, kauri the drier ridge tops and northern slopes, and tanekaha the more moist sites, being the most tolerant of the three species and most widely spread. Subdominants include rewarewa, hinau, towai and Cyathea *dealbata*.

Taraire, with associated puriri and rewarewa, forms an almost continuous canopy over limited areas, mainly in the north and usually on warmer areas of easier topography; kohekohe with nikau and *Cyathea dealbata* form the understorey with a sparse ground cover and notably little taraire regeneration.

The montane scrub forest is characterised by species not seen below 610m: hutu, toi, horopito and a large number of epiphytes; other species, notably *Hebe macrocarpa*, raukawa, *Blechnum discolor*, wheki and pepperwood, appear to be more abundant here than at low altitudes.

☐ The threatened endemic frog (*Leiopelma hochstetteri*), the green gecko (*Naultinus elegans*) and a large variety of native land snails are some of the animals found here. Both the rare short-tailed bat (*Mystacina tuberculata*) and the long-tailed bat (*Chalinolobus tuberculatus*) have been sighted in the past, however no recent sightings have been made. These two species of bat are the only native land mammals in New Zealand. The area of distribution of these animals is very much less than it was 100 years ago, mainly due to loss of habitat.

☐ A number of threatened and uncommon plants are known from the Hunua Ranges, such as king fern, *Marattia salicina* which now has the IUCN status of Vulnerable. A small remnant colony of the regionally rare mountain cabbage tree (*Cordyline indivisa*) was found near the summit of Kohukohunui. The communities of montane scrub and kauri-hard beech forests are uncommon occurrences within the Region. A number of plants found in the Hunuas are at or near their geographical limit, including: *Blechnum colensoi, Pseudowintera colorata* and *Ascarina lucida.*

☐ The diverse forest types of the ranges provide important habitats for a number of bird species, especially pigeon, tui, grey warbler, fantail, silvereye, kingfisher, morepork, pipit, shining cuckoo, and harrier. Kaka and long-tailed cuckoo are frequent visitors. The regionally rare tomtit is present in fluctuating numbers (which upsurged from 1971-1978) and the bellbird which was reduced in number and is now believed to be spreading (Greene, ARC Parks). A small community of the endangered kokako remain in the ranges, and is considered to be the largest viable mainland population in the Auckland and Northland regions.

☐ The regeneration of the dominant species in the Hunua Ranges has in the past been considered inadequate, mainly because of the high level of noxious animal infestation during the past 100 years, which has only recently been reduced. Other contributing factors may be the depleted bird populations which adversely affect seed dispersal, and the suspected high rat population resulting in seed destruction, especially of podocarps. Now that control work is underway, it is believed that regeneration trends will improve.

☐ 214 KIRK'S BUSH in Papakura. Impressive remnants of the now rare taraire dominated forest. The interior is of cathedral-like splendour. Nearby in the smaller Butterworth's Bush are probably the most magnificent taraire in the south Auckland area.

216 to 219

THE NATURAL VALUES OF THE MANUKAU HARBOUR

THE MANUKAU HARBOUR is the second largest estuarine area on the west coast of the North Island and has a great expanse of intertidal areas, providing one of the most important habitats in New Zealand for wading birds including migratory species. Because of the large number of both individuals (up to 50,000 birds at one time) and the variety of bird species which traditionally use the harbour, the natural values of the Harbour are considered to be of international significance. There is some evidence to suggest that the Manukau Harbour may be a major gathering place of migrants in the Auckland area prior to departure to the Northern Hemisphere. Regular large-scale movement occurs within the Region between the Manukau and Kaipara harbours and the Firth of Thames

❍☒ 216 Waders of the Manukau include the godwit, knot, turnstone, golden plover and other northern hemisphere migrants as well as the spoonbills from Australia. The variable oystercatcher, NZ and banded dotterel, wrybill (which are threatened), the black stilt (which is endangered) and the South Island pied oystercatcher are migrants from within New Zealand. In order to maintain the wader population, it is believed that preservation of major roosting areas is one of the most important factors (food supply appears to be adequate). Important wader roosting areas on the south Manukau harbour include the shell banks and adjoining pasture at Karaka (Kidd's Farm), Seagrove, Waipipi, Puhinui and Pollok Spit. At present there is no reserved land for birds on the south coast of the Manukau harbour and some measures are required to protect these areas as suitable roosts for birdlife. If public land access is to be provided to any of these areas, it should be planned so as to least disturb the features that provide the special interest. Protection of the intertidal sand and mud banks is also essential for the maintenance of the birdlife in the harbour. Of significance in this respect are Te Tau Bank East, which contains large numbers of shellfish, both edible and uncommon within the harbour, Karore off Ihumatao as well as those associated with the large roosting areas.

☒ 217 Wetlands (mangroves, salt marshes and eelgrass flats) at present cover less than 5% of the intertidal area of the Manukau Harbour. Areas of particular importance include:- Pahurehure inlet (217), notably Drury Creek, Whangamaire Stream, and Whangapouri Creeks; Taihiki River; Little and Big Muddy Creeks; the coastline around Awhitu Regional Park; and Ann's Creek all of which contain a large percentage of the wetlands in the harbour.

☒ Drury Creek is comprised of a variety of intertidal habitats ranging from sandy mud intertidal flats to current-exposed rocky reefs and a variety of saline vegetation. Healthy and often expanding areas of mangroves grow in the shelter of the Pahurehure Inlet, Whangamaire Stream, and Drury and Whangapouri Creeks and in the southern half of the Whangapouri Creek are notable eelgrass (*Zostera*) beds. Within the upper tidal reaches of Drury Creek there are a variety of marshes, grading from mangroves through to extensive areas of jointed rush-dominated saltmarsh, to freshwater vegetation in response to salinity changes. This same area is a migration pathway between marine and freshwater habitats for a number of different species of native freshwater fishes.

☒ 218 Also significant with respect to the diversity of life found in the harbour are the marine communities. Of particular note is the area west of Mako Point which is subjected to strong, cool lateral currents similar to those at Omanawanui on the opposite side of the harbour mouth. Consequently, this stretch of coast supports a diverse and rich marine fauna which shows open coast, harbour and southern affinities. The south head contrasts with the north because of the softer rocks and platform reefs which mean that the biota differs and is less diverse and abundant.

☒ 219 Extensive beds of Zostera (eelgrass) were once found on the south Manukau intertidal flats between Clarks Beach and Seagrove (219) (Henriques, 1978). These eelgrass beds have begun to reappear in the Seagrove area. Marine wetlands are particularly vulnerable ecosystems because the water discharge within them is only partial during each tidal cycle and wastes readily accumulate. The remaining wetlands of the Manukau Harbour need and warrant complete protection since they are indispensable to the estuarine biota and foreshore protection.

❍ 224 BIRDS OF AWHITU LAKES. The Awhitu peninsula, largely in pasture, has a series of lakes similar to those of the Kaipara south peninsula, supporting a diversity of wildlife including fernbirds, bitterns, banded rails, dabchicks, pukeko, black swans, shags and ducks. Spotless crakes are found in the raupo swamps around Awhitu and to the north of Waiuku Forest.

◆ 245 MIRANDA CHENIER PLAIN. Constructional and erosional morphologies of beach ridges and intertidal flats of the chenier plain (i.e., a beach ridge plain perched on a muddy substratum), Firth of Thames (Miranda to Whakatiwai), have enabled the determination of a sequence of past sea levels; radiocarbon dating of shell samples give a time/sea level curve which correlates favourably with transgressional periods recorded in Europe. The present rise in sea level is locally 20-23 cm per century, and may be a minor fluctuation in an otherwise stable sea (Schofield, 1960). The area is considered to be of national importance.

Appendix C

Legislation Dealing with Resource Management

There are a number of statutes dealing directly and indirectly with resource management. Where appropriate these Acts are referred to in the specific chapters. The list below is a summary of the legislation with references to relevant chapters:

Biosecurity Act 1993

Provides for the exclusion, eradication and effective management of pests and unwanted organisms.
See Chapter 14 – Pests.

Building Act 2004

Administered by the Department of Internal Affairs. Establishes a regulatory framework for the control, construction and maintenance of buildings to safeguard public health, safety and amenity. The Building Regulations establish a Building Code. The Building Act provides for the receipt, consideration and approval or refusal by TAs of building consents, and the issuing of project memoranda, code compliance certificates and compliance schedules.
See Chapter 11 - Natural Hazards.

Civil Defence Act 1983

Administered by the Ministry of Civil Defence. Establishes national, regional and local functions and responsibilities in relation to civil defence emergencies including the preparation of regional and district civil defence plans and to provide for restoration and rehabilitation.
See Chapter 11 – Natural Hazards.

Civil Defence Emergency Management Act 2002

Administered by the Ministry of Civil Defence and Emergency Management. Establishes a framework for national and local functions and responsibilities in relation to civil defence emergencies including planning and preparation for emergencies and for response and recovery in the event of an emergency. The Civil Defence Emergency Management Act also requires local authorities to co-ordinate, through regional groups, planning, programmes, and activities related to civil defence emergency management across the areas of reduction, readiness, response and recovery.
See Chapter 11 - Natural Hazards.

Conservation Act 1987

Promotes the conservation of natural and historic resources and establishes the Department of Conservation. The Act provides for the acquisition and management of conservation areas, protected areas and stewardship areas.

The Conservation Act provides one mechanism for establishing marine protected areas. With the approval of the appropriate minister, any foreshore area may be declared to be subject to the Conservation Act and held for conservation purposes to protect habitats. The level of protection given to plants and animals may vary, and activities such as fishing are not automatically excluded. If an activity is not damaging, or likely to damage protected habitats or other features within the area under Conservation Act status, then it is unlikely to be prohibited.
See Chapter 6 – Heritage, Chapter 7 – Coastal Environment, Chapter 18 – Esplanade Reserves and Strips.

Crown Minerals Act 1991

Administered by the Ministry of Energy. Provides for the allocation of prospecting, exploration and mining rights for Crown owned minerals, and for achieving a fair return to the Crown as owner of these resources. Crown owned minerals include petroleum, gold, silver and uranium, as well as other minerals on land owned by the Crown, but not including sand, shingle or other natural material in the coastal marine area. This Act does not provide for the consideration of environmental effects associated with mining activities, which are to be handled under the Resource Management Act 1991.
See Chapter 13 – Minerals.

Dangerous Goods Act 1974

Administered by the Department of Labour. This Act and associated regulations provide powers to regulate the packing, marking, handling, carriage, storage and use of certain dangerous goods. Local territorial authorities are licensing authorities for the purpose of the Act.
See Chapter 16 – Hazardous Substances.

Defence Act 1990

Administered by the Ministry of Defence. Identifies the purposes for which the New Zealand Defence Force has been raised and maintained and defines defence areas. The Act also enables provision for regulations restricting access to defence areas.
See Chapter 6 – Heritage, Chapter 7 – Coastal Environment.

Fisheries Act 1983

Administered by the Ministry of Agriculture and Fisheries. Establishes a framework for the management and conservation of fisheries and fishery resources within the Territorial Sea and Exclusive Economic Zone of New Zealand. The main means of implementation is through the Quota Management System which provides for the allocation and management of specified fisheries for commercial fishing purposes. Controls can also be implemented on the location, timing and methods of fishing and on the management of fish stock within marine farms. The Act provides for the establishment and operation of taiapure or local fisheries areas of special significance to Iwi.

In the Auckland Region, Fisheries Act regulations have been used to establish marine protected areas such as the Tawharanui Marine Park. The taking of any marine life is prohibited in an area of up to 800 metres from Mean High Water Springs on the northern coast of the Takatu Peninsula. Other beaches such as Cheltenham, Karekare, Long Bay and Eastern Beach have been closed for the taking of shellfish under section 85 of the Act for a two year period.

Note: Section 30(2) of the RM Act specifically excludes regional councils from controlling the "harvesting or enhancement of populations of aquatic organisms, where the purpose of that control is to conserve, enhance, protect, allocate, or manage any fishery controlled by the Fisheries Act 1983".

See Chapter 7 – Coastal Environment.

Forests Amendment Act 1993

Administered by the Ministry of Forestry. Promotes the sustainable forest management of indigenous forest land. The Act controls the harvesting of indigenous forests for timber production and the export of indigenous forest produce.

See Chapter 6 – Heritage.

Harbours Act 1950

Administered by the Ministry of Transport. Establishes functions and powers relating to navigation, safety and pilotage.

See Chapter 7 – Coastal Environment.

Hauraki Gulf Marine Park Act 2000

The HGMPA recognises the national importance of the Hauraki Gulf and its islands and the interrelationship between the Hauraki Gulf, its islands and catchments and the ability of the relationship to sustain the life supporting capacity of the environment.

The Act is split into three parts. Part 1 is entitled Management of the Hauraki Gulf. This part introduces a series of common management objectives for the Hauraki Gulf and establishes legislative mechanisms for their implementation across the three primary pieces of environmental legislation for the Gulf; the Resource Management Act, the Conservation Act and the Fisheries Act. Part 2 establishes the Hauraki Gulf Forum as a lead agency to direct integrated management of the Hauraki Gulf and Part 3 establishes the Hauraki Gulf Marine Park.

Health Act 1956

Administered by the Ministry of Health. Provides for the protection, promotion and conservation of public health, including public health matters relating to water supply, sanitary works, buildings and offensive trades. The Act provides wide powers to local authorities, particularly territorial authorities, to control nuisances as defined in the Act.

See Chapter 8 – Water Quality.

Historic Places Act 1993

Administered by the Department of Conservation. Establishes the Historic Places Trust and promotes the identification, protection, preservation and conservation of the historic and cultural heritage of New Zealand.

See Chapter 6 – Heritage.

Land Drainage Act 1908

Provides for the establishment of drainage districts and boards and for powers of local authorities in relation to the cleaning, repairing and maintaining of watercourses and drains. Powers are provided to order the removal of obstructions from watercourses or drains where an obstruction is likely to cause damage to property.

See Chapter 8 – Water Quality.

Land Transport Act 1998

Administered by the Ministry of Transport. Defines the functions and responsibilities of regional councils and territorial authorities, including the preparation of regional land transport strategies and district land transport programmes, to achieve an integrated, safe, responsive, and sustainable land transport system.

See Chapter 4 Transport.

Local Government Act 2002

Administered by the Ministry of Local Government. Establishes functions, powers and procedures for local government.

See Chapter 15 – Waste.

Local Government (Auckland) Amendment Act 2004

Establishes the Auckland Regional Transport Authority (ARTA) and Auckland Regional Holdings (ARH). Establishes specific requirements for the Auckland Regional Land Transport Strategy and sets out the required changes to Auckland planning documents in particular giving effect to the growth concept in the Auckland Regional Growth Strategy and changes to land transport and land use.

See Appendix G

Maori Fisheries Act 1989

Administered by the Ministry of Fisheries. This Act provides for the establishment of taiapure (through amendments to the Fisheries Act). Section 54A states that the objective is to provide for better "recognition of rangatiratanga and of the right secured in relation to fisheries by Article II of the Treaty of Waitangi".

The Minister of Fisheries may vest the management of any taiapure in a management committee which is composed of representatives of the local Maori community. The regulations enacted for the management of any taiapure must apply equally to all people, Maori and non-Maori, and must be consistent with sustainable management.
See Chapter 7 – Coastal Environment, Appendix D (Definition of taiapure).

