Chapter 5
Part C
VOLUME 2

Description of the Environment

Overview

The Project traverses a range of different land uses along its 13km route, including farming and agricultural land, lifestyle blocks, residential areas, and urban townships and communities:

- At the southern end, the four-lane Expressway is located over the existing SH1, and a replacement section of arterial road is to be built, predominantly through low-lying areas and undulating mounds associated with sand dunes;
- North of Te Hapua Road, the Expressway and new arterial road pass through sand dunes and curve east to avoid a culturally and ecologically significant area at Mary Crest, where the Expressway crosses from the west to the east of the NIMT and the arterial road joins with the existing SH1;
- North of Mary Crest, the Expressway runs adjacent to the existing transport corridor (i.e. the NIMT and the current SH1) until the Ōtaki River, across generally flat topography and properties primarily associated with agriculture or horticulture;
- The Expressway crosses the Ōtaki River and runs across the floodplain, then passes through an urban area to the east of the Ōtaki Railway Retail area; it is in this area that the section of NIMT will be realigned to run parallel to the Expressway;
- The Expressway and realigned NIMT pass under the existing SH1 as it exits the Ōtaki Railway Retail area in a northward direction, where the NIMT rejoins the current rail alignment; and
- The Expressway is located through a sand dune system immediately north of Ōtaki (as is the NIMT), before it reduces to two lanes, crosses the Waitohu Stream, and traverses flat rural land at the northern end of the Project area.

The Project area generally consists of rural pasture land, market gardens, discrete areas of urbanised land, sand dunes, pockets of native and exotic vegetation, and wetlands.

Much of the Kāpiti district has been modified by human activity over hundreds of years, resulting in a variable range of terrestrial (land-based) and aquatic ecological habitat along the route. Design criteria for choosing the Project route included seeking to avoid or minimise the Project's effect on high-value ecological habitats; most notably, the Project successfully avoids existing significant indigenous vegetation at Mary Crest (which is also an area of significance to the tangata whenua).

The Project traverses four main hydrological catchments and numerous smaller catchments, flowing east to west to the Kāpiti coast. The Ōtaki River is the largest water course. The Project area traverses a series of floodplains, where land drainage works predominate – initially these were to enable pastoral farming, and more recently the focus has been on flood control.

Network utilities near the Project area include high voltage overhead transmission lines, which are located to the west of the Project and will not be affected, and local electricity distribution lines, gas and water supply pipelines, and telecommunications cables. The Arcus Road irrigation scheme draws water near the Ōtaki River.

5 Description of the Environment

5.1 Introduction

The first part of the chapter outlines the general built and physical environment. The rest of the chapter details more specific aspects of the environment, focusing on:

- Geology;
- Natural hazards;
- Climate;
- Hydrology;
- Ecology / landscape;
- Air quality;
- Noise;
- Transport networks;
- Network utilities;
- Social environment; and
- Archaeology, culture and heritage.

There are a number of reports that have been drawn on for this section of the AEE report, including the technical reports that can be found in Volume 3.

5.2 Regional Context

The Peka Peka to North Ōtaki section of SH1 and the Expressway is significant on a regional scale given it is part of the main route leading north out of Wellington. This also provides some significance for the Project on a national scale as a result of the connections between regions that the Project will facilitate. As stated earlier, the Project relates to part of the Wellington Northern Corridor RoNS, which stretches from Wellington International Airport to Levin. The location of the Project in the wider regional context can be seen in Figure 5-1.

The Kāpiti district is currently experiencing high growth and is one of the fastest growing districts in the lower North Island. Planned development in the Ōtaki area will place greater demand on the existing road network, and particularly on SH1 as a commuter route to Wellington. Additionally, there is increasing intensification of rural and horticultural activities. All of these changes affect traffic throughout the region and increase the importance of establishing a transport network that not only meets current needs, but also has capacity to meet the needs of future generations.

In the wider regional context the capacity constraints on the existing State highway system throughout the Project area impact on travel times, safety and efficiency.

Figure 5-1: Location of the Peka Peka to North Ōtaki Project Area in Relation to the Wider Wellington Region

5.3 Built and Physical Environment

The Project area is located along the Kāpiti Coast, approximately 70km north of Wellington. The Project stretches for 13km from Te Kowhai Road in the south to Taylors Road in the north.

