Waikato Expressway
Hamilton Section
Notice of Requirement to Alter the Designation
November 2013
Waikato Expressway
Hamilton Section

Notice of Requirement to Alter the Designation

November 2013

Note - This notice replaces the notice dated 30 September 2013, which has been amended in response to a request for further information (pursuant to s92 RMA 1991).
Waikato Expressway
Hamilton Section
Notified Alterations to the Designation

Signed by: Kaye Clark
Highway Manager
NZ Transport Agency
Pursuant to an authority by NZ Transport Agency
Dated this 27th day of September 2013

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<th>Description</th>
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<tr>
<td>AEE</td>
<td>Assessment of Environmental Effects</td>
</tr>
<tr>
<td>BOI</td>
<td>Board of Inquiry</td>
</tr>
<tr>
<td>CPTED</td>
<td>Crime Prevention Through Environmental Design</td>
</tr>
<tr>
<td>CMP</td>
<td>Construction Management Plan</td>
</tr>
<tr>
<td>EMP</td>
<td>Earthworks Management Plan</td>
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<tr>
<td>EPA</td>
<td>Environmental Protection Authority</td>
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<tr>
<td>ESCP</td>
<td>Erosion and Sediment Control Plan</td>
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<tr>
<td>HCC</td>
<td>Hamilton City Council</td>
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<tr>
<td>HCV</td>
<td>Heavy Commercial Vehicle</td>
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<tr>
<td>HPA</td>
<td>Historic Places Act 1993</td>
</tr>
<tr>
<td>LOS</td>
<td>Level of Service</td>
</tr>
<tr>
<td>LTCCP</td>
<td>Long Term Council Community Plan</td>
</tr>
<tr>
<td>LTMA</td>
<td>Land Transport Management Act 2003</td>
</tr>
<tr>
<td>MOU</td>
<td>Memorandum of Understanding</td>
</tr>
<tr>
<td>MSE</td>
<td>Mechanically Stabilised Earth</td>
</tr>
<tr>
<td>NOR</td>
<td>Notice of Requirement</td>
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<tr>
<td>NZHPT</td>
<td>New Zealand Historic Places Trust</td>
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<tr>
<td>NZS</td>
<td>New Zealand Standard</td>
</tr>
<tr>
<td>NZTA</td>
<td>New Zealand Transport Agency</td>
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<tr>
<td>OGPA</td>
<td>Open Graded Porous Asphalt</td>
</tr>
<tr>
<td>Opus</td>
<td>Opus International Consultants</td>
</tr>
<tr>
<td>PIR</td>
<td>Project Investigation Report</td>
</tr>
<tr>
<td>PPV</td>
<td>Peak particle velocity</td>
</tr>
<tr>
<td>Project</td>
<td>The Waikato Expressway-Hamilton Section</td>
</tr>
<tr>
<td>PT</td>
<td>Public Transport</td>
</tr>
<tr>
<td>PWRPS</td>
<td>Proposed Waikato Regional Policy Statement – also referred to as PRPS</td>
</tr>
<tr>
<td>RLTS</td>
<td>Waikato Regional Land Transport Strategy 2007</td>
</tr>
<tr>
<td>RMA</td>
<td>Resource Management Act 1991</td>
</tr>
<tr>
<td>RoNS</td>
<td>Roads of National Significance</td>
</tr>
<tr>
<td>RPS</td>
<td>Waikato Regional Policy Statement</td>
</tr>
<tr>
<td>SARA</td>
<td>Scheme Assessment Report Addendum</td>
</tr>
<tr>
<td>SH1</td>
<td>State Highway 1</td>
</tr>
<tr>
<td>SQEP</td>
<td>Suitably Qualified and Experienced Practitioner</td>
</tr>
<tr>
<td>TDM</td>
<td>Travel Demand Management</td>
</tr>
<tr>
<td>Acronym</td>
<td>Description</td>
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<tr>
<td>TGH</td>
<td>Tainui Group Holdings Ltd</td>
</tr>
<tr>
<td>Transit</td>
<td>Transit New Zealand (now NZTA)</td>
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<tr>
<td>TWEAR</td>
<td>Tangata Whenua Effects Assessment Report</td>
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<td>TWWG</td>
<td>Tangata Whenua Working Group</td>
</tr>
<tr>
<td>vpd</td>
<td>Vehicles per day</td>
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<tr>
<td>WDC</td>
<td>Waikato District Council</td>
</tr>
<tr>
<td>WRC</td>
<td>Waikato Regional Council</td>
</tr>
<tr>
<td>WRP</td>
<td>Waikato Regional Plan</td>
</tr>
<tr>
<td>WRPS</td>
<td>Waikato Regional Policy Statement (Operative) – also referred to as RPS</td>
</tr>
<tr>
<td>WRTM</td>
<td>Waikato Regional Transportation Model</td>
</tr>
</tbody>
</table>
1 Introduction

1.1 Overview

The New Zealand Transport Agency (NZTA) proposes to alter the existing designation for the Hamilton Section of the Waikato Expressway (Hamilton Section) and obtain resource consents from Waikato Regional Council (WRC) in order to construct, operate and maintain the Hamilton Section.

This report provides the documentation, including Assessment of Environmental Effects, to support alterations to the designation.

A separate report has been prepared to support the applications for resource consents from Waikato Regional Council.

1.2 New Zealand Transport Agency

The NZTA is a Crown entity. The NZTA's objective pursuant to section 94 of the Land Transport Management Act 2003 (LTMA) is to contribute to an integrated, safe, responsive, affordable and sustainable land transport system.

1.3 Roads of National Significance

In July 2012, the Government Policy Statement on Land Transport Funding (GPS) was released, which identified seven RoNS, which are considered by the Government to be New Zealand’s most important transport routes requiring significant development to reduce congestion, improve safety and support economic growth. The Project forms part of the Waikato Expressway (the Expressway), which is one of the seven RoNS.

The purpose of listing particular roads as nationally significant was to ensure these priority roading projects are taken into account fully in the development of the National Land Transport Programme. The NZ Government expects that planning for the future development of the land transport network should reflect the importance of these roads from a national perspective and the need to advance them quickly.

1.4 Waikato Expressway

The Expressway will extend from the Bombay Hills in the north to just south of Cambridge. The Expressway has been divided into 12 sections (see Figure 1-1). It is expected the Expressway will:

- Improve economic growth and productivity for Auckland, Waikato and Bay of Plenty through more efficient movement of people and freight between Auckland, Hamilton, Tauranga and Rotorua;
- Improve the reliability of the transport network by providing a more robust and safer road network between Auckland, Hamilton, Tauranga and Rotorua;
- Reduce travel times between Waikato and Auckland; and
- Support the growth strategy for the central Waikato.
1.5 Waikato Expressway – Hamilton Section

The Hamilton Section is located on the eastern side of the city of Hamilton. The Hamilton Section adjoins the Ngaruawahia Section (currently under construction) to the north, and the existing...
Tamahere Interchange to the south. It is approximately 22km in length. Figure 1-2 shows the scope of the project.

Figure 1-2 – Map of the Waikato Expressway (Hamilton Section)
The following key elements constitute the Project:

Starting at the northern end, the project adjoins the Ngaruawahia Section at Lake Road. The Northern Interchange provides for all vehicle movements between the two Expressway sections. The actual interchange design is part of the Ngaruawahia Section which is currently under construction. From Lake Road the Expressway heads southeast across rolling hills or relatively flat farmland, until it passes under Osborne Road and around the southern side of the Horsham Downs community centre (which contains a school, church and hall), before crossing an extension of the existing Resolution Drive (previously the Auckland to Hamilton motorway alignment). An interchange with north facing ramps is proposed to be constructed at this location (Resolution Drive Interchange). The project then continues in a south-easterly direction with overbridges at Kay Road, Horsham Downs Road and Gordonton Road.

The route continues in a southerly direction crossing over Puketaha Road. A full diamond interchange will be located at Greenhill Road together with a short urban two lane road across a future subdivision to the recently constructed roundabout at the junction of Wairere Drive, Crosby Road and Gordonton Road.

From SH26 the route continues south through generally flat topography, but with areas of deeply incised gullies. The Expressway crosses the Mangaonua Stream immediately south of SH26 and under Matangi Road before skirting the south eastern side of Atawhai Assisi Home and Hospital and crossing over the Mangaharakeke/Mangaone Gully east of Cedar Park Road. The Hamilton Section ends in the vicinity of Bollard Road, south of the proposed Southern Interchange, which is located near the intersection of Cherry Lane and the existing State Highway 1 (SH1).

1.6 Project Specific Objectives

The specific project objectives for the Hamilton Section are as follows:

» Contribute to the Government Policy Statement priorities of national economic growth and productivity;
» Take into account the principles of the Treaty of Waitangi;
» Form part of an ultimate expressway facility between Auckland and Cambridge;
» Provide a high level of service and safety for inter-regional and inter-centre traffic for a planning horizon of at least 30 years;
» Provide for the safe and efficient movement of state highway traffic between Hamilton and major destinations to the north of Hamilton;
» Minimise any adverse impacts and improve where feasible, the natural, physical, cultural and social environment of the region;
» Provide an appropriate return on investment for the project as a whole; and
» Maximise the economic viability of the project as measured by its Benefit/Cost Ratio and general value for money principles.
The Expressway will enhance inter-regional and national economic growth and productivity through improved journey time reliability and relieve congestion through the main urban centres along SH1, and focus freight movement onto SH1 rather than alternative local routes. As discussed under section 2.6 of this report, the NZTA has facilitated Tangata Whenua’s participation in the consultation process to enable the latter to contribute fully to the investigation and assessment of the alterations and thereby to enable them to take steps to protect their interests. The effects of the Expressway and the proposed alterations will be mitigated in accordance with the existing conditions on the designation which require construction and landscape management plans to be certified by both WDC and HCC. The existing designation conditions also cover archaeological, infrastructure, noise and lighting requirements.

1.7 Designation Alterations sought by the NOR

1.7.1 Background

The route selection and alignment of the Hamilton Section was determined as part of a wider project which commenced in 1995 and covered the long term development of SH1 between Ohinewai and Cambridge. The Notice of Requirement for the current designation was lodged in 2001 and the designation was secured in 2005, following an appeal hearing before the Environment Court in 2004.

Key aspects of the designated route were:

» The need for the Hamilton Section of the expressway to provide convenient and efficient connections to the City’s arterial network - as well as providing for the efficient and uninterrupted passage of inter-regional traffic on the nation’s primary trunk route;

» A decision by Transit NZ that the Hamilton Section should pass to the east of Hamilton City - rather than to the west;

» An early agreement with the commercial arm of Waikato Tainui concerning the location of the route within their Ruakura Raupatu property; and

» A decision by Transit NZ confirming that the southern end of the route should link into the existing State Highway at Tamahere - rather than link directly into the designated Cambridge Bypass via an alignment generally following the Cambridge Branch rail line. This issue was the main focus of the appeal hearing in 2004.

1.7.2 Existing Designation

Table 1.1 summarises the existing designations for the Hamilton Section and other existing relevant NZTA designations.
Table 1-1 – Existing designations

There are two sets of conditions that relate to the existing Hamilton Section designation. These are:

» NOR 1 – Waikato District – Horotiu to Tamahere, and
» NOR 2 – Hamilton City – Horotiu to Tamahere.

Each set contains ten conditions, and both address the following matters (with some variations in wording of individual conditions):

» Description of works;
» Construction Management Plan;
» Archaeological/Cultural Matters;
» Network Utilities;
» Noise;
» Landscape and Visual;
Effects of construction on existing drainage works;
Lighting;
Community Liaison; and
Term of Designation.

The conditions were confirmed with the designation in 2005, following the Environment Court hearing in 2004.

1.7.3 Summary of Alterations Proposed

The NZTA is seeking to alter the existing designation for the Waikato Expressway (Hamilton Section).

Alterations to the designation are required to accommodate design changes and significant new features. Table 1-2 summarises the alterations that the NZ Transport Agency has requested be publicly notified:

<table>
<thead>
<tr>
<th>Alteration</th>
<th>Relevant Council</th>
</tr>
</thead>
<tbody>
<tr>
<td>Resolution Drive Interchange (Alteration U)</td>
<td>WDC</td>
</tr>
<tr>
<td>Puketaha Road Arrangement (Alteration V)</td>
<td>WDC</td>
</tr>
<tr>
<td>Greenhill Interchange (Alteration W)</td>
<td>WDC &amp; HCC</td>
</tr>
<tr>
<td>Southern Interchange and Cambridge Road Widening (Alteration Z)</td>
<td>WDC</td>
</tr>
</tbody>
</table>

Table 1-2 – Alterations proposed and potential notification status

A Notice of Requirement (NoR) to both the Waikato District Council (WDC) and Hamilton City Council (HCC) for these alterations has been prepared pursuant to section 181 of the Resource Management Act 1991 (RMA) and is attached in section 3.1 of this application.

1.7.4 Lapse Period

To ensure consistency along the length of the Hamilton Section, the lapse periods of the existing designations are not proposed to be changed and the above alterations are proposed to be subject to the same lapse periods.

If the NZTA seeks to change the lapse periods at a later date, that will be subject to a separate application and process.

1.7.5 Additional Alterations to the Designation

Twelve additional potentially non-notified (minor) alterations are also proposed to the existing designations to provide local widening at narrow points and to make provision for stormwater treatment facilities. These additional alterations are subject to a separate application and NOR as they are likely to be processed on a non-notified basis.
1.7.6 Local Authority Boundaries

The future plan for local authority boundary changes is set out in the Strategic Agreement on Future Urban Boundary between WDC and HCC, dated March 2005. The agreement identifies the principles, direction and process for transfer of land.

Since the original designation was confirmed, some parts of the Strategic Agreement have been given effect to, with boundary changes between HCC and WDC being implemented. This means that more of the designation is now within the HCC jurisdiction (refer Figure 1-3 below).

At present, the boundary between HCC and WDC generally follows the centreline of the Expressway in the following locations:

» Between Horsham Downs Road and old Borman Road; and
» Between Greenhill Road and the Mangaonua gully.

The rest of the Expressway designation is either wholly within the WDC or HCC jurisdictions as follows:

» Waikato District Council jurisdiction: Lake Road to Kay Road, Gordonton Road to Greenhill Road, Mangaonua Gully to Tamahere interchange; and
» Hamilton City Council jurisdiction: between Kay Road and Horsham Downs Road, and between old Borman Road and Gordonton Road.
Figure 1-3 – Current Boundary between Hamilton City and Waikato District.
Eventually (in line with the Strategic Agreement between HCC and WDC), the city boundary will extend out to the Expressway (with the exception of the area to the south of the Mangaonua gully, which will remain with WDC). This means that the Expressway will ultimately form the eastern edge of Hamilton City.

In two of the locations where land has recently been transferred, new planning rules have been proposed and these are discussed in Section 4 of the report (Rototuna Structure Plan and Ruakura Structure Plan). The remaining areas that will ultimately fall within the HCC jurisdiction are still subject to the WDC’s planning rules, and are expected to be the subject of plan changes at some point in the future (Figure 1-4 shows the areas where the Waikato District Plan rules are being administered by HCC).

![Figure 1-4](image)

**Figure 1-4 – Area administered by HCC under the Waikato District Plan.**

Overall, the future development of land in these areas will ultimately result in the Expressway travelling through or alongside a much more urban environment.
1.8 Strategic Network Connection Investigation

The network connections within the Waikato region have been the subject of a number of investigations. In December 2010 the NZTA released the Waikato Expressway Network Plan, which identified the need to ensure that an integrated network between the Expressway and the local transport network was developed. In particular the Plan identified the need to optimise the location and form of the interchanges within the Greater Hamilton area.

When the current secondary investigation project started in 2010, the NZTA and the Ruakura Structure Plan Transport Reference Group (TRG) considered a number of preliminary options to provide access from the Expressway into the Ruakura Structure Plan area (shaded in blue in Figure 1-5).

![Figure 1-5: Hamilton growth areas](image-url)
One of the fundamental NZTA objectives at the time was to retain the minimum 5km to 8km spacing between interchanges and the desire to provide connectivity only to the local primary arterial network.

On this basis an interchange that directly served the proposed Ruakura Inland Port and Logistics centre and a SH26 interchange was not a feasible solution due to their close proximity (1.5km). HCC expressed a strong desire to retain a connection at SH26 as this was in line with the City’s Access Hamilton Strategy. After consultation with stakeholders, the TRG and NZTA agreed a split diamond arrangement would provide an appropriate (although compromised arrangement) connection between the expressway, Ruakura and SH26. The initial Scheme Assessment Report Addendum (SARA) focussed on development of this option, until the full extent of the project was understood in early 2012.

Following discussions with the wider NZTA team in mid-2012 it was decided a more cost effective option needed to be identified for the Hamilton Section. The project team concentrated on network options involving the following:

- A Resolution Drive Interchange with partial and full connectivity to the Expressway and the extension of Resolution Drive through to Horsham Downs Road. It also considered whether the Kay Road bridge could be eliminated;
- Potential interchange locations at Greenhill Road, Fifth Avenue, Ruakura Road and SH26;
- Alternative interchange arrangements for the Southern Interchange near Cherry Lane including low cost solutions; and
- These strategic network connection options can be grouped into largely independent north-eastern, eastern and south-eastern sections respectively.

The assessment results and the recommended strategy is documented in a report titled Network Connections Summary Report – March 2013 Update (refer Appendix D).

1.8.1 Assessment Considerations

In assessing the relative merits of the interchange connection options, the project team gave consideration to:

- Specific Project Objectives;
- Future Growth patterns in and around Hamilton (HUGS) and the Strategic Agreement on Future Urban boundaries;
- NZTA RoNS Guidelines;
- Criteria for a state highway to be classified as a National Strategic Route and the relationship to ports;
- Access Hamilton Strategy; and
- The predicted traffic demand distribution in year 2021 and 2041.

All alternatives were subjected to a full traffic and economic assessment, whilst the Eastern and Southern Interchange options also went through a multi criteria assessment that considered their strategic fit, effectiveness and economic efficiency. The specific assessment for each of the key interchanges is detailed in the relevant alterations to designation addressed in this document.
2 Project Consultation

2.1 Introduction

This section covers the consultation that has occurred during the secondary investigation and reporting phase, since October 2010. Consultation undertaken at earlier phases of the Project (investigation and designation) is not discussed in this report but can be found in the Waikato Expressway Hamilton Bypass - Project Investigation Report (dated November 2001).

In summary, public engagement has been undertaken with statutory bodies, Tangata Whenua, key stakeholders and people who are affected by, or who have an interest in, the Project. This has been undertaken over the past three years, using various consultation methods. As such, the consultation is considered to meet the requirements of the RMA and the LTMA.

2.2 Consultation Plan

Prior to commencing the consultation process, a Consultation Plan was developed. This set out the purpose and objectives of consultation for the Hamilton Section project which was as follows:

- To meet the legal requirements of the LTMA, the RMA, the Historic Places Act 1993 (HPA) and any other relevant legislation;
- To build relationships and trust with all the stakeholders and the public, through the consultation process to deliver the key messages;
- To obtain stakeholder and public feedback on the information provided, and to generate dialogue, about the Hamilton Section;
- To be understanding of all other peoples and organisations' views on the Project;
- Seek 'buy in' to the Project through the involvement of local politicians, particularly in providing information and obtaining views from key people;
- To acknowledge that it is important to engage the local community as their knowledge may assist in reducing potential environmental effects and enhance the positive effects of the Expressway;
- To ensure all consultation outputs are provided in a timely manner and to a high quality standard; and
- To ensure that all consultation is meaningful and well-timed during the course of the Project.

The key aims of the consultation process were to assist in the design of the Project and support the various statutory approvals such as alterations of designation and resource consents. Furthermore, it will assist the development of a specimen design for the Expressway that meets programme, budget and standards; and provides finding the best value at minimum risk while:

- Providing as much as practical for community concerns;
- Managing environmental issues through best practicable options;
- Positively promoting the Project and NZTA to stakeholders, the local community and the wider public; and
Ensuring consistency with consultation approaches on other Expressway projects.

The means of achieving the objectives of consultation are set out in more detail in the project Consultation Plan. This explains the ‘What, Why, Who, How and When’ elements of the consultation process.

2.3 Community of Interest

The Consultation Plan identified the following range of partners and stakeholders in the Hamilton Section Project.

2.3.1 Tangata Whenua

A detailed process of establishment and consultation has been undertaken with Tangata Whenua and is detailed in section 2.6 below.

2.3.2 Landowners

» Directly affected landowners; and
» Neighbouring landowners and developers.

2.3.3 Key Stakeholders

Key stakeholders are those identified as having a strong interest in the Hamilton Section of the Expressway, and its integration within the district and the region. These key stakeholders include:

» Hamilton City Council;
» Waikato District Council;
» Waikato Regional Council;
» NZ Historic Places Trust; and
» Tainui Group Holdings.

2.3.4 Other Stakeholders

Other stakeholders that may be directly or indirectly affected by the project include:

» Department of Conservation;
» Utilities Companies (Transpower, Vector Gas, WEL Networks, Telstraclear, Telecom, FX Networks Services, Velocity Networks);
» ONTRACK;
» Local Members of Parliament;
» Tamahere Community Committee;
» Waikato Regional Transport Committee;
» Waipa District Council;
» Fonterra;
» Waikato Fish and Game Council;
» NZ Police, Ambulance Service, Fire Service;
» NZ Road Transport Association;
» Automobile Association;
» Heavy Haulage Association;
» Federated Farmers;
» Waikato District Health Board;
» Cycle Action Waikato;
» Living Streets Aotearoa;
» Assisi Home and Hospital;
» Local schools (Horsham Downs Primary School, Te Totara Primary School, Hamilton Christian School, Tamahere Model Country School, Waikato Waldorf School, Rototuna Primary School, Puketaha School, Newstead Model School, Hamilton Seventh Day Adventist School, Matangi School);
» Ministry of Education;
» Ruakura Research Centre;
» Livestock Improvement Corporation;
» Waikato Innovation Park; and
» Waikato University.

2.4 Consultation Undertaken

2.4.1 Initial Consultation

In October 2010, at the beginning of the Project, workshops were held with the following stakeholders:

» Waikato District Council;
» Hamilton City Council;
» Waikato Regional Council;
» Tangata Whenua;
» Department of Conservation;
» Transpower; and
» ONTRACK.

The purpose of the workshops was to provide an overview of the Hamilton Section Project and the key issues/challenges identified to date. The workshops also provided an opportunity for discussion on key risks, issues and interests of stakeholders with respect to the Project. Points of contact were also established.
2.4.2 Public Information Days

A number of information days were held to provide opportunities for a large number of people to better understand and provide feedback on the Project.

2.4.2.1 Project Information Day – Feb 2011

As part of the start-up phase, the first Information Days were held for the Hamilton Section of the Expressway at two locations:

» Horsham Downs Community Hall - Tuesday 15th February 2011 2pm - 7pm; and
» Newstead Model Country School - Thursday 17th February 2011 2pm - 7pm.

The Information Days presented information to the community about the Hamilton Section. As the Information Days were timed early on in the project programme, the information presented was aimed at introducing people to the project and the key project issues under investigation. The community was given the opportunity to provide feedback on general project issues and opportunities. Over 200 people from the surrounding communities and wider Hamilton area attended each of the Information Days (approximately 400 in total). In total, 58 completed feedback forms were received.

A detailed overview of the issues that were raised verbally at the Information Days, and of the feedback forms received during and following the Information Days, is provided in the Information Day Report. Key themes and issues identified were:

» High support for the Hamilton Section being constructed;
» Connections available at the Northern (Lake Road) Interchange;
» High support for the inclusion of a full diamond interchange at Resolution Drive, including a connection to Horsham Downs Road;
» Some concern about the potential Osborne Road or Kay Road severances;
» Some desire for south-facing ramps at Morrinsville Road/SH26 Interchange;
» Local road connectivity and community severance at the Hamilton Southern Interchange;
» Environment effects, including noise; and
» Provision for walking and cycling (particularly in the Tamahere area).

2.4.2.2 Tamahere Information Day

As part of the WDC’s TSP review, an Information Day was held to discuss the outcomes of the review with the Tamahere Community. Given the links between the Structure Plan Review and the Hamilton Section Project, the NZTA also presented information on the Hamilton Southern Interchange.

The Information Day was held at the Tamahere Community Hall on Thursday 27th October 2011.

The Information Day presented information to the community about the Hamilton Southern Interchange, and provided an opportunity for the community to give feedback. Approximately 400 people attended the Information Day. Thirty-two completed feedback forms were received.
further 23 feedback forms were received by WDC in response to their Structure Plan proposals. Some of these forms made reference to the Southern Interchange.

Three design options were presented at the Information Day:

» Design Option A: reflects the current design of the Southern Interchange;
» Design Option B: involves the removal of the south-facing ramps; and
» Design Option C: involves the use of a shorter and straighter local road bridge over the expressway and a roundabout instead of the current Cherry Lane intersection. Option C was shown as including south-facing ramps.

The following summarises the written and verbal feedback received regarding the options presented:

» The most contentious issue was Option B - removal of south-facing ramps;
» Option A or C were viewed by many respondents as the only 'lawful' options; (by which they meant the only options which were consistent with the original designation and did not require an alteration);
» Option C was generally accepted by the public, however, a number of residents from the Cherry Lane and Seabrook Lane area expressed strong opposition to this option; and
» The community was generally supportive of pedestrian and cyclist facilities, and there was a general desire for a cross-expressway facility to be close to the school and community hub.

2.4.2.3 Ruakura Information Day

As part of the HCC's Ruakura Structure Plan development, a series of Information Days were held to present relevant information to the community. The information days were held on the 14th, 15th and 16th May 2012.

The NZTA was invited to attend, showing information on how the Expressway will interact with the proposed structure plan. Specifically, the information presented included:

» The proposed Ruakura/Morrinsville Road split diamond interchange;
» Indication of possible Ruakura Road realignment; and
» Rationalisation of local road crossings – Percival, Powells and Ryburn Roads.

Issued raised at the Information Days and in feedback forms received included:

» Noise and air pollution;
» Effect of Ruakura Road realignment on local businesses;
» Effects of Morrinsville Road interchange on property accesses;
» Vertical height of the expressway and associated effect on noise; and
» Effects on Silverdale School.
2.4.2.4 Fifth Avenue Information Day

During the latter part of 2012, the project team was in the process of investigating a possible new interchange located at Fifth Avenue.

The Information Day provided information to the community about the proposed Fifth Avenue Interchange and its potential combinations, and gave an opportunity for the public to share their opinions.

The Information Day was held on the 19th September 2012, and was attended by approximately 250 people. Twenty two feedback forms were received.

The following feedback was noted:

» Greenhill Road residents were not supportive of the proposed eastern Greenhill Road link to Puketaha Road;

» A lot of questions were raised as to why there were no south facing ramps shown at the SH26/Morrinsville Road interchange;

» Generally positive response regarding the Fifth Avenue interchange proposal; and

» Concern in relation to adverse effects (increased traffic and congestion) to Fifth Avenue and Five Crossroads as a result of the interchange.

2.4.2.5 Project Information Days – May 2013

To conclude the secondary investigation phase, Information Days were held for the Hamilton Section of the Waikato Expressway at three locations:

» Horsham Downs Community Hall - Tuesday 7th May 2013;

» Hamilton Marist Rugby Club - Wednesday 8th May 2013; and


The Information Days specifically informed the community about the recommended project scope that will proceed to alteration to designation and resource consents for construction. The community was given the opportunity to provide feedback, however it was stated clearly that the connections have been finalised, and feedback was sought in relation to mitigation and environmental issues.

The proposed scope presented at these Information Days included the full diamond interchange on the relocated Ruakura Road, no connection at Morrinsville Road (SH26), a grade separated crossing at Percival Road, and no crossings at Powells and Ryburn Roads.

The Information Days were well attended and a total of 54 completed feedback forms were received.

A detailed overview of the issues that were raised verbally at the Information Days, and of the feedback forms received during and following the Information Days, is provided in the Information Day Report. Key themes and issues identified were:
2.4.3 Surveys

Early in the investigation process, the project team identified the possibility of closing either Kay or Osborne Road and presented this at the first project Information Day in February 2011. Early in 2013, the project team revisited this issue and concluded that the consultation undertaken was not sufficient to make a decision on the matter, and that targeted consultation with the affected community should be carried out.

A survey regarding the possible closure of Osborne Road and the effects on the community was distributed in March 2013 to landowners and occupiers in the Horsham Downs area. The survey was also made available at the Horsham Downs School, Church and Hall so that visitors to the area could also pick it up and provide a response.

In total, 58 visitor surveys and 90 resident surveys were received by the response deadline. Letters were also received from Horsham Downs School and the Ministry of Education. The following provides a brief summary of the responses:

- The number of trips using the connection per week was higher than anticipated at around 2000 trips – only approximately 290 of these are non-car trips (i.e. pedestrian or cyclist trips);
- Generally drivers would only accept a small increase in travel time – no more than a few minutes. Cyclists would accept no more than a couple of kilometres in increased travel distance;
- Overall, 52% of respondents said that the extension of Resolution Drive to Horsham Downs Road would be a suitable alternative; and
- When asked which of the three options was preferable, approximately 75% prefer a full vehicle bridge and approximately 20% prefer a cycle bridge.
2.4.4 Newsletters

NZTA newsletters were distributed to the project’s community of interest in October 2010, December 2010, December 2011, September 2012 and April 2013. The newsletters provided updates on progress, details about the Information Days, and invited people to contact the project team for further information if they wished. The most recent update also contained an aerial plan of the Project showing the recommended scope of works. The newsletter distribution was based on posting individually addressed letters to directly affected parties (and others on the Project’s mailing list) and a letter-drop to all households within a minimum of 200m of the Expressway designation. The 200m distance is based on a condition of the existing designation, which relates to community liaison.

2.5 Individual Meetings

2.5.1 Stakeholders

During the course of the secondary investigation phase, a number of meetings have been held with stakeholders.