Marine Mammals Protection Act 1978

The Department of Conservation has responsibility under this Act for the protection and management of marine mammals, including whales, dolphins, seals and sealions. The protection of particular marine mammals within a specified area can be provided for by the establishment of marine mammal sanctuaries.
See Chapter 7 – Coastal Environment.

Marine Pollution Act 1974

Administered by the Ministry of Transport. This deals with the dumping and discharge of waste and pollutants and the incineration of wastes at sea.
See Chapter 8 – Water Quality.

Marine Reserves Act 1971

Administered by the Department of Conservation. Its purpose is to preserve "as marine reserves for the scientific study of marine life, areas of New Zealand that contain underwater scenery, natural features, or marine life, of such distinctive quality, or so typical, or beautiful, or unique, that their continued preservation is in the national interest". (Section 3(1))

Subject to any conditions and restrictions imposed on a marine reserve, to ensure the preservation of its marine life or its general welfare, the public has freedom of access and entry. For any new proposal, this Act enables the Minister of Conservation, with the agreement of the ministers of Transport and Fisheries to permit fishing, other than by commercial fishers, in cases where this is warranted.

A marine reserve can only be used to protect the foreshore and/or the seabed of the territorial sea, and/or the internal waters of New Zealand. It cannot include land above MHWS. Any marine reserve may however abut land or not abut land.

See Chapter 7 – Coastal Environment.

Ozone Layer Protection Act 1990

Administered by the Ministry of Commerce and the Ministry for the Environment. This Act controls the importation and use of a wide variety of ozone depleting substances, such as chlorofluorocarbons and halons.
See Chapter 10 – Air Quality.

Public Works Act 1981

Administered by the Ministry of Lands. Provides for the acquisition and use of land for public works.
See Chapter 2 – Regional Overview and Strategic Direction.

Rating Powers Act 1988

Provides powers for local authorities to make and levy rates. The Act makes provisions for differential rating, the payment of rates, remission and postponement of rates and rates relief.

Reserves Act 1977

Administered by the Department of Conservation. Establishes powers and responsibilities relating to the acquisition, classification and management of reserves for recreational, historic, scenic, nature, scientific or other purposes.

The Act has a comprehensive purpose which is outlined in section 3. It includes the preservation and management of public areas with special features and values (listed in section 3), ensuring the survival of all indigenous species and the preservation of representative samples of all classes of ecosystems and landscapes, and ensuring the preservation of access to and along the sea coast, lakes and rivers.

The Reserves Act provides for similar levels of protection as the Marine Reserves Act, but its provisions only extend over the foreshore down to Mean Low Water Springs. The Minister of Conservation may allow any qualified person to take specified animal or plant specimens for scientific or education purposes. However no animal or plant can be removed or destroyed for any other purpose, including fishing, unless authorised.
See Chapter 6 – Heritage, Chapter 18 – Esplanade Reserves and Strips.

Resource Management Act 1991

Administered by the Ministry for the Environment. This Act establishes a framework for the sustainable management of natural and physical resources, including land, air, heritage and water. Such management is principally done through regional councils and territorial authorities.

Soil Conservation and Rivers Control Act 1941

Administered by the Ministry for the Environment. Provides powers for regional councils as catchment boards to promote soil conservation; the prevention and mitigation of soil erosion; the prevention of damage by floods and the use of land in a manner that will help in the achievement of these purposes.
See Chapter 12 – Soil Conservation.

Toxic Substances Act 1979

Administered by the Ministry of Health. This Act establishes a Toxic Substances Board which recommends policies and regulations relating to the import, manufacture, labelling, sale, disposal and general handling of toxic substances.
See Chapter 16 – Hazardous Substances.

Treaty of Waitangi (Fisheries Claims) Settlement Act 1992

This Act amends the Fisheries Act 1983 and enables the Minister of Fisheries to make regulations:

recognising and providing for customary food gathering by Maori and the special relationship between Tangata Whenua and places of importance for customary food gathering (including tauranga ika and mahinga mataitai) to the extent that such food gathering is neither commercial in any way nor for pecuniary gain or trade"; and declaring "any part of New Zealand fisheries waters to be a mataitai reserve".

In providing for any customary food gathering, regard must be had to the sustainable management of the fish, aquatic life and seaweed in the reserve. As well as recognising the traditional importance of these areas to Tangata Whenua, the Act provides for the management of these areas by Iwi.
See Chapter 7 – Coastal Environment.

Wildlife Act 1955

Administered by the Department of Conservation. Provides for the protection of certain species of wildlife, including the establishment of wildlife reserves. It also provides for improving game bird habitats.
See Chapter 6 – Heritage.

Appendix D

Definitions and Abbreviations

Where terms are defined in the RM Act, they shall have the same meaning in this RPS. The following additional terms are defined for the purposes of this RPS.

Additions or deletions arising from decisions on Proposed Change 8: Landscape are shown in underline or ~~strikethrough~~.

Definitions

Abstraction

means the taking of water from any water resource.

Active Coastal Zone

means the area extending from the back dune (on soft shores) or cliff face where (during a normal year) exchange of sediment with the coastal water would be expected, to the depth of water at which exchange of sediment with the foreshore under normal wave conditions does not occur.

AEP – 1% Annual Exceedence Probability Flood Event

means a flood event that has an estimated probability of occurrence of 1% in any one year.

Aggregates

means broken rock and sand used in construction of buildings, roads and other forms of infrastructure development.

Agriculture

means the raising of crops and livestock. This includes a range of land uses for primary production including:

- pastoral farming,
- arable farming,
- horticulture,
- viticulture,
- intensive farming,
- production forestry.

See also the definition of Primary Production.

Air stability

means the amount of free convection (or turbulence) present at any one time. If the atmosphere is conducive to free convection it is said to be unstable. If it inhibits such motion it is stable. An unstable atmosphere is associated with good dispersion of pollutants, while a stable atmosphere is associated with poor dispersion of pollutants. Air stability is governed by the vertical change in temperature in the atmosphere.

Amenity Landscapes

are landscapes that have high levels of amenity value, which are those natural or physical qualities and characteristics of an area that contribute to people's appreciation of its pleasantness, aesthetic coherence, and cultural and recreational attributes. Amenity landscapes may be identified in district and regional plans.

Aquifer

means a permeable water-bearing rock formation which yields water of a sufficient rate to be a practical water supply.

Areas of Special Value

means outstanding natural features and landscapes, areas of significant indigenous vegetation and significant habitats of indigenous fauna. These areas are described ~~indicated~~ in Appendix B; ~~which lists~~ Significant Natural Heritage Areas and Values~~;~~ and are shown on Map Series 2. Map Series 3a identifies outstanding Natural Features and Outstanding Natual Landscapes. ~~which shows the Areas of Landscape Quality.~~

Arterial routes (regional arterials, and district arterials)

means roads servicing an arterial function within or between regions or territorial authorities, having high safety standards and pavements in keeping with traffic use, with access controls where warranted.

Assimilative capacity

means the quantity of contaminant that can be discharged into a body of water without producing a harmful or irreversible biological impact.

Biodiversity/natural diversity

Biological diversity means the variability among living organisms from all sources including terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part. This includes diversity within species, between species and of ecosystems (Convention on Biological Diversity). For the purpose of this document, natural diversity refers specifically to the indigenous component of diversity within an area.

Business Activities

means commercial and industrial activities.

Chlorofluorocarbons

means chemical compounds that contain chlorine, fluorine and carbon. These compounds, which are known to deplete stratospheric ozone, are used as refrigerants, blowing agents in the manufacture of plastic foam products, propellants in aerosol sprays, and solvents in industrial cleaning processes.

Commercial Activities

means the range of commercial activities including office, retail and commercial service providers.

Commercial Centres

means High Density Centres and Neighbourhood Centres, being intensification nodes or areas of various sizes characterised by mixed-use and intensive land uses including retailing, residential, business, and includes the range of centres from those that have a regional significance to those that serve a local community.

Commercial Core

means that part of a High Density Centre that is zoned principally to provide for commercial activity or in which those activities are enabled.

Commercial Services

means a business providing personal, property, financial, household, private or business services to the general public and includes, but is not limited to such services as customer banking facilities, airline and entertainment booking services, dry cleaning, and hairdressing.

Compact Mixed Use Environments

means an urban area comprising compatible, and often complementary activities (often of a mixed residential, business, recreational, retail or hospitality nature) and generally within High Density Centres and Intensive Corridors.

Containment

means keeping the growth of any urban development within defined urban limits.

Consultation

means communication between persons for the purposes of the Act. Consultation may have a range of purposes, including the collection or dissemination of information, or identification or resolution of issues. Consultation should satisfy the following guidelines:

- Consultation must be no mere formality – the party obliged to consult must bring to the process a willingness to change; to consult is not merely to tell.
- The party being consulted must be adequately informed – they must have access to sufficient information so that they can make an intelligent and useful response to the proposals being put forward.
- Sufficient time must be allowed.

Contact recreation

in relation to water quality issues, means recreational activities which have a reasonable probability of the participant(s) being immersed. It includes, but is not limited to, swimming, diving, water skiing, jet skiing, surfing and sailing on sailboards or small centreboard yachts.

Corridors

means the Region's strategic and arterial road, bus, rail alignments, and adjoining land located adjacent to these corridors, which generally link the Region's centres, and includes but is not limited to Intensive Corridors. Such corridors may have a range of functions, for example Public Transport and Freight.

Countryside living

means low density residential development on rural land. It includes the concepts of rural-residential development, scattered rural-residential lots, farmlets, residential bush lots, retirement lots, large-lot residential development and the like. It is similar to low density residential development where it occurs within urban areas.

Cultural Heritage Inventory

is a database of cultural heritage information which is

readily accessed and provides a means to identify where further research efforts are required.

Cumulative Effects

The term "effects" is defined in section 3 of the RM Act. Within that definition, "cumulative effects" include:

(a) effects on the environment which result from the incremental combination of activities, uses or development actions of the past, present and reasonably foreseeable future.

(b) effects which arise through additive, compounding (e.g., bio accumulation) or synergistic interactions.

(c) effects which manifest after a delay in time or in a different area from the original activity and which, in their extreme form, may emerge as unpredictable or chaotic events.

(d) effects which would arise over time as a result of implementing a particular policy, as well as the effects which may stem over a period of time from a particular decision.

Development
(Hazardous Substances chapter only)

means any development of a new facility or substantial modifications to an existing facility which change the nature or operation of that facility. Modification to existing facility includes the change of use to an activity using, storing, transporting or disposing of hazardous substances.

Dwelling

means a building or part of a building designed to be occupied and used for residential purposes by one household.

Ecological district

is a local part of New Zealand where topographical, geological, climatic, soil and biological features, including the broad cultural pattern, produce a characteristic landscape and range of biological communities.

Ecological pattern

refers to the arrangement of species, communities and habitats according to spatial and environmental gradients.

Ecological viability

means the ability of an area's biological communities (or in some cases a particular species) to maintain themselves in the long term, in the absence of any special effort to perpetuate them. Regeneration, reproduction and vigour of a particular species, and the size and stability of communities are important factors in the evaluation of viability.

Edaphic

means of the soil; or produced or influenced by the soil.

Elite land

is the most highly productive lands of the region composed of well drained, friable and well structured soils, and includes Patumahoe clay loam, Patumahoe sandy clay loam, Bombay clay loam and Whatatiri soils, on flat or nearly flat land or land with other unique features such as the frost-free slopes of Bombay Hill, which are capable of sustaining a high level of continuous cultivation. This is generally Land Use Capability Class 1 land; see definition for Land Use Capability.

Emergency planning guidelines

means guidelines for the production of a document to identify and catalogue the elements required to respond to an emergency, to define responsibilities and specific tasks, and to serve as a response guide.

Excessively fragmented

means, in relation to the tenure of rural land, a subdivisional pattern is dominated by sites which are so small that the range of primary production activities for which they can be sustainably used is severely constrained.

Flood hazard zone

means an area where there is a risk of inundation given maximum probable development in a catchment.

Flood Management Plan

means a plan which, on a catchment or area wide basis, identifies the flood hazard zone and provides management options for the avoidance or mitigation of identified flooding and erosion hazards.

Future Urban Areas

means those areas identified in Schedule 1B for the expansion of urban development. It also includes areas identified through successful requests to move the metropolitan urban limits and the urban areas of rural and coastal settlements where they do not have an operative urban zone.

Geopreservation Inventory

is a document which identifies the best examples of the wide diversity of physical features and processes that together characterise each part of New Zealand and document its long and complex geological history, the formation of its landforms and evolution of its unique biota.

Greenhouse gases

mean those gases which trap some of the sun's radiant energy and in so doing maintain global air temperatures at an average of 15 degrees Celsius. Greenhouse gases include carbon dioxide, methane, chlorofluorocarbons, ozone, nitrous oxide and water.

Groundwater

means natural water contained within rock formations below the surface of the ground.

Guidelines

means non-statutory advisory papers.

Habitable building

means a building whose primary function is a dwelling, or work or meeting place, including houses, commercial and industrial buildings, community and recreational buildings, but excluding garages, haybarns and other out-buildings.

Habitable Floor

means the floor of a building which is used primarily for residential or community activities but excludes sheds, outhouses, garages or basements.

Habitat

means the environment in which a particular species or group of species live. It includes the physical and biotic characteristics that are relevant to the species concerned.

Halons

means chemical compounds that contain chlorine, fluorine and bromine. These compounds, which are known to deplete stratospheric ozone, are used in fire-fighting equipment.

Hapu

means a sub-tribe, usually containing a number of whanau with a common ancestor.

Hazardous substances

means any substance:

(a) with one or more of the following intrinsic properties:

- Explosiveness
- Flammability
- A capacity to oxidise
- Corrosiveness
- Toxicity (both acute and chronic)
- Ecotoxicity, with or without bioaccumulation, or

(b) which on contact with air or water (other than air or water where the temperature has been artificially increased or decreased) generates a substance with any one or more of the properties specified in paragraph (a) of this definition.

Hazardous waste

means wastes which exhibit hazardous characteristics (such as explosiveness, flammability, a capacity to oxidise, corrosiveness, toxicity, or ecotoxicity, or which generate a substance with one or more of these properties on contact with air or water), and will therefore require special care during all stages of their management and eventual disposal.

Height Sensitive Area

means those areas beneath the viewshafts, identified in Map Series 4a and district plans as being particularly height sensitive.

High Density Centres

means specific centres, as identified in Schedule 1 or in district plans, selected for urban intensification due to physical or locational characteristics that include the intensity of existing development, the locality's generation of, or association with, significant transport movements, and/or Passenger Transport Nodes, and the locality's capacity for further growth. These localities are identified as the CBD, Sub Regional Centres, and

Town Centres, which are earmarked for higher density development. High Density Centres are higher density mixed use communities focussed on a strong and diverse core of commercial activities which supports a wide range and high intensity of activities; and associated and supporting areas of higher density housing. Such centres have strong links with the public transport network and provide a wide range of community, recreational, social and other activities.

Hydrocarbons

means chemical compounds that contain carbon and hydrogen.

Impervious surfaces

means surfaces constructed of materials which are resistant to water or other fluid passing through them.

Independent Agricultural Unit

means an appropriately sized unit for the intended or established activity to provide an income sufficient to meet all business outgoings and necessary to sustain a family of (nominally two adults and two dependent children for the purposes of this definition) living on the site without recourse to supplementary incomes.