The route passes through two settlements: Te Horo, which is a small community of approximately 640 in population and Ōtaki, a town of approximately 5,600 in population. Ōtaki is the northernmost urban centre of the Kāpiti district and Wellington region. The Project area comprises a mix of land uses including rural, residential, industrial, commercial and horticultural. The area surrounding Ōtaki township is predominantly rural.

This section provides an overview of the built and physical environment in which the Project is situated.

5.3.1 Proposed Route and Topography

The proposed route for the Expressway largely follows the main transportation corridor, traversing relatively flat terrain, and crossing several waterways, including the Waitohu Stream, Ōtaki River, the Mangapouri Stream and the Mangaone Stream. SH1 and the adjacent NIMT corridor currently bisect Te Horo and Ōtaki. Local roads connect with SH1 at at-grade intersections, and provide east-west connections across SH1.

The Expressway travels between the eastern foothills (which reach up to 510m above sea level), and the coast which is 3-4km to the west. The Project area is defined by a number of strong topographical features including the coastal edge, the coastal plain, the eastern foothills, the local rivers and streams as well as the old coastal escarpment near the southern end of the Project. Different soil types are found throughout the area, ranging

from highly versatile agricultural soils to coastal sands. There are also dune systems at both the southern and northern ends of the Project area where earthworks will be required for the Expressway.

The route goes through a range of land uses including residential, commercial, rural, horticultural, and recreation areas. Much of the route travels through rural land with pockets of intense agriculture which has resulted in an open landscape with scattered mature exotic trees, shelterbelts and hedgerows. Willows are present on many of the stream and river banks. There are pockets of remnant indigenous vegetation and wetlands found along the route. Diagrams showing the Project are located in the ULDF, Technical Report 23 in Volume 3. The topography of the Project is depicted below in Figure 5-2.

Figure 5-2: Oblique Aerial Photograph Showing Topography of the Area (Source: Google Earth 2011)

Through the Project area immediately north of Ōtaki, the existing railway line is located within sand dunes before traversing the flat land at the very northern end of the Project area. The dunes system is located on both the east and west sides of the existing SH1, with the Expressway to be located to the west of the existing highway alignment as it leaves Ōtaki (heading north).

In the area south of Ōtaki through to north of Te Hapua Road, the Project passes through the floodplain at Ōtaki, then crosses the Ōtaki River before travelling through the generally flat topography and dunes heading south. The soils throughout this area are generally fertile, with established farming, market gardening and horticultural development. At Mary Crest the Expressway crosses from the west to the east of the NIMT, and then runs adjacent to the existing transport corridor before crossing the Ōtaki River.

South of Te Hapua Road, the Expressway traverses lower lying areas (associated with interdune deposits) and undulating mounds associated with sand dunes. These undulating sand dunes provide variation in what can be viewed from the existing State highway, and dictate which plant species grow there. In this area the Expressway sits over the existing SH1, and connects to the proposed M2PP section of the Kāpiti Expressway at the Peka Peka interchange. In this area there is also a new section of road to be built that will connect the existing SH1 with the new section of existing arterial road from the M2PP Project to ensure that there is an alternative route between the south and north of the Kāpiti district, other than the Expressway.

5.3.2 Current and Future Land Use

The majority of the Project area is currently zoned rural under the KCDP, with urban activities mainly confined to Ōtaki and, to a much lesser extent, Te Horo. The urban boundaries of Ōtaki are the Ōtaki River to the south and the Waitohu Stream and Waitohu Valley Road to the north. The GOV outlines a desire to grow the urban centre within these containment lines. This document is discussed in Part I, Chapter 33 of the AEE report.

Within the Project area, residential uses are generally confined to the Ōtaki township. There are sections of residential ribbon development on both sides of SH1 immediately north of the northern river terrace and the railway overbridge, and on the west side just north of the Ōtaki River. Dwellings that front SH1 have relatively dense plantings of amenity trees on their highway frontages, providing a buffer between dwellings and the highway traffic flow. There is a settlement area also located at Te Horo, with dwellings primarily being located off adjoining roads rather than fronting SH1.