The three councils (WDC, HCC and WRC) have been identified as key stakeholders in the process. Meetings with these agencies generally focussed on strategic issues and consistency with Council strategy and plans. As well as many informal meetings, the following presentations are noted:

- The project team presented to HCC in November 2011 (Strategy and Policy Committee), September 2012 (Councillors), October 2012 (Councillors), and March 2013 (Councillors);
- The project team presented to WDC in November 2011 (Roading & Transport Committee), March 2012 (Roading & Transport Committee), May 2012 (Councillors), August 2012 (Roading & Transport Committee), September 2012, February 2013 and March 2013;
- The project team also presented to the Tamahere Community Committee in March 2011, August 2011, September 2011, May 2012 and March 2013; and
- The project team met with WRC staff in November 2011 to discuss the project, likely consenting process and key consenting issues.

The proposed alterations U, V, W and Z (Resolution Drive Interchange, Puketaha Road crossing, Greenhill Interchange and the Southern Interchange) reflect the outcomes of the consultation process. For example:

- Resolution Drive Interchange is strongly supported by both HCC and WDC
- Greenhill Interchange alteration is supported by HCC as a more logical connection into the city when compared to the existing designation
- Southern Interchange design is the result of collaboration between NZTA and WDC, to combine two projects (Expressway and the East-West Link) in order to provide a solution.

Other key stakeholders include New Zealand Historic Places Trust (NZHPT) and TGH. A meeting was held with the NZHPT on the 19th February 2013. This meeting provided the NZHPT with an update on the Project and timeframes, and sought early comment on requirements for the authority application and assessment.
The project team have worked with TGH and their consultants over the course of the Project, particularly in relation to the Ruakura Structure Plan development and implications for the Expressway project.

2.5.2 Landowners

All landowners who are directly affected by proposed alterations to the designation (in terms of property impacts) have been consulted during the SARA phase. Further consultation was undertaken as part of the non-notified alteration processes and details are provided under each alteration in section 3 below.

2.5.3 Property impacts

Over the entire Hamilton Section there are 69 properties directly affected by the Project based on the scheme design drawings presented in Volume 2. These include existing Crown owned properties and land in private ownership. The list below indicates the current status as at May 2013:

» 27 properties already purchased and owned by the Crown; and

» 42 properties yet to purchase. Of these, 1 negotiation was suspended, 2 are under negotiation, and 39 have not yet been invited to enter into negotiations with the Crown.

There are 42 properties still to be acquired for the project. The strategy to acquire these remaining properties is outlined below:

» A preliminary meeting is proposed to be held with all remaining directly affected landowners once land requirements have been confirmed, to show the effect on the property and advise timeframes for negotiations; i.e. when NZTA’s Acquisition Agents will be in contact to commence the negotiation process;

» Documentation and approvals required to commence the Public Works Act Notice of Desire process will be obtained from LINZ. An initial meeting with landowners will be arranged to confirm the process and discuss the Public Works Act Notice of Desire process and commence the good faith negotiation process;

» Valuations will be obtained and at the same time a Notice of Desire is served on the owner indicating the Crown’s commitment to reaching an agreement with the owner through good faith negotiations. These negotiations in good faith are expected to continue for a period of between 3-12 months; and

» If negotiations have not reached a successful conclusion after three months, documentation and approvals required to commence the Public Works Act Notice of Intention to Take Land (Compulsory Acquisition) process will be obtained. This also includes obtaining a legal survey of the land required for the project. Compulsory Acquisition continues for a period of between 6-24 months depending on objections to the Environment Court, until all remaining land is secured for the project.
2.5.4 Waikato Raupatu Claims Settlement Act 1995

Under the Waikato Raupatu Claims Settlement Act 1995, any Crown properties that were acquired up to 15 November 1995 where there may be potentially surplus land available, are subject to an offer to sell the land to Waikato Tainui; who have one month to either confirm or decline the offer.

The properties that are subject to the right of first refusal are still subject to a "Section 40 offer-back" to the former owner (whom the land was originally acquired from or their successors), before being offered to Waikato Tainui.

On this basis there are no properties held by the Crown for the construction of the Hamilton Section that are affected by the first right of refusal provisions of the Waikato Raupatu Claims Settlement Act.

2.6 Iwi Consultation

A Statement of Identified Māori Interests (SIMI) was prepared in accordance with NZTA requirements in October 2010. The SIMI identified the Tangata Whenua groups to consult with in relation to the Hamilton Section of the Expressway.

An initial workshop was held with Tangata Whenua representatives on the 21 October 2010.

Waikato Tainui and NZTA entered into detailed discussions in early 2011 with the view to forming a high level contract to enable a partnership to be established for the Hamilton Section. Through that process, an appointee from Waikato Tainui established responsibility for determining who the project team should engage with and how that should occur. As a result a Hamilton Section specific Tangata Whenua Working Group (TWWG) was established in late 2011.

A working paper was prepared by the TWWG on 11 December 2011 as a means of expressing the key issues for Tangata Whenua. This paper was updated in March 2012 following more detailed discussions with Tangata Whenua.

A site visit was held on 2 March 2012 during which the TWWG and other representatives visited the southern areas of the Project. The site visit had a particular focus on the gully systems as these have been identified as areas of particular interest to Tangata Whenua. A workshop was also held on 9 March 2012 to discuss the particular issues around bridge piers, gullies and waterways.

In December 2012, the TWWG presented the Draft Tangata Whenua Effects Assessment Report (TWEAR). Following the delivery of this document, the project team held a meeting with the TWWG in February 2013, and provided a preliminary response to the issues raised in the document.

Another site visit was held on the 15th March 2013, followed by a series of workshops addressing key issues for the TWWG. The workshops were held on the 22 March, 4, 5 and 17 April. During these workshops the project team and the TWWG were able to reach agreement on some of the key issues. During these workshops a ‘mitigation document’ was drawn up, which captures the requests of the TWWG (as expressed in the TWEAR), the response of the NZTA, and matters for further discussion or action. This is a living document and reflects the current state of discussion between the two parties.
The key issues being worked through with the TWWG are in relation to:

- Gully crossings (and in particular the matter of piers in the floodplain);
- Effects on gully flora and fauna;
- Earthworks;
- Water treatment;
- Waahi Tapu sites;
- Effects on groundwater; and
- Training and employment.

The project team will continue to work closely with the TWWG during the preparation of documentation for alterations to designation, resource consents and NZHPT authorities.

2.7 Summary of Issues Raised During Consultation

The following issues were raised during consultation and through feedback. This is not an exhaustive list of all issues but provides a summary of the main issues raised:

- Land requirements for individual landowners;
- Impact of noise on individual properties;
- Landscape and visual impacts;
- Property severance;
- Property access changes and access severance;
- Changes to traffic flows;
- Construction Effects;
- Specific Design and engineering aspects and the impacts on individual landowners;
- Effects on Gullies;
- Connectivity and severance (particularly in the Tamahere area); and
- Walking and cycling provision/facilities.

2.8 Consultation Summary

The majority of people consulted support the project as a whole, and appreciate the potential benefits of the Expressway once completed.

However, a number of people (particularly local landowners) have concerns relating to the specific impacts that the project may have at the local or individual level. Concerns include matters such as noise, landscape and visual impacts, property severance and land requirements, community and local access severance, and changes to traffic flows. Tangata Whenua has also separately raised a series of key issues as detailed above.

NZTA has in many cases altered the design to avoid, remedy or mitigate the potential adverse effects on the environment which have been identified during consultation.
3 Alterations to the Designation

The NZ Transport Agency has requested that the following alterations to the designations are notified, and therefore subject to the process outlined in sections 168-179 of the RMA.

3.1 Form 18 – Notice of Requirement for Designation

Section 181 Resource Management Act 1991

To: Waikato District Council
    Private Bag 544
    Ngaruawahia

And Hamilton City Council
    Private Bag 3010
    Hamilton

1 The NZ Transport Agency (NZTA), a requiring authority pursuant to section 167 of the Resource Management Act 1991, and having financial responsibility for this proposed public work, gives notice to both Waikato District and Hamilton City Councils of a requirement for alterations to the following designations:

   • J17 (Hamilton Bypass) of the Waikato District Plan;
   • E90A (Hamilton Bypass) of the Hamilton City Proposed District Plan
   • 90 (Hamilton Bypass) of the Hamilton City District Plan.

Designation Purpose: Road Purposes – State Highway & Access to State Highway

Designation Lapse Period: Waikato District Plan – 2015
                       Hamilton City District Plan – 10 years (2015)

2 The site to which the requirement applies is as follows:

Refer to Table 3-1
### Waikato Expressway Hamilton Section – Alterations to the Designation

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¹ Refer to the Land Requirement Plans Appendix A.
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² Refer to the Land Requirement Plans Appendix A.
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*Table 3-1 – Directly Affected Land*
3 The nature of the alteration work is as follows:

*Alteration U* – Resolution Drive Interchange and Stormwater Wetland;
*Alteration V* – Puketaha Road;
*Alteration W* – Greenhill Road Interchange and Stormwater Wetland; and
*Alteration Z* – Southern Interchange and Cambridge Road Widening.

4 The nature of the proposed restrictions that would apply are:

*Compared to the full route, the scale of alterations is small. It is preferable that one set of conditions apply to the full route, and therefore it is proposed that they be subject to the existing NOR 1 (Waikato District Council) and NOR 2 (Hamilton City Council) conditions for the Hamilton Section designation without any changes.*

5 The effects that the public work will have on the environment and the ways in which any adverse effects will be mitigated are:

*Please refer to the effects assessment under each alteration.*

6 Alternative sites have been considered to the following extent:

*The NZTA has investigated alternative layouts for the alterations proposed and undertaken consultation to inform and gain feedback from the public. Please refer to the effects assessment under each alteration.*

7 The public work and designation are reasonably necessary for achieving the objectives of the requiring authority because:

*The proposed alterations will ensure that the expressway safely and efficiently connects into the existing roading network, and is able to efficiently drain and dispose of surface water.*

8 The following resource consents are required and have been applied for from the Waikato Regional Council:

- **Land use**
  *Undertake earthworks including: soil disturbance, roading, tracking, and vegetation clearance both within and outside of high risk erosion areas; cleanfill and overburden disposal; and, any associated discharges of contaminants to water or air association with the Hamilton Section of the Waikato Expressway*

- **Water permit**
  *To dam and divert surface water in the Mangaonua and Mangaharakeke/ Mangaone gullies as a consequence of road construction in association with the Hamilton Section of the Waikato Expressway*

- **Land use**
  *Construction, operation, maintenance and removal of temporary bridges over the Mangaonua and Mangaone streams including any associated discharges of contaminants to water or air in association with the Hamilton Section of the Waikato Expressway*

- **Land use**
  *Construction, operation and maintenance of the Mangaonua and Mangaone Stream bridges including any associated discharges of contaminants to water or air in association with the Hamilton Section of the Waikato Expressway.*

- **Water**
  *To drill below the water table to install bridge piles in association with the Hamilton Board of Inquiry*
## Waikato Expressway Hamilton Section – Alterations to the Designation

### Permit

<table>
<thead>
<tr>
<th>Permit</th>
<th>Section of the Waikato Expressway.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water permit</td>
<td>To take and divert groundwater and discharge groundwater to water in association with the Hamilton Section of the Waikato Expressway.</td>
</tr>
<tr>
<td>Discharge permit</td>
<td>To divert and discharge stormwater into water, and/or into or onto land, including the installation, operation and maintenance of discharge structures in association with the Hamilton Section of the Waikato Expressway.</td>
</tr>
<tr>
<td>Land use</td>
<td>Construction, operation and maintenance of culverts including any associated discharges of contaminants to water or air in association with the Hamilton Section of the Waikato Expressway.</td>
</tr>
<tr>
<td>Water Permit</td>
<td>To dam and divert surface water in association with culvert construction, operation and maintenance</td>
</tr>
</tbody>
</table>

9 The following consultation has been undertaken with the affected landowners:

As discussed under section 2 of the alteration application, newsletters, mailbox drops and open days have informed the affected landowners and the public of the proposed alterations. Directly affected landowners have been individually contacted and given the opportunity to meet.

10 The following information is required to be included in this notice by the district plan, regional plan, or any regulations made under the Resource Management Act 1991:

- Notice of Requirement assessment of effects;
- Notice of Requirement alteration plans; and
- Waikato Regional Council resource consents.
3.2 Alteration U – Resolution Drive Interchange and Stormwater Wetland

3.2.1 Proposed Alteration

Designation “J17” in the Waikato District Plan is proposed to be altered to designate a full-diamond interchange with north and south facing ramps, and a stormwater wetland. The purpose of the designation is to remain as “Road for state highway and road for access to state highway (Waikato Expressway, Hamilton Bypass)”. The alteration to the designation sought by the NZTA is shown on the alteration and scheme plans in Appendix A and indicated in Figure 3-1 below. The existing designation in this area does not include an interchange, or connection to Resolution Drive.

The alteration includes approach embankments aligned with the Expressway, with an overbridge or dual bridges (to be defined by the contractor) above the Resolution Drive extension. Alternatively, the contractor may choose to configure the interchange so that the Expressway passes over Resolution Drive. The alteration to designation therefore seeks flexibility regarding the ultimate configuration of the Expressway and Resolution Drive.

A stormwater wetland will be located between the Expressway and the north facing on-ramps on the western side of the interchange. The construction of the interchange will depend on when Resolution Drive is extended by the WDC and HCC. To construct the Resolution Drive Interchange will require approximately 700,000m³ of fill material. This is an additional volume of about 600,000m³ over and above that proposed when the designation was secured.

Figure 3-1 – Existing Hamilton Section designation and Alteration U (see Appendix A for details)
3.2.1.1 Existing Environment

The proposed Resolution Drive Interchange sits within a basin located to the north of Hamilton City. A ridgeline encircles the basin to the north-west and east, and Osborne, Horsham Downs and Kay Roads generally follow the top of this ridgeline. Reynolds Road lies to the south. The land surrounding the interchange location is predominantly in pasture, with scattered dwellings, farm buildings and vegetation. Houses are generally located alongside the roads and the land within 250m of the interchange is vacant of any habitable buildings.

The Horsham Downs village lies to the north of the interchange, approximately 250m distant. The village includes the Horsham Downs School (Ministry of Education designated site), Church and Hall. It also includes a cluster of residential dwellings on Martin Lane, Horsham Downs Road and Osborne Road.

In summary the surrounding land uses include:

- School;
- Church;
- Community Hall;
- Rural-Residential and Rural dwellings;
- Farming operations; and
- Rural businesses (including a cattery, orchard and contracting business).
3.2.1.2 Future Environment

The land on the city-side of the interchange is zoned Rural, and is part of the Urban Expansion Policy Area. This land will ultimately fall within the HCC’s jurisdiction, in accordance with the 2005 Strategic Agreement on Future Urban Boundaries. However, at this point, the land remains within the WDC jurisdiction, and there are no plan changes or structure plans that apply to this land. It is noted that ultimately some form of urban development is likely to extend out to the Expressway within this area.

The land further to the south of the interchange (south of Kay Road) forms part of the Proposed Rototuna Structure Plan which provides detail on the proposed land uses within this area. The Rototuna Structure Plan signals the extension of the Resolution Drive corridor from its current extent at Borman Road through to Kay Road, following the old Auckland-Hamilton motorway corridor. The Structure Plan identifies the road as a ‘Major Arterial Transport Corridor’. The extension of Resolution Drive beyond this point – up to the Expressway – is not currently provided for in any planning documents, nor is it designated. However, the land is within the ownership of the HCC, and the project team has been advised by Hamilton City Council that the intention is to extend the arterial road along this corridor to meet the Expressway.

The land on the WDC side (east) of the interchange is zoned Rural, and will remain within the jurisdiction of WDC into the foreseeable future. No significant changes to the future environment are anticipated within this area, and the extension of Horsham Downs Road to the Expressway is not part of the alteration.

3.2.1.3 Description of the Proposed Works

The new interchange will be located to link with the old Hamilton-Auckland motorway corridor, which connects into Resolution Drive at Borman Road. The designation seeks flexibility in the ultimate configuration of the interchange, so that either the Expressway will pass over Resolution Drive, or Resolution Drive will pass over the Expressway. The extension of Resolution Drive from Borman Road to the Expressway is not part of this project, and is the responsibility of HCC.

3.2.1.4 Reasons for the Proposed Works

The addition of the Resolution Drive Interchange is the outcome of a secondary investigation process that began at the end of 2010. This investigation process identified that the interchange is necessary for the following reasons:

» It provides good connectivity between roads of similar road hierarchy (expressway to major arterial) for economic growth and productivity;

» It provides safe and efficient movement from the north to the Rototuna Structure Plan area, and also ultimately to the northern part of the City (currently Urban Expansion Policy Area);

» It provides a strategically located high level of service interchange serving the northern suburbs of Hamilton without compromising on interchange spacing (Taupiri to the north and Greenhill to the south);

» The north-facing ramps are already included in the HCC Access Hamilton Strategy, thereby implying they are of strategic importance both to the city and the region; and
There is strong public support for an interchange at this location. Overall, the addition of the interchange is considered consistent with the objectives of the Project.

### 3.2.2 Consideration of Alternatives

Section 171(1)(b) of the RMA requires consideration of alternative sites, routes, or methods of undertaking the work if:

- The requiring authority does not have an interest in the land sufficient for undertaking the work; or
- It is likely that the work will have a significant adverse effect on the environment.

This section provides a brief summary of the process for considering alternatives to the Resolution Drive Interchange. Further detail can be found in the Network Connections Summary Report which is provided in Appendix D).

As part of the work undertaken during the secondary investigation phase of the Project, the NZTA has revisited the Expressway connection locations in accordance with the Waikato Expressway Network Plan objectives. It was identified that the Expressway provides a lack of connectivity to the northern part of Hamilton City. The next Expressway interchange to the north of Hamilton is to be located on Gordonton Road, 2km east of Taupiri, a distance of about 11kms north of Resolution Drive. This means that traffic destined for the northern suburbs of Hamilton would need to leave the Expressway at this junction and make use of the (currently inefficient) WDC local road network or travel further south to the next interchange (Greenhill) then north on the local road network.

Changes to the Lake Road interchange were not considered appropriate as this is a ‘System Interchange’, and any changes would potentially encourage ‘rat-run’ traffic (on River Road for example). Furthermore, there is no obvious connection to the City’s primary arterial network, as there is with Resolution Drive.

To resolve this issue, the alternatives considered were:

- ‘Do nothing’ (existing designation)
- Resolution Drive Interchange (various forms).

The alternatives were assessed as follows:

- Testing in the WRTM; and
- Traffic and economic assessment.

Detailed traffic analysis determined that to ‘do nothing’ (retain Expressway as designated) was not a viable alternative.

The selection of the location to provide additional connectivity was driven by the location of the old Hamilton-Auckland motorway corridor (paper road). HCC has developed a primary arterial road along this corridor - Resolution Drive - which currently extends up to Borman Road. A number of strategic planning documents (such as Access Hamilton, Proposed Waikato Regional Policy Statement) indicate the intention to extend Resolution Drive out to the Expressway.
Once Resolution Drive was chosen as the most appropriate location for providing the additional connectivity required, a number of alternatives were considered in relation to the form of this interchange.

Three Resolution Drive alternatives were evaluated using the Waikato Regional Transportation Model (WRTM) and subjected to a full economic assessment. This also included an Option 4 that looked at the merits of providing a bridge over Kay Road. The ‘do-minimum’ option is to leave the designation as it is (no Resolution Drive Interchange).

<table>
<thead>
<tr>
<th>Option 1: North facing ramps</th>
<th>Option 2: North facing ramps + Resolution Drive Extension to Horsham Downs Rd</th>
<th>Option 3: Full Interchange + Resolution Drive Extension to Horsham Downs Rd</th>
</tr>
</thead>
</table>

**Figure 3-3: Resolution Dr Interchange Options**

As the options were considered relatively straightforward with similar environmental effects, no multi criteria assessment was undertaken.

If the Resolution Drive Interchange has north facing ramps only there would be no northbound off ramp from the Expressway to the local road network between Greenhill Road and Gordonton Road – a distance of 18 km. There would also be no southbound on ramp between Lake Road and Greenhill Road – a distance of 11 km. The extension of Resolution Drive to Horsham Downs Road would benefit the Horsham Downs Community by providing a more direct connection to the Expressway for trips to and from the north.

The investigation confirmed that a full Resolution Drive Interchange involving north and south facing ramps should be designated to ensure long term network resilience, even though only the north facing ramps are likely to be constructed initially. In addition the Resolution Drive extension to Horsham Downs Road should be developed by the local authorities as it did not appear to contribute to the objectives of the Project, which is to provide for inter-regional and inter-centre trips. It also confirmed that provision of a Kay Road bridge over the Expressway should be retained as per the original designation, as it was economically justified and supported by the public.

Construction of the full interchange is not warranted at this stage because the transportation modelling indicates that there would be very little use of the south facing ramps.
3.2.3 Consultation

As identified under section 2.4 of this report, the NZTA has undertaken extensive consultation with statutory bodies, Tangata Whenua, key stakeholders, the local community, and people who are affected by, or who have an interest in the Project.

3.2.4 Assessment of Environmental Effects

The following outlines the likely environmental effects of the change to the designation, and identifies mitigation measures, where necessary.

3.2.4.1 Traffic

Construction Traffic
To construct the Resolution Drive Interchange and approaches will require approximately 700,000m³ of fill material. This is an additional volume of about 600,000m³ over and above that proposed when the designation was secured. The majority of this will be sourced from the Simpsons borrow area adjacent to Lake Road and from the ridge cuts between Osborne Road and Kay Road. The material is most likely to be moved along haul roads within the project corridor, therefore there would be no additional traffic effects. It is however recognised that the contractor may choose to use the road network to move the material, in which case Horsham Downs Road and the northern ends of Osborne and Kay Roads would most likely be used. At the worst case scenario, approximately 60,000 truck and trailer trips (to and from the site) would be required to move the extra material over one construction season. This would create an extra 480 truck and trailer trips per day over approximately 125 days (useable working days in a season).

Horsham Downs Road is listed as a minor arterial corridor under the Hamilton City Council Plan; accordingly, one of its functions is to accommodate through traffic and all forms of traffic, including truck and trailer units. The existing average daily traffic flow is around 1,100vpd to 1,400vpd (Waikato District Council count 2013). Although a minor arterial route is capable of accommodating much higher traffic flows, the increase in total daily flow (+44% to +34%) is considered to have more than a minor effect on the safe operation of Horsham Downs Road due to its curvilinear alignment, narrow road shoulders, and adjacent private property accesses and side roads, particularly as the increase in traffic is due to truck and trailer units.

Operational Traffic

Daily Traffic Flow
Traffic flow predictions indicate that 2041 flows on Resolution Drive (between Borman Road and Wairere Drive) will range from 12,600vpd to 24,100vpd without the Resolution Drive Interchange alteration. With the inclusion of the interchange, traffic flows are expected to increase to 16,900vpd to 25,800vpd over the same section of road. The greatest increase in traffic flow is north of Thomas Road.

Given that Resolution Drive is a major arterial route, this increase in traffic flow is not considered detrimental to the safe and efficient operation of the network. Traffic that is attracted to Resolution Drive is choosing to do so, rather than use existing local roads through the Waikato District network that are not as efficient. Hence, those local roads will notice less traffic thereby improving road safety.

Property Access
The increase in traffic flows on the connecting side roads (Borman, Discovery, and Thomas) is not considered to have any significant impact on those roads as the increase is primarily a result of local residents choosing to use the expressway to travel north rather than other less favourable routes.

Because Resolution Drive is an access controlled corridor, there are no property impacts as a result of the increased traffic flow on Resolution Drive. The increase in traffic flows on the side roads are considered small enough not to have any detrimental impacts on property access.

Intersections
The Resolution Drive off ramp is connected to Resolution Drive via a single lane roundabout which doubles up as a turning head for the termination of Resolution Drive. Exiting right turn vehicles from the off ramp only need to give way to a small traffic flow destined for the southbound on ramp. Due to the low peak period flows, operation in 2041 is expected to be LOS B or better. The on ramp junction is a simple ‘T’ intersection with left turn entry flows which are not required to give way to any other movement.

The connection of Resolution Drive to the Hamilton Section expressway will result in increased traffic flows through the existing roundabouts at Borman Road, Discovery Drive, Thomas Road and Resolution Drive during peak periods. With the exception of Resolution Drive/Wairere Drive roundabout, the expected operating conditions will be LOS B or better.

The most notable impact is expected to occur on the Wairere Drive east approach to the Resolution Drive/Wairere Drive roundabout with the average delay increasing from 42sec/vehicle to 125sec/vehicle in the year 2041 morning peak period with a significant increase in the expected maximum queue length. This increase is due to an arrival flow rate that is expected to exceed the available capacity (v/c = 1.1). It is also noted that the proportion of HCV’s using the junction increases with the inclusion of the proposed Resolution Drive interchange. Although the Wairere Drive east approach is likely to have average delays of up to 2minutes/vehicle during the morning peak period this is not likely to be out of step with delays on Wairere Drive at other key junctions during year 2041.

In the year 2041 evening peak the Resolution Drive approach is the most affected with the average expected delay increasing from 42sec/vehicle to 63sec/vehicle (+50%), although the overall intersection is still expected to operate at a LOS C.

Pedestrian and Cycle
The Resolution Drive Interchange alteration will provide a positive effect for pedestrians and cyclists, as it includes a footpath on one side of the bridge crossing the Expressway where there are no existing pedestrian or cycle lines.

Traffic Conclusion
The effects of adding a Resolution Drive Interchange onto the expressway is considered to be no more than minor for the following reasons:

» The connection of two major arterials (Resolution Drive and Expressway) is appropriate and encourages the right traffic on the right roads by attracting long haul traffic off local roads and onto the arterial corridors;
Resolution Drive is a major arterial and hence is expected to carry significant traffic flows. Despite the increase of +7% to +19% in daily flows, the expected maximum year 2041 traffic flow of 25,800 vpd is readily accommodated on a four lane divided roadway;

There are no adjacent property impacts on Resolution Drive as the corridor is a totally access controlled;

There is unlikely to be a significant risk of increased crashes on Resolution Drive due to the high standard of alignment;

Whilst the proposed Resolution Drive Interchange alteration does have some impact on the intersection capacity at Resolution Drive/Wairere Drive roundabout, the overall intersection is still predicted to operate at LOS D or better in the worst peak period in year 2041. It is also noted that the increase in peak hour traffic flow is only in the order of +3% to +4% which is considered to be less than a minor increase; and

HCC have indicated on the Rototuna Structure Planning maps a long term project to provide another Waikato River crossing referred to as the Northern River Crossing between Resolution Drive and the Central Interchange (on the recently built Te Rapa Section of the Waikato Expressway). When constructed this will reduce the right turn flow out of Resolution Drive that is destined for Te Rapa and western areas of the city, which in turn will provide more capacity for the Wairere Drive east approach and thus reduce delays.

3.2.4.2 Noise

A noise assessment was undertaken as part of the existing designation. The Transit New Zealand Noise Guidelines were the main document used to provide guidance to manage noise effects and fulfil the requirement of Section 16 of the RMA that land owners shall use the best practicable option to ensure the emissions of noise from their land do not exceed a reasonable level. These Noise Guidelines were developed in the 1993-1994 period and adopted as draft in October 1994 by Transit New Zealand. In 1999 the Noise Guidelines were fully adopted and incorporated into Transit New Zealand’s Planning Policy Manual as Appendix 6. Since 1994 the Noise Guidelines have been used by most acoustic professionals to assess the effects of roading projects. The Noise Guidelines set design noise levels that are to be achieved subject to practicability. The Noise Guidelines have a lower threshold noise level at 55 dB for a highway operating environment, as below this noise level it is regarded as difficult to achieve the practical operation of a highway. The Noise Guidelines set design noise levels for incremental increases above the existing ambient noise level. The sizes of the increments of allowable noise level increase correspond to noise effects that could be considered no more than minor.

The Noise Assessment Report (attached in Volume 2) identifies that the scale of the Resolution Drive Interchange alteration is small when compared to the full route and the scale of noise effects arising from the alteration will be less than minor.

Construction Noise

Conditions NOR1 2.1 and 2.2(xii). of the existing designation requires a construction management plan to be certified by the WDC, which includes procedures, methods and measures to address the following:

Compliance with NZS 6803: 1999 Acoustics – Construction Noise (NZS 6803: 1999). The location, estimated duration and timing of each significant component of the works is to be identified to ensure compliance with the applicable noise limits in Table 2 of NZS 6803: 1999,
including monitoring for compliance. Where compliance with Table 2 of NZS 6803: 1999 is not practicable, identification of alternatives for protected affected residents.

The overall approach of NZS 6803: 1999 is to develop upper noise levels for construction noise appropriate to the context of the location in which the project is to be constructed. Table 2 of NZS 6803 contains three sets of noise limits according to the expected duration of construction work. In NZS 6803:

» Short-term duration means construction work at any one location for up to 14 calendar days, and this set of noise limits are the highest noise levels;

» Typical duration means construction work at any one location for more than 14 calendar days but less than 20 weeks; and

» Long-term duration means construction work at any one location with a duration exceeding 20 weeks, and this set of noise limits are the lowest noise levels.

Most road construction activity readily complies with the typical duration noise limits in Table 2 of NZS 6803 where there is more than 40 metres separation between the main construction activity and the receiver. The long-term duration noise limits would be more difficult to comply with and separation distances may have to be more like 60 metres for large clusters of machinery.

However, the existing conditions are that the Construction Management Plan needs to identify how the construction activity will be managed to protect affected parties when the upper noise levels of NZS 6803 cannot be met.

The proposed alterations to the existing designation result in only small to moderate changes in separation distance between the construction activity and nearby receivers. Therefore it is expected that the ability for the altered designation to comply with NZS 6803 is little changed from the ability of the existing designation to comply, and the periods of times for which alternate noise management methods may need to be used will also be similar. Therefore, the construction noise effects of the proposed alterations are less than minor.

**Operation Noise**

Over the wider surrounding area, the noise level changes between the designated project and the Resolution Drive Interchange alteration will increase in the order of 0.5 to 2.5 dB. There are no receivers in the immediately adjacent area. At the Horsham Downs School boundary (the closest receiver site) the noise level increase due to the proposed alteration will be less than 1.5 dB and even less within the area of the school.