Indigenous

means native to, and occurring naturally in, New Zealand.

Industrial and trade activities

means activities carried on in industrial and trade premises (see definition in RM Act). This includes urban and rural activities, and in rural areas includes rural production and processing activities, such as dairy shed operations and wineries. Factory farming activities, such as poultry farming and pig keeping, are also included.

Infrastructure

means the basic facilities, services and installations needed for the functioning of the community, such as ports, airports and airport approach services, bulk water supply and drainage reticulation and associated works, energy generation and transmission, roads, rail and public transport facilities, communications facilities and networks, solid waste disposal facilities, defence establishments, public parks, reserves and institutions.

Integrated management

means management of natural and physical resources:

(a) where decision-making about the use, development or protection of natural and physical resources occurs in a holistic way;

(b) which takes into account the full range of effects which may stem from any such decision over the short- and long-term; and

(c) which considers effects by referring to section 3 of the RM Act, and may include effects on natural and physical resources and effects on the environment.

Intensification

in rural and urban areas, means increased densities of population and/or buildings.

(i) In an urban area intensification includes redevelopment, infill, conversion, retro-fitting and recycling. It also includes additional urban development at any density on vacant land within the defined urban limits.

(ii) In rural areas intensification includes changes in the intensity of subdivision and development, from (for example) extensive pastoral farming regimes to rural residential (countryside living), horticultural, or factory farming activities.

In this RPS, depending on the context, the words "land use intensification" mean provision being made in district plans for land to be developed with a greater coverage or intensity of buildings, or to accommodate a greater resident population or workforce than hitherto. That is, for example, to refer to rezoning of rural land to enable it to be developed and used for countryside living or urban purposes, and the rezoning of residential, commercial or industrial land to enable a greater intensity of buildings.

Intensive Corridors

means specific Corridors, as identified in Schedule 1 or in district plans, selected for urban intensification due to physical or locational characteristics that include the intensity of existing development, the locality's association with significant transport movements, and/or passenger transport nodes, and/or the locality's capacity for further growth. These localities are earmarked for higher density Compact Mixed Use Environments

where these are compatible with the principal focus of the movement function of the corridor.

Iwi

means a Maori tribe, usually containing a number of hapu with a common ancestor.

Kaitiaki

means the Tangata Whenua guardian who exercises the ancestral responsibilities of kaitiakitanga.

Land Extensive Industrial Activities

Industrial activities in this category are manufacturing, construction, wholesale trade and transport and storage, and ancillary commercial activities associated with these. These activities typically require;

- large land parcels;
- relatively low land costs per square metre;
- preferably vacant land;
- good transport access, especially road/motorway;
- a guaranteed and consistent energy supply;
- distance from sensitive land uses;
- medium to high broadband capacity.

Land Use Capability – NZLRI – LUC Classes (New Zealand Land Resource Inventory – Land Use Capability)

refers to the New Zealand Land Resource Inventory (NZLRI), which considers the five physical factors most important in land management: rock type, soil type, slope, erosion and vegetation and describes land parcels or map units in these terms. In addition to listing the physical resources of the land, its ability to sustain different land uses is also assessed. This is known as the Land Use Capability (LUC) and consists of three levels of detail. At a scale of 1:50,000 it only allows indicative planning. It provides a tool for defining boundaries in principle. For decisions at the scale of individual property, more detailed survey using this NZLRI methodology would need to be undertaken.

Land Use Capability (LUC) classes include:

Class 1
The best land, flat, free draining, well structured fertile soils suited to sustained intensive horticulture with minimal inputs, e.g., immediately west of the Pukekohe urban area.

Class 2
Slight limitations to intensive arable use, e.g., slope and erosion as on the Bombay Hills.

Class 3
Moderate limitations to arable use. Commonly alluvial flats with a wetness limitation.

Class 4
Typically rolling hill country too steep and erodible for regular cultivation but suited to intensive pastoral farming, such as dairy farming.

Class 6
Mainly strongly rolling to moderately steep hill country. Typically semi-intensive pastoral use, such as sheep and beef farming.

Class 7
Steep hill country and semi consolidated sands, typically with a severe erosion limitation. Limited sustainable productive potential. Typically, conservation areas.

Class 8
Steep coastal cliffs and foredunes. Protection areas.

NZLRI LUC - Relationship of Land Classes to terminology used in the RPS

Land Class	*Specific reference*	*Descriptive reference*
Class I	Elite land	Land of moderate to high value for
Classes I, II and III	Prime land	primary production
Class IV		Land of moderate value for primary production
Class VI and below		Land of low value for primary production

For a more definitive classification refer to: Land Use Capability Survey Handbook, Water and Soil Division, Ministry of Works, Wellington, New Zealand 1971.
NZLRI Database
New Zealand Land Resources Inventory Worksheets

Landcare

means a sustainable land use programme using a "bottom-up" approach where landowners are encouraged to take on ownership of their own problems and seek the best solutions, where professional involvement is generally limited to group facilitation, guidance and in some cases co-ordination.

Limits to rural and coastal settlements

means the boundary between the urban area of existing settlements and existing large urban activity areas (such as Ardmore Airport), (outside of the metropolitan urban limits) and rural zones or activity areas.

See also the definition for Urban Area

Lot

means:

(a) an area of land which is:

  (i) comprised in a single certificate of title; or

  (ii) contained in a single allotment on an approved survey plan of subdivision for which a separate certificate of title could be issued without the further consent of the territorial local authority, being in any case the smaller land area of (i) or (ii); or

(b) an area of land which is composed of two or more contiguous allotments held together in one certificate of title in such a way that the allotments cannot be dealt with separately without the prior consent of the territorial local authority; or

(c) an area of land which is composed of two or more contiguous allotments held in two or more certificates of title where such titles are held together in such a way that they cannot be dealt with separately without the prior consent of the territorial local authority;

except that where an area of land is contained or described in a title issued under the Unit Titles Act 1972 or is a cross-lease form of title, the site is the underlying land out of which the unit title or cross-lease title has been, or is proposed to be issued.

Mahinga Mataitai reserves

mean seafood resource reserves developed in accordance with regulations arising from the Treaty of Waitangi (Fisheries Claims) Settlement Act 1992.

Maori

means a person of the Maori race of New Zealand and includes a descendant of any such person.

Maori land

means Maori customary land and Maori freehold land as defined by section 4 of Te Ture Whenua Maori Act 1993.

Marae

means the complex of buildings and land which make up the meeting house, dining hall, and include developments such as kaumatua (elders) housing, kohanga reo (language nest), kokiri units (skills training centres) and other supporting facilities, which provide a focal point for Maori cultural, spiritual, social, political and economic activity.

Marine Protected Area

is a generic term used to refer to marine areas where protected status is considered appropriate. The form and level of protection given to any marine area varies, depending on the purpose of the particular legislation. The following statutes are used to provide protection to marine areas and are more fully described in Appendix C: Legislation Dealing with Resource Management: the Marine Reserves Act 1971; the Reserves Act 1977; the Conservation Act 1987; the Marine Mammals Protection Act 1978; the Fisheries Act 1983; the Maori Fisheries Act 1989; and the Treaty of Waitangi (Fisheries Claims) Settlement Act 1992. The concept of rahui and its relevance to protection of marine areas is described under its own heading in this appendix.

Mauri

means life force, life essence.

Metropolitan urban limits

means the boundary between the rural area and the urban area. The urban area includes both the existing built-up area and those areas committed for future urban expansion in conformity with the objectives and policies expressed in the Regional Development chapter of the RPS. The metropolitan urban limits are delineated on the Map Series 1, Sheets 1-20. Also see definitions of Urban area and Rural lands/area.

National or strategic routes

means roads and motorways which form part of a network of strategic importance nationally, having the highest standards with access control where necessary, and for which a high level of user service must be provided on a continuous basis.

Natural area

means a place characterised by indigenous species or ecosystems, or a place or landform not or scarcely modified from an indigenous condition.

Natural character

means those qualities and values of the coastal environment which derive from the presence of natural features and natural processes. These qualities include the presence of indigenous vegetation and habitats, landforms, landscapes, the historic, aesthetic, cultural and spiritual value of natural features, the functioning of natural processes and the maintenance of water quality. Although not excluding structures and human activities, areas of natural character derive their predominant influence, character or identity from the presence of natural values and processes.

Natural heritage

includes indigenous flora and fauna, terrestrial, marine and fresh water ecosystems and habitats, landscapes, landforms, geological features, soils and the natural character of the coastline.

Naturalness (Ecological)

For ecological purposes, naturalness is an assessment of the degree an area (i.e., vegetation, ecosystem) has been free from the effects of human disturbance and intervention. It is also an assessment of the indigenous content of an area.

Naturalness (Landscape)

In an Outstanding Natural Landscape, naturalness means the qualities or landscape characteristics that are produced by nature, or natural processes, including rural land cover such as pasture, rather than landscapes that are dominated by built structures or that are highly domesticated. Naturalness occurs in both wild nature and cultured nature Outstanding Natural Landscapes, where a key distinction is the type of land cover.

Neighbourhood Centres

means small scale local centres the primary function of which is to meet the convenience, commercial and/or social needs of the surrounding local community.

Odour threshold

means the point at which a defined percentage of the population (usually 50%) can detect the presence of a particular odour. Odour thresholds are recorded for both individual chemical compounds and for characteristic odours from particular sources. Recorded odour thresholds for individual chemical compounds can vary significantly because of differences in methodology.

Odour unit

means a dimensionless ratio defined as the volume which an odorous sample would occupy when diluted to the odour threshold divided by the volume of the odorous sample. The total emission of odorous substances in a discharge can be expressed in odour units cubic metres per second (OU m3/s) by multiplying the number of odour units (OU) by the volumetric flow rate (m3/s).

Outstanding Natural Features

means those features identified as Outstanding Natural Features in Map Series 3a. With regard to the volcanic cones, their naturalness does not equate to a pristine, unmodified or indigenous state, but reflects the general absence of manmade structures and a dominance of natural elements, including the volcanic landform, open space and vegetation, whether exotic or indigenous.

Ozone

is a colourless, highly toxic gas, which is naturally produced in the stratosphere by the action of high-energy ultraviolet radiation on oxygen. This ozone layer acts as a screen for ultraviolet radiation and thus protects living organisms on earth. Ozone is also produced in the troposphere by the action of sunlight on reactive hydrocarbons and oxides of nitrogen. Ozone produced in the troposphere is toxic to humans.

Papakainga

means residential occupancy on any ancestral land owned by Maori.

Passenger Transport Nodes

means localities within the Metropolitan Urban Limits associated with a station or terminal on a Rapid

Transport Network or a ferry terminal on the Quality Transit Network, and may be part of a Town Centre, High Density Centre or Intensive Corridor as identified in Schedule 1 or district plans. A Passenger Transport Node is generally defined as the area within a walkable distance (generally a 400m radius, or a 5 minute walk), of a station or terminal.

Phreatic eruption

means a volcanic eruption caused by the rapid and violent conversion of groundwater to steam, possibly as a result of contact between such water and a source of magmatic heat, for example, lava.

Precautionary approach

means that when there is uncertainty about the nature, extent, intensity and duration of potentially significant adverse effects arising from the subdivision, use, development or protection of natural and physical resources, and those adverse effects cannot currently be fully assessed due to inadequate information or understanding, then local authorities should act cautiously when making decisions and take the degree of that uncertainty into account.

Preservation

in relation to a resource, means the maintenance, so far as practicable, of its intrinsic values.

Primary production

means the first stage of raw material production by natural processes from natural resources, principally the raising of crops (including forestry) and livestock. It also includes factory farming and mineral extraction.

Prime agricultural land

means land which has a high actual or potential value for sustainable agricultural production. Land may qualify for inclusion in the category of prime agricultural land on the basis of its soils being versatile and easily adapted to a wide range of uses. Other factors of topography, availability of water, climate, and drainage in combination or singly may also contribute to areas which are prime agricultural land. Prime agricultural land is defined as, but not limited to, NZLR LUC Classes I, II and III.

Protected Natural Areas Programme

is a programme which aims to establish a network of reserves and other protected natural areas which is representative of the full range of New Zealand's natural diversity. Ecological districts are surveyed and areas identified which best represent the diversity of their natural features.

Protection

in relation to a resource, means its maintenance, so far as practicable, in its current state, but includes:

(a) its restoration to some former state; and

(b) its augmentation, enhancement, or expansion.

Public health

means the science and art of preventing disease, prolonging life and promoting health of:

- all people of New Zealand, or
- a community or section of such people.

Public utilities

means the same as utility services but also includes ports, airports and airfields, and other facilities designed specifically to service the public in general.

Rahui

is a form of tapu restricting the use of land, sea, rivers, forests, gardens and other food resources. It can include prohibitions on people gathering food in an area, for a specified period after a drowning, or the conservation of species through prohibitions on the harvest of kaimoana.

Rangatiratanga

Refer Tino rangatiratanga.

Rapid Transit Network

means a passenger transport network in its own right of way that is unaffected by traffic congestion which has fast, high frequency services. This network is the backbone of the passenger transport system and includes the bus rapid transit system, some high frequency ferry services and the west, south and isthmus rail corridors.

Rarity

is a measure of the paucity of numbers or occurrences of elements of natural diversity (e.g., species, communities). Individual threatened species in New Zealand have been

classified using International Union of Conservation of Nature and Natural Resources (IUCN) criteria. Threatened species can be in the following categories: endangered, vulnerable, rare, local and indeterminate.

Recreation

means any activity carried out in one's free time which enhances life experiences and enjoyment. This concept is broad and includes all activities: passive, physical, artistic and cultural, as well as community service.

Regionally significant infrastructure

means infrastructure which is of greater than local significance. This can include infrastructure that is nationally significant.

The following are examples of regionally significant infrastructure:

- Mangere Wastewater Treatment Plant
- North Shore Wastewater Treatment Plant
- Ports of Auckland and Onehunga
- Auckland International and Ardmore Airports
- Energy and telecommunications networks, including electricity generation facilities (such as Otahuhu A and Otahuhu B) and electricity distribution networks
- Bulk water supply infrastructure
- Wiri Oil Supply Terminal and its associated bulk fuel supply infrastructure
- Regional Strategic Routes and Regional Arterial Roads
- The Rapid Transit Network
- The rail network, including North Island Main Trunk, North Auckland and branch lines
- Regional institutions, including universities such as the University of Auckland, other public tertiary institutions and prisons
- Regional Reserves and Parks
- Regionally significant reserves, such as Auckland Domain
- Auckland Public Hospital
- National defence establishments.

Regionally Significant Volcanic Features

are the volcanic features identified in Map Series 2a and include the volcanic cones identified in Map Series 3a as Outstanding Natural Features.

Relationship to surrounding area/ spatial connectivity and characteristics

is the relationship a natural area has with its surrounding landscape, and the extent to which it is (1) buffered and therefore protected by other natural features or fences; (2) the continuity of natural habitat or connection to other protected areas (spatial connectivity); or (3) the proximity to other natural habitats (spatial characteristics).

Remediation

means the clean-up or mitigation of pollution or contamination of soil by a variety of methods.

Representativeness

with respect to natural and geological heritage, means the extent to which an area represents or exemplifies the components of the natural diversity of a larger reference area, e.g., representation in reserves of the current natural diversity of an ecological district, or representation of the original natural landscape.