In the Proposed KCDP there is a new Future Urban Development Zone identified to the north of Ōtaki. This is understood to be land identified for the future urban growth of Ōtaki township, and will be developed subject to a Structure Plan. The Structure Plan will therefore require consideration of the environment that exists at the time that it is developed. The Project will not hinder the development in this area, and to some extent will support it through the removal of through traffic from local roads and the current SH1.

Rural character is pre-dominant throughout the Project area, with the important exception of in Ōtaki township itself. There are also many 'lifestyle' blocks throughout the rural area. These are more intensively subdivided, contain various dwellings and outbuildings and a variety of amenity and production tree and shrub plantings. Their intensity and diversity of development differentiates the character of these lifestyle blocks from their immediate rural surroundings. Following the GOV, the desire is for rural areas to grow with horticultural and agricultural activities, as opposed to there being more residences or lifestyle developments in the rural area.

On the southern edge of Ōtaki, along the northern bank of the Ōtaki River, is an industrial zone, including aggregate extraction and a precast concrete works (Stresscrete). The area around Riverbank Road is the subject of a recent plan change (Plan Change 81) and is now a zoned growth area with a focus on 'clean tech' industries.

Commercial/retail activities are focussed along the Ōtaki Railway Retail area. Ōtaki also has a main township area that is significantly removed from the existing SH1 and the Railway Retail Area. There are a small number of businesses located along SH1 in Te Horo.

Open Space

There is a limited number of open space areas located throughout the Project area, although none have reserve status under the Reserves Act. The first is known as the Pare-o-Matangi reserve, which is an 'island' of land situated between Rahui Road, the existing SH1 and the NIMT. It is administered by the KCDC and although commonly referred to as a "reserve" it is not a reserve under the Reserves Act 1977. The Pare-o-Matangi reserve is of significance to tangata whenua, and holds local importance to the community generally as it provides an area of communal open space and has been subject to extensive planting and development by volunteers within the community. The other open space area within the Project footprint is the 'rest area' on the southern bank of the Ōtaki River between SH1 and the NIMT.

Future Growth

As noted above, KCDC has expressed a desire for future industrial and residential growth to be based around Ōtaki. Development of the existing industrial zone along Riverbank Road is currently underway as a 'Clean Tech' business park.

Although existing severance caused by SH1 is more acute at Te Horo, the settlement is small and is likely to remain so as the KCDP, and the GOV seek to restrict residential development in this area to retain rural character.

There is also a proposed Ōtaki Lake Development, which includes the development of a lake and amenities to the north of the Stresscrete site, on the northern bank of the Ōtaki River. The Expressway traverses along the western side of the Ōtaki Lake area.

5.4 Geology

The Expressway runs through an area predominantly comprising a rolling terrain of recent sand dunes and inter-dunal deposits, a raised alluvial terrace, and the wide alluvial plain of the Ōtaki River. The geological setting and these ground conditions are summarised in Chapter 13 and Technical Report 4 (Volume 3).

5.5 Natural Hazards

Earthquakes and storms, with associated flooding potential, are the two main types of natural hazards that have been identified in the Project area.

There are several faults within the vicinity of the proposed route and the potential for movement on these fault lines creates an earthquake risk. The potential hazards caused by earthquakes are discussed in Technical Report 4. They are also considered in Chapters 13 and 33 of this AEE report.

Storms have also been identified as a natural hazard because they can cause slope instability, debris flows and flooding. Technical Report 10 provides an assessment of stormwater effects, and they are also discussed in Chapter 18 of this AEE report.

5.6 Climate

The climate of the Kāpiti Coast is temperate in nature and does not generally experience extremes in temperature. The most settled weather occurs during the summer months and into autumn. Summers are generally warm with daytime temperatures ranging between 19ºC and 24ºC. However, at times this can peak at over 30ºC. Winters are generally the most unsettled time of the year, with daytime maximum temperatures generally ranging from 10ºC to 14ºC.

Prevailing winds vary across the seasons, with northerly winds dominant during the summer and northwesterlies in the winter. Annual sunshine hours average approximately 2,000 hours and annual rainfall levels average approximately 1,311mm.