With regard to the two potential configurations (Resolution over Expressway or vice versa) the noise assessment notes that the change in noise between “the local road over the expressway” and “the expressway over the local road” is typically 1 to 2 dB. Therefore, the configuration selected by the contractor will not significantly affect the conclusion made based on assessment of Resolution Drive passing over the expressway - that the proposed alterations do not increase noise effects of the project.

**Noise Conclusion**

The construction noise effects of the Resolution Drive Interchange alteration are expected to comply with NZS 6803 and any mitigation measures will be similar to that required by the existing designation. As the existing conditions on the designation are proposed to extend to the alteration,
the construction noise effects of the alteration will have less than minor effects on the surrounding environment.

Given the distance of the proposed interchange to adjacent properties, the 1 to 2 dB increase in noise will have a less than minor on the surrounding environment.

### 3.2.4.3 Landscape, Visual and Urban Design Effects

The Landscape, Visual and Urban Design Effects Assessment (attached in Volume 2) describes and determines the magnitude of the potential effects of the alterations to the Hamilton Section designation.

Alteration U has the following potential landscape, visual and urban design effects:

- Physical effects of the Expressway construction on existing landforms, land cover and land uses;
- Character and amenity effects associated with the change in landscape;
- Visual effects on views of the Expressway from nearby dwellings, private property and public roads; and
- Urban design effects on alternate transport modes, connectivity, local growth areas and council structure plans.

The Project traverses three distinct landscape types which include rolling and flat topography plus gully environments, which contain a variety of vegetation including hedgerows, shelter belts and mature exotic trees set within a mainly rural environment.

The landscape and visual effects of the Project will be typically related to the extent of earthworks, the loss of vegetation, changes to land use and the placement of structures within the landscape. The landscape and visual effects will typically be contained and limited to the immediate area of the alterations to the Project, as the rising topography and land cover will contain the effects.

Where properties are in close proximity to the Resolution Drive Interchange alteration, they will have the greatest magnitude of effect, but the alteration will typically result in a similar level of effect in relation to the original designation design.

The Rototuna Structure Plan identifies a new suburban centre (Rototuna Suburban Centre Zone), which will provide a mix of land uses that incorporate retail, employment and community facilities and medium and high density residential development. The vision for the area aims at creating a high quality urban environment that has a local focus, well connected transport modes, a choice of living environments and densities, achieves urban design excellence, and retains significant natural features.

The Resolution Drive Interchange alteration will be located in the north eastern extent of the residential growth cell with a General Residential (lower density) located to the northern side of the Expressway. The Structure Plan aims at maintaining connectivity of the residential area to the north of the Expressway and the future suburban centre, by identifying Kay Road as a collector road and Horsham Downs Road as a minor arterial road. The Structure Plan recognises Resolution Drive as a main arterial road that will connect into the Expressway, which has implications on developing local connector roads to allow land development in the future. Additional links will
include off-road walkway/cycleway facilities that will pass under the Expressway to the east of Kay Road. The Structure Plan also recognises the Hamilton Section corridor and the need to provide land for noise and stormwater mitigation. Additionally, the Structure Plan recognises the need for housing to be set back from the immediate boundary of the Hamilton Section, which will allow HCC to develop this area in the future as an open space facility. The alteration proposed does not impede the achievement of these intentions expressed in the Structure Plan.

Landscape and Visual Effects

The landscape effects of the Resolution Drive interchange have been considered with reference to both potential options – Resolution Drive over the Expressway, or the Expressway over Resolution Drive.

In both cases, the interchange will result in similar changes in landform and landuse, which will be new features in the landscape in comparison to the original designation. For both options the removal of vegetation will be limited to and existing shelter belt of semi mature conifers that occur to the north of Resolution Drive and will result in a localised low effect. Similarly, for both options the land use changes will involve the loss of pastoral farmland to accommodate the interchange, which will have a localised moderate effect.

The landscape effects of the Expressway under-passing Resolution Drive will result in a moderate-high landform effect in relation to the original designation, as the height of the Expressway will increase and the placement of approach embankments will be required for Resolution Drive overbridge. The change in landform will be noticeable. The visual effects will be in relation to the increase to the height of the Expressway, the placement of the on and off ramps, the placement of approach embankments to Resolution Drive and the inclusion of a bridge structure to overbridge the Expressway, which will result in a moderate-high visual effect on the amenity values within the immediate vicinity. The interchange arrangement will be a noticeable new feature in the landscape, although the effects will be mainly contained and limited by the rising topography surrounding the area. The effects on views/the visual amenity in relation to the houses located on the ridge along Horsham Down and Osborne Road (that are at least 500 m from the interchange), means the visual effects will be moderate by virtue of their distance from the interchange. Expressway users will be moderately effected by the placement of the bridge structure and the containment of views from the on and off ramps.

The landscape effects of the Expressway overpassing Resolution Drive will result in a moderate-high but localised landform effect in relation to the original designation. Although the change is related to the increased height of the Expressway to overpass Resolution Drive, the change in landform would be seen in context of the Expressway alignment. The inclusion of the north and south facing ramps will also have a moderate effect on landform as the ramp embankments will be new features within the landscape. The visual effects will be in relation to the increase in height of the Expressway, the placement of on and off ramps and the inclusion of the two bridge structures to overpass Resolution Drive, which in relation to the designated scheme will have a moderate-high or visual effect. The interchange will be a noticeable new feature within the relatively flat basin area, which will be mainly contained by the rising topography surrounding the area. The arrangement of the increase in height aligns with the Expressway and the on and off ramps are seen in context of the elevated Expressway alignment, helping to reduce the bulk form of the interchange in relation to properties within the area. The interchange will be a noticeable new feature that will be visible to houses located along the ridge of Osborne and Horsham Downs Road to the north Road (that are at least 500 m from the interchange), which means the visual effects
will be moderate by virtue of their distance from the interchange. Expressway users will benefit from Expressway over Resolution Drive arrangement, as the increased Expressway height will afford views across the landscape.

**Urban Design Effects**
From an urban design perspective, the Resolution Drive overbridge is a more complex arrangement due to the approach embankments and on/off ramps being elevated, which will result in greater earthwork requirements and overall ‘bulk’ appearance. Other effects or constraints relating to the elevation of the local road include a poor interface and access with adjacent land, plus less favourable conditions for pedestrians and cyclists as they will need to go up and over the Expressway when compared to ‘at grade’ facilities.

The alternative of the Expressway over Resolution Drive results in the change in height of the Hamilton Section being maintained within the linear form of the designation, which helps contain the landscape effects. The on/off ramps will slope from the Hamilton Section to tie into Resolution Drive, which will be close to at grade and will provide better integration and access with the surrounding land use. The increased height will strengthen the linear expression of the Expressway to provide a strong future urban edge to Hamilton. Additionally, by maintaining Resolution Drive at grade, it provides user friendly pedestrian and cycling facilities that will aid connectivity between the outlying rural area and Rototuna.

From an urban design aspect the Hamilton Section passing over Resolution Drive provides a better response as it will result in a strong urban boundary, less ‘bulk’ earthworks to construct the on/off ramps, a better interface with the adjacent land from Resolution Drive and user friendly cycle and pedestrian facilities.

**Mitigation Measures**
Existing conditions of the designation (NOR 1 – 6.1 to 6.6) which are proposed to extend to the alteration require the following:

- A landscape management plan identifying specific landscape measures certified by WDC;
- The landscape management plan shall be in accordance with the PIR/AEE of the original designation;
- A landscape management plan shall be prepared by a suitably qualified landscape architect to clearly reflect the landscape design philosophy statement;
- The landscape management plan shall be implemented:
  - Wherever practicable prior to construction works commencing;
  - As soon as areas become available for planting due to the process of the works; and / or
  - Within 12 months of the road construction being issued a Certificate of Practical Completion in accordance with NZS 3910: 1998 Conditions of Contact for Buildings and Civil Engineering Construction.

- NZTA shall undertake inspections at 2 and 5 years after the implementation of the landscape management plan and remedial works if any significant plants or areas of planting have not become established.

The landscape mitigation measures will be utilised along the embankments to integrate the interchange into the surrounding landscape. The mitigation planting will utilise predominantly
native species with some exotic trees to maintain the ‘treed’ character while helping to help soften
the visual appearance and form of the Hamilton Section and interchange area. Additionally, the
landscape planting will aim at creating the interchange as a ‘gateway’ entrance into Hamilton City,
and will also incorporate species that will enhance the ecology of the area, and therefore, help
protect and enhance the visual amenity and character of the area.

The treatment of the bridge structures will also play an important role in contributing to maintain
the visual qualities of the area and the experience of the Hamilton Section user. Specific bridge
design approaches will be incorporated during the detailed design stage, and will aim at developing
a ‘gateway’ bridge that positively contributes to the character and identity of the area. The bridge
structure(s) will result in a high aesthetic quality in form and finish, with slender and elegant
structure(s) relative to span and barriers that will form part of the ‘family’ of bridge designs along
the length of the Hamilton Section.

Landscape, Visual and Urban Design Conclusion
The form of the Resolution Drive Interchange alteration will increase the land coverage due to the
additional earthworks; however, it will ‘sit’ within the landscape and will be well integrated by the
implementation of the extensive mitigation planting at this ‘gateway’ location. Additionally, the
surrounding topography to the north of the interchange will contain and limit the effects on the
broader landscape with the effects being limited to properties located along Osborne and Horsham
Downs Road to the north.

Overall, it is considered that the Resolution Drive Interchange alteration will have no more than
minor landscape, visual and urban design effects on the surrounding environment as the effects
will be mitigated by the existing conditions on the designation.

3.2.4.4 Air Quality

The Air Quality Assessment Report (attached in Volume 2) modelled air pollution dispersion as
recommended by the Ministry for the Environment in the Good Practice Guide for Assessing Air
Quality Effects of Land Transport (MfE 2008), and in the draft New Zealand Transport Authority’s
(NZTA) Guide to Assessing Air Quality Effects for State Highway Asset Improvement Projects’
(NZTA 2012). The assessment also has taken into account the Waikato Regional Plan (2007) and
has used air quality monitoring data from the Waikato Region.

The Ambient Air Quality Guidelines (AAQG) published by the Ministry for the Environment that
were most recently updated in 2002 (MfE, 2002). The guidelines that are relevant to this
assessment are as follows:

» Carbon monoxide 30 mg/m³ over 1 hour;
» Fine particles (as PM 10) 20 Gg/m³ annually;
» Fine particles (as PM 2.5) 25 Gg/m³ over 24 hours; and
» Nitrogen dioxide 100 Gg/m³ over 24 hours.

The National Environmental Standards for Air Quality (AQNES) include thresholds for three air
contaminants which are relevant to the Project, carbon monoxide, nitrogen dioxide and PM 10. The
thresholds are the minimum requirements for outdoor air quality to guarantee a level of protection
for human health and the environment. The threshold concentrations are as follows:
Dust refers to larger airborne particles, typically more than 50 microns in diameter that have the potential to settle on surfaces. These larger particulates are not generally associated with adverse health effects, although may have the potential to cause nuisance effects from dust settling if emissions are not appropriately managed and controlled.

There are no AAQGs or AQNES standards for dust. A number of ‘trigger levels’ are contained in the Good Practice Guide for Assessing and Managing the Environmental Effects of Dust Emissions (MfE, 2001), which are as follows:

- Deposited dust 4 g/m² over 30-days in all areas; and
- Total suspended particulate:
  - 80 Gg/m³ over 24 hours in highly sensitive areas;
  - 100 Gg/m³ over 24 hours in moderately sensitive areas; and
  - 120 Gg/m³ over 24 hours in insensitive areas.

Construction Emissions
During construction heavy dust could potentially fall up to 150 metres from the source. Dust effects could potentially occur in the vicinity of the construction activities and the actual deposition rates will depend on the amount of dust and nature disturbed at the source.

The only source of hazardous air pollutants associated with the construction of the Expressway is engine exhaust emissions from construction vehicles and fugitive emissions of hydrocarbons from hot mix asphalt. These emissions are associated with separately running machinery and equipment and may have short-term effects on work personal. The emission rates of these contaminants are insignificant and may be considered as occupational hazards, but not in terms of effects on the wider environment such as nearest residential facilities.

The effect of the widening of the existing designation at the Resolution Drive Interchange will be negligible due to the distance to the nearest residential dwellings. All dwellings at this interchange are located beyond the distance of 200 metres from the Resolution Drive Interchange on/off ramps.

Subject to appropriate mitigation measures being implemented during construction, PM10 levels and fugitive dust emissions from construction activities can be kept within the acceptable thresholds and trigger levels. Conditions NOR 1 – 2.1 and 2.2(iv) on the existing designation (which is also proposed for the alteration) requires a construction management plan to be certified by WDC and require the ‘containment within the boundaries of the designation of dust nuisance arising due to construction, including effects on potable water supplies and to transmission lines’.

Examples of appropriate measures to minimise or eliminate potential impacts on the local air quality include the following:

- Watering to keep construction materials damp;
Controlling the speed of vehicles and machinery operating within the construction area and on access roads;

Stopping the movement of construction material in the vicinity of sensitive receiving areas when the wind is increasing and blowing towards the sensitive area;

Wind fencing should be constructed if required;

Liaison with local communities regarding any concerns or complaints; and

Avoiding as far as practicable the stockpiling of materials with dust generation potential close to sensitive receiving areas.

**Operation Emissions**
The net effect of the Expressway on the local environment including Hamilton airshed can be assessed from neutral to positive. The Expressway will be located beyond the Hamilton airshed in the rural area and will reduce traffic congestion on some local arterial roads within the Hamilton urban area; however reduction of traffic flows on some roads may be offset by increased traffic on others.

Vehicles at high speed produce less carbon monoxide and PM emissions compared to congested or interrupted traffic conditions and the effect can be assumed as positive. Traffic in the urban area will generate more oxides of nitrogen. The Expressway will reduce the travelling time bypassing Hamilton also reducing emissions, and it could be assumed that the effect will be neutral.

Meteorological conditions above the area will have significant effect on the distribution of vehicle emissions. The prevailing westerly and south-westerly winds will blow emissions towards the rural area and away from the Hamilton airshed. At the same time emissions from airshed will affect the Expressway area and the realistic interaction is difficult to predict.

The air quality effect of the Resolution Drive Interchange on Osborne Road and Kay Road is also negligible, as traffic flows through these routes will be relatively insignificant. All residential dwellings at these intersections are located at a distance of more than 200 metres from the Expressway. The new Resolution Drive section between the Resolution Drive Interchange and Borman Road roundabout (to be constructed by HCC) will not affect the existing air quality, as the predicted traffic flow in the year 2021 will be between 5,500 and 6,000 vehicles per day. It is considered that the traffic flow will have a less minor effect on ambient air quality.

**Air Quality Conclusion**
The air quality effects of Alteration U can be mitigated during construction through conditions NOR 1 – 2.1 and 2.2(iv) on the existing designation to ensure that dust emissions are kept within the boundaries of the altered designation. As the operation of the Hamilton Section will only be a small contributor to the Hamilton airshed, the effect of the operation of the Resolution Drive Interchange is negligible. Therefore, it is considered that the air quality effects of Alteration U will be less than minor.

**3.2.4.5 Vibration**
The Vibration Assessment Report (attached in Volume 2) provides an assessment of ground-borne vibrations resulting from the construction of the Hamilton Section and from traffic once it becomes operational. The estimated vibration levels were assessed from the perspectives of human comfort and cosmetic building damage using guidelines given in British Standard BS 5228 2:2009, Code of
To identify where construction and operation of the alterations to the Hamilton Section may create significant adverse vibration impacts, the following criteria was applied to provide estimates of ground-borne vibrations:

- 0.3 mm/s PPV for disturbance of building occupants;
- 1 mm/s PPV for complaint by building occupants;
- 2.5 mm/s PPV for damage to buildings arising from traffic (i.e. long term vibration); and
- 3 mm/s PPV for damage to buildings arising from construction (i.e. short term vibration)

The criteria was derived from British and German Standards, and has deliberately been made more stringent than the guideline values specified in the Waikato District Plan because they are being applied to modelled estimates of ground vibrations and not measured ground vibrations.

For perception of traffic vibration, the criteria commonly used is taken the Norwegian Standard NS 8176.E (2005) “Vibration and shock: Measurement of vibration in buildings from landbased transport and guidance to evaluation of its effects on human beings.” Most of the residential buildings in the vicinity of the route of the Expressway are located at least 20 metres from the edge of the closest lane so there is a very low likelihood that vibrations induced by passing traffic will be perceptible.

There is only a 15% probability that ground vibration measured 10 m from any road construction machine will exceed 5.4 mm/s PPV. Therefore, a source vibration level of 5.4 mm/s PPV to represent construction activity appears justified as it is an upper-bound value that will result in effects assessments from construction being conservative, which is considered preferable. Compared to the full route, the scale of alterations is small and those alterations with potential vibration effect are primarily widening of the designation so as to accommodate a new or altered interchange or local road crossing. This can result in a reduction in the distance separating the source of the vibration from an occupied building. Provided this separation distance remains greater than 44 metres, vibration effects resulting from the designation alteration can be considered minor.

The only dwelling potentially affected by the designation alteration is 537 Horsham Downs Road, with the designation boundary being brought 59 metres closer to the property (from 360 metres to 301 metres). The vibration effects of the designation alteration to include the Resolution Drive Interchange will be less than minor as for vibrations from the construction and operation of the Expressway to be felt, the distance from the vibration source has to be 44 metres or less.

In addition, conditions NOR 1 – 2.1 and 2.2(vi) of the existing designation require a construction management plan to be certified by the WDC, which includes procedures, methods and measures to address vibration and its effects on dwellings.

Accordingly, it is considered that the vibration effects of the Resolution Drive Interchange alteration will be less than minor given the distance to the nearest dwelling and the existing conditions of consent are proposed to be extended to the alteration.
Vibration Conclusion
The only properties which will be closer to the Resolution Drive Interchange alteration will still be in excess of the 44 metres from the construction and operation of the Expressway to be felt. In addition, conditions NOR 1 – 2.1 and 2.2(vi) of the existing designation requires a construction management plan to be certified by the WDC, which includes procedures, methods and measures to address vibration and its effects on dwellings. Therefore, it is considered that the vibration effects of Alteration U will be less than minor.

3.2.4.6 Stormwater/Drainage

General Hamilton Section Stormwater/Drainage Effects
The Hamilton Section will create a large area of new pavement and will cause stormwater to run off the site at a higher rate and in larger volumes than currently occurs. This could result in erosion of stream banks, and flooding of properties of the various downstream water channels.

The Water Effects Assessment Report (attached in Volume 2) identifies that without mitigation the Hamilton Section has the potential to cause both short-term and long-term adverse environmental affects that are related to stormwater runoff.

Groundwater Levels
Investigations indicate that groundwater levels along most of the alignment are too high to effectively implement soakage as a feasible stormwater treatment and disposal management practice. Groundwater levels were measured from 39 bores and 66 CPTs and test pits along the route during the first 8 months of 2011.

In areas where the groundwater levels are low enough to be considered for soakage, the road is to be constructed in cut and at a level that preclude its use. Consequently, alternate stormwater management practices (other than soakage) need to be implemented that require sections of the road to be constructed on embankments to allow runoff to be conveyed to a watercourse that is able to receive runoff from the Expressway once treated and attenuated.

Construction Effects
Short-term effects occur during construction and arise as a result of earth moving activities, and bridge construction crossing the Mangaonua and Mangaone gullies. Stormwater flowing over the site can mobilise sediment and carry it off-site into existing stream and farm drains eventually discharging to the Waikato River. To mitigate the effects that this sediment can cause, erosion and sediment control measures will be used as outlined in the WRC Erosion and Sediment Control Guidelines for Soil Disturbing Activities. These matters are addressed as part of the Project’s Resource Consent applications.

Operation Effects
Long term effects can occur after construction has been completed, during the life of the road of the asset. To mitigate the long term effects the NZTA Stormwater Treatment Standard for State Highway Infrastructure has been adopted.

Operation of the completed Expressway will have potential long term adverse environmental effects. These effects will be mitigated by implementing practices that are consistent with those outlined in the NZTA Stormwater Treatment Standard for State Highways Infrastructure.
Potential long term adverse effects related to the operation of the road and measures to mitigate them are as follows:

Pollution:
Contaminants in road stormwater runoff can include sediment, heavy metals, hydrocarbons, and gross pollutants. Heavy metals that are present in road stormwater runoff include lead, copper, and zinc. Overseas studies indicate that approximately 70% of the contaminants will be attached to fine sediments, and the remaining 30% is typically dissolved in the runoff.

A degree of pre-treatment will result from grassed conveyance swales that will trap sediments while flowing to the wetlands for main treatment. Where surface water is to be managed by kerb and channel, catchpits will be used to remove gross pollutants and road derived sediment before the runoff is discharged to a wetland. Wetlands will be designed to remove hydrocarbons and the pollutants that adhere to the suspended soils, but the vegetation will also remove a proportion of the dissolved pollutants. Treated stormwater from the wetlands will be discharged to existing surface waterways.

These matters are addressed as part of the Project’s Resource Consent applications.

Stream Erosion:
The creation of road pavement can result in flooding and increased erosion rates within streams due to greater stormwater concentrations and discharge rates. Stream erosion is mitigated by detaining and slowly-releasing flow from what is known as the extended detention design storm, this storm is representative of the more frequent storms as set out in the NZTA standard. Extended detention will be provided for stormwater runoff from the road pavement in order to minimise the discharge from the road and the potential for scouring material from stream beds.

These matters are addressed as part of the Project’s Resource Consent applications.

Flooding:
Flood attenuation controls the peak discharge rates from the less frequent extremely intense storms. It ensures that the peak discharge rates following construction of the road do not exceed the pre-development discharge rates and therefore the peak flood levels downstream will not be affected.

While peak discharge rates can be mitigated it will not be feasible to reduce the total volume of runoff discharged from the Expressway to preconstruction levels due to low anticipated soakage rates in critical sections of the route. This will cause the nearby farm drains to run full for a longer period of time, but it should not increase the peak area affected by ponding.

Disposal of runoff to ground via soakage was considered for the Expressway between the intersections of Gordonton and Ruakura Road to reduce the volume of runoff generated; however this option was dismissed due to the presence of a high watertable level that would prevent significant soakage. As this section of the Expressway (including swales) will need to be constructed on a low height fill embankment the ability to dispose of runoff to soakage is further limited as engineered fill tends to be significantly less permeable than in situ soils.

Flood attenuation is only appropriate when there is a real or potential downstream flood risk. This includes all discharges through Hamilton City.
Discharge outfalls constructed in stream gullies will be designed to dissipate energy to minimise scour erosion.

### Stormwater Treatment Devices

The vertical geometry of the Expressway has been designed to allow road runoff to drain by gravity to wetlands that are to be constructed at low points along the route. Typically these low points have been set to coincide with existing watercourse crossings. Where the existing topography is extremely flat such as between Gordonton and Ruakura Roads the Expressway will need to be constructed on a low height fill embankment to provide the hydraulic head needed to convey flow to the discharge point and to allow sufficient hydraulic head to store runoff for slow release. Where the Expressway is to be constructed on engineered fill low soakage rates through the fill are anticipated.

Swales and constructed wetlands are expected to form the bulk of the stormwater conveyance and treatment devices for the Expressway due to their cost effectiveness and ease of maintenance. Wetlands or detention swales are the most suitable devices to treat and store stormwater runoff. They will be developed in accordance with the NZTA Stormwater Treatment Standard for State Highway Infrastructure.

The wetlands proposed along the Expressway have not been modelled with a flood routing program as the successful design and construct (D&C) contractor will develop their own stormwater mitigation strategy based on their geometric road design. A conservative assessment has been made about the size of the wetlands based on post development conditions to minimise downstream affects and ensure there is sufficient land designated.

Where the Expressway designation dictates that the wetland length to width ratio differ from the standard 3:1 ratio, planted wetland swales will be used to treat and detain stormwater runoff. Planted wetland swales utilise planting to slow the runoff down to promote the settlement of suspended solids and the pollutants that adhere to them.

### Resolution Drive Interchange Stormwater/Drainage Effects

It is considered that the Resolution Drive Interchange alteration will have no more than minor stormwater effects on the surrounding environment. The short-term earthworks and sedimentation effects during construction will be mitigated in accordance with the WRC Erosion and Sediment Control Guidelines for Soil Disturbing Activities, and the conditions of the existing designation.

The operational stormwater effects of the Resolution Drive Interchange alteration will be no more than minor as grassed swales will trap sediments while flowing to the wetlands, which will remove hydrocarbons, pollutants that adhere to the suspended soils, and remove a proportion of the dissolved pollutants.

### 3.2.4.7 Ecology

The Ecological Assessment Report (attached in Volume 2) identifies that the majority of the Hamilton Section corridor encompasses a highly modified and intensively farmed landscape, which supports no indigenous vegetation and little indigenous fauna.

The Resolution Drive Interchange impacts on improved pasture, a small amount of exotic shelter belts and isolated mature exotic trees. Several mature poplars will be removed from within the
designation; however long-tailed bat surveys recorded no activity in this location. The proposed alteration to the designation affects no significant indigenous vegetation or significant habitat for indigenous fauna. It is possible that copper skink may inhabit micro-habitat within the alteration; however given the state of the highly modified and intensively farmed habitat within these areas, no ‘Threatened’ or ‘At Risk’ flora or fauna are likely to be significantly affected by the proposed alteration.

There is also likely to be a small additional impact on farm drains in this location. The NIWA NZ Freshwater Fish Database (NZFFD) holds records for giant kokopu in another tributary of this catchment although catfish and gambusia are also recorded. The Hamilton Section alignment crosses near the head of the drain, which is highly modified and is considered to be of low ecological value. The ecological effects of the Expressway on streams and drains are matters being considered by WRC as part of resource consent applications.

Therefore, it is considered that the Resolution Drive Interchange alteration will have less than minor ecological effects.

3.2.4.8 Social

The Social Impact Assessment Report (attached in Volume 2) identifies that effects during construction can be addressed through the CMP condition 2.0, particularly clause (viii) provision of access for emergency vehicles, and clause (viii) maintenance of road and property access during construction (refer Appendix C for full detail of conditions). Notification of the likely commencement date for the works and expected timeframe of the construction programme is also required (condition 2(i)). This will help to mitigate the social effects of any temporary access changes, as people will be able to plan for appropriate alternative arrangements and incorporate these into their usual daily routines.

Once operational, effects identified in the Social Impact Assessment Report include:
- Improved access on and off the Expressway for local and Hamilton North residents who wish to travel to and from the north - social benefits for employment (such as commuting to and from Auckland for work), recreation (trips to Auckland to enjoy festivals, events and concerts that do not come to Hamilton, or visits to friends and family north of Hamilton), and access to and from regional areas for emergency services;
- Maintained local access and connectivity, as both Osborne Road and Kay Road are to remain connected via bridges over the Expressway - important for maintaining social connectedness and cohesion in the community;
- Minor negative effects on environment and amenity, including noise effects on the school which could impact on children’s learning and concentration – to be addressed by mitigation measures; and
- Requirement for additional land take – compensation will be provided through the Public Works Act process, and the lapse date on the designation (condition 10) provides a degree of certainty regarding construction timeframes and acquisition.

Social Conclusion

In summary, the alteration to include the Resolution Drive interchange will have varying social effects ranging from neutral, insignificant, minor negative to substantial positive. The alteration
will provide a connection that is well supported by the neighbouring and wider community, while mitigating effects on environment and amenity through requirements in the existing designation conditions.

### 3.2.4.9 Contaminated Land

The Contaminated Land Assessment Report (attached in Volume 2) has identified a number of properties along the proposed route of the Expressway as having potentially contaminated soils on the basis of past and present land use. Identification of properties was achieved through a combination of accessing WRC, WDC, and HCC land use databases which contain records of known contaminated properties and properties thought to be potentially contaminated, by studying air photographs of the area and walkover inspection of the route.

Areas identified and investigated were:

- Area of uncontrolled filling adjacent to 105A Puketaha Road, a former clandestine drugs laboratory (possible volatile organic compounds);
- The farm properties at 113B/C and 3210 Ruakura Road (known storage of chemicals, farm offal holes and sheep dips);
- Historic orchard site at 211 Morrinsville Road (historic use for orchard spraying);
- The Market Garden at 205 SH26, Morrinsville Road (past and current use); and
- Former wood cutting area and farm tip at 202 Morrinsville Road.

The areas above areas are not located near the Resolution Drive Interchange alteration.

Areas identified but not yet investigated are:

- 112 Puketaha Road – A building consent for 1983 for a woolshed indicates that sheep handling may have been carried out on this property, although there is no information on sheep dip activities;
- 133 Greenhill Road – There is a reference in WDC files to horticultural activities in 1989. No information is held concerning chemical use or potential for the presence of persistent agricultural chemicals;
- A potential sludge pond/farm dump site located at the Resolution Drive Interchange within the area affected by the proposed alteration to designation; and
- A potential orchard site on Cambridge Road (SH1) at the Southern Interchange within the existing designation.

As a potential sludge pond/farm dump site located at the Resolution Drive Interchange alteration, the following potential contaminants associated with the site and activities are:

- Agrichemical spray contractor’s premises used for filling and washing out tanks for commercial agrichemical application;
- Bulk storage of agriculture fertiliser;
- Landfill sites (farm tips); and
- Livestock dip or spray race operations.
As a sludge pond/farm dump site may be located in the vicinity of the proposed Resolution Drive Interchange, the area needs to be appropriately assessed, sampled and tested prior to any earthworks being undertaken. The Contaminated Land Report recommends a general inspection of the site after topsoil stripping.

The potential for release of contaminated materials into the environment during remedial works arises from dust generation, surface erosion and seepage into the groundwater.

In many areas of the works identified to date the road will either be in cutting necessitating the removal of the soils or on embankment burying the soils concerned. It may be possible to retain the soils within the designation if the levels of contamination are below the appropriate published guidance values for such use. Vegetation cover will prevent long term release of dust and sediment generation by erosion. If buried or effectively capped by the road construction, long-term migration of contaminants is not an issue and it may be possible to retain them on site. However; if this were to require long term monitoring to confirm non-migration then disposal will be the preferred option. If the material cannot be retained on site then disposal to a suitably consented landfill site will be necessary.