With respect to cultural heritage, representativeness means something typical of an activity (i.e., industrial, agricultural and fishing; domestic; military, sacred sites, transport activities) which took place during a cultural period (i.e., early Polynesian, early Maori, late Maori, contact [1790-1840], colonial [Maori and European 1840-1900], 20th century).

Residual flow

means the remaining flow left in a watercourse after taking or diverting water from that watercourse.

Retail activities

means the use of land or buildings for displaying or offering goods for sale or hire to the general public, but does not include commercial services.

Retro-fitting

means environmental quality control devices fitted retrospectively.

Riparian protection yard

means the land adjacent to a water body or coastal water that is at least periodically influenced by flooding and/or may include ecosystems which contribute to the natural character of the water body or coastal waters.

Risk

is a measure of the probability that damage to life, property, and/or the environment will occur if a hazard manifests itself. This measure includes the severity of anticipated consequences to people, property and the environment.

Risk assessment

means an assessment of the probable damage that may be caused to the community or environment by a hazardous substance release, or a natural hazard event.

Risk management

means the management of risks through a combination of safety controls, formalised procedures and by adequate separation of activities or substances where necessary to achieve an acceptable level.

Rural activities

means activities that are typically associated with rural areas and:

a) depend on rural resources; or

b) require a rural location; or

c) predominantly serve residents in rural areas.

Rural character

means the distinctive combinations of qualities which make an area "rural" rather than "urban". These include the dominance in the landscape of natural vegetation or primary production regimes and the absence or subservience of man-made structures other than those related to primary production.

Rural lands/area

means those areas of the Region, including parts of the Hauraki Gulf islands, which lie outside the defined urban areas, that is, outside the metropolitan urban limits and the rural town and coastal settlements' urban limits.

Rural production and processing activities

Refer to Industrial and Trade Activities.

Safety code

means a document that generally represents the minimum considered acceptable for the safe design and operation of an installation. The safety code is essential for good basic design parameters but it is non-specific as a hazard identifier and does not necessarily protect against hazardous deviations in novel processes. Some safety codes include provisions for protecting the environment.

Sectors

The Central sector comprises the area covered by Auckland City.

The North/West sectors comprise the areas covered by Rodney District, North Shore City and Waitakere City.

The South sector comprises the areas covered by Manukau City, Papakura District and Franklin District

Sewage

means the liquid wastes of a community, which may contain toilet wastes, sullage, trade wastes and stormwater infiltration.

Sewage pumping stations

means a facility to pump sewage up a rising main from where it flows to other sewage pumping stations and finally to a sewage treatment plant.

Sewerage and reticulation

means a system of pipes, trunk sewers and ancillary works to convey sewage and stormwater to the place of disposal.

Site of Special Wildlife Interest

is an area of wildlife habitat having a ranking of outstanding, high, moderate-high, moderate or potential value, which is a result of assessments of nationwide field surveys carried out since 1980 and based upon defined criteria.

Soil conservation

means the management of land to maintain New Zealand's soil and water resources to provide the widest range of sustainable benefits for the needs and aspirations of present and future generations.

Solid waste

See Waste, but this refers only to solid or semi-solid

material (e.g., sludges).

Stormwater

means surface water runoff arising from rain storm events.

Stratosphere

means the layer of the earth's atmosphere above the troposphere characterised by weak vertical mixing of air masses. The stratosphere is a highly stratified stable layer of air. The lower part of the stratosphere interacts with ultraviolet radiation to produce ozone from oxygen.

Sub Regional Centre

means a prominent urban area which is characterised by a diverse mix of functions including intensive retail, residential, community and business activities. Sub Regional Centres are usually of a larger scale and higher density than Town Centres. They may also contain higher order activities such as major public transport nodes, tertiary level health and education facilities and other significant tourist, and entertainment facilities. Sub Regional Centres are usually the geographical 'heart' of a wider urban community. It gives the wider urban area an identity and a significant community focal point. A Sub Regional Centre is generally defined as the area within an 800m radius, or a 10 minutes walk, of its centre.

Taiapure

means local fishery areas, in estuarine or littoral coastal waters which are of special significance to a particular iwi or hapu (either as a source of food or for spiritual or cultural reasons) and are subject to the provisions of sections 54A to 54K of the Fisheries Act 1983.

Taonga

means something highly prized or treasured, tangible or intangible, that contributes to Maori wellbeing. The term equates roughly to the concept of a resource, but incorporates a range of social, economic and cultural associations. Included, for example, are te reo (the Maori language), waahi tapu, waterways, fishing grounds, mountains and place names.

Tauranga Ika

means offshore fishing grounds developed in accordance with regulations arising from the Treaty of Waitangi (Fisheries Claims) Settlement Act 1992.

Tino rangatiratanga

means chiefly authority, chieftainship, full authority. Combined in this report as 'full tribal authority'. According to the Waitangi Tribunal, tino rangatiratanga;

> *"... refers not to a separate sovereignty but to tribal self management on lines similar to what we understand by local government ... rangatiratanga denotes the mana not only to possess what one owns but, and we emphasise this, to manage and control it in accordance with the preferences of the owner ... [it] necessarily carried with it ... all the incidents of tribal communalism and paramountcy."*

This right to manage according to cultural preferences also includes spiritual matters:

> *"for example, the discharge of animal wastes to the waters of the fishery is as offensive as a physical disruption that reduces the quantity and quality of the catch ... there must be regard for the cultural values of the possessor."*
>
> *Office of the Parliamentary Commissioner for the Environment – Te Kaitiaki Taiao a Te Whare Paremata (July 1992) "Proposed Guidelines for Local Authority Consultation with Tangata Whenua".*

Town centre

means an urban area characterised by a mixture of functions including intensive retail, residential, community and business activities. Town centres give the local area and community much of its identity. Town centres differ from pure retail centres and business parks which tend to be dominated by single use activities. A town centre is generally defined as the area within a 400 - 800m radius, or a 5 to 10 minute walk, of its centre.

Trade-wastes

means liquid wastes discharged in the course of any trade or industrial process, and does not include condensing water.

Trigger quantities

means the quantity of a hazardous substance that triggers the particular safety management controls to be employed by the consent authority.

Troposphere

means the lowest layer of the earth's atmosphere, varying from 8 – 10 km at the poles to 16 – 18 km at the equator.

This layer is characterised by dense, turbulent air. It contains virtually all atmospheric moisture and clouds as well as the weather systems that affect us. The top of the troposphere is called the tropopause, and above that lies the stratosphere (up to 80 km).

Urban activities

means activities, including development, that by their scale, intensity, visual character, trip generation and/or design and appearance of structures, are of an urban character typically associated with urban areas.

See also the definitions for Countryside Living and Rural Character.

Urban area

means the area included within the metropolitan urban limits as shown on Map Series 1, and the areas included within the urban zones of rural or coastal settlements.

Urban growth

means the expansion, redevelopment, and intensification of urban development either within or outside the metropolitan urban limits and the urban areas of identified rural and coastal settlements.

Utility services

means public works, goods and services and includes the networks and associated works and structures for:

(a) the reticulation of sewage, stormwater, water, electricity, gas and petrochemicals;

(b) telecommunications;

(c) the storage, transport and disposal of waste material.

Volcanic features

means the remnants of volcanic activity, including eruption centres, scoria cones, explosion craters, tuff rings, lava flows, caves, tunnels and exposures. Volcanic features include both regionally significant volcanic features and locally significant volcanic features which are or will be identified in district plans. For the purposes of Chapter 6, volcanic features do not include soils of volcanic origin.

Waahi tapu

mean a place sacred to Maori in the traditional, spiritual, religious, ritual or mythological sense.

Waitakere Ranges Heritage Area

means the area described and mapped in Appendix I and includes the foothills and coastal settlements.

Waste

means any matter, whether liquid, gas or solid, which is discharged, unwanted or discarded by the current generator or owner as having little or no economic value, and which may include materials that can be reused, recycled or recovered.

Waste generator

means those producers, retailers and consumers of products who, after using these items, discharge or discard them.

Waste hierarchy

means the procedure to be followed in the management of a product or process from its conceptual development, receipt and processing of raw materials and the subsequent management of any waste. The hierarchy is consistent with the RM Act which requires avoidance or mitigation of adverse environmental effects. The hierarchy has the following levels:

Reduce

means the lessening of waste generated.

Reuse

means the further use of products in their existing forms for their original or similar purpose.

Recycle

means the collection and reprocessing of waste materials to provide a raw resource for the production of new products.

Recover

means the extraction of materials and energy from waste for further use or processing.

Residual

means any waste which remains after reduction, reuse, recycling, recovery and treatment processes have been implemented and require appropriate disposal.

Waste management

means all activities relating to the minimisation or reduction of waste material and any reuse, recycling,

recovery, treatment, storage or disposal process.

Waste management facilities

means any facility, established or constructed to receive waste for transfer, treatment, disposal or storage.

Waste stream

means the total volume and variety of waste that is produced.

Whakapapa

means Maori genealogy, genealogical table, cultural identity.

Whanau

means an extended Maori family including the nuclear family.

ABBREVIATIONS

ARC..... Auckland Regional Council

ARGS..... Auckland Regional Growth Strategy

ARTA..... Auckland Regional Transport Authority

ASCV..... Area of Significant Conservation Value

CBD..... Central Business District

CMA..... Coastal Marine Area

CMS..... Conservation Management Strategy

DoC..... Department of Conservation

EECA..... Energy Efficiency Conservation Authority

HGMPA..... Hauraki Gulf Marine Park Act 2000

HP Act..... Historic Places Act, 1993

LG Act..... Local Government Act 1974

LGAAA..... Local Government (Auckland) Amendment Act

LTCCP..... Long Term Council Community Plan

MAF..... Ministry of Agriculture and Fisheries

MfE..... Ministry for the Environment

MHWS..... Mean High Water Springs

MoC..... Minister of Conservation

NZCPS..... NZ Coastal Policy Statement

RCP..... Proposed Regional Coastal Plan for the Auckland Region

NZHPT..... NZ Historic Places Trust

RLTS..... Regional Land Transport Strategy

RM Act..... Resource Management Act, 1991 and subsequent amendments

RPS..... Regional Policy Statement for the Auckland Region

TA..... Territorial authority

Appendix E

The Treaty of Waitangi

The English Text
(From the Treaty of Waitangi Act 1975)

Her Majesty Victoria Queen of the United Kingdom of Great Britain and Ireland regarding with Her Royal Favour the Native Chiefs and Tribes of New Zealand and anxious to protect their just Rights and Property and to secure to them the enjoyment of Peace and Good Order has deemed it necessary in consequence of the great many of Her Majesty's Subjects who have already settled in New Zealand and the rapid extension of Emigration both from Europe and Australia which is still in progress to constitute and appoint a functionary properly authorised to treat with the Aborigines of New Zealand for the recognition of Her Majesty's Sovereign authority over the whole or any part of those islands – Her Majesty therefore being desirous to establish a settled form of Civil Government with a view to avert the evil consequences which must result from the absence of the necessary Laws and Institutions alike to the native population and to Her Subjects has been graciously pleased to empower and authorise me William Hobson a Captain in Her Majesty's Royal Navy Consul and Lieutenant Governor of such parts of New Zealand as may be or hereafter shall be ceded to Her Majesty to invite the confederated and independent Chiefs of New Zealand to concur in the following Articles and Conditions.

Article the first

The Chiefs of the Confederation of the United Tribes of New Zealand and the separate and independent Chiefs who have not become members of the Confederation cede to Her Majesty the Queen of England absolutely and without reservation all the rights and powers of Sovereignty which the said Confederation or Individual Chiefs respectively exercise or possess, or may be supposed to exercise or to possess over their respective Territories as the sole Sovereigns thereof.

Article the second

Her Majesty the Queen of England confirms and guarantees to the Chiefs and Tribes of New Zealand and to the respective families and individuals thereof the full exclusive and undistributed possession of their Lands and Estates Forests Fisheries and other properties which they may collectively or individually possess so long as it is their wish and desire to retain the same in their possession; but the Chiefs of the United Tribes and the Individual Chiefs yield to her Majesty the exclusive right of Pre-emption over such lands as the proprietors thereof may be disposed to alienate at such prices as may be agreed upon between the respective Proprietors and persons appointed by Her Majesty to treat with them in that behalf.

Article the third

In consideration thereof Her Majesty the Queen of England extends to the Natives of New Zealand Her royal protection and imparts to them all the Rights and Privileges of British Subjects.

The Maori Text
(from the treaty of waitangi amendment act 1985)

Ko Wikitoria, te Kuini o Ingarani, i tana mahara atawai ki nga Rangatira me nga Hapu o Nu Tirani i tana hiahia hoki kia tohungia ki a ratou o ratou rangatiratanga, me to ratou wenua, a kia mau tonu hoki te Rongo ki a ratou me te Atanoho hoki kua wakaaro ia he mea tika kia tukua mai tetahi Rangatira hei kai wakarite ki nga Tangata maori o Nu Tirani – kia wakaaetia e nga Rangatira maori te Kawanatanga o te Kuini ki nga wahikatoa o te wenua nei me nga motu – na te mea hoki he tokomaha ke nga tangata o tona Iwi Kua noho ki tenei wenua, a e haere mai nei.

Na ko te Kuini e hiahia ana kia wakaritea te Kawanatanga kia kaua ai nga kino e puta mai ki te tangata Maori ki te Pakeha e noho ture kore ana.

Na, kua pai te Kuini kia tukua ahau a Wiremu Hopihona he Kapitana i te Roiara Nawi hei Kawana mo nga wahi

katoa o Nu Tirani e tukua aianei, amua ki te Kuini e mea atu ana ia ki nga Rangatira o te wakaminenga o nga hapu o Nu Tirani me era Rangatira atu enei ture ka korerotia nei.

Ko te tuatahi

Ko nga Rangatira o te Wakaminenga me nga Rangatira katoa hoki ki hai i uru ki taua wakaminenga ka tuku rawa atu ki te Kuini o Ingarani ake tonu atu -te Kawanatanga katoa o o ratou wenua.

Ko te tuarua

Ko te Kuini o Ingarani ka wakarite ka wakaae ki nga Rangatira ki nga hapu ki nga tangata katoa o Nu Tirani te tino rangatiratanga o o ratou wenua o ratou kainga me o ratou taonga katoa. Otiia ko nga Rangatira o te Wakaminenga me nga Rangatira katoa atu ka tuku ki te Kuini te hokonga o era wahi wenua e pai ai te tangata nona te wenua – ki te ritenga o te utu e wakaritea ai e ratou ko te kai hoko e meatia nei e te Kuini hei kai hoko mona.

Ko te tuatoru

Hei wakaritenga mai hoki tenei mo te wakaaetanga ki te Kawanatanga o te Kuini – Ka tiakina e te Kuini o Ingarani nga tangata maori katoa o Nu Tirani ka tukua ki a ratou nga tikanga katoa rite tahi ki ana mea ki nga tangata o Ingarani.

Translation of Maori Text (Professor Sir Hugh Kawharu)

Victoria, the Queen of England, in her concern to protect the Chiefs and subtribes of New Zealand and in her desire to preserve their chieftainship and their lands to them and to maintain peace and good order considers it necessary to appoint an administrator one who will negotiate with the people of New Zealand to the end that their chiefs will agree to the Queen's government being established over all parts of this land and (adjoining) islands and also because there are many of her subjects already living on this land and others yet to come. So the Queen desires to establish a government so that no evil will come to Maori and European living in a state of lawlessness.