5.7 Hydrology

The drainage in the Project area comprises a range of rivers, streams (often within defined channels), wetlands, flood plains, ponding areas, constructed drains and areas of high groundwater. These areas are influenced by the geological conditions previously outlined as well as the catchments that drain throughout the Project area, discharging into the Tasman Sea.

The hydrological effects on the Project area are assessed in Chapter 17 and also in Technical Reports 9 (Hydrology) and 10 (Stormwater) (Volume 3).

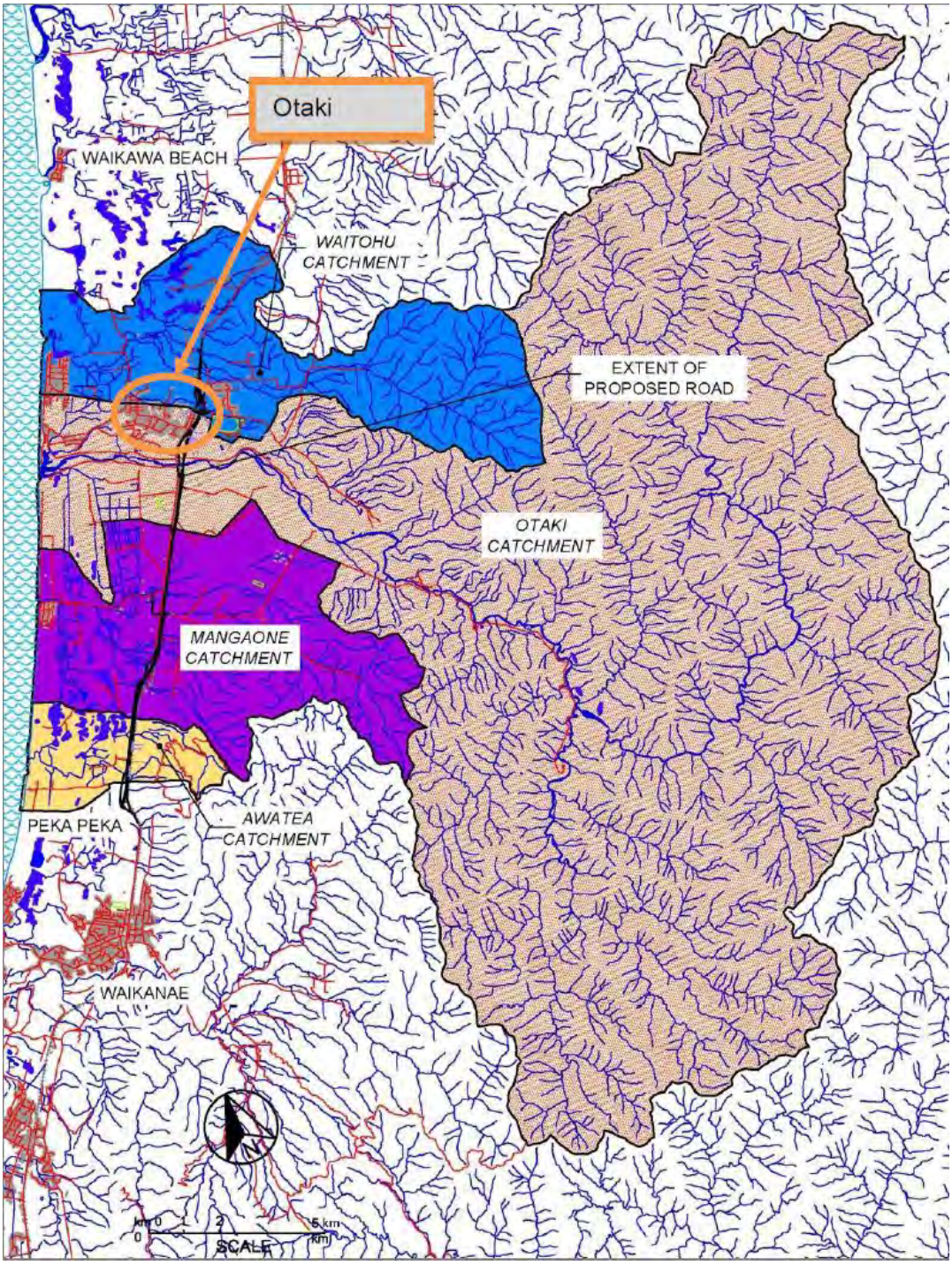

Figure 5-3: The Main Catchments Throughout the Project Area.