Specific assessment of locations, soil stratigraphy, groundwater levels and contaminant types will be necessary to assess potential risks to groundwater quality. Where a significant risk is identified the simplest means of mitigating long-term risk may be to remove the soils of concern to a suitably consented landfill. However, where the road is at grade or on embankment the soils of concern may be effectively capped preventing surface water ingress and limiting or eliminating the potential for seepage and migration of contaminants to ground water. Good earthworks practice will limit the risk of contaminant release and that the works will result in a long term net reduction of the risk to groundwater from contaminated soils along the route.

Under the National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health and to comply with current legislation, all issues associated with the further investigation, remediation and monitoring of contaminated sites on this section of the proposed Expressway must be overseen by a Suitably Qualified and Experienced Practitioner (SQEP). This requirement will be included in the construction contract documents and the Earthworks Management Plan (EMP). Any NES resource consent required from WDC and HCC will be sought at the outline plan approval stage, once the contractors and final design of the Expressway have been confirmed.

The SQEP will be responsible for ensuring that the investigative and assessment procedures followed, together with the appropriate remedial actions, and any necessary monitoring plans are prepared, implemented and in agreement with the National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health and WRC requirements.

As part of the consenting procedures the WRC will require an EMP together with, or incorporating a Sediment and Erosion Control Plan (ESCP) to be prepared before works commences. The Contaminated Land Report states that the professional implementation of these is sufficient to mitigate the potential effects of dust migration and sediment run-off leading to the uncontrolled spread of potential contaminants beyond the site boundaries. He believes that with the incorporation of a suitable Contaminated Land Management Plan prepared by an SQEP into the overall EMP and ESCP any remedial works to contaminated sites can comply with WRC Regional Plan Rule 5.3.4.6 Permitted Activity Rule – Discharges from Remediation of Contaminated Land.
Contamination can also occur from the spillage of oil or fuel from construction machinery, which may make its way into surface or groundwater. This may have adverse effects on water quality and aquatic habitat. A Hazardous Substances Management Plan as part of the CMP is proposed as a condition of resource consent from the WRC and requires certification by the WRC prior to construction commencing. This Plan will set out the procedures to be followed to minimise the risk of discharging any hazardous materials on the site as the first priority, and to deal with any discharge that does occur. Examples of techniques used including storing all fuel away from watercourses, undertaking refuelling away from areas where any accidental spill could enter water, and having appropriate procedures in place for cleaning machinery that could result in contamination. Hazardous materials in this context mean any substances that would damage the environment or injure people if discharged into the environment. It includes, for example, vehicle fuels and lubricants and cement and lime that might be used in soil stabilisation.

Contaminated Land Conclusion
Subject to an EMP and ESCP, it is considered that Alteration U will have no more than minor contaminated land effects as locating, characterising and removing any contaminated areas will have an environmental benefit that will outweigh any short term effects from disturbance of the material.

3.2.4.10 Archaeology

Along the route of the Expressway there have been numerous assessments and archaeological investigations. In 1999 Russell Foster undertook an assessment of the archaeological impacts of the Hamilton Section. Foster walked all accessible portions of the three proposed routes prior to the final designation and prepared a report for the purposes of applying to the WDC and HCC for the designation (Foster 1999). There were some areas in the footprint that Foster was not able to visit. Foster’s report details four areas of archaeological concern within the current designation all of which are related to prehistoric Maori horticultural activities. The sites were not formally recorded in 1999 by Foster; however, the locations of these sites have been recorded in ArchSite and have the unique numbers S14/246, and S14/247 for the sites at the west end of the project and S14/248 and S14/252 at the eastern end.

The Archaeological Assessment Report (attached in Volume 2) surveyed and assessed the areas Foster was unable to access. There are no recorded archaeological sites in the area of the Resolution Drive Interchange and stormwater wetland. The area has been archaeological surveyed on foot (by Foster in 1999), examined through aerial photography, and the New Zealand Archaeological Association (NZAA) database indicates that it is unlikely that substantial archaeological remains will be present.

In addition, existing conditions of the designation (NOR 1 - 3.2 to 3.4) which are proposed to extend to the alteration require the following:

» That any earthworks in areas of significance identified on pages 22 to 25, 27 and 28 of the (NAMTOK) Report 1999 shall be monitored by suitably qualified archaeologist (acceptable to the Historic Places Trust (HPT) and Tangata Whenua);

» 4 weeks written notice of the date of commencement for test drilling or construction; and

» In the event that any archaeological items are discovered during earthworks, the NZTA shall:
Archaeological Conclusion
As there are no known archaeological values associated within the area of proposed Resolution Drive Interchange alteration and the existing conditions on the designation would mitigate any archaeological effects of discovery during earthworks, it is considered that the archaeological effects of Alteration U will be no more than minor.

3.2.5 Conditions
Compared to the full route, the scale of alteration is small. It is preferable that one set of conditions apply to the full route, and therefore the Resolution Drive Interchange and stormwater wetland alteration is proposed to be subject to the existing NOR 1 conditions on the designation.

The existing conditions were set by the Environment Court and are considered adequate to mitigate the effects of the alteration to no more than minor levels. Although the NZTA has adopted the New Zealand Standard for road-traffic noise (NZS 6806) in 2010, the standard is for new roading projects. For NZTA to commence earthworks or construction activities, WDC must first certify construction and landscape management plans which will mitigate the construction and visual effects.

3.2.6 Resource Management Act 1991
This section assesses the proposed Resolution Drive Interchange against the relevant provisions of the Resource Management Act 1991.

3.2.6.1 Part 2 Matters
Part 2 of the RMA is the framework against which all the functions, powers and duties under the RMA are to be exercised for the purpose of giving effect to the Act. Section 5 sets out the purpose of the RMA. Sections 6, 7 and 8 are principles of varying importance intended to give guidance as to the way in which the purpose is to be achieved. The following is an assessment of the proposal under these provisions.

3.2.6.2 Section 5
The alteration to the existing Hamilton Section will provide a safe and efficient Expressway corridor which will meet the transportation needs of future generations. Subject to the existing NOR 1 conditions, the alteration will safeguard the life-supporting capacity of air, water, soil and ecosystems. Additionally, the existing conditions of the designation will mitigate any adverse effects on the environment. Therefore, Alteration U is in accordance with the purpose of section 5 of the RMA.
3.2.6.3  **Section 6**

Workshops were held with the TWWG to ensure that the proposed alterations to the Hamilton Section maintained the relationship of Tangata Whenua with cultural sites, waahi tapu, and other taonga (section 6(e)). Subject to the existing conditions on the designation which require an accidental discovery protocol in the event an archaeological feature is discovered during works, any taonga or sites of historic heritage will be protected in the alteration areas.

Accordingly, Alteration U is in accordance with the relevant matters within section 6 of the RMA.

3.2.6.4  **Section 7**

The existing conditions on the designation which are proposed to be extended to Alteration U will ensure the maintenance and enhancement of amenity values (6(c)), maintenance and enhancement of the quality of the environment (6(f)), and will have regard to the intrinsic values of ecosystems (6(d)). Overall, the Resolution Drive Interchange alteration is in accordance with the purpose of section 7 of the RMA.

3.2.6.5  **Section 8**

The NZTA has facilitated Tangata Whenua’s participation in the consultation process to enable the latter to contribute fully to the investigation and assessment of the alterations and thereby to enable them to take steps to protect their interests. The Treaty signifies a partnership and requires the Crown and Maori partners to act toward each other reasonably and with the utmost good faith (Waitangi Tribunal, 1991). NZTA has acted reasonably and with good faith. In order for a Treaty partner to act in good faith, fairly and reasonably towards the other, it is obliged to make informed decisions. NZTA has consulted with the Tangata Whenua about the effects of the alterations on the latter’s interests and considers that it has sufficient information to make an informed decision about the alterations. Therefore, Alteration U is in accordance with the purpose of section 8 of the RMA.

3.2.7  **Other Relevant Statutory Provisions**

3.2.7.1  **Waikato-Tainui Raupatu Claims (Waikato River) Settlement Act 2010**

The grassed conveyance swales will trap a portion of the sediments while flowing to the wetlands, which will then remove hydrocarbons, pollutants that adhere to the suspended soils, and dissolved pollutants. Sediment into the Waikato River will be mitigated by detaining and slowly-releasing flow from the wetlands to minimise the discharge from the road and the potential for scouring material from stream beds which flow into the river. Flood attenuation will control the peak discharge rates from the less frequent extremely intense storms and ensure that the peak discharge rates following construction of the road do not exceed the predevelopment rates.

Subject to the existing NOR 1 conditions on the designation and the proposed WRC resource consent conditions, it is considered that Alteration U will protect the health and wellbeing of the Waikato River for future generations; therefore, the alteration is in accordance with the Settlement Act.
3.2.7.2 Historic Places Act 1993

Although there are no recorded archaeological sites in the area of Alteration U, the existing conditions on the designation (NOR 1 - 3.2 to 3.4) will mitigate any archaeological effects of discovery during earthworks.

Accordingly, it is considered that Alteration U is in accordance with the HPA.

3.2.7.3 National Environmental Standards

The following national environmental standards are particularly relevant to the Project:

Air Quality
As discussed above under section 3.2.4.4, the air quality effects of Alteration U can be mitigated during construction through the existing NOR 1 - 2.2(iv) condition on the designation to ensure that dust emissions are kept within the boundaries of the altered designation. In addition, the operation of the Hamilton Section will only be a small contributor to the Hamilton airshed, the air quality effects of the operation of the Resolution Drive Interchange will comply with the carbon monoxide, nitrogen dioxide, and fine particulate thresholds of the NES for Air Quality.

Accordingly, Alteration U is in accordance with the NES for Air Quality.

Assessing and Managing Contaminants in Soil to Protect Human Health
Although a sludge pond/farm dump site may be located in the vicinity of the proposed Resolution Drive Interchange, investigation, remediation and monitoring of contaminated sites will be overseen by a SQEP, and included in the construction contract documents and EMP.

The SQEP will be responsible for ensuring that the investigative and assessment procedures followed, together with the appropriate remedial actions, and any necessary monitoring plans are prepared, implemented and in agreement with the NES for Assessing and Managing Contaminants in Soil to Protect Human Health and WRC requirements.

Any NES resource consent required from WDC and HCC will be sought at the outline plan approval stage, once the contractors and final design of the Expressway have been confirmed.

Subject to future resource consents, and appropriate EMP and ESCP, Alteration U is in accordance with the NES for Assessing and Managing Contaminants in Soil to Protect Human Health.

3.2.7.4 Waikato Regional Policy Statement (RPS)

Operative RPS October 2000
The Operative RPS sets out issues, objectives and policies relating to the natural and physical resources of the Waikato Region.

As discussed above, the effects of Alteration U can be mitigated by the existing conditions on the designation to a no more than minor level. In addition, the effects from the take and discharge of water, and earthworks will mitigated through the resource consent which have been applied for from the WRC.

Therefore, it is considered that Alteration U is in accordance with the provisions of the Operative RPS.
Proposed RPS August 2010
Similarly, it is considered that the Resolution Drive Interchange and stormwater wetland alteration is in accordance with the provisions of the Proposed RPS as effects of the alteration will be mitigated by the existing conditions on the designation and the proposed WRC resource consent conditions.

3.2.7.5 Waikato Regional Plan
The appropriate water take and disposal, and earthworks consents have been applied for from the WRC. Subject to the existing conditions on the designation and the proposed WRC resource consent conditions, it is considered that Alteration U is in accordance with the Waikato Regional Plan.

3.2.7.6 Regional Land Transport Strategy 2011-2041 (RLTS)
The Expressway is provided for in the RLTS. Alteration U is in accordance with the provisions of the RLTS as it will be part of a strategic corridor, improve road safety, provide for future demand and encourage alternative modes of transport.

3.2.7.7 Waikato District Plan (Operative April 2013)
The Waikato District Plan promotes the sustainable management of natural and physical resources in the Waikato District, primarily by managing the effects of land use on the environment. The underlying zoning over the Resolution Drive Interchange and stormwater wetland alteration is Rural.

Alteration U is in accordance with the provisions of the Waikato District Plan for the following reasons:

» The alteration will improve the safety, efficiency and sustainability of the roading network within the district;
» The existing Hamilton Section designation is already included in the Waikato District Plan and the alteration will improve access to the Expressway;
» The existing conditions on the designation and the proposed WRC consent conditions will avoid, remedy or mitigate the adverse effects on the environment to a no more than minor level; and
» The NZTA has undertaken extensive consultation with statutory bodies, Tangata Whenua, key stakeholders and people who are affected by, or who have an interest in the Project.

3.2.8 Future Environment

3.2.8.1 Future Proof Growth Strategy and Implementation Plan 2009
The Future Proof Strategy makes particular reference to the Waikato Expressway corridor. Alteration U will provide for growth within the surrounding area, by enabling greater connectivity to the Expressway if the WDC and HCC extend Horsham Downs Road or Resolution Drive to the interchange.
With the current designation Hamilton North residents must travel south to Greenhill interchange in order to access the Expressway to travel north, or travel to the next Expressway interchange on Gordonton Rd (2km east of Taupiri), a distance of about 11kms north of Resolution Drive. The connection will provide a fast and efficient access for Hamilton North residents to get to and from regional destinations north of the City. This will have social benefits for employment, recreation, and access to and from regional areas for emergency services. Therefore, this alteration will provide a substantial positive growth benefit.

Therefore, Alteration U is considered in accordance with the provisions of the Future Proof strategy.

### 3.2.8.2 Access Hamilton Strategy

The Expressway and Resolution Drive Interchange are provided for under the Access Hamilton Strategy. The interchange will support Hamilton’s economic and social well-being through reduced travel times, will accommodate future transport demands, and will position infrastructure to meet the city’s long term needs. Accordingly, Alteration U is in accordance with the provisions of the Access Hamilton Strategy.

### 3.2.8.3 Rototuna Structure Plan

The extension of Resolution Drive is provided for under the Rototuna Structure Plan. Although it is not known when the HCC will extend Resolution Drive, the Resolution Drive Interchange alteration will improve access to a future suburban centre, residential area, and community facilities. Therefore, Alteration U is in accordance with the provisions of the Rototuna Structure Plan.

### 3.2.9 Alteration U Conclusion

Alteration U is to designate a full-diamond interchange with north and south facing ramps, and a stormwater wetland at this location. The designation allows for two configurations – either the Expressway over Resolution Drive, or vice versa, Resolution Drive over the Expressway. The completion of the interchange will depend on when Resolution Drive is extended by HCC. To construct the Resolution Drive Interchange and approaches will require approximately 700,000m³ of fill material. This is an additional volume of about 600,000m³ over and above that proposed when the designation was secured.

It is the NZTA’s current intention that the north facing ramp and overbridge will be constructed at the same time as the construction of the rest of the Hamilton Section. The interchange would then become operational when HCC extends Resolution Drive from Borman Road to the Expressway.

The addition of the Resolution Drive Interchange is the outcome of a secondary investigation process that began at the end of 2010. This investigation process identified that the interchange is necessary for the following reasons:

- It provides good connectivity between roads of similar road hierarchy (expressway to primary arterial), as would be expected by the motoring public;
- It provides good access from the south to the Rototuna Structure Plan area, and also ultimately to the northern part of the City (currently Urban Expansion Policy Area);
It provides a strategically located interchange serving the northern suburbs of Hamilton without compromising on interchange spacing (Taupiri to the north and Greenhill to the south);

The north-facing ramps are already included in Access Hamilton Strategy (HCC), thereby implying they are of strategic importance both to the city and regionally; and

There is strong public support for an interchange at this location.

Subject to the existing NOR 1 conditions on the designation and the proposed WRC resource consent conditions, Alteration U will have no more than minor effects on the surrounding environment. The effects of the final design of the interchange and wetland will be mitigated by the outline plan process.

Furthermore, Alteration U upholds the sustainable management purpose of the Resource Management Act, adequately provide for Part 2 matters, and is consistent with both the Regional Policy Statements and Regional Plans.

Accordingly, the NZTA looks forward to a favourable recommendation regarding this notice of requirement.
3.3 Alteration V – Puketaha Road Arrangement

3.3.1 Proposed Alteration

Designation “J17” in the Waikato District Plan is proposed to be altered so that the Expressway passes over, rather than under Puketaha Road. The purpose of the designation is to remain as “Road for state highway and road for access to state highway (Waikato Expressway, Hamilton Bypass)” and “Hamilton Bypass – State Highway and Access to State Highway” respectively. The alteration to the designation sought by the NZTA is shown on the alteration and scheme plans in Appendix A and indicated in Figure 3-4 below.

Puketaha Road will remain at existing grade, and the Expressway will be carried over top via bridges. The change in Expressway height in relation to the original designation ranges from 1.5m at chainage 8850 rising to approximately 6.0m at chainage 9550 and descending to approximately 2.5m at chainage 10250. The Project will incorporate an overbridge or dual bridges (to be defined by the contractor) that would be approximately 8.0m above existing grade of Puketaha Road. The change in vertical profile required to place the Expressway over Puketaha Road results in a minor change to the necessary earthworks in this location, being an additional 64,000m³. No additional private land is required.

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Figure 3-4 – Existing Hamilton Section designation and Alteration V (see Appendix A for details)

3.3.1.1 Existing Environment

The Puketaha Road crossing is located to the east of Hamilton City, and approximately 1km east of the Puketaha/Gordonton Road intersection. Puketaha Road is an arterial road with a series of long straight sections, the majority of which is sign posted at 100km/h.
The land in the area is generally flat and predominantly in pasture. There are scattered dwellings located along the roadside, with a notable cluster of buildings just to the east of the Expressway designation. One of these buildings is the site of a contracting business. ABC Learning Centre for pre-schoolers is located approximately 400 metres to the east. Puketaha School is located approximately 3km to the east, on the corner of Sainsbury Road.

3.3.1.2 Future Environment

The land on the city-side (west) of the Expressway is zoned Rural, and is part of the Urban Expansion Policy Area. This land will ultimately fall within HCC jurisdiction, in accordance with the 2005 Strategic Agreement on Future Urban Boundaries. However, at this point, the land remains within the WDC jurisdiction, and there are no plan changes or structure plans that apply to this land. However, it is noted that ultimately some form of urban development is likely to extend out to the Expressway within this area.

The land to the east of the Expressway is zoned Rural, and will remain within the jurisdiction of the WDC into the foreseeable future. No significant changes to the future environment are anticipated within this area.

3.3.1.3 Description of the Proposed Works

The alteration to designation will involve the following:

» Puketaha Road remaining at existing grade with no changes to existing property access;
» Uplift of the existing designation along the frontage of five Puketaha Road properties;
» Increase in the vertical height of the Expressway, generally between chainage 8800 and 10300. The maximum increase (from the existing designation) will be approximately 8.0 metres; and
» An overbridge or dual bridges carrying the Expressway over Puketaha Road.

3.3.1.4 Reasons for the Proposed Works

The current designation is based on Puketaha Road passing over the Expressway in a 50m wide designation corridor, which consists of the existing road reserve plus a 30m widening to the north. Further investigation has identified that additional land will be required to provide a safe horizontal and vertical alignment on Puketaha Road. A number of private entrance ways would also need to be extensively modified and a number of utility services relocated. Stormwater drainage along Puketaha Road would also have to be significantly modified.

To reduce the adverse effects on Puketaha Road residents, the project team has investigated the option of carrying the Expressway over Puketaha Road. Although this would impose a potential minor increase in operating costs due to the vertical gradient changes, and potentially result in a slightly higher construction cost, it was concluded that carrying the Expressway over Puketaha Road would improve the natural, physical, cultural and social environment of the region, and result in a better overall outcome (see consideration of alternatives below).

3.3.2 Consideration of Alternatives

Section 171(1)(b) of the RMA requires consideration of alternative sites, routes, or methods of undertaking the work if:

» The requiring authority does not have an interest in the land sufficient for undertaking the work; or
» It is likely that the work will have a significant adverse effect on the environment.

This section provides a brief summary of the process for considering alternatives to the Puketaha Road grade separation. Further detail can be found in the Network Connections Summary Report which is provided in Appendix D).

As part of the work undertaken during the secondary investigation phase of the Project, it was identified that the existing designation arrangement would result in additional land being required to provide a safe horizontal and vertical alignment on Puketaha Road. A number of private entrance ways would also need to be extensively modified and a number of utility services relocated. The following alternatives were considered to address these issues:

» Retain the designation (Puketaha Road over the Expressway) but alter the designation to accommodate an upgraded alignment on Puketaha Road (Option 1); and
» Alter the designation to place the Expressway over Puketaha Road and leave Puketaha Road unchanged (Option 2).

These alternatives were assessed as follows:

» Traffic and economic assessment; and
» Multi-criteria assessment (where necessary).
The assessment of the two options is summarised below.

### 3.3.2.1 Option 1: Puketaha Road over Expressway (as currently designated)

- The 10m high approach embankments on Puketaha Road will have a major effect on the adjacent properties and would result in the road being a new and dominant feature within the landscape, which is likely to cause loss of views and shading (on the south side of the road);
- Property access is adversely affected and land acquisition is required from four properties. Additional land areas are required over and above that identified in the original destination; and
- Minimal ecological impacts.

### 3.3.2.2 Option 2: Expressway over Puketaha Road

- This option will result in a minor landform benefit compared with the designated scheme, as the elevated section of the expressway will align with the lineal form of the expressway corridor and produce a lesser visual effect;
- There is the minor benefit of less vegetation removal;
- Alignment with the lineal form of the Expressway will help to define a strong urban boundary on the eastern side of Hamilton;
- There will be major visual impact for the properties in the immediate vicinity of the Expressway due to its increased elevation (about 8 m above the ground). The impacts, however, will be localised and the change in elevation needs to be viewed in the context of the lineal form of the original designation;
- There will be a moderate benefit for the properties situated along Puketaha Road, as the approach embankments for the bridge over Puketaha Road will no longer be required;
- There will be a loss of views for the properties within the immediate vicinity of the Expressway, but there will also be less shading due to the generally north-south orientation of the Expressway. Visual severance effects will decrease as the distance from the Expressway increases because existing vegetation obscures the longer views;
- Although this option will result in a small increase in the loss of pasture, it has minimal ecological impacts;
- There will be positive social impacts for Puketaha Road residents because existing accesses along Puketaha Road will not have to change during construction or once the Expressway is operational;
- Four properties along Puketaha Road which are currently subject to land acquisition will no longer be required;
- Pedestrian and cycle facilities can be more readily provided on the local road and on a flat gradient;
- As the elevated Expressway will be a noticeable new feature in the landscape, with 2:1 batters, the embankments adjacent to the properties should be extensively planted to mitigate the landscape and visual effects. Mitigation planting should utilise native shrub...
and tree planting to help integrate the elevated section of expressway into the landscape and contribute to the character and ecology of the area; and

» Road noise spreads further when the Expressway is elevated over Puketaha Road. However, the differences between the two options are very small and the effects are negligible. Three buildings in the area will exceed the design noise limits and a section of OGPA or barrier is likely to be required as mitigation.

3.3.2.3 Conclusion

Although there is likely to be a slight increase in overall construction costs and marginally higher user operating costs, the option of placing the Expressway over Puketaha Road is favoured for the following reasons;

» The environmental effects on immediate adjacent properties will be less (with regards to access and land take), resulting in a net benefit;

» The urban design outcome is improved;

» Significantly reduces construction impacts and removes any long term operational impacts on adjacent properties;

» Although road-traffic noise is slightly increased, there is negligible difference between the two options, and OGPA or a low roadside barrier will bring the levels back to the design noise limits;

» No disruption to utility lines along Puketaha Road (telecom and power) or stormwater drains;

» Requires less land purchase;

» The option of carrying the Expressway over Puketaha Road does not require additional private land outside of the existing designation; and

» Retention of a flat gradient and straighter alignment to Puketaha Road will result in safer cycle and vehicle traffic using the road.

3.3.3 Consultation

As identified under section 2.4 of this report, the NZTA has undertaken extensive consultation with statutory bodies, Tangata Whenua, key stakeholders and people who are affected by, or who have an interest in the Project. There was no negative feedback to the proposed alteration raised at the Information Days that were held in May 2013.

3.3.4 Assessment of Environmental Effects

The following outlines the likely environmental effects of the change to the designation, and identifies mitigation measures, where necessary.

3.3.4.1 Traffic

Construction Traffic

The change in vertical profile required to place the expressway over Puketaha Road results in a minor change to the necessary earthworks in this location. The additional 64,000m³ required to
construct the expressway embankment between Distance 9000 to 9800 is considered insignificant when compared to the overall project earthworks, although it does represent a local increase of around 47% of the original designation earthworks. This extra material is likely to be brought to the site by truck and trailer from the Tamahere area as there is a significant surplus material available from construction of the southern interchange. The volume represents approximately 6,400 truck and trailer movements (to and from the site). The number of movements per day will depend over what period the cartage takes place. A number of routes are available, although cartage through Hamilton on SH1 is not considered to be a likely route choice due to the number of intersections involved and the impact on travel times. There is also the congested Morrinsville Road/Cambridge Road roundabout which would be adversely affected by a significant increase in truck and trailer movements. For these reasons, it is likely that earth from Tamahere would be hauled by truck and trailer onto Tauwhare Road and Hoeka Road, to access SH26. From here it could be carted along SH26 westbound and enter the site near the proposed SH26 expressway bridge, or travel along Ruakura Road northwards and enter the site near the ECMTR.

Due to the significant number of options available to the contractor, the assessment of impacts cannot be readily documented. However, the additional earthwork volume is considered small given the scale of the project.

**Operational Traffic**

Once operational, the alteration at Puketaha Road will not result in any increased traffic, as the level of connectivity does not change compared to what is currently designated.

**Traffic Conclusion**

In summary, the adverse effects on traffic as a result of Alteration V are anticipated to be no more than minor.

### 3.3.4.2 Noise

As discussed under section 3.2.4.2 of this report (Alteration U – Noise Effects), the Transit New Zealand Noise Guidelines were the main document used to provide guidance to manage noise effects as part of the existing designation and have a lower threshold noise level at 55 dB. Above that threshold noise level, the Noise Guidelines set design noise levels as increments of noise level increases above the existing ambient noise level.

**Construction Noise**

As discussed under Alteration U, conditions NOR 1 – 2.1 and 2.2 of the existing designation requires a construction management plan to be certified by the WDC, which includes compliance with NZS 6803: 1999 Acoustics – Construction Noise. The overall approach of NZS 6803 is to develop upper noise levels for construction noise appropriate to the context of the location in which the project is to be constructed.

Most road construction activity readily complies with the typical duration noise limits in Table 2 of NZS 6803 where there is more than 40 metres separation between the main construction activity and the receiver. The long-term duration noise limits would be more difficult to comply with and separation distances may have to be more like 60 metres for large clusters of machinery.

However, the existing conditions specify that the Construction Management Plan needs to identify how the construction activity will be managed to protect affected parties when the upper noise levels of NZS 6803 cannot be met.
The proposed alteration to the existing designation results in only small to moderate changes in separation distance between the construction activity and nearby receivers. Therefore it is expected that the ability for the altered designation to comply with NZS 6803 is little changed from the ability of the existing designation to comply, and the periods of times for which alternate noise management methods may need to be used will also be similar. Therefore, the construction noise effects of the proposed alterations are less than minor.

Operational Noise
Compared to the designated project, the noise levels of the Puketaha Road alteration decrease on the altered embankment slopes and increase further out from the Expressway. The assessment of the alteration finds that the buildings on 105, 105a and 106 Puketaha Road exceed the average noise design levels.

With appropriate mitigation the alteration noise levels are likely to achieve the average noise Hamilton Section Assessment of Road-Traffic and Construction Noise design levels. The Noise Assessment Report concludes that the implementation of the best practicable option for noise mitigation can ensure noise effects of Alteration V are less than minor.

Noise Conclusion
The construction noise effects of the Puketaha Road alteration are expected to comply with NZS 6803 and mitigation measures levels are likely to achieve the average noise Hamilton Section Assessment of Road-Traffic and Construction Noise design levels. As the existing conditions on the designation are proposed to extend to the alteration, it is considered that the construction and operation noise effects of Alteration V will have less than minor effects on the surrounding environment.

3.3.4.3 Landscape, Visual and Urban Design Effects
As discussed under section 3.2.4.3 of this report (Alteration U – Landscape, Visual and Urban Design Effects), the Landscape, Visual and Urban Design Effects Assessment (attached in Volume 2), identifies that the alterations have the following potential landscape and visual effects:

» Physical effects of the Expressway construction on existing landforms, land cover and land uses;

» Character and amenity effects associated with the landscape;

» Visual effects on views from nearby dwellings, private property and from public roads; and

» The urban design effects or influences in relation to alternate transport modes, connectivity and the response to local growth areas and council structure plans.

The topography of Puketaha Road is generally flat with low level undulating landforms occurring through the landscape. Vegetation within the area is characterised as being predominantly open pastoral land with scattered trees, shelterbelts and hedgerows. Within the immediate vicinity of the Expressway there are 8 houses that will be affected by the change in design. However, the majority of the houses are set within well planted and mature gardens that contain and provide a degree of screening to these properties.

Landscape and Visual Effects
The alteration removes the Puketaha Road approach embankments and overbridge from the original designation, which therefore allows the retention of vegetation along the frontage of
properties facing Puketaha Road. This will result in a minor benefit in relation to land cover to these properties with no change or further loss of vegetation due to the proposed Expressway design.

The change in height will result in a moderate effect on the area’s landform, although the change will be in context of the original elevated Expressway design. The effects on land use will see a minor benefit where the removal of the Puketaha Road approach embankments will result in a reduced loss of land particularly in relation to the adjacent residential properties and farm land that was affected in the designated scheme.

The increase in height will be discernible to properties immediately adjacent to the Expressway; however, the effects on properties further than 200m from the Expressway will have a diminishing effect due to distance and screening effect of existing vegetation.