So the Queen has appointed me, William Hobson a Captain in the Royal Navy, to be Governor for all parts of New Zealand (both those) shortly to be received by the Queen and (those) to be received hereafter and presents to the chiefs of the Confederation chiefs of the subtribes and other chiefs these laws set out here.

The first

The Chiefs of the Confederation and all the Chiefs who have not joined that Confederation give absolutely to the Queen of England forever the complete government over their land.

The second

The Queen of England agrees to protect the Chiefs, the Subtribes and all the people of New Zealand in the unqualified exercise of their chieftainship over their lands, villages and all their treasures. But on the other hand the Chiefs of the Confederation and all the Chiefs will sell land to the Queen at a price agreed to by the person owning it and by the person buying it (the latter being) appointed by the Queen as her purchase agent.

The third

For this agreed arrangement therefore concerning the Government of the Queen, the Queen of England will protect all the ordinary people of New Zealand (i.e., the Maori) and will give them the same right sand duties of citizenship as the people of England.

Appendix F

Auckland Regional Landscape Assessment

Explanatory Material

Introduction

Policy 6.4.19 (Heritage chapter) and Policy 7.4.7.3 (Coastal Environment chapter) relate to the identification and protection of the landscapes of the Auckland Region. Those areas identified as Outstanding and Regionally Significant Landscapes are identified in Map Series 2 and 3. This information is based on the 1984 study An Assessment of the Auckland Region's Landscape, carried out by the Planning Department of the Auckland Regional Authority. The purpose of this appendix is to explain the methodology used in the study to classify landscape and the use of this classification for resource management purposes.

The 1984 Landscape Assessment – Explanation of Method

Landscape Quality

The assessment of landscape quality throughout the Auckland Region was based around 633 landscape units. All of these lie outside the Region's metropolitan and other urban areas, and capture areas which display a consistency of landscape character. These units provided a platform for the identification of 85 'landscape types'. Large scale photos of each landscape unit were then used in a public preference study carried out over the summer of 1983-4. Some 1091 respondents from throughout the Region were polled in the study, with each being asked to categorise different landscape types on the basis of the visual quality which they felt each landscape conveyed (through the photos). The categorisation process resulted in seven classifications or groupings of visual quality – from low to high. Each landscape type was then allocated to one of these quality groupings. These findings were then extrapolated to all 633 units based on the visual similarities between each landscape type and the individual landscape units found throughout the Region.

Landscape Sensitivity

Assessment of landscape sensitivity was designed to indicate the ability of each landscape to accommodate change and development, without detriment to its landscape character and value, purely on the basis of its physical characteristics. The identification of key variables against which the 'vulnerability' of different landscapes to change are assessed, had its foundation in work carried out by Yoemans et al. in British Columbia in the 1970s, and by Anderson, Mosier and Chandler in 1979 in the USA. Based on the combination of their research and expert trialing within the Auckland Region, it was decided to use the following key criteria as indicators of 'sensitivity':

- Land use diversity and type
- Slope
- Vegetation cover
- Vegetation diversity and type
- Topographic diversity
- Site recoverability potential (Capacity of a site's physical elements to accommodate change, e.g., through the growth of screening vegetation or the restoration of any surface.)

A range of ratings was determined for each of the criteria, again based on local experimentation, and a range of cumulative scores (the 'added together' ratings) was established which corresponded with seven levels of sensitivity – from low to high. The 633 landscape units already defined were then analysed, using both ground survey and NZMS mapping. Each landscape unit was then allocated to one of the seven sensitivity groupings, based on its cumulative scores.

Application To RPS Provisions

Based on the landscape quality and sensitivity ratings developed in the 1984 study, those areas classified as having a landscape quality rating of 6 or 7 have been identified as Outstanding Landscapes, while those with a quality rating of 5 have been identified as Regionally Significant Landscapes. These areas have been identified in Map Series 2.

The sensitivity of these landscapes to the effects of subdivision, use and development has also been recognised by the identification of those areas having a sensitivity rating of 5, 6 and 7 in Map Series 3. In many cases those areas with a landscape quality of 5, 6 or 7 have a similar landscape sensitivity rating. This reflects the fact that many of the attributes which contribute

to the quality of a landscape unit also mean that that landscape is highly sensitive to the visual effects of use and development and its ability to accommodate change without reducing its quality is low.

The factors which contribute to the quality of any landscape unit or which influence its sensitivity vary depending on the particular circumstances of each unit. Hence it is not possible to develop a single set of criteria which categorise outstanding and regionally significant landscapes throughout the Auckland Region. In some parts of the Region, coastal landscapes are classified as being outstanding, while in other parts rural landscapes have characteristics which make them outstanding. Each landscape unit has to be reviewed individually. However, it is possible to identify broad factors which contribute to the classification of individual units as outstanding or regionally significant.

Factors which contribute to areas being classified as having a landscape quality rating of 5, 6 or 7 are:

- the presence of coastal features, particularly open beaches and enclosed harbours;
- a strong sense of native/endemic heritage with the presence of indigenous vegetation, with the more continuous or extensive the cover, the higher the rating, although remnant stands of native forest are also rated highly;
- the presence of large rivers or lakes;
- the presence of varied and often convoluted landforms;
- diversity and variety within each unit, provided this retains a sense of unity and does not contribute to discontinuity and disharmony within the unit.

Factors which contribute to the sensitivity of a landscape are noted in the section above.

Their presence or otherwise reflects the ability of the landscape unit to visually accommodate any adverse effects arising from use and development. For example, significant or visually dominant ridgelines or slopes, or the interface of land and water areas usually have a high sensitivity rating. The presence or otherwise of a diverse vegetation cover or varied topography can influence the degree to which change can be accommodated within the landscape unit without adverse effects. Particular components which contribute to the sensitivity of a landscape unit are the presence or otherwise of:

- significant or visually dominant ridgelines
- exposed slopes
- open space
- land/water interfaces
- vegetation cover
- the presence of small scale features, such as water courses.

1994 Landscape Assessment Work

While individual landscape assessments have been commissioned for particular projects and for certain geographic areas (e.g., North Shore City urban area), there has been no comprehensive region-wide landscape assessment work undertaken since the 1984 study. In 1994 the ARC commissioned landscape assessment work for the coastlines of Great Barrier and Waiheke islands and for the urban area within the metropolitan limits. The results of this work have been incorporated in the Regional Plan: Coastal. Other landscape work using a similar methodology has been commissioned by various territorial authorities in the Auckland Region, but this focuses only on parts of their city or district (e.g., Manukau City Council's landscape assessment of the rural parts of the city).

The need to update the 1984 landscape assessment work is recognised by the ARC. Its commitment to working in conjunction with territorial authorities to complete a region-wide comprehensive and integrated landscape assessment is outlined in Methods 6.4.20 and Reasons 6.4.21 of the Heritage chapter.

For a number or reasons, both legal and technical, the 1994 landscape assessment work has not been included in this RPS. However, it is proposed to progressively update the 1984 work and to incorporate the findings of this new landscape assessment work in the RPS or a regional plan as appropriate.

Further information on the extent of the 1994 landscape assessment work completed to date and the methodology used can be obtained from the ARC.

Appendix G

Local Government (Auckland) Amendment Act 2004

Schedule 5 of the Local Government (Auckland) Amendment Act 2004 sets out the following matters to which the RPS, for the purposes of section 40(1)(b), must contribute:

(a) providing increased certainty in the assessment of resource consents, designations, and plan changes related to transport and urban form, and ensuring that transport and land use patterns are aligned to achieve sustainability, efficiency, and liveability in the Auckland Region; and

(b) managing transport and transport infrastructure, facilitating a multimodal transport network, and facilitating integrated transport management; and

(c) reducing adverse effects of transport on the environment (including improving air and water quality, reducing noise and stormwater, improving heritage protection and reducing community disruption and transport land use), and reducing the adverse effects and increasing the positive interactions of transport and land use; and

(d) supporting compact sustainable urban form and sustainable urban land use intensification (including location, timing and sequencing issues, and associated quality, character, and values of urban form and design); and

(e) integrating transport and land use policies to reinforce metropolitan urban and rural objectives of the Auckland Regional Policy Statement, the development of a competitive and efficient economy and a high quality of life, underpinned by a quality environment and amenity.

Appendix H

Household and Employment Densities Required in High Density Centres and Intensive Corridors to Support the Public Transport System.

PROPOSED LEVEL OF PUBLIC TRANSPORT PROVISION

CENTRE TYPE	RAPID TRANSIT	QUALITY TRANSIT NETWORK	LOCAL CONNECTOR NETWORK
SUB REGIONAL CENTRE	*Residential Density (Gross)* 60 Dwellings Per Ha. *Employment Density (Gross)* 300 Employees Per Ha.	*Residential Density (Gross)* 40 Dwellings Per Ha. *Employment Density (Gross)* 200 Employees Per Ha.	*NA* *NA*
INTENSIVE CORRIDOR	*Residential Density (Gross)* 40 Dwellings Per Ha. *Employment Density (Gross)* 200 Employees Per Ha.	*Residential Density (Gross)* 30 Dwellings Per Ha. *Employment Density (Gross)* 150 Employees Per Ha	*NA* *NA*
TOWN CENTRE	*Residential Density (Gross)* 40 Dwellings Per Ha. *Employment Density (Gross)* 200 Employees Per Ha	*Residential Density (Gross)* 30 Dwellings Per Ha. *Employment Density (Gross)* 150 Employees Per Ha	*Residential Density (Gross)* 20 Dwellings Per Ha. *Employment Density (Gross)* 50-100 Employees Per Ha

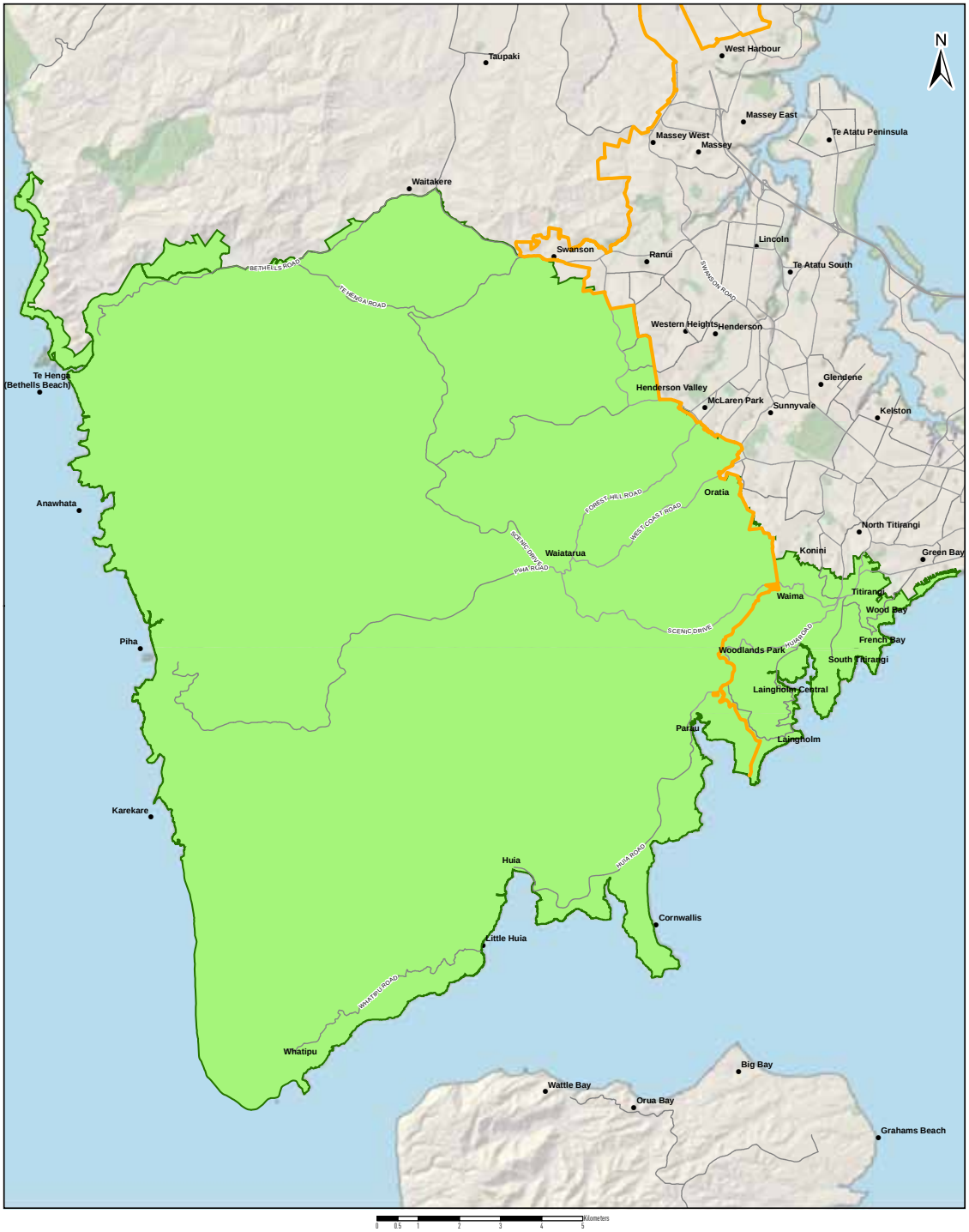
Notes:

- For residential development the above densities are averages over the catchment area of the High Density Centre or Intensive Corridor.
- For employment densities the above averages relate to the zoned employment areas within the High Density Centre or Intensive Corridor. The employment figures relate to all employment, full-time and part-time.
- High Density Centres and Intensive Corridors should focus on rail or bus stops and/or a commercial / community centre.
- Depending on the nature of the centre increased densities should in general occur within an 800m radius catchment (or a 10 minute walk) of the Sub Regional Centre focus, and a 400 to 800 meter radius catchment (or a 5-10 minute walk) of the Town Centre focus. In general those Town Centres with a rapid transit service should have a larger catchment than those without.
- Residential and employment densities should be higher closer to the transit stop and/or commercial centre and graduate towards lower densities at the edge of the higher density centre or corridor. For example, within a Sub Regional Centre the density within 200 meters of the Sub Regional Centre focus could be twice the average (i.e. 120 dwellings per hectare), from 200 to 400 meters 1.5 times the average (i.e. 90 dwelling units per hectare) and from 400 – 800 meters 0.8 times the average (i.e. 48 dwellings per hectare).
- The densities listed are not mandatory for all centres and corridors. In some cases these densities will be difficult to achieve. However, in other cases these densities could be easily exceeded.

- In this table:
  - Rapid Transit Network (RTN) is defined as per the definition contained within Appendix D of the RPS
  - Quality Transit Network (QTN) is a network of high frequency high quality transit services at key locations including rail, bus and ferry services. An indicative QTN was illustrated in the RLTS 2005 with ARTA responsible for finalising.
  - Local connector network involves low and medium frequency bus, ferry and rail services providing access to local centres and connections to the RTN and the QTN.