5.8 Ecology

Both terrestrial and aquatic ecology assessments have been undertaken throughout the Project area. The terrestrial ecology assessment was based on a review of existing background information relating to the Project and surveys along the Expressway route. The aquatic ecology assessment used existing information on the ecology of rivers and streams in the area extracted from reports written by the GWRC, and from data extracted from the New Zealand Freshwater Fisheries Database. Site visits wereundertaken and fieldwork was conducted to support the aquatic ecology assessment.

The specifics of these assessments are provided in Technical Report 11 (Terrestrial Ecology) and 12 (Aquatic Ecology) (Volume 3). The aquatic and terrestrial ecology environments and assessment of effects are also discussed in Part G, Chapters 19 (Terrestrial Ecology) and 20 (Aquatic Ecology) of this AEE report.

5.9 Air Quality

The Project area falls completely within the Kāpiti Coast Airshed as defined in GWRC's Regional Air Quality Management Plan (RAQMP). Details regarding the air quality assessment can be found in Part G, Chapter 21 of the AEE report and Technical Report 13 (Volume 3).

5.10 Noise

Details regarding the noise assessment can be found in Part G, Chapter 22 of the AEE report and Technical Reports 14 and 15 (Volume 3).

5.11 Transport Networks

The key transport spine through the Project area runs north – south centrally between the coast to the west and the hills to the east. The spine includes SH1 and the NIMT. Local east-west connections join this key transport spine throughout the Project area. Transportation networks that cater for cycling and walking are present in some areas.

This section provides a description of the existing transportation networks in the Project area. These networks are assessed in Part G, Chapter 14 of the AEE report and Technical Report 6 (Volume 3).

5.12 NIMT Network

Opened more than 100 years ago, the NIMT remains a critical part of KiwiRail's freight network, forming the 'backbone' which runs from Auckland to Christchurch. From Peka Peka to Ōtaki, the NIMT generally follows the alignment of SH1. While the NIMT is mainly used to transport freight, a passenger service currently operates on the railway line twice a day. It is possible that this may increase in the future.

In the Ōtaki area, the existing NIMT closely follows the alignment of SH1 to the east of the State Highway south of Ōtaki before crossing the Ōtaki River on a rail only bridge (SH1 crosses the Ōtaki River on its own bridge to the west of the railway). The NIMT then runs parallel with SH1 until Waerenga Road where it curves east away from SH1 to the Ōtaki Rail station, which is on the eastern side of Ōtaki. The NIMT continues to the north, crossing Rahui Road just west of Rahui Road's intersection with County Road. The NIMT then follows the western side of County Road, crossing the Manapouri Stream, before crossing SH1 just south west of the intersection with County Road. The exiting NIMT then tracks northwest out of Ōtaki and across the Waitohu Stream.

5.13 Network Utilities

There are a number of network utilities that are located within the Project area. Chapter 7 of this AEE report assesses the impacts of the Project on these utilities.

5.14 Social Environment

The assessment of social impacts can be found in Part G Chapter 27 of this AEE report. Technical Report 20 (Volume 3) also contains descriptions of the key aspects relating to the social environment in which the Project is located.

5.15 Archaeology, Culture and Heritage

The Kāpiti district has a long and rich cultural and historic heritage with a number of recorded archaeological sites, historic sites and buildings, and areas of significance to iwi and the wider community. The effects of the Project on these aspects of the environment are considered in Chapters 24 (Archaeology), 25 (Built Heritage) and 26 (Tangata Whenua and Cultural Heritage) of this AEE report.

Volume 3 of the AEE also considers these aspects of the environment. In particular Technical Report 17 assesses the potential impact of the project on archaeological sites, Technical Report 18 assesses the impact on heritage buildings and Technical Report 19 provides a Cultural Impact Assessment (CIA).