Although the effects of the proposed Expressway design will result in partial loss of views in relation to properties immediately west of the Expressway, there will be moderate benefit where Puketaha Road embankments of the designated scheme are offset by the change to views from the proposed height increase of the revised Expressway design. View severance will decrease as distance from the Expressway increases, as existing vegetation will obscure medium to long views of properties in the vicinity. Road users will be provided a moderate-low benefit in effects as the elevated Expressway will provide views across the broader landscape.

Overall, the alteration simplifies the arrangement of elements with the proposed height change and bridge structure being aligned to the lineal form of the Expressway, which will result in an improvement on the original designated design in relation to the visual amenity and character of the area.

**Urban Design Effects**

The retention of Puketaha Road at grade will be beneficial to local residents as it will maintain existing access to properties and reduce land loss compared to the designated design. The bridge structures will be designed to ensure they respond to the ‘family’ of bridge forms and include spill arrangements and barriers that maintain a degree of openness beneath the bridges and to ensure a suitable level of design quality to the structures is achieved. In addition, maintaining the local road at grade will enable better access and allow future residential land development to the west of the Expressway. Pedestrian and cycle facilities can be integrated into the local road, which will provide more user friendly and safer facilities and help promote alternate transport modes.

From an urban design consideration the alteration is an improvement in relation to the original designation.

**Mitigation Measures**

As discussed under Alteration U – Resolution Drive Interchange and stormwater wetland (section 3.2.4.3 of this report), the existing conditions of the designation (NOR 1 – 6.1 to 6.6) which are proposed to extend to the alteration require a landscape management plan identifying specific landscape measures to be certified by WDC.

The landscape treatment of the Expressway embankments will utilise extensive planting of native and exotic shrubs and trees along the embankment slopes, and some exotic species at the toe of the embankment. Dense planting will screen the properties immediately adjacent to the Expressway.
These measures will help integrate the alteration into the landscape, and minimise the visual and amenity effects in relation to the broader landscape.

**Landscape, Visual and Urban Design Conclusion**

Puketaha Road alteration will result in a new and obvious feature that will align with the lineal form of Expressway, and a moderate effect on the immediate area. However, the effects of the alteration will be similar to the effects of the original designation where the Expressway passed under Puketaha Road. The overall visual amenity and landscape character effects of the Puketaha Road alteration will be low in relation to the original designated Expressway design.

The ULDF will help integrate the bridge structures into the landscape to maintain the landscape and visual amenity of the immediate area adjacent to the Expressway. The existing mitigation measures are considered suitable measures that avoid, remedy and mitigate the landscape and visual effects of the change to the Expressway design in relation to the original designated design.

Subject to appropriate landscaping, the landscape, visual and urban design effects of Alteration V will be no more than minor in relation to the existing designation.

### 3.3.4.4 Air Quality

As discussed under section 3.2.4.4 of this report (Alteration U – Air Quality Effects), Air Quality Assessment Report (attached in Volume 2) modelled air pollution dispersion as recommended by the Ministry for the Environment and NZTA guidelines, and has taken into account the Waikato Regional Plan.

**Construction Emissions**

If appropriate mitigation measures are implemented as necessary during construction, PM$_{10}$ levels and fugitive dust emissions from construction activities can be kept within the acceptable thresholds and trigger levels. Conditions NOR 1–2.1 and 2.2(iv) on the existing designation (which is also proposed for the alteration) require a construction management plan to be certified by the WDC, and that containment within the boundaries of the designation of dust nuisance arising due to construction, including effects on potable water supplies and to transmission lines.

Examples of appropriate measures to minimise or eliminate potential impact on the local air quality have been identified under Alteration U.

**Operation Emissions**

The modelling shows that the Puketaha Road alteration will have no effect on the existing air quality. The ambient air concentrations of vehicle emitted contaminants will remain the same for both configurations (the Expressway over the top and under the local road).

**Air Quality Conclusion**

The air quality effects of the Puketaha Road alteration can be mitigated during construction through conditions NOR 1–2.1 and 2.2(iv) on the existing designation to ensure that dust emissions are kept within the boundaries of the altered designation. As the operation of the Hamilton Section will have no effect on the existing air quality, it is considered that the air quality effects of Alteration V will be less than minor.
3.3.4.5 Vibration

As discussed under section 3.2.4.5 of this report (Alteration U – Vibration Effects), the Vibration Effects Assessment Report (attached in Volume 2) estimated vibration levels from the perspectives of human comfort and cosmetic building damage in relation to the British and German Standards, and the Waikato District Plan. The criteria used to measure the vibration levels were derived from British and German Standards, and has deliberately been made more stringent than the guideline values specified in the Waikato District Plan.

In respect of vibration, the Puketaha Road alteration only affects 106 Puketaha Road as the closest distance to the designation boundary is about 17.5 metres, whereas to the existing road edge the distance is about 28 metres. Therefore, the occupants can expect some disturbance during the construction phase, but are unlikely to experience any changes to the existing situation once the Expressway becomes operational, given the closest distance from a dwelling to Puketaha Road is 28 metres and to the Expressway 59 metres. This exceeds the critical distance of 23-24 metres from source for traffic vibrations to be perceived (refer Table 5.1 of the Vibration Assessment Report, Volume 2A, Appendix D). Therefore, the vibration effects of the designation alterations to provide for the Expressway over Puketaha Road will be minor in nature.

Conditions NOR 1 – 2.1 and 2.2(vi) of the existing designation requires a construction management plan to be certified by the WDC, which includes procedures, methods and measures to mitigate vibration and its effects on dwellings.

Subject to the existing NOR 1 conditions on the designation and an appropriate construction management plan, the vibration effects of Alteration V will be no more than minor.

3.3.4.6 Stormwater/Drainage

As discussed under section 3.2.4.6 of this report (Alteration U – Stormwater/Drainage Effects), the Hamilton Section will create a large area of new pavement that will cause stormwater to run off the site at a higher rate and in larger volumes than currently occurs, and could result in erosion of stream banks, and flooding of properties of the various downstream water channels.

The Water Effects Assessment Report (attached in Volume 2) identifies that construction effects can be mitigated by WRC Erosion and Sediment Control Guidelines for Soil Disturbing Activities, while the swales and wetlands will treat the stormwater to remove hydrocarbons, pollutants that adhere to the suspended soils, and a proportion of the dissolved pollutants. These matters are addressed as part of the required resource consents from Waikato Regional Council.

Therefore, Alteration V will have no more than minor stormwater effects on the surrounding environment as the short-term earthworks and dust effects during construction will be mitigated by erosion and sediment control measures, while the grassed swales will trap sediments and remove pollutants while flowing to the wetlands.

3.3.4.7 Ecology

As discussed under section 3.2.4.7 of this report (Alteration U – Ecology Effects), the majority of the Hamilton Section corridor encompasses a highly modified and intensively farmed landscape, which supports no indigenous vegetation and little indigenous fauna.
The footprint of the proposed alteration to designation at the Puketaha Road Crossing is similar to the existing designation, and takes in a narrow strip of improved pasture, garden frontage and grass road verge. The area within this small alteration has minimal ecological value. Therefore, the ecological effects of the alteration are expected to be less than minor.

### 3.3.4.8 Social

The proposed changes at Puketaha Road crossing has varying social effects, ranging from neutral, insignificant, minor negative, minor positive, to significant positive. Adverse social effects are able to be mitigated by the existing designation conditions.

Construction effects can be addressed through the CMP condition 2.0, particularly clause (viii) provision of access for emergency vehicles, and clause (viii) maintenance of road and property access during construction (refer Appendix C for full detail of conditions). Notification of the likely commencement date for the works and expected timeframe of the construction programme is also required (condition 2(i)).

Operational effects identified in the Social Assessment Report include:

- Social effects related to property access changes are avoided as the alteration removes these effects
- No change to local access or connectivity
- Visual changes which can affect the ability of residents to enjoy their surrounding environment, and this in turn can affect people’s health and wellbeing – can be addressed through existing designation conditions
- Noise effects can have significant implications on people’s health and wellbeing (e.g. ability to sleep/relax), as well as their ability to enjoy their environment, and to engage in learning activities – can be addressed through existing designation conditions.
- Significant positive effects due to reduction in land requirement.

### Social Conclusion

Overall, the proposed change at Puketaha Road crossing has varying social effects, ranging from neutral, insignificant, minor negative, minor positive, to significant positive. Adverse social effects are able to be mitigated by the existing designation conditions.

### 3.3.4.9 Contaminated Land

As discussed under section 3.2.4.9 of this report (Alteration U – Contaminated Land Effects), the Contaminated Land Assessment Report (attached in Volume 2) has identified a number of properties along the proposed route of the Expressway as having potentially contaminated soils and have either been investigated or are yet to be investigated.

Two samples of soil from adjacent to 105A Puketaha Road were tested for hazardous chemical solvents associated with clandestine drug manufacturing (methamphetamine) that may have been illicitly disposed of at this location. No hazardous chemical solvents were detected at levels above the laboratory detection limits. Some metal and general demolition waste (probably less than 100 m³) was noted in the fill and this may need to be disposed of to a suitably consented landfill facility.
A building consent in 1983 for a woolshed indicates that sheep handling may have been carried out on 112 Puketaha Road, although there is no information on sheep dip activities. Although the site has not been investigated, allowance will be made for investigation and assessment of the property prior to major works being undertaken.

Standard good practice during earthworks will mitigate the potential risks from dust and surface water run-off. Specific assessment of locations, soil stratigraphy, groundwater levels and contaminant types will be necessary to assess potential risks to groundwater quality. Where a significant risk is identified the simplest means of mitigating long-term risk may be to remove the soils of concern to a suitably consented landfill.

As discussed under Alteration U, all issues associated with the further investigation, remediation and monitoring of contaminated sites on this section of the proposed Expressway must be overseen by a SQEP, and will be included in the construction contract documents and the EMP. Similarly, the WRC will require an EMP together with, or incorporating an ESCP to be prepared before works commences. The Contaminated Land Report concludes that the professional implementation of these measures is sufficient to mitigate the potential effects of dust migration and sediment run-off leading to the uncontrolled spread of potential contaminants beyond the site boundaries.

Any NES resource consent required from WDC and HCC will be sought at the outline plan approval stage, once the contractors and final design of the Expressway have been confirmed.

As discussed under Alteration U, a Hazardous Substances Management Plan as part of the CMP is proposed as a condition of resource consent from the WRC and requires certification by the WRC prior to construction commencing.

Subject to resource consent, and appropriate EMP and ESCP, Alteration V will have no more than minor contaminated land effects as locating, characterising and removing any contaminated areas will have an environmental benefit that will outweigh any short term effects from disturbance of the material.

### 3.3.4.10 Archaeology

As discussed under section 3.2.4.10 of this report (Alteration U – Archaeology Effects), there have been numerous assessments and archaeological investigations along the route of the Expressway which found four areas of archaeological concern within the current designation, all of which are related to prehistoric Maori horticultural activities (S14/246, S14/247, S14/248 and S14/252).

The Archaeological Assessment Report (attached in Volume 2) found no recorded archaeological sites in the area of Alteration V.

In addition, existing conditions of the designation (NOR 1 – 3.2 to 3.4) which are proposed to extend to the alteration require the following:

- That any earthworks in areas of significance identified on pages 22 to 25, 27 and 28 of the (NAMTOK) Report 1999 shall be monitored by suitably qualified archaeologist (acceptable to the Historic Places Trust (HPT) and tangata whenua);
- 4 weeks written notice of the date of commencement for test drilling or construction; and
In the event that any archaeological items are discovered during earthworks, the NZTA shall:
- Advise the tangata whenua, archaeologist and WDC as appropriate within one day;
- Cease works in any part of the project site affected by the discovery;
- Contact NZ Police, Coroner and the HPT as appropriate; and
- Not recommence work in the parts of the project site affected by the discovery until all necessary statutory authorisations or consents have been obtained.

As there are no known archaeological values associated within the area of Alteration V and the existing conditions on the designation would mitigate any archaeological effects of discovery during earthworks, it is considered that the archaeological effects of Alteration V will be less than minor.

3.3.5 Conditions
As discussed under Alteration U, the scale of alteration is small and it is preferable that one set of conditions apply to the full route. The existing conditions were set by the Environment Court and are considered adequate to mitigate the effects of the alteration to no more than minor levels. For NZTA to commence earthworks or construction activities, WDC must first certify construction and landscape management plans which will mitigate the construction and visual effects. Therefore Alteration V is proposed to be subject to the existing NOR 1 conditions on the designation without any changes.

3.3.6 Resource Management Act 1991
This section assesses the proposed Puketaha Road alteration against the relevant provisions of the Resource Management Act 1991.

3.3.6.1 Part 2 Matters
Part 2 of the RMA is the framework against which all the functions, powers and duties under the RMA are to be exercised for the purpose of giving effect to the Act. Section 5 sets out the purpose of the RMA. Sections 6, 7 and 8 are principles of varying importance intended to give guidance as to the way in which the purpose is to be achieved. The following is an assessment of the proposal under these provisions.

3.3.6.2 Section 5
The alteration to the existing Hamilton Section will provide a safe and efficient Expressway corridor which will meet the transportation needs of future generations. Subject to the existing NOR 1 conditions, the alteration will safeguard the life-supporting capacity of air, water, soil and ecosystems. Additionally, the existing conditions of the designation will mitigate any adverse effects on the environment. Therefore, Alteration V is in accordance with the purpose of section 5 of the RMA.
3.3.6.3  Section 6

Workshops were held with the TWWG to ensure that the proposed alterations to the Hamilton Section maintained the relationship of Tangata Whenua with cultural sites, waahi tapu, and other taonga (section 6(e)). Subject to the existing conditions on the designation which require an accidental discovery protocol in the event an archaeological feature is discovered during works, any taonga or sites of historic heritage will be protected in the alteration areas.

Accordingly, Alteration V is in accordance with the relevant matters within section 6 of the RMA.

3.3.6.4  Section 7

The existing conditions on the designation which are proposed to be extended to Alteration V will ensure the maintenance and enhancement of amenity values (6(c)), maintenance and enhancement of the quality of the environment (6(f)), and will have regard to the intrinsic values of ecosystems (6(d)). Overall, Alteration V is in accordance with the purpose of section 7 of the RMA.

3.3.6.5  Section 8

The NZTA has facilitated Tangata Whenua’s participation in the consultation process to enable the latter to contribute fully to the investigation and assessment of the alterations and thereby to enable them to take steps to protect their interests. The Treaty signifies a partnership and requires the Crown and Maori partners to act toward each other reasonably and with the utmost good faith (Waitangi Tribunal, 1991). NZTA has acted reasonably and with good faith. In order for a Treaty partner to act in good faith, fairly and reasonably towards the other, it is obliged to make informed decisions. NZTA has consulted with the tangata whenua about the effects of the alterations on the latter’s interests and considers that it has sufficient information to make an informed decision about the alterations. Therefore, the Puketaha Road alteration is in accordance with the purpose of section 8 of the RMA.

3.3.7  Other Relevant Statutory Provisions

3.3.7.1  Waikato-Tainui Raupatu Claims (Waikato River) Settlement Act 2010

The grassed conveyance swales will trap a portion of the sediments while flowing to the wetlands, which will then remove hydrocarbons, pollutants that adhere to the suspended soils, and dissolved pollutants. Sediment into the Waikato River will be mitigated by detaining and slowly-releasing flow from the wetlands to minimise the discharge from the road and the potential for scouring material from stream beds which flow into the river. Flood attenuation along the Expressway length will control the peak discharge rates from the less frequent extremely intense storms and ensure that the peak discharge rates following construction of the road do not exceed the predevelopment rates.

Subject to the existing conditions on the designation and the proposed WRC resource consent conditions, Alteration V will protect the health and wellbeing of the Waikato River for future generations; therefore, the alteration is in accordance with the Settlement Act.
3.3.7.2 Historic Places Act 1993

Although there are no recorded archaeological sites in the area of Puketaha Road alteration, the existing conditions on the designation (NOR 1 - 3.2 to 3.4) will mitigate any archaeological effects of discovery during earthworks.

Accordingly, Alteration V is in accordance with the HPA.

3.3.7.3 National Environmental Standards

The following national environmental standards are particularly relevant to the Project:

**Air Quality**

As discussed above under section 3.3.4.4, the Puketaha Road alteration air quality effects can be mitigated during construction through the existing conditions on the designation to ensure that dust emissions are kept within the boundaries of the altered designation. In addition, the operation of the Hamilton Section will only be a small contributor to the Hamilton airshed, the air quality effects of the operation of the Puketaha Road alteration will comply with the carbon monoxide, nitrogen dioxide, and fine particulate thresholds of the NES for Air Quality.

Accordingly, Alteration V is in accordance with the NES for Air Quality.

**Assessing and Managing Contaminants in Soil to Protect Human Health**

Although 105A Puketaha Road and 112 Puketaha Road may have potentially contaminated soils in the vicinity of the proposed Puketaha Road alteration, investigation, remediation and monitoring of contaminated sites will be overseen by a SQEP, and included in the construction contract documents and EMP.

The SQEP will be responsible for ensuring that the investigative and assessment procedures followed, together with the appropriate remedial actions, and any necessary monitoring plans are prepared, implemented and in agreement with the NES for Assessing and Managing Contaminants in Soil to Protect Human Health and WRC requirements.

Any NES resource consent required from WDC and HCC will be sought at the outline plan approval stage, once the contractors and final design of the Expressway have been confirmed.

Subject to resource consent, and appropriate EMP and ESCP, Alteration V is in accordance with the NES Assessing and Managing Contaminants in Soil to Protect Human Health.

3.3.7.4 Waikato Regional Policy Statement (RPS)

**Operative RPS October 2000**

The Operative RPS sets out issues, objectives and policies relating to the natural and physical resources of the Waikato Region. As discussed above, the effects of the Puketaha Road alteration can be mitigated by the existing conditions on the designation to a no more than minor level. In addition, the effects from the take and discharge of water, and earthworks will be mitigated through the resource consents which have been applied for from the WRC.

Therefore, Alteration V is in accordance with the provisions of the Operative RPS.
Proposed RPS August 2010

Similarly, Alteration V is in accordance with the provisions of the Proposed RPS as effects of the alteration will be mitigated by the existing conditions on the designation and the proposed WRC resource consent conditions.

3.3.7.5 Waikato Regional Plan

The appropriate water take and disposal, and earthworks consents have been applied for from the WRC. Subject to the existing conditions on the designation and the proposed WRC resource consent conditions, Alteration V is in accordance with the Waikato Regional Plan.

3.3.7.6 Waikato District Plan (Operative April 2013)

The Waikato District Plan promotes the sustainable management of natural and physical resources in the Waikato District, primarily by managing the effects of land use on the environment. The underlying zoning over Alteration V is Rural.

Alteration V is in accordance with the provisions of the Waikato District Plan for the following reasons:

- The alteration will improve the safety, efficiency and sustainability of the roading network within the district. It will ensure that local traffic movements safely and efficiently cross under the Expressway, thereby providing greater travel reliability;
- The existing Hamilton Section designation is already included in the Waikato District Plan and the alteration will improve access to the Expressway;
- The existing conditions on the designation and the proposed WRC consent conditions will avoid, remedy or mitigate the adverse effects on the environment to a no more than minor level; and
- The NZTA has undertaken extensive consultation with statutory bodies, Tangata Whenua, key stakeholders and people who are affected by, or who have an interest in the Project.

3.3.8 Alteration V Conclusion

The proposal is to alter the configuration of Puketaha Road so that it passes under, rather than over, the Expressway. Puketaha Road will remain at existing grade, and the Expressway will be carried over Puketaha Road via an overbridge or dual bridges. The change in Expressway height in relation to the original designation ranges from 1.5m at chainage 8850 rising to approximately 6.0m at chainage 9550 and descending to approximately 2.5m at chainage 10250. The Project will incorporate an overbridge or dual bridges (to be defined by the contractor) that would be approximately 8.0m above existing grade of Puketaha Road. The change in vertical profile required to place the Expressway over Puketaha Road results in a minor change to the necessary earthworks in this location, an additional 64,000m³. No additional private land is required.

The current designation is based on Puketaha Road passing over the Expressway in a 50m wide designation corridor, which consists of the existing road reserve plus a 30 metre widening to the north. To reduce the adverse effects on Puketaha Road residents, the project team has investigated the option of carrying the Expressway over Puketaha Road. Although this would impose a potential minor increase in operating costs for Expressway users due to the vertical gradient
changes, and potentially result in a slightly higher construction cost, it was concluded that carrying the Expressway over Puketaha Road would result in a better overall outcome. The investigation identified that additional land will be required to provide a safe horizontal and vertical alignment on Puketaha Road. If the existing designation arrangement was retained, a number of private entrance ways would also need to be extensively modified and a number of utility services relocated.

Subject to the existing conditions on the designation and the proposed WRC resource consent conditions, Alteration V will have no more than minor effects on the surrounding environment. The effects of the final design of the interchange and wetland will be mitigated by the outline plan process.

Furthermore, Alteration V upholds the sustainable management purpose of the Resource Management Act, adequately provides for Part 2 matters, and is consistent with both the Regional Policy Statements and Regional Plans.

Accordingly, the NZTA looks forward to a favourable recommendation regarding this notice of requirement.
3.4 Alteration W – Greenhill Interchange and Stormwater Wetland

3.4.1 Proposed Alteration

Designations “J17” in the Waikato District Plan and “90” in the Hamilton City District Plan are proposed to be altered to re-align the road connection from the interchange so that it connects directly with the Wairere Drive roundabout via a two-lane arterial. The purpose of the designation is to remain as “Road for state highway and road for access to state highway (Waikato Expressway, Hamilton Bypass)”. The alteration to the designation sought by the NZTA is shown on the alteration and scheme plans in Appendix A and indicated in Figure 3-6 below.

The proposal will also result in widening of the designation around the interchange to accommodate roundabouts at the ramp junctions and a stormwater wetland on the eastern side of the interchange. The Project will incorporate an overbridge or dual bridges (to be defined by the contractor). The Expressway will be carried over (rather than under) Greenhill Road and the vertical profile of the Expressway would increase to approximately 9 metre maximum above grade (at chainage 11100) but would vary in height between chainage 10400 and 12200 in relation to the original designation. Between chainage 10200 and 11700 there will be an additional 98,000m³ of fill material required to construct the embankments and a very slight reduction in available cut material (7,000m³).

Figure 3-6 – Existing Hamilton Section designation and Alteration W (see Appendix A for details)
3.4.1.1 Existing Environment

The Greenhill interchange is located to the east of Hamilton City, approximately 1km from the Hamilton Ring Road. The land surrounding the interchange is rural in character, with scattered dwellings and large areas of flat to gently undulating open pasture. Greenhill Road lies to the north of the interchange, extending from Gordonton Road and ending approximately 4km to the east, as a no-exit road.

Greenhill Road contains a scattering of dwellings on rural and rural-residential properties, as well as the following:

- Equipment hire business;
- Kingdom Hall of Jehovah’s Witnesses; and
- Contractor business.

3.4.1.2 Future Environment

The land on the city-side (west) of the Expressway is zoned Rural, and is part of the Urban Expansion Policy Area. This land has been transferred to HCC, and is now within the HCC’s jurisdiction. The Ruakura Structure Plan affects this area and was notified as part of the Hamilton City Proposed District Plan at the end of 2012. Parts of this Structure Plan now form part of a Private Plan Change application to the EPA.

The land to the east of the Expressway is zoned Rural, and will remain within the jurisdiction of the WDC into the foreseeable future. No significant changes to the future environment are anticipated within this area.
3.4.1.3 **Description of the Proposed Works**

The works are described in 3.4.1 above. The alteration seeks to change the Expressway design to pass over Greenhill Road (which will remain at grade), in comparison to the designated scheme where the Expressway passes under Greenhill Road. The vertical alignment of the Expressway would increase to approximately 9 metres maximum above grade (at chainage 1110) but would vary in height between chainage 10400 and 12200 in relation to the original designation. The arrangement of the on and off ramps would slope from the elevated Expressway to tie into the Greenhill connection, close to the existing grade level.

3.4.1.4 **Reasons for the Proposed Works**

The designated alignment involved an S-bend between the existing Greenhill Road and the interchange due to land owner opposition at that time. Traffic to and from the interchange would have used Gordonton Road and the existing narrow two lane Greenhill Road to access the Expressway from the city. The landowner who previously sought the S-bend arrangement now strongly supports the revised design.

3.4.2 **Consideration of Alternatives**

Section 171(1)(b) of the RMA requires consideration of alternative sites, routes, or methods of undertaking the work if:

- The requiring authority does not have an interest in the land sufficient for undertaking the work; or
- It is likely that the work will have a significant adverse effect on the environment.

This section provides a brief summary of the process for considering alternatives to the Greenhill Interchange alteration. Further detail can be found in the Network Connections Summary Report which is provided in Appendix D).

As part of the work undertaken during the secondary investigation phase of the Project, the NZTA has revisited the Expressway connection locations in accordance with the Waikato Expressway Network Plan objectives. A key focus of this has been the connections provided between Greenhill Road and SH26/Morinnsville Road, particularly given the proposed Ruakura Structure Plan. It became apparent that an interchange at Greenhill Road and north facing ramps at SH26 would not provide the Ruakura Structure Plan (and in specifically the proposed Inland Port) with efficient access to the Expressway.

A thorough investigation of alternatives was undertaken. The six alternatives considered were:

- Existing designation (Network 15)
- Fifth Ave Interchange Option A (Network 16)
- Fifth Ave Interchange Option B (Network 17)
- Ruakura Interchange (Network 18)
- SH26 Interchange (Network 19)
- Split-diamond interchange (Network 20)
The alternatives were assessed as follows:

> Testing in the WRTM;
> Traffic and economic assessment; and
> Multi-criteria assessment.

The conclusion of the assessment process was that Network 18 was the preferred option. This option includes a full interchange at Greenhill Road, a full interchange at Ruakura Road, a Percival Road underpass, closure of Powells and Ryburn Roads, and no interchange at Morrinsville Road (SH26).

Since the time of this analysis, Tainui Group Holdings have lodged a private plan change request for the Ruakura Development Proposal with the EPA. This application has been accepted by the Minister for the Environment, meaning that the Plan Change request will be heard and considered by an Independent BOI. The NZTA has decided to wait until this process is complete before proceeding with the alteration to designation required for the Ruakura Interchange.

The alteration at Greenhill Road Interchange should be considered and understood in this context.

Following the decision to retain the Greenhill Road interchange, consideration was given to a number of other matters that have arisen since the original designation, including:

> The construction by the City of a major roundabout at the intersection of Wairere Drive and Gordonton Road which includes specific provision for a direct connection between Wairere Drive and the Expressway
> Desire by Hamilton City and the affected property owner to realign the road connection between the interchange and Wairere Drive south of its current designated route;
> Change the interchange layout based on urban design principles and intersection capacity requirements.

Consideration of options to address these matters was undertaken using a combination of:

> Testing in the WRTM;
> Traffic and economic assessment; and
> Multi-criteria assessment.

The investigation concluded that the alteration to connect directly into the Wairere Drive roundabout was warranted, and that the arrangement should be reconfigured so that the Expressway passes over Greenhill Road, primarily based on urban design considerations.

### 3.4.3 Consultation

As identified under section 2.4 of this report, the NZTA has undertaken extensive consultation with statutory bodies, Tangata Whenua, key stakeholders and people who are affected by, or who have an interest in the Project.
3.4.4 Assessment of Environmental Effects

The following outlines the likely environmental effects of the change to the designation, and identifies mitigation measures, where necessary.

3.4.4.1 Traffic

Construction Traffic
The alteration to designation involves the vertical rearrangement of the interchange, such that the proposed expressway travels over the designated Greenhill Road alignment, whilst Greenhill Road remains at ground level. The connection between the interchange and Gordonton Road no longer connects to the existing Greenhill Road, but connects directly into the Wairere Drive roundabout. The combination of this work gives rise to an increased demand for earthworks. Between chainage 10200 and 11700 there is approximately an additional 98,000m³ of fill material required to construct the embankments and a very slight reduction in available cut material (7,000m³).

The source of this material could be from the Tamahere cut where there is good quality surplus material. If the contractor chooses to use this material it would involve approximately 9,800 truck and trailer movements over one earthwork season. The likely route would involve Tauwhare Road, Hoeka Road, SH26 and Ruakura Road in order to access the haul route near the East Coast Main Trunk Railway. The haul route located within the Project designation would require crossing over the ECMTR, Percival Road and Powells Road. Given the low traffic volumes on these roads (and rail) and flat terrain which provides good sight distance, we do not envisage any significant effects resulting from a simple at grade crossing. These may be controlled by either a stop/go person or temporary traffic signals to maintain site safety.

The mitigation of any adverse traffic effects resulting from carting earthwork material by road or safety implications of the haul road crossing the local roads will need to be addressed by the contractor via development of a Traffic Management Plan. This will be certified in accordance with the existing conditions on the designation (NOR 1–2.2). Discussions will also be required with KiwiRail regarding any at grade ECTMR crossing.

Operational Traffic

Daily Traffic Flow
The connection between the interchange and Gordonton Road (‘Link Road’) is expected to carry slightly more traffic than the original forecast for Greenhill Road, possibly due to the more direct connection for traffic from the south. Ramp flows from the north are expected to be less as a result of adding the Resolution Drive interchange.

Daily flows in 2041 are expected to be 16,300vpd and can be accommodated on the two lane road, as the evening peak hour flow is forecast to be between 900vph to 1,000vph in the peak direction. Even after some allowance for a portion of heavy vehicles, the flow is still well below the 1,650vph capacity for a single lane flow. The Link Road can be easily upgraded to four lanes in the event that HCC requires a higher level of service than that provided by the NZTA. It is understood that this is the long term plan by HCC, as and when the surrounding Ruakura Structure Plan develops.

Property Access
There are no adverse property access issues along the Link Road resulting from the alteration. However, there will be some positive benefits to Greenhill Road residents as the forecast traffic volume past there door will revert back to that generated by the local residents (around 200vpd).
Intersections and Roundabouts
As a result of the proposed alteration, the traffic flows on Greenhill Road will be similar to what they are currently (i.e. without any designation). The intersection performance will improve as turning flows in the peak periods are only in the order of 20-30 vehicles per movement and the proposed alteration will therefore have a positive effect on existing Greenhill Road users.