Appendix I

Map and Description of Waitakere Ranges Heritage Area



The Waitakere Ranges Heritage Area comprises an area of approximately 27, 720 ha, generally located between urban Auckland and the west coast. The area is of local, regional and national significance and has little capacity to absorb further subdivision without giving rise to adverse effects, including cumulative effects, on the area's heritage features, which individually and collectively contribute to this significance. These heritage features include the:

- terrestrial and aquatic ecosystems with a prominent indigenous character and which are outstanding in northern New Zealand;
- public water catchment and supply system;
- natural landforms and landscapes of the area, including those that form a dramatic visual backdrop to metropolitan Auckland in the west;
- dynamic and contrasting coastal areas with high natural character;
- quiet and darkness of the forested and coastal areas;
- eastern foothills which act as a buffer to and transition from metropolitan Auckland and the forested ranges and coast, and the streams of which are important for downstream urban character and stormwater management;
- Waitakere Regional park;
- opportunities for wilderness experiences, recreation and relaxation in close proximity to metropolitan Auckland;
- subservience of the built environment to the area's natural and rural character and which is reflected in the individual identity and character of the coastal settlements, the low density residential and urban areas located in an increasingly dominant forest setting, and the rural character of the foothills to the east and north with their pattern of cultivated and uncultivated land, indigenous vegetation and the absence of urban scale development;
- historical, traditional and cultural relationship of people, communities and tangata whenua with the area and their exercise of kaitiakitanga and stewardship;
- historic heritage reflecting past human activities in the area; and
- distinct local communities.

Appendix J

Integrated Transport Assessments

Matters to be assessed as part of an integrated transport assessment should include:

a) A description of the proposal: what it is for, size and scale, existing land use and transport constraints (if any), including a summary of the operational and site requirements of the proposal.

b) A description of how the proposal supports the national, regional and local land use and transport planning and policy framework and if not, detail regarding the justification of the proposal.

c) A summary of land use/urban design characteristics that may impact on the wider transport sustainability of the network and an assessment of measures to influence travel by a variety of transport options.

d) A description of the intended method for assessing potential trip generation and impacts including an assessment of the transport environment, safety, accessibility, integration, economy, transport network effects and a parking impact analysis.

e) A description of the mitigation measures to be undertaken to help prevent or reduce the actual or potential transport and land use effects including the intend timeframe for completion and staging options.

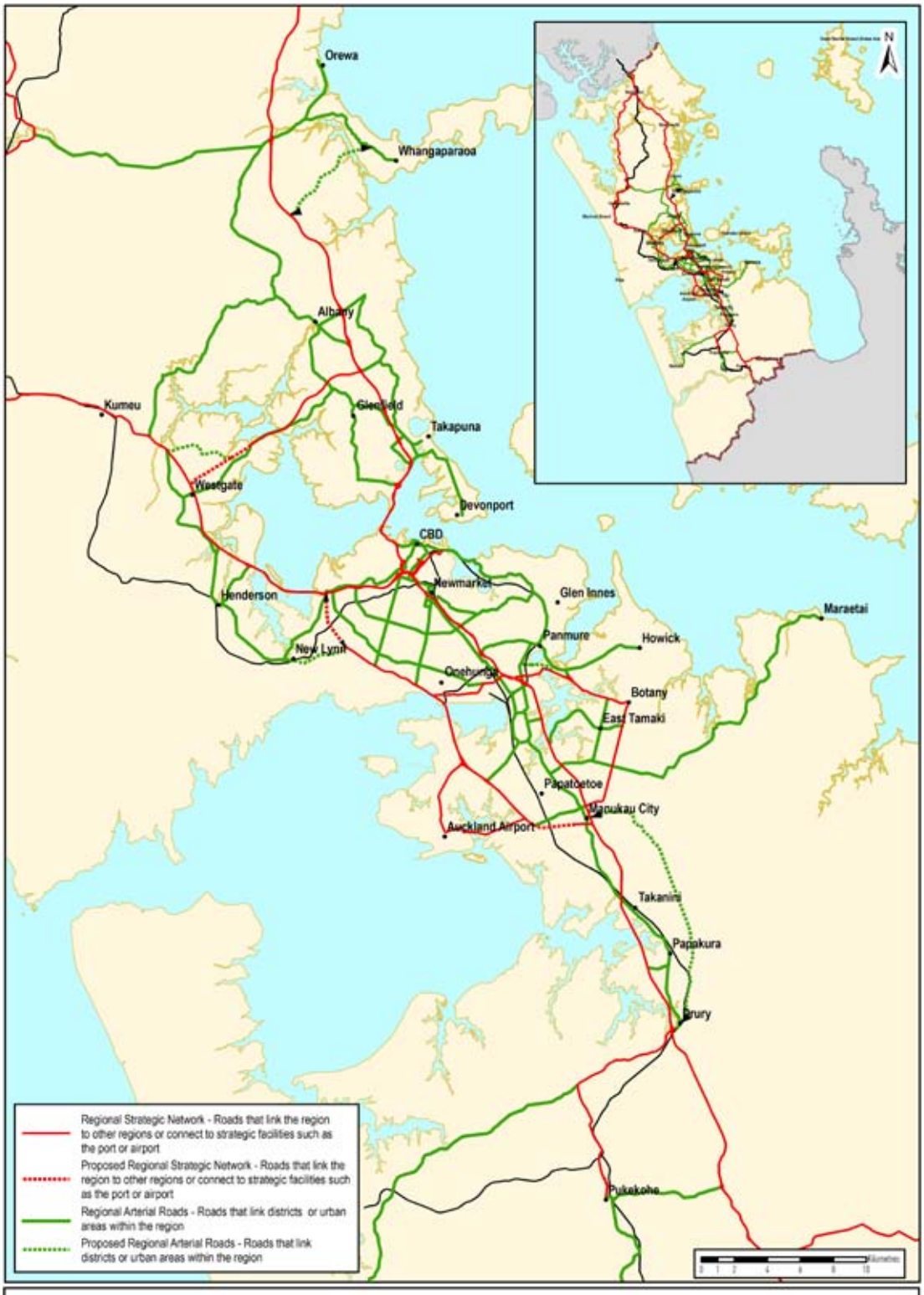
f) The outcomes of the scoping discussion undertaken with the appropriate transport agencies.

g) Where the scale or significance of the proposal's transport and land use effects are such that monitoring or external agreements are required, a description of how and whom will monitor the proposal must be agreed by the local territorial authority and where appropriate other transport agencies.

NOTE: In regard to the above, when preparing an integrated transport assessment regard shall be had to any Integrated Transport Assessment guidelines prepared nationally and regionally.

Appendix K

Map of Strategic Network and Regional Arterial Network



Strategic Network and Regional Arterial Network

Appendix L

Volcanic Cone Viewshafts - Surveyed Co-ordinates

VIEWSHAFT REFERENCE	PT	MT EDEN CIRCUIT		HEIGHT (AGL – Above Ground Level)	NZ MAP GRID	
		Northing	Easting		Northing	Easting
A1	1	697936.32	294323.27	49.90 (1m AGL)	6476951.26	2661969.04
	2	698225.95	296162.35	99.10	6477203.18	2663813.81
	3	698905.38	295912.93	99.10	6477887.62	2663578.34
A2	1	697318.89	295997.87	60.39 (1m AGL)	6476299.61	2663630.77
	2	698526.95	295756.47	97.57	6477512.46	2663414.15
	3	698524.25	296252.43	97.57	6477499.59	2663909.99
A3	1	795772.77	395590.56	56.57	5912872.45	1752735.70
	2	798750.51	395816.19	98.50	5915845.47	1753016.35
	3	798682.43	396262.70	98.50	5915769.15	1753461.52
	4	796975.77	395796.51	73.71	5914071.42	1752963.86
A5	1	797080.81	397625.68	52.96	5914142.62	1754794.64
	2	798525.83	395892.68	95.95	5915619.42	1753088.67
	3	798878.24	396261.63	95.95	5915964.95	1753464.07
	4	798676.22	396261.92	92.95	5915762.96	1753460.62
A6	1	799054.46	397620.24	43.18	5916116.02	1754825.69
	2	798566.05	396111.93	101.95	5915655.58	1753308.62
	3	798962.65	396037.49	101.95	5916053.48	1753241.53
	4	798807.71	396569.45	83.19	5915888.74	1753770.53
A7	1	696950.85	298086.47	66.75 (1m AGL)	6475888.84	2665711.54
	2	698343.11	295908.76	98.90	6477325.52	2663562.65
	3	698743.65	296224.56	98.90	6477719.53	2663886.62
A8	1	797478.88	397719.01	65.92	5914538.89	1754889.32
	2	798563.90	395971.41	95.40	5915656.03	1753168.09
	3	798909.61	396241.05	95.40	5915996.69	1753444.07
	4	798676.22	396261.92	92.95	5915762.96	1753460.62
A9	1	698090.46	296925.60	65.40 (1m AGL)	6477052.07	2664574.18
	2	698308.15	295940.28	98.68	6477289.91	2663593.45

VIEWSHAFT REFERENCE	PT	MT EDEN CIRCUIT		HEIGHT (AGL – Above Ground Level)	NZ MAP GRID	
		Northing	Easting		Northing	Easting
	3	698767.84	296177.67	98.68	6477744.69	2663840.23
A10	1	699638.24	297208.86	40.18 (1m AGL)	6478593.85	2664889.11
	2	698404.95	296155.83	98.30	6477382.29	2663810.96
	3	698783.55	295830.68	98.30	6477767.50	2663493.60
A11	1	800722.22	396871.30	28.70	5917797.33	1754107.71
	2	798641.9	396235.26	102.31	5915729.14	1753433.33
	3	798866.58	395736.02	102.31	5915963.00	1752938.34
	4	798960.44	396127.59	93.41	5916049.61	1753331.57
A13	1	702165.97	290247.81	14.30 (1m AGL)	6481263.85	2657980.74
	2	698126.98	295796.36	62.00	6477111.72	2663445.84
	3	698794.44	296225.48	62.00	6477770.30	2663888.58
B1	1	703727.18	305343.68	5.13 (1m AGL)	6482515.52	2673106.63
	2	703354.98	306079.34	3.60 (1m AGL)	6482128.29	2673834.57
	3	704653.94	311882.72	-	6483308.08	2679663.78
	4	705786.31	311618.86	-	6484445.70	2679423.18
B2	1	703435.18	306362.37	(1m AGL)	6482202.68	2674119.20
	2	703025.98	307376.50	-	6481772.74	2675124.80
	3	704725.57	311951.66	-	6483378.28	2679734.17
	4	705922.78	311463.08	GRADE -1:100	6484585.35	2679270.22
B3	1	703054.04	307476.08	4.40 (1m AGL)	6481798.76	2675224.94
	2	705828.52	311463.08	-44.18	6484491.10	2679268.29
	3	705384.18	311738.05	-44.18	6484041.18	2679534.10
B5	1	703086.00	312107.26	40.80 (1m AGL)	6481735.75	2679856.13
	2	708855.81	305699.23	-269.13	6487636.18	2673567.29
	3	711708.52	312182.50	-269.13	6490355.55	2680108.22
B6	1 East	699143.49	313798.32	56.39 (1m AGL)	6477759.14	2681466.09
	1 West	699164.60	313751.68	51.65 (1m AGL)	6477781.21	2681419.90

VIEWSHAFT REFERENCE	PT	MT EDEN CIRCUIT		HEIGHT (AGL – Above Ground Level)	NZ MAP GRID	
		Northing	Easting		Northing	Easting
	2	708927.15	305935.07	-107.40	6487702.67	2673804.56
	3	711484.72	311551.83	-116.30	6490144.71	2679473.03
E1	1	699340.19	299706.09	94.94(1m AGL)	6478244.67	2667379.90
	2	700092.66	299777.00	133.32	6478995.58	2667466.22
	3	699921.36	300189.28	133.32	6478815.85	2667874.94
E2	1	698894.44	299638.35	89.35 (1m AGL)	6477800.37	2667303.04
	2	700060.35	299785.30	128.90	6478963.11	2667473.85
	3	699966.16	300120.38	128.90	6478862.07	2667806.96
E3	1	697749.96	299352.73	76.73 (1m AGL)	6476661.90	2666994.01
	2	700077.93	299720.06	117.54	6478982.02	2667408.98
	3	699932.90	300241.06	117.54	6478826.33	2667926.94
E4	1	698607.69	299948.22	86.55 (1m AGL)	6477507.31	2667606.98
	2	700005.28	299667.68	112.20	6478910.45	2667355.13
	3	699995.67	300272.94	112.20	6478888.44	2667960.10
E5	1	797104.17	398311.64	72.22	5914153.29	1755480.92
	2	800334.26	399755.10	126.63	5917356.14	1756983.84
	3	800079.50	400225.92	126.63	5917092.73	1757449.88
	4	800090.82	399837.75	123.80	5917111.22	1757061.98
E8	1	705135.22	303025.47	3.60	6483970.89	2670817.60
	2	705150.28	303054.09	4.36	6483985.36	2670846.52
	3	705128.48	303181.01	4.52	6483960.96	2670972.98
	4	705140.46	303245.65	4.56	6483971.62	2671037.86
	5	699874.98	300190.23	148.85	6478769.46	2667874.93
	6	699960.46	300053.47	148.85	6478857.73	2667739.94
	7	700170.73	299717.06	148.85	6479074.87	2667407.89
	8	700199.44	299671.13	148.85	6479104.52	2667362.55
E9	1	701955.85	301046.50	66.89 (1m AGL)	6480832.50	2668773.73

VIEWSHAFT REFERENCE	PT	MT EDEN CIRCUIT		HEIGHT (AGL – Above Ground Level)	NZ MAP GRID	
		Northing	Easting		Northing	Easting
	2	700138.64	299758.26	140.25	6479041.93	2667448.42
	3	699926.21	300128.67	140.25	6478821.95	2667814.43
E10	1	700039.37	300260.61	135.00	6478932.40	2667948.67
	2	699964.92	299766.19	135.00	6478868.08	2667452.79
	3	706820.13	298734.05	4.60 (1m AGL)	6485743.55	2666561.27
	4	706899.44	298752.20	4.41 (1m AGL)	6485822.47	2666581.04
	5	707042.64	298812.23	4.17 (1m AGL)	6485964.42	2666644.00
	6	707489.25	299138.93	4.00 (1m AGL)	6486404.28	2666979.81
E11	1	702757.99	303266.27	3.96 (1m AGL)	6481589.04	2671009.64
	2	702853.96	303705.12	4.43 (1m AGL)	6481676.01	2671450.40
	3	699761.97	300191.65	135.00	6478656.44	2667874.04
	4	700401.03	299677.17	135.00	6479305.96	2667372.72
	A	702760.99	303352.21	4.05	6481590.28	2671095.63
	B	702767.02	303417.51	4.12	6481594.98	2671161.04
	C	702782.15	303485.25	4.19	6481608.71	2671229.09
	D	702834.92	303655.70	4.38	6481657.98	2671400.60
E12	1 South	702507.84	303996.81	5.55 (1m AGL)	6481323.96	2671734.95
	1 North	702580.92	303922.38	4.04 (1m AGL)	6481398.55	2671662.03
	2	700448.34	299722.59	127.33	6479352.33	2667419.10
	3	699777.60	300130.75	126.78	6478673.31	2667813.47
E13	1 East	701799.87	305006.43	49.26 (1m AGL)	6480595.38	2672729.93
	1 West	701777.14	304855.61	40.33 (1m AGL)	6480575.75	2672578.66
	2	700511.02	299832.89	115.80	6479412.74	2667530.67
	3	699833.28	300053.50	113.50	6478730.58	2667737.36
E14	1	700469.49	301123.49	82.04 (1m AGL)	6479344.77	2668820.13
	2	700423.13	301215.68	81.09 (1m AGL)	6479296.53	2668911.48
	3	700367.34	301299.54	80.14 (1m AGL)	6479239.03	2668994.18
	4	700299.03	301375.60	79.17 (1m AGL)	6479169.17	2669068.83
	5	700253.87	301411.27	78.62 (1m AGL)	6479123.28	2669103.57

VIEWSHAFT REFERENCE	PT	MT EDEN CIRCUIT		HEIGHT (AGL – Above Ground Level)	NZ MAP GRID	
		Northing	Easting		Northing	Easting
	6	700362.27	299902.93	110.75	6479262.58	2667597.66
	7	699653.33	300092.89	110.75	6478549.83	2667773.07
E15	No survey information available					
E16	1	705005.82	298188.54	28.10 (1m AGL)	6483940.65	2665978.65
	2	705587.07	298496.36	40.75 (1m AGL)	6484515.51	2666298.34
	3	700086.13	300255.89	135.00	6478979.24	2667944.91
	4	699961.72	299886.27	135.00	6478862.42	2667572.79
E18	1	801525.42	399758.00	88.53	5918547.05	1757008.75
	2	800129.71	399835.62	103.10	5917150.14	1757060.57
	3	800288.14	400408.50	103.10	5917297.96	1757636.28
	4	801100.26	399946.89	93.38	59181118.47	1757189.75
	5	801381.36	399796.94	90.06	5918402.29	1757045.03
E19	1	701454.86	300243.98	87.20 (1m AGL)	6480348.03	2667961.05
	2	701332.31	300281.51	84.95 (1m AGL)	6480224.72	2667996.06
	3	699917.33	300320.35	116.36	6478809.14	2668005.90
	4	700112.82	299562.83	112.00	6479020.13	2667252.49
	5	701377.70	300215.92	88.55	6480271.46	2667931.41
E20	1	702048.97	298942.22	72.30 (1m AGL)	6480968.74	2666671.64
	2	699877.27	299788.86	122.73	6478779.98	2667473.67
	3	700238.53	300410.36	122.73	6479128.45	2668102.48
H1	1	700563.58	300979.51	82.62	6479441.79	2668678.22
	2	699765.06	301923.73	96.62	6478624.04	2669605.94
	3	700057.70	302107.90	96.62	6478912.86	2669796.09
H2	1 East	702914.15	302851.62	4.50 (1m AGL)	6481753.68	2670598.25
	1 West	703018.14	302745.47	4.37 (1m AGL)	6481859.84	2670494.24
	2	700042.20	301745.87	104.15	6478904.78	2669433.79

VIEWSHAFT REFERENCE	PT	MT EDEN CIRCUIT		HEIGHT (AGL – Above Ground Level)	NZ MAP GRID	
		Northing	Easting		Northing	Easting
	3	699916.15	302219.80	104.70	6478769.03	2669905.07
H3	1	702777.54	303127.32	3.80	6481611.44	2670871.11
	2	702758.78	303244.13	3.94	6481590.29	2670987.52
	3	702772.03	303446.68	3.27	6481599.38	2671190.31
	4	702847.36	303687.92	3.50	6481669.76	2671433.06
	5	700079.22	301772.18	100.30	6478941.26	2669460.85
	6	700026.59	301881.57	100.30	6478886.39	2669569.15
	7	699944.54	302052.10	100.30	6478800.86	2669737.97
	8	699858.79	302230.32	100.30	6478711.47	2669914.41
H4	1 East	701799.87	305006.43	49.26 (1m AGL)	6480595.38	2672729.93
	1 West	701777.14	304855.61	40.33 (1m AGL)	6480575.75	2672578.66
	2	700233.70	301885.14	94.83	6479093.40	2669576.96
	3	699824.75	302133.35	94.14	6478679.42	2669816.76
H5	1 East	701853.49	305614.87	59.17 (1m AGL)	6480636.53	2673339.38
	1 West	701830.03	305438.82	59.15 (1m AGL)	6480616.68	2673162.87
	2	700243.93	301904.17	93.31	6479103.24	2669596.20
	3	699825.55	302120.83	93.21	6478680.48	2669804.26
H6	1	705135.22	303025.47	3.60	6483970.89	2670817.60
	2	705150.28	303054.09	4.36	6483985.36	2670846.52
	3	705128.48	303181.01	4.52	6483960.96	2670972.98
	4	705140.46	303245.65	4.56	6483971.62	2671037.86
	5	699924.41	302220.89	95.30	6478777.27	2669906.33
	6	699954.33	302082.97	95.30	6478810.02	2669769.04
	7	700017.83	301790.27	95.30	6478879.51	2669477.68
	8	700030.06	301733.94	95.30	6478892.89	2669421.61
H7	1 North	702580.93	303922.36	4.04 (1m AGL)	6481398.56	2671662.02
	1 South	702511.28	303993.38	5.27 (1m AGL)	6481327.47	2671731.59
	2	700153.50	301795.49	95.90	6479015.05	2669485.68
	3	699865.91	302173.37	95.59	6478719.76	2669857.61

VIEWSHAFT REFERENCE	PT	MT EDEN CIRCUIT		HEIGHT (AGL – Above Ground Level)	NZ MAP GRID	
		Northing	Easting		Northing	Easting
K1	1	798860.59	399620.62	79.03	5915885.21	1756822.15
	2	797381.84	699269.34	95.31	5914413.20	1756443.59
	3	797443.40	399071.35	95.31	5914478.41	1756246.77
	4	797878.25	399320.88	90.03	5914908.57	1756504.30
K2	1	798347.26	399494.19	68.47	5915374.30	1756686.25
	2	797390.49	399227.38	111.30	5914422.63	1756401.79
	3	797445.37	399078.01	111.30	5914480.26	1756253.46
	4	797878.25	399320.88	90.03	5914908.57	1756504.30
M4	1	690337.55	303343.61	14.53	6469168.78	2670832.46
	2	690441.89	303245.78	16.42	6469275.11	2670736.78
	3	690560.13	303162.63	16.85	6469395.03	2670656.07
	4	690648.70	303112.86	16.04	6469484.61	2670608.12
	5	692464.84	301884.69	41.50	6471325.64	2669417.33
	6	692170.90	301588.13	41.50	6471037.82	2669114.79
	7	691911.93	301326.86	41.50	6470784.24	2668848.26
	8	691878.97	301293.61	41.50	6470751.97	2668814.34
M5	1	693409.79	302246.00	12.07	6472263.06	2669797.95
	2	693635.75	302185.59	17.66	6472490.22	2669742.18
	3	693733.92	302159.19	19.24	6472588.92	2669717.79
	4	693827.41	302128.77	19.47	6472683.02	2669689.29
	5	693916.87	302089.15	18.54	6472773.28	2669651.51
	6	693999.68	302041.34	16.49	6472857.05	2669605.40
	7	694075.47	301986.21	13.42	6472933.96	2669551.83
	8	692110.70	301352.95	57.20	6470982.45	2668878.42
	9	692080.31	301435.42	57.20	6470950.37	2668960.25
	10	692051.64	301513.18	57.20	6470920.12	2669037.41
	11	692025.09	301585.24	57.20	6470892.09	2669108.92
	12	692001.35	301649.64	57.20	6470867.04	2669172.82
	13	691978.44	301711.79	57.20	6470842.86	2669234.49
	14	691925.88	301854.41	57.20	6470787.38	2669376.02
M6	1 West	694972.79	300648.68	4.69 (1m AGL)	6473858.56	2668232.88
	1 East	694589.36	301235.12	4.72 (1m AGL)	6473463.16	2668811.38
	2	692034.20	301367.37	52.04	6470905.66	2668891.26

VIEWSHAFT REFERENCE	PT	MT EDEN CIRCUIT		HEIGHT (AGL – Above Ground Level)	NZ MAP GRID	
		Northing	Easting		Northing	Easting
	3	692164.99	301974.13	53.90	6471024.00	2669500.62
01	1 East	701841.86	305600.72	59.39 (1m AGL)	6480625.19	2673324.99
	1 West	701820.72	305368.51	58.65 (1m AGL)	6480608.81	2673092.39
	2	697778.33	301387.20	114.08	6476648.58	2669028.78
	3	697097.31	302176.21	111.84	6475951.49	2669803.73
02	1	699449.51	303795.32	57.90 (1m AGL)	6478270.17	2671470.81
	2	697950.82	301332.36	110.03	6476822.16	2668977.48
	3	697306.19	301866.99	110.03	6476166.67	2669498.82
03	1	796076.96	405546.22	23.40	5912992.44	1762695.35
	2	797473.51	401586.04	116.77	5914462.01	1758761.60
	3	797890.71	401758.93	116.77	5914875.95	1758942.17
	4	797522.90	402496.90	98.44	5914494.56	1759673.23
04	1	695642.20	306348.50	23.37 (1m AGL)	6474411.08	2673945.60
	2	697157.37	301503.26	119.27	6476025.32	2669132.10
	3	697910.81	301806.97	119.27	6476772.44	2669451.20
05	1	698566.03	300128.47	82.31 (1m AGL)	6477461.95	2667786.36
	2	697384.47	301553.98	145.02	6476251.36	2669187.46
	3	697752.69	301791.79	145.02	6476614.65	2669432.79
06	1	698483.88	300369.21	80.19 (1m AGL)	6477374.89	2668025.38
	2	697393.18	301544.95	135.00	6476260.24	2669178.62
	3	697682.46	301758.36	135.00	6476545.12	2669397.92
07	1	696025.39	301747.96	46.14 (1m AGL)	6474888.49	2669353.57
	2	697544.63	301523.08	136.25	6476412.12	2669159.85
	3	697560.38	301797.44	136.25	6476422.25	2669434.50
08	1	695785.19	301773.46	40.70 (1m AGL)	6474647.80	2669374.15
	2	697545.57	301543.00	123.00	6476412.65	2669179.79
	3	697560.46	301794.83	123.00	6476422.38	2669431.88
09	1	695496.93	301804.39	34.75 (1m AGL)	6474358.95	2669399.16

VIEWSHAFT REFERENCE	PT	MT EDEN CIRCUIT		HEIGHT (AGL – Above Ground Level)	NZ MAP GRID	
		Northing	Easting		Northing	Easting
	2	697543.63	301549.44	127.25	6476410.59	2669186.19
	3	697558.19	301732.32	127.25	6476421.39	2669369.33
O10	1 North	699908.19	306798.34	66.16 (1m AGL)	6478667.24	2674482.81
	1 South	699831.20	306761.41	61.20 (1m AGL)	6478591.01	2674444.30
	2	697073.91	301868.56	97.63	6475934.39	2669495.64
	3	698168.04	301376.68	96.67	6477038.45	2669026.24
O11	1	693088.40	302314.89	4.56	6471940.30	2669860.25
	2	693635.61	302170.84	17.40	6472490.38	2669727.43
	3	693765.37	302134.44	18.80	6472620.87	2669693.69
	4	693838.51	302108.50	18.66	6472694.53	2669669.25
	5	693927.43	302067.10	17.51	6472784.29	2669629.68
	6	693994.14	302027.39	15.64	6472851.80	2669591.34
	7	697494.65	301195.77	108.65	6476368.86	2668831.56
	8	697520.10	301388.84	108.65	6476390.35	2669025.13
	9	697544.52	301574.14	108.65	6476410.97	2669210.90
	10	697557.94	301675.93	108.65	6476422.30	2669312.95
	11	697573.82	301796.44	108.65	6476435.71	2669433.77
	12	697633.01	302245.55	108.65	6476485.69	2669884.03
O12	1	694184.46	297363.11	109.80 (1m AGL)	6473137.65	2664931.62
	2	697836.51	301455.68	121.07	6476705.34	2669098.44
	3	696962.75	302092.55	69.45	6475818.66	2669717.31
R1	1	797103.54	396738.02	49.66	5914181.76	1753907.56
	2	796515.04	397690.11	80.91	5913575.76	1754848.59
	3	796263.54	397477.74	80.91	5913328.23	1754631.61
	4	796453.32	397420.08	75.97	5913519.04	1754577.47
R2	1	697054.05	297980.45	62.15 (1m AGL)	6475994.19	2665607.65
	2	696151.17	297721.55	67.78	6475096.74	2665330.30
	3	696316.85	297398.42	67.78	6475269.02	2665010.60
T1	1	701987.11	301188.04	80.07 (1.5m AGL)	6480860.86	2668915.89
	2	711446.65	306709.29	-154.22	6490205.97	2674630.35
	3	708779.06	309780.86	-154.22	6487475.74	2677646.81

VIEWSHAFT REFERENCE	PT	MT EDEN CIRCUIT		HEIGHT (AGL – Above Ground Level)	NZ MAP GRID	
		Northing	Easting		Northing	Easting
T2	4	703614.22	304689.12	6.03 (1m AGL)	6482415.99	2672449.85
	5	703014.43	308112.62	4.50 (1m AGL)	6481746.11	2675860.58
	6	708410.60	313165.72	-	6487037.91	2681023.64
	7	708818.09	311947.88	-	6487470.31	2679814.33
	8	710510.83	306888.77	-	6489266.60	2674790.61
	9	710904.03	305713.64	-	6489683.84	2673623.69
T3	1	705594.11	298483.08	40.75(1m AGL)	6484522.81	2666285.20
	2	708722.17	308927.79	58.80	6487436.36	2676792.68
	3	711255.75	307800.95	58.80	6489992.71	2675717.94
T4	1	715730.47	297451.20	96.05(1m AGL)	6494679.10	2665461.22
	2	708874.06	307789.93	-24.00	6487611.55	2675658.08
	3	711807.79	309220.37	-24.00	6490515.56	2677148.50
T7	1 West A	700562.76	300978.60	82.62 (1m AGL)	6479400.41	2668758.99
	1 East	700478.02	301158.34	82.24 (1m AGL)	6479352.58	2668855.27
	1 East B	700442.07	301227.29	82.24	6479315.23	2668923.47
	2A	711421.97	306359.72	-80.84	6490188.46	2674280.31
	3	708613.90	310351.25	-80.84	6487298.90	2678213.73
T8	1	702296.73	308536.01	48.85 (1m AGL)	6481019.82	2676269.20
	2	710028.95	307723.32	-40.40	6488767.66	2675615.16
	3	710009.10	309519.42	-40.40	6488710.98	2677410.63
T9	1	700039.50	312864.57	34.43 (1m AGL)	6478674.16	2680550.86
	2	709497.94	307256.01	-46.40	6488246.30	2675137.03
	3	710336.61	309006.11	-1.28	6489048.97	2676904.10
T10	1	701819.89	311994.57	3.82 (1m AGL)	6480472.14	2679717.49
	C	701851.90	311995.30	3.93 (1m AGL)	6480504.12	2679718.87
	B	701895.90	312026.60	3.74 (1m AGL)	6480547.49	2679751.03
	A	701956.20	312066.30	3.67 (1m AGL)	6480606.91	2679791.98
	2	701965.95	312068.19	3.89 (1m AGL)	6480616.66	2679794.10
	4	711415.82	312340.85	-	6490059.63	2680260.53