The existing roundabout layout at Wairere Drive/Gordonton Road has multiple lanes with short two lane entries (except Wairere Drive south approach). Under the proposed alteration the roundabout is required to cater for slightly higher traffic flows than with the designation (+7.5% to +12%) and with traffic flows redistributed around the roundabout due to the extra Link Road connection. This will change the operational dynamics of the junction.

Morning peak period in 2041 with the proposed alteration will operate with a similar overall performance to the existing designated layout even with the extra +7.6% in traffic flow. As all approaches are considered to operate satisfactorily, the impact of the proposed alteration is considered less than minor.

However, in 2041 the evening peak period capacity of the Wairere Drive west approach is significantly exceeded (V/C = 1.4) with the introduction of the Link Road connection and is likely to result in high delays and very long queues. Hence, the alteration would result in a significant negative impact during the evening peak periods for around 992 vehicles on Wairere Drive west approach (maximum queue lengths of around 780m). As noted below, this significant impact can be mitigated by an adjustment of the intersection layout.

Pedestrian and Cycle
The Greenhill Interchange alteration will provide a positive effect for pedestrians and cyclists, as it includes a footpath on one side of the bridge crossing the Expressway where there are no existing pedestrian or cycle lines.

Traffic Conclusion
Alteration W is considered to have a minimal overall traffic and safety impact. In particular:

» Residents on Greenhill Road will notice a considerable improvement in property access due to the removal of a significant volume of expressway traffic in year 2021 and 2041 (-15,300 vpd) which also improves safety from driveways;

» The removal of a significant turning flow from the Greenhill Road/Gordonton Road proposed roundabout upgrade (considered to be the new Base Line) would result in a positive benefit to Greenhill Road residents;

» The direct connection from the interchange to the City’s arterial network is appropriate and has no adjacent property access thereby providing a high level of safety;

» In year 2041 the overall intersection performance during the morning peak period is acceptable at LOS. The worst movement has a LOS D with a likely delay of 39 sec/vehicle which is not considered excessive;

» Although the proposed alteration is expected to adversely affect the Wairere Drive west approach to the roundabout during the year 2041 evening peak period, it operates satisfactorily in year 2021 (LOS B and queue lengths < 75m). Hence the degradation in performance will be gradual post year 2021 and dependent on actual traffic growth; and
Analysis indicates that the addition of a third approach lane on Wairere Drive would alleviate the year 2041 evening peak capacity issue and significantly improve the junction performance such that it can adequately accommodate the extra flow from the future Ruakura Structure Plan development.

3.4.4.2 Noise

As discussed under section 3.2.4.2 of this report (Alteration U – Noise Effects), the Transit New Zealand Noise Guidelines were the main document used to provide guidance to manage noise effects as part of the existing designation and have a lower threshold noise level at 55 dB. Above that threshold noise level, the Noise Guidelines set design noise levels as increments of noise level increases above the existing ambient noise level.

Construction Noise

As discussed under Alteration U, conditions NOR 1 and NOR 2 – 2.1 and 2.2 of the existing designation requires a construction management plan to be certified by the WDC, which includes compliance with NZS 6803: 1999 Acoustics – Construction Noise. The overall approach of NZS 6803 is to develop upper noise levels for construction noise appropriate to the context of the location in which the project is to be constructed.

Most road construction activity readily complies with the typical duration noise limits in Table 2 of NZS 6803 where there is more than 40 metres separation between the main construction activity and the receiver. The long-term duration noise limits would be more difficult to comply with and separation distances may have to be more like 60 metres for large clusters of machinery.

However, the existing conditions are that the Construction Management Plan needs to identify how the construction activity will be managed to protect affected parties when the upper noise levels of NZS 6803 cannot be met.

Alteration W will result in only small to moderate changes in separation distance between the construction activity and nearby receivers. Therefore it is expected that the ability for the altered designation to comply with NZS 6803 is little changed from the ability of the existing designation to comply, and the periods of times for which alternate noise management methods may need to be used will also be similar. Therefore, the construction noise effects of the proposed alterations are less than minor.

Operation Noise

There will be some noise level increases as a result of the alteration, but only a few buildings are within increase areas and the increase levels are small. There will be some noise level decreases but these are where there are no receivers.

The noise modelling (attached in Volume 2) identifies that buildings at 84, 96, 104, 133 and 146 Greenhill would exceed the average noise design levels. With open graded porous asphalt/stone mastic asphalt (OGPA/SMA) and barriers, the noise report states that the noise levels would achieve the Noise Guidelines.

Noise Conclusion

The construction noise effects of Alteration W are expected to comply with NZS 6803 and mitigation measures are likely to achieve the Noise Guidelines for operation noise. As the existing conditions on the designation are proposed to extend to the alteration, it is considered that the
construction and operation noise effects of the alteration will have less than minor effects on the surrounding environment.

3.4.4.3 Landscape, Visual and Urban Design Effects

As discussed under section 3.2.4.3 of this report (Alteration U – Landscape, Visual and Urban Design Effects), the Landscape, Visual and Urban Design Effects Assessment Report (attached in Volume 2) identifies that the alterations have the following potential landscape and visual effects:

» Physical effects of the Expressway construction on existing landforms, land cover and land uses;

» Character and amenity effects associated with the landscape;

» Visual effects on views from nearby dwellings, private property and from public roads; and

» The urban design effects or influences in relation to alternate transport modes, connectivity and the response to local growth areas and Council structure plans.

The Greenhill Interchange is located within a rural area that is characterised by a mainly flat open pastoral land with low undulation occurring within the area with a scattering of mature trees, hedgerows and residential properties within the vicinity. To the west of the Expressway corridor and beyond Gordonton Road is the residential area of Chartwell.

Landscape and Visual Effects

Alteration W will result in a moderate-low landform effect due to the increased height (by approximately 9 metres above grade), although this will align with lineal form of the Expressway. The changes in landform in relation to the realigned Greenhill Road will be minor as the road will be close to the existing grade level. Effects of the wetland pond will be minor as the wetland will be small in area and only require minor earthworks in relation to the Project.

The change in land cover is comparable to the original designation and therefore, will have no effect as no additional vegetation will be removed to accommodate the elevated Expressway, wetland pond and realigned Greenhill Road. Similarly, the effects on land use will be low as no additional loss of farmland will occur with the change to the Expressway design. The realignment of Greenhill Road will require the loss of farmland and will result in a moderate-minor effect on land use.

The visual effects of the Expressway passing over Greenhill Road will result in a moderate-minor effect in relation to the original designation. The visual effects will occur to properties located within the immediate vicinity to the west and east of the Expressway.

The loss of views to the properties immediate west and east of the Expressway will be moderate and offset by the improvement of views to the properties in relation to the removal of the designated Expressway design where the elevated Greenhill Road approach embankments effectively blocked views. The residential areas of Chartwell and rural residential properties further from the Expressway will have no discernible change in effect due to the distance of the viewer. Users of the Expressway will benefit from being elevated as this will afford views across the landscape, with local road users having a moderate-low effect on views, as the open nature of the abutments to the bridge structures will help to maintain views beneath the bridge structure.
The magnitude of effect of the Greenhill Interchange and stormwater wetland alteration will be low compared with the effects of the original designation. Although the proposed Expressway will overpass Greenhill Road, the increased height and bridge structures will align with the linear form of the Expressway, in comparison to the designated design where the approach embankments and bridge sat incongruous to the Expressway alignment.

**Urban Design Effects**
Alteration W will create an opportunity to develop a more integrated 'gateway' environment into Hamilton. Having Greenhill Road at grade will provide a better interface and accessibility to land/future development with an opportunity to incorporate a boulevard treatment. Pedestrian and cycling facilities along the ‘at grade’ Greenhill Road will provide improved facilities and accessibility in comparison to the designated Expressway where pedestrians and cyclist would have pass up and over the local road bridge. The increased height of the Expressway will also provide a strong urban edge to contain the spread of future development into the rural pastoral land.

**Mitigation Measures**
The Greenhill Interchange provides a ‘gateway’ entrance into Hamilton that will utilise extensive native planting to ensure the area provides a suitable entrance statement while responding to the potential future development. The planting will minimise the effects of the increased height by screening and softening the Expressway in relation to the surrounding landscape. The use of exotic trees along the realigned Greenhill Road will strengthen the interchange’s ‘gateway’ environment, while contributing to the mature tree character of the area. Appropriate wetland planting will be undertaken around the stormwater pond to maintain water quality, provide wildlife habitat and visually assimilate the wetland into the landscape.

The earthworks treatment to embankments and the wetland will incorporate smooth contours to ensure the profiles tie into the existing land forms to ensure the visual effects of the change in landform are minimised.

The bridge structure(s) will build on the design objectives of the ULDF to ensure they create a ‘gateway’ interchange while contributing to the area’s character, and a moderate to high aesthetic quality in form and finish.

The existing conditions of the designation (NOR 1 – 6.1 to 6.6 and NOR 2 – 6.1 to 6.5) which are proposed to extend to the alteration require a landscape management plan identifying specific landscape measures to be certified by WDC and HCC.

**Landscape, Visual and Urban Design Conclusion**
Alteration W will result in a moderate-low effect on the immediate area and will be comparable to the original designation layout. The effects of the alteration will largely be contained within the lineal form of the Expressway.

The combination of the mitigation planting, the development of ‘gateway’ environment and the bridge design interventions as outlined within the ULDF will help integrate the proposed Expressway into the landscape to maintain the landscape and visual amenity of the area. The mitigation planting will also soften views from adjacent properties and integrate the Expressway form into the landscape.
The landscape and urban design mitigation measures within the ULDF are considered suitable in providing measures that avoid, remedy and mitigate the effects in relation to the changes to the original designation.

Subject to appropriate landscaping, it is considered that the adverse landscape, visual and urban design effects of Alteration W will be no more than minor in relation to the existing designation.

3.4.4.4 Air Quality

As discussed under section 3.2.4.4 of this report (Alteration U – Air Quality Effects), the Air Quality Assessment Report (attached in Volume 2) modelled air pollution dispersion as recommended by the Ministry for the Environment and NZTA guidelines, and taken into account the Waikato Regional Plan.

Construction Emissions

If appropriate mitigation measures are implemented as necessary during construction, PM_{10} levels and fugitive dust emissions from construction activities can be kept within the acceptable thresholds and trigger levels. Conditions 2.1 and 2.2(iv) of NOR 1 and NOR 2 on the existing designation (which is also proposed for the alteration) requires a construction management plan to be certified by the WDC and HCC, and that containment within the boundaries of the designation of dust nuisance arising due to construction, including effects on potable water supplies and to transmission lines.

Examples of appropriate measures to minimise or eliminate potential impact on the local air quality have been identified under Alteration U.

Operation Emissions

Alteration W will have insignificant effect on the local air quality at the interchange. The widening of the existing designation will have no effect on vehicle emissions from the operational Expressway as the position of carriageway will remain unchanged. The change in configuration so that the Expressway goes over Greenhill Road will also have no effect.

The alteration to designation for the interchange arms goes through the farmland area and there are no residential dwellings in the vicinity of the designation area. In fact, the new connecting roads will redirect traffic from Greenhill Road and reduce vehicle emission effect on the properties located along Greenhill Road.

Air Quality Conclusion

The air quality effects of Alteration W can be mitigated during construction through conditions NOR 1 and 2 – 2.1 and 2.2(iv) on the existing designation to ensure that dust emissions are kept within the boundaries of the altered designation. As the operation of the Hamilton Section will have no effect on the existing air quality, it is considered that the adverse air quality effects of the Alteration W will be less than minor.

3.4.4.5 Vibration

As discussed under section 3.2.4.5 of this report (Alteration U – Vibration Effects), the Vibration Assessment Report (attached in Volume 2) estimated vibration levels from the perspectives of human comfort and cosmetic building damage in relation to the British and German Standards, and the Waikato District Plan. The criteria used to measure the vibration levels were derived from
British and German Standards, and have deliberately been made more stringent than the guideline values specified in the Waikato District Plan.

Alteration W will provide for the Greenhill interchange configuration to be altered and results in the designation boundary being approximately 83 metres from the closest dwelling. Therefore, adverse vibration effects resulting from the construction and operation of the expressway will be less than minor.

In addition, conditions NOR 1 and NOR 2 – 2.1 and 2.2(vi) of the existing designation require a construction management plan to be certified by the WDC and HCC, which includes procedures, methods and measures to address vibration and its effects on dwellings.

Accordingly, it is considered that the adverse vibration effects of Alteration W will be less than minor given the distance to the nearest dwelling and the existing conditions of consent are proposed to be extended to the alteration.

3.4.4.6 Stormwater/Drainage

As discussed under section 3.2.4.6 of this report (Alteration U – Stormwater/Drainage Effects), the Hamilton Section will create a large area of new pavement that will cause stormwater to run off the site at a higher rate and in larger volumes than currently occurs, and could result in erosion of stream banks, and flooding of properties of the various downstream water channels.

The Water Assessment Report (attached in Volume 2) identifies that construction effects can be mitigated by WRC Erosion and Sediment Control Guidelines for Soil Disturbing Activities, and the swales and wetlands will treat the stormwater to remove hydrocarbons, pollutants that adhere to the suspended soils, and a proportion of the dissolved pollutants.

Therefore, it is considered that Alteration W will have no more than minor adverse water effects on the surrounding environment as the short term earthworks and dust effects during construction will be mitigated by erosion and sediment control measures, and the grassed swales will trap sediments while flowing to the wetlands, which will remove pollutants.

3.4.4.7 Ecology

As discussed under section 3.2.4.7 of this report (Alteration U – Ecology Effects), the majority of the Hamilton Section corridor encompasses a highly modified and intensively farmed landscape, which supports no indigenous vegetation and little indigenous fauna.

The Ecological Assessment identifies that Alteration W will result in an increase in loss of improved pasture that has minimal ecological value. Several mature pines will be lost within this alteration; however no bat activity was recorded at this site during bat surveys. Copper skink may be present in isolated sites however the pasture is intensively grazed and little lizard habitat remains.

It will also result in the loss of approximately 250m of ephemeral, artificial farm and roadside drain to culverts. NZFFD records show shortfin eel as present in this drain system at the Wairere Drive connection (at the western end of the western link) although historical records also exist of giant kokopu, common smelt and inanga elsewhere in this catchment (in vegetated gullies within the Hamilton City boundary). The drain affected at the Wairere Drive connection is highly modified and is considered to be of low ecological value. Matters relating to watercourses are addressed by the resource consents sought from Waikato Regional Council.
There are no significant ecological issues associated with the proposed alteration to designation in this location and therefore if will have less than minor ecological effects.

### 3.4.4.8 Social

Alteration W has varying social effects, from neutral, insignificant, minor negative, minor positive to significant positive. Adverse effects are able to be addressed and mitigated through the existing designation conditions.

Social effects of construction will be addressed through the CMP condition 2.0, particularly clause (viii) provision of access for emergency vehicles, and clause (viii) maintenance of road and property access during construction (refer Appendix C for full detail of conditions). Notification of the likely commencement date for the works and expected timeframe of the construction programme is also required (condition 2(i)). This will mitigate the social effects of any temporary access changes, as people will be able to plan for appropriate alternative arrangements and incorporate these into their usual daily routines.

Operational effects associated with this alteration include:

- Significant positive effect as impacts on the western portion of Greenhill Road are avoided
- Significant positive effect as a result of direct access from the City arterial network to the Expressway
- Significant positive effect as a result of direct access from the City arterial network to the Responsive Trade Education site
- Significant positive effect for landowners and Kingdom Hall of Jehovah’s Witnesses in Greenhill West due to relocation of interchange access road and reduction in traffic past these properties
- Moderate negative effect as a result of intersection delays at Gordonton Road/Wairere Drive roundabout
- Minor negative effect associated with environment and amenity (noise, visual effects) which can be mitigated through existing conditions of the designation
- Minor negative effect associated with additional land take – compensation will be provided through the Public Works Act process, and the lapse date on the designation (condition 10) provides a degree of certainty regarding construction timeframes and acquisition.
- Minor negative associated with the increased proximity of the Greenhill Interchange access road to the Life and Light Community Church.

**Social Conclusion**

Overall, Alteration W has varying social effects, from neutral, insignificant, minor negative, minor positive to significant positive. Adverse effects are able to be addressed and mitigated through the existing designation conditions.
3.4.4.9 Contaminated Land

As discussed under section 3.2.4.9 of this report (Alteration U – Contaminated Land Effects), the Contaminated Land Assessment Report (attached in Volume 2) has identified a number of properties along the proposed route of the Expressway as having potentially contaminated soils and have either been investigated or are yet to be investigated.

WDC files indicate that 133 Greenhill Road was used for horticultural activities in 1989. No information is held concerning chemical use or potential for the presence of persistent agricultural chemicals.

Standard good practice during earthworks will mitigate the potential risks from dust and surface water run-off. Specific assessment of locations, soil stratigraphy, groundwater levels and contaminant types will be necessary to assess potential risks to groundwater quality. Where a significant risk is identified the simplest means of mitigating long-term risk may be to remove the soils of concern to a suitably consented landfill.

As discussed under Alteration U, all issues associated with the further investigation, remediation and monitoring of contaminated sites on this section of the proposed Expressway must be overseen by a SQEP, and will be included in the construction contract documents and the EMP. Similarly, the WRC will require an EMP together with, or incorporating an ESCP to be prepared before works commences. The Contamination Report states that the professional implementation of these is sufficient to mitigate the potential effects of dust migration and sediment run-off leading to the uncontrolled spread of potential contaminants beyond the site boundaries.

Any NES resource consent required from WDC and HCC will be sought at the outline plan approval stage, once the contractors and final design of the Expressway have been confirmed.

As discussed under Alteration U, a Hazardous Substances Management Plan as part of the CMP is proposed as a condition of resource consent from the WRC and requires certification by the WRC prior to construction commencing.

Subject to resource consent, and EMP and ESCP, it is considered that Alteration W will have no more than minor contaminated land effects as locating, characterising and removing any contaminated areas will have an environmental benefit that will outweigh any short term effects from disturbance of the material.

3.4.4.10 Archaeology

As discussed under section 3.2.4.10 of this report (Alteration U – Archaeology Effects), there have been numerous assessments and archaeological investigations along the route of the Expressway which found four areas of archaeological concern within the current designation all of which are related to prehistoric Maori horticultural activities (S14/246, S14/247, S14/248 and S14/252).

The Archaeological Assessment Report (attached in Volume 2) found no recorded archaeological sites in the area of Alteration W.

In addition, existing conditions on the designation (NOR 1 – 3.2 to 3.4 and NOR 2 – 3.1 to 3.3) which are proposed to extend to the alteration require the following:
That any earthworks in areas of significance identified on pages 22 to 25, 27 and 28 of the (NAMTOK) Report 1999 shall be monitored by suitably qualified archaeologist (acceptable to the Historic Places Trust (HPT) and tangata whenua);

4 weeks written notice of the date of commencement for test drilling or construction; and

In the event that any archaeological items are discovered during earthworks, the NZTA shall:

- Advise the tangata whenua, archaeologist and WDC as appropriate within one day;
- Cease works in any part of the project site affected by the discovery;
- Contact NZ Police, Coroner and the HPT as appropriate; and
- Not recommence work in the parts of the project site affected by the discovery until all necessary statutory authorisations or consents have been obtained.

As there are no known archaeological values associated within the area of Alteration W and the existing conditions on the designation would mitigate any archaeological effects of discovery during earthworks, it is considered that the archaeological effects of Alteration W will be less than minor.

3.4.5 Conditions

As discussed under Alteration U, the scale of alteration is small and it is preferable that one set of conditions apply to the full route. The existing conditions were set by the Environment Court and are considered adequate to mitigate the effects of the alteration to no more than minor levels. For NZTA to commence earthworks or construction activities, WDC must first certify construction and landscape management plans which will mitigate the construction and visual effects. Therefore Alteration W is proposed to be subject to the existing NOR 1 and 2 conditions on the designation without any changes.

3.4.6 Resource Management Act 1991

This section assesses Alteration W against the relevant provisions of the Resource Management Act 1991.

3.4.6.1 Part 2 Matters

Part 2 of the RMA is the framework against which all the functions, powers and duties under the RMA are to be exercised for the purpose of giving effect to the Act. Section 5 sets out the purpose of the RMA. Sections 6, 7 and 8 are principles of varying importance intended to give guidance as to the way in which the purpose is to be achieved. The following is an assessment of the proposal under these provisions.

3.4.6.2 Section 5

The alteration to the existing Hamilton Section will provide a safe and efficient Expressway corridor which will meet the transportation needs of future generations. Subject to the existing NOR 1 conditions, the alteration will safeguard the life-supporting capacity of air, water, soil and ecosystems. Additionally, the existing conditions of the designation will mitigate any adverse
effects on the environment. Therefore, Alteration W is in accordance with the purpose of section 5 of the RMA.

3.4.6.3 Section 6

Workshops were held with the TWWG to ensure that the proposed alterations to the Hamilton Section maintained the relationship of Tangata Whenua with cultural sites, waahi tapu, and other taonga (section 6(e)). Subject to the existing conditions on the designation which require an accidental discovery protocol in the event an archaeological feature is discovered during works, any taonga or sites of historic heritage will be protected in the alteration areas.

Accordingly, Alteration W is in accordance with the relevant matters within section 6 of the RMA.

3.4.6.4 Section 7

The existing conditions on the designation which are proposed to be extended to Alteration W will ensure the maintenance and enhancement of amenity values (6(c)), maintenance and enhancement of the quality of the environment (6(f)), and will have regard to the intrinsic values of ecosystems (6(d)). Overall, Alteration W is in accordance with the purpose of section 7 of the RMA.

3.4.6.5 Section 8

The NZTA has facilitated Tangata Whenua’s participation in the consultation process to enable the latter to contribute fully to the investigation and assessment of the alterations and thereby to enable them to take steps to protect their interests. The Treaty signifies a partnership and requires the Crown and Maori partners to act toward each other reasonably and with the utmost good faith (Waitangi Tribunal, 1991). NZTA has acted reasonably and with good faith. In order for a Treaty partner to act in good faith, fairly and reasonably towards the other, it is obliged to make informed decisions. NZTA has consulted with the Tangata Whenua about the effects of the alterations on the latter’s interests and considers that it has sufficient information to make an informed decision about the alterations. Therefore, Alteration W is in accordance with the purpose of section 8 of the RMA.

3.4.7 Other Relevant Statutory Provisions

3.4.7.1 Waikato-Tainui Raupatu Claims (Waikato River) Settlement Act 2010

The grassed conveyance swales will trap a portion of the sediments while flowing to the wetlands, which will then remove hydrocarbons, pollutants that adhere to the suspended soils, and dissolved pollutants. Sediment into the Waikato River will be mitigated by detaining and slowly-releasing flow from the wetlands to minimise the discharge from the road and the potential for scouring material from stream beds which flow into the river. Flood attenuation will control the peak discharge rates from the less frequent extremely intense storms and ensure that the peak discharge rates following construction of the road do not exceed the predevelopment rates.

Subject to the existing conditions on the designation and the proposed WRC resource consent conditions, Alteration W will protect the health and wellbeing of the Waikato River for future generations; therefore, the alteration is in accordance with the Settlement Act.
3.4.7.2 Historic Places Act 1993

Although there are no recorded archaeological sites in the area of the Greenhill Interchange and stormwater wetland alteration, the existing conditions on the designation (NOR 1 – 3.2 to 3.4 and NOR 2 – 3.1 to 3.3) will mitigate any archaeological effects of discovery during earthworks.

Accordingly, Alteration W is in accordance with the HPA.

3.4.7.3 National Environmental Standards

The following national environmental standards are particularly relevant to the Project:

Air Quality

As discussed above under section 3.4.4.4, the air quality effects of Alteration W can be mitigated during construction through the existing conditions on the designation to ensure that dust emissions are kept within the boundaries of the altered designation. In addition, the operation of the Hamilton Section will only be a small contributor to the Hamilton airshed, the air quality effects of the operation of the Greenhill Interchange will comply with the carbon monoxide, nitrogen dioxide, and fine particulate thresholds of the NES for Air Quality.

Accordingly, Alteration W is in accordance with the NES for Air Quality.

Assessing and Managing Contaminants in Soil to Protect Human Health

Although 133 Greenhill Road may have potentially contaminated soils located in the vicinity of the proposed Greenhill Interchange and stormwater wetland alteration, investigation, remediation and monitoring of contaminated sites will be overseen by a SQEP, and included in the construction contract documents and EMP.

The SQEP will be responsible for ensuring that the investigative and assessment procedures followed, together with the appropriate remedial actions, and any necessary monitoring plans are prepared, implemented and in agreement with the NES for Assessing and Managing Contaminants in Soil to Protect Human Health and WRC requirements.

Any NES resource consent required from WDC and HCC will be sought at the outline plan approval stage, once the contractors and final design of the Expressway have been confirmed.

Subject to resource consent, and appropriate EMP and ESCP, Alteration W is in accordance with the NES for Assessing and Managing Contaminants in Soil to Protect Human Health.

3.4.7.4 Waikato Regional Policy Statement (RPS)

Operative RPS October 2000

The Operative RPS sets out issues, objectives and policies relating to the natural and physical resources of the Waikato Region. As discussed above, the effects of the Greenhill Interchange and stormwater wetland alteration can be mitigated by the existing conditions on the designation to a no more than minor level. In addition, the effects from the take and discharge of water, and earthworks will mitigated through the resource consent which have been applied for from the WRC.

Therefore, Alteration W is in accordance with the provisions of the Operative RPS.
Proposed RPS August 2010
Similarly, Alteration W is in accordance with the provisions of the Proposed RPS as effects of the alteration will be mitigated by the existing conditions on the designation and the proposed WRC resource consent conditions.

3.4.7.5 Waikato Regional Plan
The appropriate water take and disposal, and earthworks consents have been applied for from the WRC. Subject to the existing conditions on the designation and the proposed WRC resource consent conditions, Alteration W is in accordance with the Waikato Regional Plan.

3.4.7.6 Regional Land Transport Strategy 2011-2041
The Expressway is provided for in the RLTS. Alteration W is in accordance with the provisions of the RLTS as it will be part of a strategic corridor, will improve road safety, provide for future demand and encouraging alternative modes of transport.

3.4.7.7 Waikato District Plan (Operative April 2013)
The Waikato District Plan promotes the sustainable management of natural and physical resources in the Waikato District, primarily by managing the effects of land use on the environment. The Greenhill Interchange and stormwater wetland alteration is zoned Rural, and the western side of the interchange is within the Urban Expansion Policy Area.

Rule 25.5(f)(ix) of the Waikato District Plan prohibits new roads within the Urban Expansion Policy Area (except in compliance with indicative roads on the planning maps, and excluding upgrading and widening of established roads). The intention of the rule is to ensure that the Urban Expansion Policy Area is not developed before the HCC establish development standards for the area. Firstly, the NOR is to only designate the interchange connection directly to the Wairere Drive roundabout, and secondly, the proposed connection from the Greenhill Interchange directly to the Wairere Drive roundabout is an alteration to an existing designated road. The existing designated road would create a small pocket of land between the Expressway and the connection to Greenhill Road, and would result in traffic turning on and off Gordonton Road within approximately 200 metres of the Wairere Drive roundabout.

The proposed connection directly to the Wairere Drive roundabout will not result in non-rural activities impeding or increasing the costs of future conversion of the land to full urban uses, as the properties in the area already have access to Greenhill Road and could subdivide rural-residential sized lots (5000m²) without the connection.

Alteration W is in accordance with the provisions of the Waikato District Plan for the following reasons:

» The alteration will improve the safety, efficiency and sustainability of the roading network within the district;

» The existing Hamilton Section designation is already included in the Waikato District Plan and the alteration will improve access to the Expressway;

Ruakura Board of Inquiry
The existing conditions on the designation and the proposed WRC consent conditions will avoid, remedy or mitigate the adverse effects on the environment to a no more than minor level;

The NZTA has undertaken extensive consultation with statutory bodies, Tangata Whenua, key stakeholders and people who are affected by, or who have an interest in the Project.

### 3.4.7.8 Hamilton City Proposed District Plan

In addition to the reasons above, it is considered that Alteration W is in accordance with the provisions of the Hamilton City Proposed District Plan for the following reasons:

- The alteration will incorporate high quality urban design and create a gateway for Hamilton City;
- The existing landscape conditions (NOR 1–6.1 to 6.6 and NOR 2–6.1 to 6.5) on the designation will ensure that the character of the surrounding area will be protected; and
- The existing archaeological conditions (NOR 1–3.2 to 3.4 and NOR 2–3.1 to 3.3) on the designation will protect any heritage sites in the area.

### Ruakura Structure Plan

Although a decision on the Ruakura Structure Plan has not been made by the BOI, the Greenhill Interchange and connection would not prevent the development of the Ruakura Structure Plan, should it be granted.

### 3.4.8 Future Environment

#### 3.4.8.1 Future Proof Growth Strategy and Implementation Plan 2009

The Future Proof Strategy identifies the Waikato Expressway corridor as a key regional infrastructure development. The Greenhill Interchange alteration will provide for growth within the surrounding area, by enabling better connectivity to the Expressway. The revised alignment of the connecting arm will allow a direct connection into Wairere Drive which forms a key part of the Hamilton City arterial road network. The social implications of this are more direct access from the Expressway to areas of employment, educational facilities and other essential services.

Therefore, Alteration W is in accordance with the provisions of the Future Proof strategy.

### 3.4.9 Alteration W Conclusion

Alteration W will result in re-alignment of the road connection from the interchange so that it connects directly with the Wairere Drive roundabout. The connection will be a two-lane arterial. The proposal will also result in widening of the designation around the interchange to accommodate roundabouts at the ramp junctions and a stormwater wetland on the eastern side to the interchange. The Project will incorporate an overbridge or dual bridges (to be defined by the contractor). The vertical alignment of the Expressway would increase to approximately 9m maximum above grade (at chainage 1110) but would vary in height between chainage 10400 and 12200 in relation to the original designation. Between chainage 10200 and 11700 there will be an additional 98,000m³ of fill material required to construct the embankments and a very slight reduction in available cut material (7,000m³).
Subject to the existing conditions on the designation and the proposed WRC resource consent conditions, Alteration W will have no more than minor effects on the surrounding environment. The effects of the final design of the interchange and wetland will be mitigated by the outline plan process.