VIEWSHAFT REFERENCE	PT	MT EDEN CIRCUIT		HEIGHT (AGL – Above Ground Level)	NZ MAP GRID	
		Northing	Easting		Northing	Easting
	3	709114.18	305749.98	-	6487893.47	2673623.32
V1	1	708834.83	301872.48	34.76(1m AGL)	6487693.65	2669740.60
	2	705661.08	302924.15	52.54	6484498.76	2670727.07
	3	705781.62	303235.05	52.54	6484612.91	2671040.40
V2	1	707756.27	302283.36	30.23(1m AGL)	6486606.82	2670129.32
	2	705662.47	302929.50	50.93	6484500.04	2670732.45
	3	705784.02	303238.20	50.93	6484615.25	2671043.60
V3	1	707069.80	302539.40	28.17(1m AGL)	6485915.18	2670371.25
	2	705663.48	302934.70	38.67	6484500.94	2670737.67
	3	705782.97	303230.84	38.67	6484614.35	2671036.22
W1	1	697757.91	305201.86	39.93 (1m AGL)	6476549.98	2672842.48
	2	689205.15	307347.51	53.24	6476953.18	2674996.99
	3	698546.34	307246.90	53.24	6477296.39	2674903.39
W2	1	697848.01	305497.99	37.25 (1m AGL)	6476634.00	2673140.42
	2	698205.23	307349.40	84.93	6476953.22	2674998.88
	3	698600.42	307226.92	84.93	6477350.87	2674884.52
W3	No survey information available					
W4	1	696722.79	306669.87	25.84 (1m AGL)	6475484.93	2674289.07
	2	698443.54	307021.26	54.87	6477198.23	2674675.68
	3	698234.35	307564.10	54.87	6476977.94	2675214.15
W5	1	697752.08	307166.33	20.75 (1m AGL)	6476503.89	2674806.55
	2	698387.10	307126.48	73.90	6477139.64	2674779.72
	3	698261.16	307548.02	73.90	6477005.07	2675198.62
W6	1	796710.05	407308.08	18.97	5913592.85	1764468.66
	2	798521.23	407088.90	53.08	5915407.83	1764283.01
	3	798511.65	407595.58	53.08	5915388.89	1764789.44
	4	798371.87	407371.79	50.06	5915253.26	1764563.10

VIEWSHAFT REFERENCE	PT	MT EDEN CIRCUIT		HEIGHT (AGL – Above Ground Level)	NZ MAP GRID	
		Northing	Easting		Northing	Easting
W7	No survey information available					
W8	1	697650.26	307775.82	23.70 (1m AGL)	6476389.59	2675413.87
	2	698232.07	307139.03	70.56	6476984.37	2674789.10
	3	698490.20	307579.59	70.56	6477233.44	2675234.88
W9	No survey information available					
W12	1	700278.02	312615.66	4.08	6478917.75	2680306.88
	2	700398.77	312615.78	3.41	6479038.48	2680309.47
	3	312572.98	312572.98	3.95	6479230.57	2680270.60
	4	700759.14	312462.25	3.77	6479401.95	2680163.35
	5	700758.37	312403.39	3.41	6479402.39	2680104.49
	6	700810.61	312386.30	3.63	6479454.97	2680088.47
	7	700872.05	312406.30	4.30	6479515.99	2680109.73
	8	701017.90	312383.91	3.63	6479662.28	2680090.33
	9	701237.70	312297.34	3.24	6479883.82	2680008.28
	10	701381.87	312221.15	2.93	6480029.53	2679935.06
	11	701590.14	312099.96	2.99	6480240.26	2679818.16
	12	698691.97	307101.46	51.50	6477444.98	2674760.96
	13	698590.07	307154.07	51.50	6477342.02	2674811.47
	14	698521.04	307189.71	51.50	6477272.26	2674845.69
	15	698421.52	307241.09	51.50	6477171.71	2674895.02
	16	698362.29	307271.67	51.50	6477111.86	2674924.38
	17	698308.95	307299.20	51.50	6477057.96	2674950.82
	18	698223.81	307343.15	51.50	6476971.93	2674993.02
	19	698143.55	307384.60	51.50	6476890.83	2675032.81
	20	698098.13	307408.04	51.50	6476844.94	2675055.32
W13	1	801191.95	409541.66	41.84	5918032.86	1766784.80
	2	798340.26	407552.71	65.41	5915218.31	1764743.40
	3	798734.91	407081.77	65.41	5915621.62	1764279.83
	4	799689.62	407780.70	47.93	5916563.28	1764996.31
W18	1	699749.11	306700.41	53.43 (1m AGL)	6478510.19	2674381.64
	2	699901.45	306778.19	65.06 (1m AGL)	6478660.91	2674462.52

VIEWSHAFT REFERENCE	PT	MT EDEN CIRCUIT		HEIGHT (AGL – Above Ground Level)	NZ MAP GRID	
		Northing	Easting		Northing	Easting
	3	698462.25	307621.40	55.35	6477204.63	2675276.11
	4	698245.42	307102.02	55.35	6476998.48	2674752.36
W19	1	701829.41	305309.58	57.10 (1m AGL)	6480618.71	2673033.64
	2	701845.08	305540.37	59.05 (1m AGL)	6480629.65	2673264.71
	3	698478.54	307554.53	102.30	6477222.30	2675209.59
	4	698231.71	307109.00	76.60	6476984.63	2674759.06
W24	1	696135.64	308528.62	16.33 (1m AGL)	6474859.76	2676135.51
	2	696250.72	308250.82	20.91 (1m AGL)	647980.53	2675860.12
	3	698238.82	308250.82	45.44	6476990.94	2674798.39
	4	698509.97	307617.83	47.17	6477252.42	2675273.52
W25	1	698397.00	308157.04	27.31 (1m AGL)	6477128.42	2675810.34
	2	698783.10	307329.06	57.03	6477531.43	2674990.39
	3	698082.04	307299.47	57.03	6476831.08	2674946.44
W26	1	697670.27	313438.05	44.05 (1m AGL)	6476293.52	2681075.68
	2	697030.51	301657.01	102.50	6475895.33	2669283.22
	3	698561.74	301673.38	102.50	6477426.01	2669330.97
	4	698136.49	307285.37	74.62 Upper 48.32 Lower	6476885.81	2674933.46
	5	698667.58	307352.27	81.24 Upper 48.32 Lower	6477415.46	2675011.23
	6	698744.32	307361.93	48.32	6477491.98	2675022.47
	7	699876.05	299978.01	126.30	6478774.89	2667662.76
	8	700229.97	300040.80	126.30	6479127.47	2667732.80
	9	699850.60	302026.38	114.10	6478707.46	2669710.34
	10	700165.08	302090.98	114.10	6479020.57	2669781.37

Schedule 1

High Density Centres and Intensive Corridors and Future Urban Areas

	Schedule 1A	Schedule 1B		
Growth Area Type	**High Density Centres and Intensive Corridors**	**Future Urban Areas**	**TA initiating change**	**Date District Plan Changes are notified**
CBD (RT)	CBD		ACC	2005-2010
Sub Regional Centre (RT)	Newmarket		ACC	2005-2010
Sub Regional Centre (RT)	Otahuhu		ACC	2005-2010
Town Centre	Grey Lynn		ACC	2005-2010
Town Centre	Mt Wellington Quarry		ACC	2005-2010
Town Centre	Onehunga		ACC	2005-2010
Town Centre	Pt Chevalier		ACC	2005-2010
Town Centre	Remuera		ACC	2005-2010
Town Centre (RT)	Avondale		ACC	2005-2010
Town Centre (RT)	Ellerslie		ACC	2005-2010
Town Centre (RT)	Glen Innes		ACC	2005-2010
Town Centre (RT)	Mt Albert		ACC	2005-2010
Town Centre (RT)	Panmure		ACC	2005-2010
Sub Regional Centre (RT)	Sylvia Park		ACC	2005-2010
Future Urban Area		Pukekohe	FDC	2005-2010
Town Centre	Pukekohe		FDC	2005-2010
Future Urban Area		Flat Bush	MCC	2005-2010
Sub Regional Centre (RT)	Manukau City Centre		MCC	2005-2010
Town Centre	Hunters Corner		MCC	2005-2010
Town Centre	Mangere Town Centre		MCC	2005-2010
Town Centre	Otara		MCC	2005-2010
Town Centre	Pakuranga		MCC	2005-2010
Town Centre (RT)	Manurewa		MCC	2005-2010
Town Centre (RT)	Old Papatoetoe		MCC	2005-2010
Future Urban Area		Albany	NSCC	2005-2010
Future Urban Area		Long Bay	NSCC	2005-2010
Sub Regional Centre	Takapuna		NSCC	2005-2010
Sub Regional Centre (RT)	Albany Centre		NSCC	2005-2010
Town Centre	Browns Bay		NSCC	2005-2010
Town Centre	Glenfield		NSCC	2005-2010
Town Centre	Highbury		NSCC	2005-2010
Town Centre	Milford		NSCC	2005-2010
Town Centre	Northcote		NSCC	2005-2010

Town Centre	Mairangi Bay		NSCC	2005-2010
Future Urban Area		Hingaia Stage 1	PDC	2005-2010
Future Urban Area		Takanini (First Stages^)	PDC	2005-2010
Sub Regional Centre (RT)	Papakura		PDC	2005-2010
Future Urban Area		Silverdale North	RDC	2005-2010
Future Urban Area		Silverdale South	RDC	2005-2010
Future Urban Area		Orewa West	RDC	2005-2010
Sub Regional Centre	Orewa		RDC	2005-2010
Town Centre	Huapai		RDC	2005-2010
Town Centre	Warkworth		RDC	2005-2010
Future Urban Area		Massey North	WCC	2005-2010
Future Urban Area		Babich	WCC	2005-2010
Sub Regional Centre	Massey North		WCC	2005-2010
Sub Regional Centre (RT)	Henderson		WCC	2005-2010
Sub Regional Centre (RT)	New Lynn		WCC	2005-2010
Town Centre (RT)	Glen Eden		WCC	2005-2010
Future Urban Area		Warkworth #	RDC	2005-2016
Future Urban Area		Hobsonville Airbase	WCC	2005-2016
Future Urban Area		Kumeu / Huapai	RDC	2005-2020
Future Urban Area		Hobsonville Corridor (first stages)	WCC	2005-2020
Future Urban Area		Greenhithe	NSCC	2010-2015
Town Centre	Balmoral/Dominion		ACC	2011-2016
Town Centre	Mt Roskill		ACC	2011-2016
Town Centre	Royal Oak		ACC	2011-2016
Town Centre	Sandringham		ACC	2011-2016
Town Centre	SH 20/Stoddard Rd		ACC	2011-2016
Corridor	Lincoln Road		WCC	2011-2016
Town Centre	Te Atatu Peninsula		WCC	2011-2016
Town Centre (RT)	Ranui		WCC	2011-2016
Town Centre (RT)	Swanson		WCC	2011-2016
Town Centre	Botany		MCC	2017+
Town Centre (RT)	Homai		MCC	2017+
Town Centre (RT)	Middlemore		MCC	2017+
Town Centre	Favona		MCC	2017+
Town Centre (RT)	Te Mahia		MCC	2017+
Future Urban Area		Penihana	WCC	2005-2010
Future Urban Area		Hobsonville Peninsula	WCC	2020 +
Future Urban Area		Redhills	WCC	2020 +
Future Urban Area		Hingaia Stage 2	PDC	2015+
Future Urban Area		Takanini (Later Stages*)	PDC	2020+

Future Urban Area		Hobsonville Corridor (later stages)	WCC	2020+
Future Urban Area		Wellsford	RDC	Subject to District Spatial Strategy
Future Urban Area		Snells / Algies	RDC	Subject to District Spatial Strategy
Future Urban Area		Riverhead	RDC	Subject to District Spatial Strategy
Future Urban Area		Helensville	RDC	Subject to District Spatial Strategy
****Town Centre**	**Whangaparaoa		RDC	Already zoned for intensification
Corridor	Hobsonville Road		WCC	To be determined
Town Centre	Takanini		PDC	To be determined
Town Centre	Highland Park		MCC	To be determined
Town Centre	St Lukes		ACC	2005-2010
Future Urban Area		Clarks Beach	FDC	2005-2010
Future Urban Area		Kingseat	FDC	2005-2010
Future Urban Area		Waiuku		2005-2010

Notes:

1. (Re)development of the areas in schedules 1A & 1B are necessary to provide for growth until 2020.
2. (RT) Refers to those centres on the proposed Rapid Transit System for Auckland.
3. For more detail on implementation timing dates and spatial definitions of the areas listed above, please refer to District Plans and the Region's three Sector Agreements signed between 2001 and 2003.
4. Schedule 1 will be reviewed at the time related parts of the RPS are reviewed or when a related policy change is proposed. The review of Schedule 1 will consist of an assessment process to identify additional High Density Centres and Intensive Corridors and to further define their role and function. This assessment process will take into account their employment, economic, social, transport and land-use attributes. It may result in the inclusion of additional tiers within the hierarchy of centres or changes in terminology and, as a consequence, the reclassification of the existing Town Centres and Sub Regional Centres listed in Schedule 1.
5. Town Centre, Sub Regional Centre, High Density Centre, Intensive Corridor and Future Urban Area are defined in Appendix D. In accordance with the assessment process discussed in Note 4, additional tiers may in the future be added to the hierarchy of centres, in which case the existing centres and any new centres will be classified accordingly.
6. The timing of the growth areas listed above will be monitored via sections 2.8.1 to 2.8.4 of the RPS.
7. Schedule 1A & 1B will be reviewed in the RPS should the Regional Growth Strategy and/or the Sector Agreements be reviewed.
8. While this RPS focuses on providing for the next 20 years of development a large number of the areas identified above will be required to provide capacity for urban growth in a sustainable manner beyond 2020.
9. The growth areas listed and their indicative timings have largely been derived from the regions three sector Agreements signed between 2001 and 2003.
10. Takanini First Stages means Stages 1,2,3,6 and Spartan Rd.

11. Takanini Later Stages means Stages 4,5,7,8,9 and 10
12. The confirmation of the Whangaparaoa Town Centre as a High Density Centre in Schedule 1 is subject to suitable transport infrastructure, which may include Penlink, being in place. Penlink is the proposed road between the Whangaparaoa Peninsula and the Northern Motorway across the Weiti River. If suitable transport infrastructure is not put in place, intensification of the Whangaparaoa Town Centre, particularly residential intensification, as provided for in the Auckland Council District Plan (Rodney Section) may not be appropriate.
13. Warkworth contains 3 Future Urban Areas: McKinney Road, Woodcocks Road and Hudson Road.
14. Rodney District Council's Spatial Strategy due for completion by the end of 2005.
15. District Plans may contain additional intensification areas not listed in Schedule 1A that comply with Strategic Policies 2.6.5.
16. ACC means Auckland City Council, FDC means Franklin District Council, MCC means Manukau City Council, NSCC means North Shore City Council, PDC means Papakura District Council, RDC means Rodney District Council and WCC means Waitakere City Council.
17. The timing of the district plan change for Hingaia Stage 2 has been brought forward in recognition of the shortage of business land in the Auckland region, particularly for appropriately zoned land to accommodate Land Extensive Industrial Activities. Before a district plan change can be advanced, further assessment needs to occur to address any issues associated with environmental effects and the cost and timing of infrastructure provision, including upgrades to the transport network.
18. For clarity it is recorded that Pararekau and Kopuahingahinga Islands do not form part of Hingaia Stage 2.