Furthermore, Alteration W upholds the sustainable management purpose of the Resource Management Act, adequately provides for Part 2 matters, and is consistent with both the Regional Policy Statements and Regional Plans.

Accordingly, the NZTA looks forward to a favourable recommendation regarding this notice of requirement.
3.5 Alteration Z – Southern Interchange and Cambridge Road Widening

3.5.1 Proposed Alteration

The alteration involves a substantial change in design of the Southern Interchange compared with the existing designation, providing a grade-separated facility and including the removal of the south-facing ramps. The existing designation is shown in Figure 3-8. The alteration to the designation sought by the NZTA is shown on the alteration and scheme plans in Appendix A and indicated in Figure 3-9.

To provide the necessary connectivity, the interchange will connect with the East-West Link Road, which is being concurrently designated by WDC. The alteration also includes some small areas of localised widening to accommodate the interchange, as well as widening of Cambridge Road from the interchange through to just south of Riverlea Road. To meet the necessary vertical separation between roads, the Expressway has been lowered which results in an additional 506,000m³ of cut material compared with that proposed in the original designation.

Figure 3-8 – Existing Hamilton Section designation
3.5.1.1 Existing Environment

Figure 3-10 below shows the existing environment and approximate location of Alteration Z.
The existing environment surrounding Alteration Z consists of rural residential development in the following three ‘catchments’ areas (as shown in Figure 3-11):

1. Cherry Lane area: Cherry land and Borman Road area, bordered by the Mangaone stream, Expressway and Tauwhare Road;
2. Tamahere West/Newell Road area; and
3. SH1 properties to the north-west of Cherry Lane: those that gain direct access to SH1 currently and are severed from the Newell Road area by gully.

The area also contains a variety of land uses including:

- Tamahere education facilities: Tamahere Model Country School (designated by the Ministry of Education), Tamahere Playcentre, Lil Pumpkins Early Learning, Waikato Montessori Early Education Centre;
- Tamahere Community Centre;
The area is zoned Country Living in the Waikato District Plan which allows for rural-residential scale development. There are also a number of overlays in the plan that are relevant to consideration of the existing environment:

- The very southern part of the Expressway designation falls within the Airport Noise Outer Control Boundary;
- Two areas to the west of the existing SH1 (and just south of the designation) are subject to the Tamahere Commercial Area overlay;
- Multiple indicative roads, walkway and cycleways are identified; and
- Gullies are subject to a Gully Area overlay.

### 3.5.1.2 Future Environment

The area is also affected by Plan Change 3 to the Waikato District Plan, which amends rules and maps in the District Plan to manage the impacts of development in the Tamahere Country Living Zone. Key aspects of Plan Change 3 which affect the future environment are new zones – Recreational Zone and Business Zone located just to the west of the existing Tamahere interchange, and changes to the local road hierarchy.

### 3.5.1.3 Description of the Proposed Works

To overcome the relatively high expected through flows on the SH1 to Hillcrest movement during peak periods (3700vph), the alteration is to provide a new Cherry Lane bridge that spans over the Expressway and associated Cambridge Road on and off ramps. Access from the Cherry Lane overbridge into Hillcrest (and vice versa) is via a separate on-ramp and off-ramp connection. It is proposed that the Cherry Lane overbridge will also provide pedestrian and cycle access on the southern side of the structure to align with the WDC proposal for the new Tamahere East-West Link Road (being designated concurrently).

The proposed widening of Cambridge Road will be undertaken to provide dual north and single south bound carriageways to tie into the existing dual carriageway to the north and the proposed dual carriageway of the Expressway. A pedestrian/cycle shared path will be provided along Cambridge Road between the Southern Interchange and Riverlea Road. The widening will occur mainly to the western side of the existing Cambridge Road, along with some areas of widening on the eastern side. The widening will require earthworks with cut faces occurring on the western side of Cambridge Road between chainage 250 to 500 with a minor cut between chainage 800 to 950. Fill will be required on the eastern side of Cambridge Road between chainage 500 to 650 and a wetland pond will be formed at the end of Annebrook Road, which will be terminated as part of...
WDC works. To the south of the wetland some additional fill will be required to accommodate the widening of the carriageway (chainage 1000 to 1250).

The road widening will require the removal of vegetation within the areas of earthworks, although these areas are mainly re-vegetating scrub, but will also include a number of exotic trees.

### 3.5.1.4 Reasons for the Proposed Works

Since lodgement of the original designation in 2001, the NZTA has taken a stronger focus on road safety, adopting the principles of Safe Systems and establishing a new set of design standards for RoNS projects. Based on current traffic projection it was also determined that the existing designation design for the Southern Interchange (which incorporates an at grade connection to Cherry Lane) would provide a very low level of service during peak periods. In response to this the southern interchange has been reviewed and modifications made to the original designation. A fundamental decision in developing a suitable layout is the desire to remain within the current designation footprint as most of the land required has already been purchased.

As part of the Tamahere East connectivity considerations, the NZTA investigated the merits of removing the south facing on and off ramps (shown on Figure 3-12), which would then require Tamahere East residents to access the expressway south via the internal Tamahere road network consisting of Birchwood Lane and the Tamahere Interchange. This option was presented at public Information Days in October 2011 and May 2013. It is recognised that removal of south-facing ramps requires NZTA/WDC to construct the Tamahere East-West Link Road, or provide some other arrangement for Cherry Land and Bollard Road traffic to access southern designations (within Tamahere or externally).
3.5.2 Consideration of Alternatives

Section 171(1)(b) of the RMA requires consideration of alternative sites, routes, or methods of undertaking the work if:

» The requiring authority does not have an interest in the land sufficient for undertaking the work; or

» It is likely that the work will have a significant adverse effect on the environment.

This section provides a summary of the process for considering alternatives to the Southern Interchange alteration. This summary demonstrates that a robust consideration of a wide range of Southern Interchange options was undertaken before the proposed option was adopted. Further detail can be found in the Network Connections Summary Report which is provided in Appendix D.

At the time when the existing designation was secured the Hamilton Southern Interchange was called the Cherry Lane Interchange and included a wide median treatment which catered for all movements in and out of Cherry Lane and Bollard Road (see Figure 3-13).
Figure 3-13: Cherry Lane Interchange Designation Design (2005) with wide median treatment

Traffic projections undertaken during the current secondary investigation phase of the project indicate that the 2005 design for the Hamilton Southern Interchange would result in unacceptable delays and unsafe movements for the Cherry Lane/Bollard Road traffic. The interchange layout was therefore amended to include a grade separated connection between Cambridge Road and Tamahere East (Cherry Lane and Bollard Road). This grade separated connection took the form of diamond interchange with north and south facing ramps (see Figure 3-14).
The adoption of the grade separated connection to Tamahere East made feasible the incorporation of the East West link to Tamahere West – which had been promoted for some time by the WDC. (see Figure 3-15). This connection was not feasible with the currently designated interchange because of the limited capacity of the at-grade wide median intersection on Cambridge Road.

The East West Link, in turn allowed the south facing ramps to be omitted from the Cambridge Road interchange. The removal of these ramps was desirable because:

» The NZTA’s independent road safety auditors identified two significant safety issues associated with the merge condition on the Cambridge Road south bound on ramp – located on the bridge over the Expressway;

» They were very costly to construct – primarily because of the additional width that would be required on this bridge; and

» They would compromise the safety of the pedestrian/ cycle route between Tamahere East and West (Pedestrians and cyclists would have to cross two ramps at grade).

The road safety auditors were concerned that the proposed Southern Interchange layout was complex and unusual, in that it included a second off ramp within the off ramp north to Cambridge Road and a second on ramp within the on ramp from Cambridge Road south, introducing additional decision-making and manoeuvres over a relatively short distance within the...
interchange. They noted that the complex layout is likely to be difficult to sign successfully, and there is a risk of driver confusion, last minute lane changing and drivers slowing down or encountering slower traffic unexpectedly. The road safety auditors were also concerned that there was insufficient spacing between the successive merges on the south bound on ramp. The auditors recommended that these significant safety concerns should be addressed by omitting the south facing ramps at the Southern Interchange.

Figure 3-15: Southern Interchange without south-facing ramps and connection to East-West Link

The inclusion of the south facing on ramp from Cherry Lane would require the Cambridge Road ramp to be increased from one lane to two which in turn leads to a much wider bridge over the Expressway. Figure 3-16 shows the bridge required for the current proposal and Figure 3-17 shows the bridge required for the initial proposal, which included the south facing ramps from Cherry Lane. The difference in the cost of the bridges alone would be in the order of $7M and the overall cost difference would be in the order of $10M.
Figure 3-16: Southern Interchange On Ramp Bridge with Cherry Lane South-Facing Ramps

Figure 3-17: Southern Interchange On Ramp Bridge without Cherry Lane South-Facing Ramps
With the elimination of the south facing ramps, Tamahere East traffic with southern destinations (e.g. Cambridge, Airport, Tauwhare Rd, and Tamahere School) must use the East West Link and the Tamahere West road network. This is considered to be a minor disadvantage because the majority of trips (67% approximately) from Tamahere East have destinations to the north (primarily Hamilton City) and some of the balance have local destinations within Tamahere West.

Even with the removal of the south facing ramps the proposed form of Southern Interchange, together with the East West link, will be very expensive to build. A wide range of alternative options were therefore investigated to provide appropriate connectivity between Tamahere East and West, and between Tamahere and external destinations to the north and south (see Figure 3-18 below).

Four key alternatives were assessed:

» Option 1: Connection to East-West Link with no south facing ramps from Cherry Lane onto the Expressway;
» Option 2: Tauwhare Link – connection from Bollard Road south to Tauwhare Road, with access to the Expressway network provided by the existing Tamahere Interchange;
» Option 3: Birchwood Link – a new crossing over the Expressway and connected into Birchwood Lane; and
» Option 4: Koppens Link – a new crossing over the Expressway that connected into Koppens Road.

Options 2, 3 and 4 had a set of sub-options to connect Tamahere West to Cambridge Road:

» Sub-option A0: Existing access via Tamahere Interchange and Newell Road;
» Sub-option A1: Newell Road/ Cambridge Road roundabout;
» Sub-option A2: Newell Road/ Cambridge Road 3 or 4 Phase Traffic Signals;
» Sub-option A3: Newell Road/ Cambridge Road 2 Phase Traffic Signals; and
» Sub-option B: East-West Fly-over plus East West Link (but no connection to Cherry Lane
For the purpose of the Southern Interchange options assessment Tamahere East is assumed to cover the area bounded by Mangaone Stream, Tauwhare Road, and Cambridge Road (SH 1). Tamahere West is assumed to cover the area bounded by Cambridge Road (SH 1), Airport Road (SH 21), the Waikato River, and Mangaone Stream (downstream of Cambridge Road).

The evaluation of these Southern Interchange alternatives included the drawing of sketch plans, construction cost estimates, property cost estimates, an assessment of environmental impacts, a multi-criteria analysis, the construction of a local SATURN transportation model, and an economic analysis utilising outputs from the transportation model.
The assessment of environmental impacts included the comparative assessment of the following issues:

- Accessibility (between Tamahere East and West, and between Tamahere and external destinations);
- Pedestrian and cycle connectivity – primarily between Tamahere East and West;
- Compatibility with the Tamahere Structure Plan road network hierarchy;
- Road safety;
- Property impacts;
- Noise;
- Visual;
- Archaeological;
- Cultural;
- Social;
- Stormwater; and
- Ecological

The economic analysis (comparing road user accident, time and operating costs against capital and maintenance costs) showed that only three of the options (Options 1, 2A3 and 3A3) had benefit cost ratios of 1.0 or greater – using Option 2A0 (Tauwhare Link with no change to the Newell Road intersection) as the do-minimum (base) option.

The multi-criteria analysis showed that there were clear differences between the options and that Option 1 was clearly superior to all of the other options.

On the basis of the economic and multi-criteria analysis a significant number of the options could be eliminated from further consideration.

Option 4 (Koppens Road Link) was eliminated because of its low benefit cost ratios and because it the highest negative score in the multi-criteria analysis. It would have involved substantial property impacts and substantially increased traffic flows in the vicinity of the school.

Sub-option A1 (Newell Road roundabout) was eliminated because of its high cost, its large footprint (encroaching on the margins of the Mangaone Stream), and the imposition of significant delay on all Cambridge Road through traffic.

Sub-option A2 (3 or 4 phase signals at Newell Road intersection) was eliminated because it had a higher cost than Sub-option A3 (2 phase signals) and imposed significantly more delay on Cambridge Road through traffic.

Sub-option B (East West Fly-over), in combination with Option 2 or 3, is more expensive than Option 1, provides significantly inferior connectivity between Tamahere East and the City, has lower benefit cost ratios, and greater property impacts.
The result of the foregoing assessment process (documented in the “Hamilton Southern Interchange Connectivity Feasibility Study, November 2012”) was that the following option combinations were judged to be worthy of further consideration.

- Option 1;
- Option 2A3 – the Tauwhare Link with a two phase traffic signal arrangement at Newell Rd/Cambridge Rd intersection; and
- Option 3A3 – the Birchwood Link with the above intersection improvement.

These short-listed options were evaluated further in early 2013, using the NZTA Investment and Revenue Strategy assessment process. This process assesses the options in terms of Strategic Fit, Effectiveness (in meeting national and project objectives) and Efficiency (in terms of economic viability or benefit cost ratio). The assessment was documented in a report titled “Hamilton Southern Interchange Options Assessment, February 2013”.

The assessment concluded that Option 2A3 would be inconsistent with the strategic objectives of the Expressway because it requires or encourages all trips between Tamahere East and the City to utilise the critically busy section of the Expressway between the Southern and Tamahere Interchanges. Any significant utilisation of this section of the Expressway for local trips, as opposed to inter-regional and inter-centre trips, would be:

- Detrimental to the long term performance and resilience of the Expressway, and
- Inconsistent with the region’s road network hierarchy.

The comparative assessment of the two remaining Southern Interchange options (Options 1 and 3A3) considered the section of the proposed Expressway between the existing Tamahere Interchange and the proposed Southern Interchange in the vicinity of Cherry Lane. It also considered the section of Cambridge Road between Cherry Lane and Riverlea Road, Hillcrest. A high proportion (70 to 75%) of the Expressway traffic approaching the Southern Interchange from the south enters Hamilton City via Cambridge Road. This section of Cambridge Road is therefore a key component of the strategic inter-centre road network. Although the proposed Southern Links project will reduce the volume of traffic entering the City via Cambridge Road and Cobham Drive in the long term, current projections indicate that this route will still remain the key point of entry for traffic approaching the City from the south.

The relevant strategic issues used to assess the comparative merits of the two options were:

- Safety (reductions in death and serious injury);
- Level of Service (reduced congestion, journey time reliability, and efficient supply chains);
- Network Security and resilience (responsive, sustainable, long term);
- Access and mobility (integrated transport system);
- Environmental sustainability (reduction in adverse effects);
- Recognition of the principles of the Treaty of Waitangi; and
- Value for Money (affordability, appropriate return on investment).
Option 1 was rated as significantly superior to Option 3A3 in terms of safety, moderately superior to Option 3A3 in terms of level of service, network security and resilience, and access and mobility. Option 3A3 was rated moderately superior to Option 1 in terms of the environmental sustainability and the principles of the Treaty of Waitangi. Both options had benefit cost ratios that were economically viable but which were relatively low.

The key safety differences between the two options relate to treatment of the Newell Rd/Cambridge Rd intersection and access to the properties fronting Cambridge Road between Cherry Lane and Newell Road. Option 1 avoids the need for a signalised intersection on Cambridge Road and provides very safe access to the Cambridge road properties via a direct link to the grade separated interchange on Cambridge Road.

From a level of service point of view, the signalised Newell Rd intersection in Option 3A3 introduces significant delay for all through traffic entering and leaving the City. Option 1 avoids introducing delay on this important section of Cambridge Rd and also avoids delay for Tamahere traffic heading into the City.

The key difference between the options with regard to network security and resilience is that Option 1 would more readily accommodate increased traffic flow on Cambridge Road (in the absence of the signalised intersection at Newell Road) and would also allow the installation of a median barrier (because of the separate access to the Cambridge Road properties).

Both options provide good access to Tamahere and especially between Tamahere and the City. However Option 1 provides somewhat superior access to the City via the East West Link (for Tamahere West traffic) and the Cambridge Rd interchange. Option 3A3 requires Tamahere East traffic to pass through the Tamahere West network and negotiate a 1.5 km long section of residential Newell Rd. Option 3A3 provides more convenient access to the south for Tamahere East traffic and between Tamahere East and West. Both options, however, provide a safe grade-separated crossing of the Expressway between Tamahere East and West. Because trips to and from the City account for about two thirds of the trips from Tamahere, Option 1 is considered superior from an access point of view.

The most significant difference in the environmental impact of the two options is the location of the crossing of the gully system which lies to the west of the Expressway and drains toward the north. At the proposed crossing point on Option 3A3 the bottom of the gully is in pasture with a small stream running through it. The East West Link component of Option 1, on the other hand, crosses the gully system at the confluence of two tributaries, and where there is relatively dense vegetation — although this is not of high quality. It is expected that appropriate mitigation measures would address the key environmental impacts of Option 1.

The main point of difference between the two options as far as Iwi cultural interests are concerned the proximity of the East West Link to a Pa site (S14/56) which lies immediately to the south of the proposed gully crossing on Option 1. Care will need to be taken to avoid interfering with the site and to agree with Iwi the most appropriate way of acknowledging the presence of the site. However, it is expected that appropriate mitigation measures are likely to be agreed with Iwi.

The comparative assessment of Options 1 and 3A3 concluded that Option 1, including the East-West Link, was the preferred layout for the Southern Interchange.
Other connectivity options were briefly considered that involved no Southern Interchange but included separate local roads to provide a connection between the Tamahere Interchange to the City. These options created significant property impacts in Tamahere and provided a poor level of service for traffic entering the City from the south. They were considered to provide insufficient net benefits to justify investigation in any detail.

3.5.3 Consultation

As identified under section 2.4 of this report, the NZTA has undertaken extensive consultation with statutory bodies, Tangata Whenua, key stakeholders, the Tamahere community, and people who are affected by or who have an interest in the Project.

3.5.4 Assessment of Environmental Effects

The following outlines the likely environmental effects of Alteration Z, and identifies mitigation measures, where necessary.

3.5.4.1 Traffic

Construction Traffic

To meet the necessary vertical separation between roads, the Expressway has been lowered which results in an additional 506,000m³ of cut material over that proposed in the original designation. The contractor could decide to either dump the material to a disposal site or use it to create the embankment fills north of SH26. Due to an overall shortage in available fill material within the Project, the most likely scenario will be to utilise the cut material for embankment filling and dispose of the unsuitable material to a local disposal site.

The extra material could be moved either north along the project corridor (via a haul route), which in our view is unlikely as it would require two significant stream crossing structures to provide the necessary support of earthwork machinery, or via the road network to the SH26/expressway construction entry point. If transported by road, it is unlikely that Hamilton City Council would accept laden truck and trailer units to use SH1 and the congested Morrinsville Road/Cambridge Road roundabout to access the site via SH26 due to the associated adverse traffic effects (impacts on safety and intersection capacity).

This would leave the contractor two possible route choices, Tauwhare Road and Matangi Road (travelling through Matangi village and past the Matangi School) or Tauwhare Road and Hoeka Road. Both ways, there is a considerable distance to cart material, and the contractor may elect to dispose of the material closer to Tamahere (new dump site) and identify a borrow site closer to the expressway. If they do, then a resource consent application would be sought by the contractor.

In the event that road transport is adopted and the suitable Tamahere cut material is to be used for creating the embankment, we could expect to have an additional 40,000 truck and trailer units over 125 working days, resulting in an extra 320 truck and trailer movements per day. This can be easily accommodated on the State highway network and will have only a minimal impact as SH1 has a daily flow of over 30,000vpd of which at least 3,000 are trucks. Tauwhare Road, between Bruntwood Road and Swallow Lane carries 2,200vpd and hence an extra 320 vehicle movements represents an increase of 14.5%, which is deemed to be more than minor. Possible effects include pavement deterioration from heavy loading over a short duration, increased delay to side road
traffic and perceived safety risks by the public and adjacent property owners due to the significant number of heavy vehicles using the local road network.

In addition, to transporting the suitable material north of SH26 there will be a need to remove from site approximately 116,000m³ (around 12,000 truck and trailer trips) to a local dump site. The NZTA is aware of an ex-quarry site on SH21 which may be suitable as a dump site.

**Operational Traffic**

**Cherry Lane and Bollard Road Connectivity**

The proposed alteration replaces the wide median layout with an overbridge that provides a grade separated interchange with on and off ramps to Cambridge Road. However, the south facing ramps are replaced with the proposed Tamahere East-West link (designation currently being sought by WDC).

Modelling indicates a total daily flow of 1,520 vehicles in 2021 increasing to 1,710vpd by 2041 from the Cherry Lane and Bollard Road area. Of this, 410vpd in 2021 and 480vpd 2041 are expected to travel in a southwards direction from the Southern Interchange (approximately 27% of all daily trips).

It is expected that the main change in flow patterns due to the inclusion of the East-West link will be reduced volumes on Newell Road and Birchwood Lane at the western end, with an increase in flow at its southern end (near Devine Road). The 200vpd increase in traffic flow on the East/West Link Road is a combination of new traffic from Tamahere East (due to removal of direct connection onto the expressway for southbound movements) that needs to use the East-West Link Road to access Tauwhare Road, Airport Road or SH1 south and some internal reassignment of flows from within the Tamahere west area.

It is expected that 500vpd of the 1800vdp on the Link Road in 2041, will have origins in Cherry Lane and Bollard Road, with destinations in Tauwhare Road (100vdp), Airport Road (200vdp) and SH1 south (200vdp). When Birchwood Lane is extend through to Devine Road an extra 500vdp will use Birchwood Lane, which has been constructed to a Tamahere Collector Road standard.

The impact of additional travel times and distance increases is dependent on the overall trip length and to a lesser extent the actual trip purpose. The impact of the alteration on trips to Matangi Shops, Airport or St Peters School will be more than minor; if the destinations are further afield the impact will be less obvious.

**Southern Interchange Performance**

Modelling of the existing designation connectivity (i.e. grade separated junction with all movements available) indicates that the maximum average delay to any movement in the year 2041 peak period is expected to be less than 11sec/vehicle, which is predominately due to the geometric delay, rather than stop line delays. The proposed alteration (which includes the East/West link) analysis indicates that the "T" junctions at the ramp terminals would operate well in the peak period beyond year 2041 with an overall intersection performance of LOS B, with the maximum average delay to any movement no more than 12seconds/vehicle. The removal of the Cherry Lane southbound on/off ramp and inclusion of the East/West link is considered to operate as well as the existing designation layout performance.

Traffic modelling indicates a significant traffic flow heading southbound on Cambridge Road with a destination either on Tauwhare Road or Airport Road. Southbound traffic on the expressway also
has similar destinations. The combination of these movements creates a weaving movement between the Southern Interchange and the existing Tamahere Interchange. The proposed alteration makes provision for this flow by providing an auxiliary lane between the Cambridge Road on ramp and Tamahere interchange off ramp which was not proposed with the existing designation layout. By adopting a single lane southbound on ramp, the weave segment is expected to operate at LOS C or better in 2041 during the morning and afternoon peak periods, even with the inclusion of the Ruakura landuse.

For the movement between the existing single lane Tamahere northbound on ramp and the Cambridge Road off ramp, an auxiliary lane is also provided. However, due to the exceptionally high expected morning peak flow (1990vph) the off ramp at the Southern Interchange consists of two traffic lanes heading towards the city. This combination also results in a LOS C or better with the inclusion of the Ruakura landuse.

Intersections in the Tamahere West Area

Birchwood Lane/Newell Road:

An assessment of the existing ‘T’ intersection in 2041 with the inclusion of the Ruakura Structure Plan landuse indicates the intersection will perform at LOS A in both the morning and afternoon peak periods. This is because the WRTM assigns very little turning flows into Birchwood Lane as it includes the Birchwood Lane extension to Devine Road.

Airport Road/Devine Link Road:

This junction is expected to cater for 70vph to 130vph turning out of the Devine Link Road and a two way flow on Airport Road of around 1300vpd to 1500vph. The difference in performance during the 2041 AM peak period between the designation and the proposed alteration is considered to be no more than minor.

In 2041 the PM peak period at the junction will perform slightly worse due to the proposed alteration. The right turn movement out of the Link Road will rise from an average of 118secs/vehicle to 161secs/vehicle (both LOS F) as a result of only an 8 vehicle increase in turning flows. So neither the existing designation nor the Alteration is considered to offer an adequate level of service.

The assessment of this junction indicates that, although the right turn movement suffers high delays with the Southern Interchange designation, the small increase in flows (+8vehicles/hour) as a result of the proposed alteration will very likely make the situation much worse. Although in 2021 the right turn movement has a LOS E rating, the average delay of 50secs/vehicle is not uncommon at rural intersections along a state highway. Given that it only occurs in the evening peak period and affects only a small volume of traffic (55vph), improvements to the intersection could be delayed until sometime after 2021.

Tamahere Interchange Western Roundabout:

The existing roundabout currently caters for vehicles from Cherry Lane and Bollard Road that use the Tamahere Interchange as a u–turn facility to avoid turning right out of the side roads during periods of heavy flow on SH 1. When the Southern Interchange is constructed these vehicles will no longer need to undertake this movement. Modelling predicts reasonable AM peak traffic flows in 2021, when compared with a manual traffic survey undertaken in 2011.
When the WDC opens the Link Road, the existing Tamahere on ramp between the roundabout and Devine Road will be altered from the current two way road to a one way on ramp, which provides left turn in and left turn out access to Devine Road (as per the condition attached to the Link Road designation).

The modelling indicates that the proposed alteration layout has only a minor impact on the roundabout performance on Airport Road approach (average delay from 34sec/vehicle to 37sec/vehicle in 2041 AM peak periods). As the evening peak and other times of the day are not generally affected and the total increase in traffic flow through the junction is in the order of 1%, the overall impact of the alteration is considered to be no more than a minor negative impact.

The increase in flow is higher than under the existing designation landuse, although still relatively small at + 3%. The delay to Airport Road of just over one minute/vehicle is a poor level of service (LOS E), although not uncommon on rural intersections. In addition, it is only expected to occur during the evening peak period by 2041. Analysis indicates that in 2021, the Airport Road approach operates well with a LOS B.

The proposed alteration will have a less than a minor negative effect on the overall performance of the Tamahere Interchange Western Roundabout on the basis that:

» The evening peak period and interpeak periods operate at a LOS B or better in 2041 (highest average delay on Airport Road approach of 31 seconds/vehicle in the evening peak period with the Ruakura Landuse);
» With the Base Line landuse the overall intersection performance is only marginally affected but still operates with an overall LOS C in 2041 during the worst peak period (morning);
» With the Ruakura Landuse included the overall intersection is still operating at an acceptable level (LOS D) in 2041 during the worst peak period;
» The additional traffic volume using the intersection is in the order of 1% to +3% for the Base Line and Ruakura landuse respectively;
» If mitigation is required to improve the LOS for the Airport Road approach at the Tamahere Interchange western roundabout, then providing an additional approach lane of 60m long on Airport Road will make a significant difference. That is, average delay on Airport Road reduces to around 20seconds/vehicle in year 2041 resulting in an overall intersection performance of LOS B.

Pedestrian and Cycle
As part of the Southern Interchange alteration, a new shared pedestrian/cycle footpath will be provided on Cambridge Road between the Southern Interchange and Hillcrest, and between Bollard Road and the existing Tamahere Interchange to connect up with existing facilities. Accordingly, overall the proposed alterations provide a positive effect for pedestrians and cyclists.

Traffic Conclusion
In summary, the traffic assessment of the Southern Interchange alteration has determined that by year 2041:

» Under the existing designation layout:
Intersection delays at the ramp terminals on Cherry Lane overbridge are acceptable at LOS B in year 2041 during the worst peak period. The maximum average intersection delays are expected to be around 12sec/vehicle;

Traffic turning right out of the Link Road into Airport Road in year 2041 are likely to experience high delays of 83sec/vehicle to 118secs/vehicle in the morning and evening peak period respectively under the Base Line land use. If the Ruakura Structure Plan BOI is successful then the likely delays in year 2041 escalate to 138secs/vehicle (morning peak) to 207secs/vehicle (afternoon peak) due to additional traffic volumes along Airport Road. Mitigation of this can be provided by constructing a single lane roundabout; and

The intersection of Birchwood Lane and Newell Road operates at an expected LOS A in year 2041 during the worst peak period.

With the proposed Alteration layout:

Intersection delays at the Southern Interchange ramp terminals will be virtually the same as the upgraded Base Line layout.

The provision of the East/West link provides safety benefits gained from removing local trips between Bollard Road/Cherry Lane and the Tamahere School, Church and future commercial hub, from using a very short section of expressway as required by the designation layout.

The 3m wide shared pedestrian/cycle pathway on the Cherry Lane overbridge provides a positive safety benefit between Cherry Lane and Tamahere west due to the inclusion of the East/West link.

Approximately 400 vpd from Cherry Lane and Bollard Road with be subjected to an additional 1.1km of travel distance and 3 to 4 minutes of travel time when destinations are to Tauwhare Road or SH1 south respectively. A further 100vpd are required to travel an extra 200m and 1.0min of travel time if destinations are west on Airport Road.

The East/West link provides traffic and safety benefits to Tamahere west users who no longer need to use the Newell Road/Cambridge Road ‘T’ intersection during high flow periods as they can use the Southern Interchange to avoid difficult turning movements,

Traffic turning right out of Link Road is likely to experience high delays of 99sec/vehicle to 161secs/vehicle by year 2041 in the morning and evening peak period respectively under the Base Line land use. If the Ruakura landuse is included then the likely delays escalate to 170secs/vehicle to 493secs/vehicle due to additional traffic volumes along Airport Road, even though the additional volume is insignificant at +8vph. Mitigation of this negative effect can be achieved by constructing a roundabout at the junction sometime after year 2021 when the delays become unacceptable.

The Tamahere Interchange western RAB operates with an acceptable LOS C in year 2041 during the worst peak period with the Base Line. If Ruakura landuse is included then it reduces to LOS D during the morning peak period with the worst delay close to 75sec/vehicles with a likely maximum queue of nearly 400m. Mitigation of this can be achieved by adding an extra approach lane on the Airport Road west approach.

In the unlikely event that Cherry Lane and Bollard Road traffic need to use Newell Rd to access Airport Road (if Birchwood Lane is not connected to Devine Road), the Birchwood
Lane/Newell Road intersection is expected to operate at a LOS B in both peak periods in year 2041.

Taking into account the above assessment results, the traffic and safety effects of the Southern Interchange and Cambridge Road alteration is expected to result in an overall effect of no more than minor. Whilst there is some negative effect on Airport Road at the intersection of Link Road, the assessment indicates that there will be capacity issues at this junction even with the designation proposal, particularly if the Ruakura Structure Plan is given the green light by the Board of Inquiry.

Improvements will be required regardless of the proposed alteration to improve the level of service and reduce potential crashes resulting from frustration associated with the long wait times. The assessment has identified that a roundabout at the Airport Road/Link Road intersection will adequately mitigate any intersection performance issues.

### 3.5.4.2 Noise

As discussed under section 3.2.4.2 of this report (Alteration U – Noise Effects), the Transit New Zealand Noise Guidelines were the main document used to provide guidance to manage noise effects as part of the existing designation and have a lower threshold noise level at 55 dB. Above that threshold noise level, the Noise Guidelines set design noise levels as increments of noise level increases above the existing ambient noise level.

**Construction Noise**

As discussed under Alteration U, conditions NOR 1 – 2.1 and 2.2(xii) of the existing designation requires a construction management plan to be certified by the WDC, which includes compliance with NZS 6803: 1999 Acoustics – Construction Noise. The overall approach of NZS 6803 is to develop upper noise levels for construction noise appropriate to the context of the location in which the project is to be constructed.

Most road construction activity readily complies with the typical duration noise limits in Table 2 of NZS 6803 where there is more than 40 metres separation between the main construction activity and the receiver. The long-term duration noise limits would be more difficult to comply with and separation distances may have to be more like 60 metres for large clusters of machinery.

However, the existing conditions are that the Construction Management Plan needs to identify how the construction activity will be managed to protect affected parties when the upper noise levels of NZS 6803 cannot be met.

The proposed alterations to the existing designation result in only small to moderate changes in separation distance between the construction activity and nearby receivers. Therefore it is expected that the ability for the altered designation to comply with NZS 6803 is little changed from the ability of the existing designation to comply, and the periods of times for which alternate noise management methods may need to be used will also be similar. Therefore, the construction noise effects of the proposed alterations are less than minor.

**Operation Noise**

For buildings in the southern interchange area, there are no buildings which will exceed the average noise design levels. Therefore, the Noise Assessment Report concludes that the best practicable option for noise mitigation can ensure noise effects of the altered project are less than minor.
The Noise Assessment Report assumes that Cambridge Road will have two southbound lanes, one northbound lane and no median. With this assumption, the noise level changes of the proposed alteration are negligible, within ±0.5 dB throughout the area near to the Cambridge Road widening. For an even more conservative assessment, the Noise Assessment Report assumed the same alignment of the altered project but one lane in each direction and no median. With this assumption, again the noise level changes of the proposed alteration are negligible, within ±0.5 dB throughout the area near to the Cambridge Road widening.

**Noise Conclusion**

The Noise Assessment Report (attached in Volume 2) identifies that the construction noise effects of Alteration Z are expected to comply with NZS 6803 and the operation noise effects will have less than minor effects on the surrounding environment.

3.5.4.3 Landscape, Visual and Urban Design Effects

As discussed under section 3.2.4.3 of this report (Alteration U – Landscape, Visual and Urban Design Effects), the Landscape, Visual and Urban Design Effects Assessment (attached in Volume 2), identifies that the alterations have the following potential landscape and visual effects:

- Physical effects of the Expressway construction on existing landforms, land cover and land uses;
- Character and amenity effects associated with the landscape;
- Visual effects on views from nearby dwellings, private property and from public roads; and
- The urban design effects or influences in relation to alternate transport modes, connectivity and the response to local growth areas and Council structure plans.

**Southern Interchange**

The flat landscape of the Waikato Plains is dissected by a number of relatively deep gully incisions and describes the environment where the southern interchange occurs. The gullies are typically well vegetated and contain a mixture of exotic and native regrowth plant material. The flatter areas around the gullies contain a variety of large residential and lifestyle properties that are typically set within well vegetated gardens that provide the properties with a good degree of screening and containment of the interchange.

**Cambridge Road**

The existing Cambridge Road/SH1 traverses through the Mangaone gully system and rises up and along the Waikato River upper terraces. The landscape has been highly modified over time but the environment is typical of gully systems with deep incisions occurring within the flat terraces. The gully is typically well vegetated containing a mixture of exotic and regrowth native plant material. The flat areas around the gully and river terrace contain a variety of large residential and lifestyle properties that are typically set within well vegetated gardens that contain and screen the properties. Two commercial properties are located on the north-eastern side of Cambridge Road and consist of heavy machinery sales yard and car wrecking yard.

**Landscape and Visual Effects**

**Southern Interchange**

The alteration will provide a moderate change in relation to landform, as the extent of the earthworks will result in the main Expressway alignment being lower in cut by approximately 5m
in comparison to the original designation. The inclusion of a stormwater wetland will result in a moderate-minor landform effect and will be in context with the original designation.

Land use will have a moderate-minor effect as the proposed interchange design will require additional land to incorporate the north facing on ramp from the west-east connecting road and the wetland pond to the north of the interchange. Only a small amount of vegetation loss will occur with the proposed interchange and therefore there will be only a minor effect on land cover.

The visual effects of the design changes to the Southern Interchange will be moderate-high, but localised to the immediate locality. For the surrounding residential properties, the topography and existing vegetation will limit views of the interchange, which will result in only a minor effect.

The visual appearance of the Cherry Lane overbridge and the on ramp overbridge structures will be in accord with the original designation, and therefore, will have no change to the visual amenity or character. The formation of the Cambridge Road underbridge will be a visible new feature, but the design will tie into the principles and objectives outlined within the ULDF to ensure a suitable design response such that the bridge complements the other two bridge structures.

**Cambridge Road**

The alteration will result in a moderate-minor effect on landform due to the cut and fill earthworks required to form the carriageway, although the earthworks will be an extension of the road alignment formation, with minor changes to the vertical alignment.

The removal of vegetation will result in a moderate effect as the widening works will remove lineal areas of vegetation. Overall the effects in land use will be minor as the area associated with the widening is relatively narrow and lineal and minimises the effects on the broader landscape.

The visual effects of the earthworks will be moderate and will be contained by the topography and existing vegetation. The loss of vegetation will have a moderate visual effect on amenity and character, as the existing vegetation contributes to the 'well vegetated' character of the gully environment. The effects on local residents will be minor, as the majority of the properties are located on the elevated flat areas that surround the gully and are typically well screened by the surrounding vegetation.

**Urban Design Effects**

**Southern Interchange**

The proposed alteration will improve traffic flows and improve safety, while providing a connection between Tamahere north and south, and an efficient connection between Tamahere and the City. Due to safety issues the removal of the south facing ramps will have moderate-minor effect on accessibility for Tamahere residents to directly access the Expressway, as they will need to travel via Tamahere Village to access the Tamahere Interchange.

The proposed interchange design introduces an additional structure to a relatively complex interchange and will require careful consideration to the design of the bridge structures within this area to avoid the structure competing with each other. The Cambridge Road underbridge will provide an opportunity to define a southern 'gateway' approach to Hamilton.

**Cambridge Road**
The alteration will provide a more efficient roading network and improve travel times for vehicles coming into Hamilton from the south. The widening will allow better pedestrian and cyclist facilities to be integrated into the network and improve the connectivity to the existing off road cycling facilities that occur on sections of Expressway currently being constructed to the south. The landscape treatment of the widened corridor will contribute to the ‘gateway’ environment, while improving the ecological value of the gully area.

Mitigation Measures
As discussed above, the existing conditions of the designation (NOR 1 – 6.1 to 6.6) which are proposed to extend to the alteration require a landscape management plan identifying specific landscape measures to be certified by WDC.

Southern Interchange
The landscape mitigation will contribute to create a suitable ‘gateway’ environment with mass planting that will maintain the well vegetated character and visual amenity of the gully environment. In association, the design standards and aesthetics of the bridges will ensure that the bridges do not compete with each other and achieve an appropriate level of aesthetic design.

The earthworks treatment will be contoured to ensure the cut areas have a naturalistic appearance and that they tie into the existing land forms to minimise the visual effects, with the cuts being further softened by appropriate planting.

Cambridge Road
Landscape mitigation planting along the cut and fill faces will utilise native shrubs and trees to maintain the visual amenity and character of the gully, and strengthen the ‘gateway’ approach to Hamilton. Appropriate wetland species will be utilised in and around the wetland and will provide an opportunity to contribute to the biodiversity through habitat creation as well as the visual amenity within the gully.

Urban Design mitigation will ensure sufficient space is integrated into road widening to provide a 3.0m shared pedestrian and cycle zone to provide good connectivity of Tamahere to Hamilton East. Where boundary treatments (fences) are reinstated these will be set back where feasible to allow a 2.0m zone for planting to integrate these elements into the landscape.

Similarly to the Southern Interchange, the earthworks treatment will incorporate sensitive contouring to ensure the cuts tie into the existing land forms to ensure visual effects are minimised. Cut and fill along the Cambridge Road corridor will be further softened by planting, which will help integrate the earthworks into the surrounding gully area.

Landscape, Visual and Urban Design Conclusion
Southern Interchange
The overall change in the landscape and visual effects will result a localised moderate-low effect as a result of the extensive additional earthworks and the placement of an additional structure and ramps. The Southern Interchange alteration will improve connectivity and provide a safer roading environment. The inclusion of the Cambridge Road underbridge will provide opportunities for the creation of a suitable southern ‘gateway’ feature with the extensive landscape mitigation planting maintaining the vegetated character of the gully environment and contributing to the visual amenity of the area. The inclusion of on and off ramps at the Cambridge Road underbridge will

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improve accessibility to the Expressway for Tamahere residents and provide opportunities for cycle and pedestrians facilities to be integrated into the Southern Interchange.

**Cambridge Road**
The Cambridge Road alteration will only have a moderate-minor effect on the landscape and visual amenity of the surrounding environment. The effects are in relation to the cut and fill, and the loss of vegetation will be primarily contained to the western side of Cambridge Road. The effects on the visual amenity and views of nearby residential properties will be minor as the topography and existing vegetation screens the effects of the alteration.

The mitigation measures will maintain the visual amenity and will contribute to establishing the well vegetated gully character through the use of native planting. It is considered that these measures will successfully avoid, remedy and mitigate the visual effects of the widening.

**Overall**
Subject to appropriate landscaping, it is considered that Alteration Z will have no more than minor landscape and visual effects on the surrounding environment.

### 3.5.4.4 Air Quality

As discussed under section 3.2.4.4 of this report (Alteration U – Air Quality Effects), the Air Quality Assessment Report (attached in Volume 2) modelled air pollution dispersion as recommended by the Ministry for the Environment and NZTA guidelines, while taking into account the Waikato Regional Plan.

**Construction Emissions**
Similarly, if appropriate mitigation measures are implemented as necessary during construction, PM$_{10}$ levels and fugitive dust emissions from construction activities can be kept within the acceptable thresholds and trigger levels. Conditions NOR1 2.1 and 2.2 on the existing designation (which is also proposed for the alteration) requires a construction management plan to be certified by the WDC and the containment of dust nuisance arising due to construction within the boundaries of the designation, including effects on potable water supplies and to transmission lines.

Examples of appropriate measures to minimise or eliminate potential impact on the local air quality have been identified under Alteration U.

**Operation Emissions**
The effect on local air quality associated with the change in design of the Southern Interchange and widening of Cambridge Road will be no more than minor. This area is already subjected to vehicle emissions from the existing SH1 and this impact depends on the distance between the residential dwelling and SH1. This assessment shows that that the ambient air concentrations of vehicle emitted contaminants will be well below relevant standards and guidelines criteria after development.

The different design of this interchange including connection to Birchwood Lane and the widening of Cambridge Road will change the distance between emission source (the carriageway) and the nearest residential dwellings. However, these changes are not significant enough to effect air quality at residential dwellings in this area. These changes will have no more than minor effects on the local air quality.
Air Quality Conclusion
The air quality effects of Alteration Z can be mitigated during construction through conditions NOR 1–2.1 and 2.2 on the existing designation to ensure that dust emissions are kept within the boundaries of the altered designation. In addition the operation of Alteration Z will have no more than minor effects on the existing air quality.

3.5.4.5 Vibration

As discussed under section 3.2.4.5 of this report (Alteration U – Vibration Effects), the Vibration Assessment Report (attached in Volume 2) estimated vibration levels from the perspectives of human comfort and cosmetic building damage in relation to the British and German Standards, and the Waikato District Plan. The criteria used to measure the vibration levels were derived from British and German Standards, and are deliberately more stringent than the guideline values specified in the Waikato District Plan.

The Cambridge Road widening boundary comes to within 5 metres of residential buildings located at 3 County Crescent. The next closest building to the designation boundary is 21 Newell Road at 20 metres. There is localised potential risk that if road construction activity takes place close to 3 County Crescent, building damage could result if control measures are not in place. With regard to potential risk from traffic induced vibrations, this is extremely unlikely as the smallest separation distance from the edge of Cambridge Road to a residential building is 21 metres and so vibration effects at worse will just be able to be perceived.

As discussed, conditions NOR 1–2.1 and 2.2(vi) of the existing designation requires a construction management plan to be certified by the WDC, which includes procedures, methods and measures to address vibration and its effects on dwellings.

Accordingly, it is considered that the vibration effects of Alteration Z will be no more than minor given that the existing conditions of consent are proposed to be extended to the alterations and can mitigate the vibration levels.

3.5.4.6 Stormwater/Drainage

As discussed under section 3.2.4.6 of this report (Alteration U – Stormwater/Drainage Effects), the Hamilton Section will create a large area of new pavement that will cause stormwater to run off the site at a higher rate and in larger volumes than currently occurs, and could result in erosion of stream banks, and flooding of properties of the various downstream water channels.

The Water Effects Assessment Report (attached in Volume 2) identifies that construction effects can be mitigated by WRC Erosion and Sediment Control Guidelines for Soil Disturbing Activities, while the swales and wetlands will treat the stormwater to remove hydrocarbons, pollutants that adhere to the suspended soils, and a proportion of the dissolved pollutants.

Therefore, it is considered that Alteration Z will have no more than minor water effects on the surrounding environment as the short term earthworks and dust effects during construction will be mitigated by erosion and sediment control measures, and the grassed swales will trap sediments while flowing to the wetlands, which will remove pollutants.
3.5.4.7 Ecology

The Ecological Effects Assessment Report (attached in Volume 2) identifies effects associated with Alteration Z divided into consideration of the Southern Interchange and Cambridge Road widening.

Southern Interchange

This aspect of Alteration Z will include an area of pasture and some additional vegetation within the gully that is adjacent and parallel to the Southern Interchange. The pasture has low ecological value; however, the shelterbelts around the pasture and gully edges provide foraging, commuting and potentially roost habitat for long-tailed bats.

The alteration permits the extension of the Project footprint further into the gully, which will result in a small incremental increase in the loss of exotic trees and shrubs along the gully edge. The additional vegetation lost from this section of gully comprises mainly exotic species and has low botanical value. It is not significant indigenous vegetation.

Cambridge Road Widening

The proposed widening of the designation along the existing SH1 at Cambridge Rd to the north of the proposed Southern Interchange will impact upon mature trees along the existing edge of the highway. In addition there will be a variety of lower growing vegetation including an abundance of weed species along some sections such as Japanese honeysuckle *Lonicera japonica*, privet and Wandering Jew. Most of these trees are exotic species: oak, pine, poplar, eucalyptus, redwood and crack willow (in the base of the gullies at changes 1100 and 750). Some indigenous vegetation occurs locally however for the most part it only comprises a small component of the vegetation. At the small gully (chainage 1100) there are few cabbage trees with occasional mahoe, mamaku and wheki within areas dominated by invasive weed species. The vegetation within the Mangaone Gully (Chainage 750) is also dominated by exotic vegetation and weeds supporting little indigenous vegetation in the areas affected by the widening.

The road cutting located at chainage 300 is the location where the greatest amount of indigenous vegetation is found along the section to be widened. Here manuka, cabbage tree, flax occur along with abundant mamaku on cut terraces. Weeds are also abundant and include pampas, Japanese honeysuckle, grey willow *Salix cinerea* and woolly nightshade. The widening of the road in this location will require further cut which will result in the loss vegetation in the location. However, it is too modified to be representative of significant indigenous vegetation and this is not considered to be a significant impact.

None of the other vegetation along this corridor constitutes significant indigenous vegetation. However, at least some of the vegetation along the corridor is likely to be used as habitat by long-tailed bats, particularly in the vicinity of the gullies.

No acoustic bat surveys were undertaken along this corridor. However, these trees are contiguous with known bat habitat and may be used for foraging and potentially roosting. Although preliminary observations of long-tailed bat interactions with highways suggested that bat activity decreases significantly adjacent to major roads, subsequent visual and acoustic observations of long-tailed bat activity directly over the edge of SH1 at properties along the Cambridge Section of the Waikato Expressway indicate a degree of tolerance for the effects of roads. It is unlikely that the
trees potentially affected constitute the highest value habitat in the area. However, they will act as a buffer between the road and more significant habitat. Removal of mature trees along this corridor will need to be minimised to the extent practical.

**Assessment**

Alteration Z will result in the loss of some vegetation, primarily an area of pasture and some additional vegetation within the gully that is adjacent and parallel to the Southern Interchange. The Project Ecologist states that the additional vegetation lost from this section of gully comprises mainly exotic species and has low botanical value - it is not significant indigenous vegetation. Vegetation will also be lost from alongside Cambridge Road, including mature trees (mostly exotic), and a variety of lower growing vegetation, including an abundance of weed species. Some indigenous vegetation occurs locally however for the most part it only comprises a small component of the vegetation. The Project Ecologist states that it is too modified to be representative of significant indigenous vegetation and this is not considered to be a significant impact.

The Project Ecologist has advised that the principal adverse effect of Alteration Z is likely to be an incremental increase in effects on long-tailed bats, above the effects associated with the existing designation. The Ecologist states that the Southern Interchange (including areas currently designated) already has the potential to significantly impact on the viability of the gully as bat habitat and the proposed alteration to designation is only likely to result in a small additional increase in that effect.

The Ecologist has also made comment on the risk of significant cumulative disturbance and fragmentation effects to bat habitat, given the context of the existing environment and planned development – including Tamahere and Cambridge Sections of the Expressway, Southern Links, and the Peacock Structure Plan. The Ecologist states that there is a risk of a reduction in the range of this species to the south of Hamilton and potentially a corresponding reduction in population size as a result of these cumulative effects, with Hamilton Section of the Expressway (as a whole – not just Alteration Z) being a significant contributing factor.

The Project Ecologist has noted that little detailed research has been undertaken on long-tailed bat/road interactions. Consequently, prediction of effects has to be extrapolated from the knowledge that exists concerning long-tailed bats and bat/road studies that have been undertaken on other similar species overseas, noting that individual species of bats can react to roads in different ways. A precautionary approach to the assessment of effects and corresponding avoidance, remediation and mitigation of effects is therefore proposed.

Loss of indigenous vegetation is covered under the existing conditions on the designation, particularly: NOR 6.3 (i) and (l), and 6.4. These conditions will be extended to cover Alteration Z and require:

» Identification of existing mature or rare vegetation to be removed and that to be retained (including protection measures);

» Measures to minimise clearing work to preserve soil, indigenous vegetation and significant exotic trees
Consultation with an appropriate qualified ecologist when preparing parts of the Landscape Management Plan that affect the Mangaonua, Mangaharakeke and Mangaone gullies, to ensure re-vegetation progresses in accordance with best practice.

These conditions will be further strengthened by the conditions proposed as part of the resource consent (which will apply to all of the areas of indigenous vegetation within the gullies – not just the areas affected by Alteration Z). These conditions include the requirement to prepare an Ecological Management and Restoration Plan.

As noted by the Project Ecologist, some of the vegetation affected by the alteration is also likely to provide habitat for the Long-Tailed Bat. There are currently no conditions on the designation which specifically address this effect. Given that any conditions imposed in response to Alteration Z will only apply to a limited area, it is proposed to address the effect through conditions on the resource consent applications. This approach ensures consistency across the Project corridor and ensures effects are appropriately managed.

To provide Council with comfort regarding this matter, the following is a summary of the conditions proposed for the resource consents, which requires the preparation of a Bat Management Plan (note that this is consistent with the approach for the Cambridge and Tamahere Sections of the Expressway):

- Details of measures to avoid, minimise and monitor roost removal and habitat loss (including specific minimum standards determined by a recognised bat ecologist for roost tree identification and monitoring of roost trees before their removal, recognising the limitations for determining roost tree occupancy in some situations), as well as habitat replacement and enhancement;
- Details of the provision of alternative roosting sites (including suitable indigenous or exotic trees for roost habitat and artificial bat houses), with artificial roosts installed as far in advance of construction as possible, in areas where bat roosts have been shown to have a reasonable likelihood of occurring along the alignment;
- Details of measures to minimise habitat fragmentation and alteration to bat movement (e.g. creating possible bat crossing points such as a bridge/tunnels/culverts; reducing the effect of road lighting by creating ‘dark zones’ at key bat habitats, aligning streetlights in certain ways or installing baffles on lighting columns to reduce the ‘spill’ of light away from the road);
- The establishment of buffer zones along the Expressway route during and after construction (e.g. hedgerows) to encourage bat avoidance of the road and maintaining important bat flyway navigational references, if deemed appropriate by a recognised bat ecologist;
- Details of measures to minimise disturbance from construction activities within the vicinity of any active roosts that are discovered until such roosts are confirmed to be vacant of bats, as determined by a recognised bat ecologist using current best practice;
- Details of on-going monitoring and reporting of bat activity, including the establishment of adequate baseline survey and post construction monitoring to identify and assess changes in bat activity and behavioural patterns that may occur as a result of construction and operation of the Hamilton Section of the Waikato Expressway at all locations where bats are detected;
Specific minimum standards as determined by a recognised bat ecologist for minimising disturbance associated with construction activities around active roosts that do not require removal, within the footprint of the project or its vicinity.

It is also noted that the inclusion of pasture along the gully edge within the designation provides an opportunity for habitat enhancement and the creation of a forest buffer between this part of the gully and the Southern Interchange.

### 3.5.4.8 Social

The impacts during construction of the Southern Interchange will be addressed through the CMP condition 2.0, particularly clause (viii) provision of access for emergency vehicles, and clause (viii) maintenance of road and property access during construction (refer Appendix C for full detail of conditions). Notification of the likely commencement date for the works and expected timeframe of the construction programme is also required (condition 2(i)). This will mitigate the social effects of any temporary access changes, as people will be able to plan for appropriate alternative arrangements and incorporate these into their usual daily routines.

The operational social effects of the Southern Interchange include:

- Minor negative effect of increased travel time and distance as a result of removing southern connection;
- Significant positive effect of improved connectivity between Tamahere East and West;
- Significant positive effect associated with additional point of local connectivity between Tamahere East and West for pedestrians and cyclists;
- Significant positive effect of improved safety of the Southern Interchange;
- Significant positive effect of improved safety of the Cherry Lane bridge for pedestrians and cyclists due to grade-separation;
- Minor negative effects on environment and amenity, including Birchwood Lane;
- Minor negative effect associated with additional land take;
- Minor negative effect associated with increased traffic through the community area (including school and community/village hub); and
- Significant positive effect on community aspirations for improved pedestrian and cyclist connectivity.

### Social Conclusion

The alteration proposed for the Southern Interchange has been identified as potentially having a minor to moderate negative effect that cannot be directly mitigated. This effect is related to the change in access and connectivity (and associated travel time and distance) for Cherry Lane/Bollard Road residents. This could have negative social impacts as a result of the changes to people's routines and patterns of living. However, this alteration is considered in the context of the improvements that will be gained by this alteration, which include improved safety, pedestrian and cyclist connectivity, and community connectivity via local road connections. In this context, the overall social effects of the change are considered a minor negative and are balanced by the positive social effects that have been identified.
3.5.4.9 Contaminated Land

As discussed under section 3.2.4.9 of this report (Alteration U – Contamination Land Effects), the Contaminated Land Assessment Report (attached in Volume 2) has identified a number of properties along the proposed route of the Expressway as having potentially contaminated soils and have either been investigated or are yet to be investigated.

A potential orchard site has been identified on Cambridge Rd (SH1) at the Southern Interchange. Although the site has not been investigated, allowance will be made for investigation and assessment of the property prior to major works being undertaken.

Standard good practice during earthworks will mitigate the potential risks from dust and surface water run-off. Specific assessment of locations, soil stratigraphy, groundwater levels and contaminant types will be necessary to assess potential risks to groundwater quality. Where a significant risk is identified the simplest means of mitigating long-term risk may be to remove the soils of concern to a suitably consented landfill.

As discussed under Alteration U, all issues associated with the further investigation, remediation and monitoring of contaminated sites on this section of the proposed Expressway must be overseen by a SQEP, and will be included in the construction contract documents and the EMP. Similarly, the WRC will require an EMP together with, or incorporating an ESCP to be prepared before works commences. The Contaminated Land Report states that the professional implementation of these is sufficient to mitigate the potential effects of dust migration and sediment run-off leading to the uncontrolled spread of potential contaminants beyond the site boundaries.

Any NES resource consent required from WDC and HCC will be sought at the outline plan approval stage, once the contractors and final design of the Expressway have been confirmed.

As discussed under Alteration U, a Hazardous Substances Management Plan as part of the CMP is proposed as a condition of resource consent from the WRC and requires certification by the WRC prior to construction commencing.

Subject to resource consent, and EMP and ESCP, it is considered that Alteration Z will have no more than minor contaminated land effects as locating, characterising and removing any contaminated areas will have an environmental benefit that will outweigh any short term effects from disturbance of the material.

3.5.4.10 Archaeology

As discussed under section 3.2.4.10 of this report (Alteration U – Archaeology Effects), there have been numerous assessments and archaeological investigations along the route of the Expressway which found four areas of archaeological concern within the current designation all of which are related to prehistoric Maori horticultural activities (S14/246, S14/247, S14/248 and S14/252).

The Archaeological Effects Assessment Report (attached in Volume 2) identifies that the Southern Interchange alteration would have effects on the recorded archaeological site to the west of the interchange (S14/248 – large borrow pits identified on Figure 3-18). In addition, the Cambridge Road Widening has a minor chance of encountering 1870s highway fabric and associated artefacts from the time.
The only borrow pit affected by the alteration is BP8, as the remaining borrow pit are within the existing designation.

The physical impacts on the archaeological resource in this area will increase in comparison to the existing designation as there will be additional land taken to the west of the southern interchange. In the wider area there are two pa sites (S14/56 and S14/84); however the project will not impact on the known extent of these two sites. The site is considered to have significant archaeological values, appears to be relatively intact, and is likely to hold valuable subsurface evidence including features and deposits. The site is also significant for Hamilton City, being one of only a few such sites remaining in the area, and is of significance nationally as a representation of a site complex in the Middle Waikato Basin. The gardening site will be almost completely destroyed by the proposal, with the exception of a single borrow pit which could form part of a public reserve.
Existing conditions of the designation (NOR 1 – 3.1 to 3.4) which are proposed to extend to the alteration require the following:

- Prior to construction the Requiring Authority shall complete the archaeological survey of the area between the Mangaonua Stream and the construction of the new local roads;
- That any earthworks in areas of significance identified on pages 22 to 25, 27 and 28 of the (NAMTOK) Report 1999 shall be monitored by suitably qualified archaeologist (acceptable to the Historic Places Trust (HPT) and tangata whenua);
- 4 weeks written notice of the date of commencement for test drilling or construction; and
- In the event that any archaeological items are discovered during earthworks, the NZTA shall:
  - Cease works in any part of the project site affected by the discovery;
  - Advise the tangata whenua, archaeologist and WDC as appropriate within one day;
  - Contact NZ Police, Coroner and the HPT as appropriate; and
  - Not recommence work in the parts of the project site affected by the discovery until all necessary statutory authorisations or consents have been obtained.

Condition NOR 1 – 3.1 has been met by Ms Keith’s archaeological assessment. The above conditions will be incorporated into the Archaeological Management Plan at the time of the application to the NZHPT for an authority to modify/damage the archaeological site. Accordingly, it is considered that the archaeological effects of Alteration Z will be no more than minor as the existing conditions on the designation would mitigate any archaeological effects of discovery during earthworks.

3.5.5 Conditions

As discussed under Alteration U, the scale of alteration is small and it is preferable that one set of conditions apply to the full route. The existing conditions were set by the Environment Court and are considered adequate to mitigate the effects of the alteration to no more than minor levels. For NZTA to commence earthworks or construction activities, WDC must first certify construction and landscape management plans which will mitigate the construction and visual effects. Therefore Alteration Z is proposed to be subject to the existing NOR 1 conditions on the designation without any changes.

3.5.6 Resource Management Act 1991

This section assesses Alteration Z against the relevant provisions of the Resource Management Act 1991.

3.5.6.1 Part 2 Matters

Part 2 of the RMA is the framework against which all the functions, powers and duties under the RMA are to be exercised for the purpose of giving effect to the Act. Section 5 sets out the purpose of the RMA. Sections 6, 7 and 8 are principles of varying importance intended to give guidance as to the way in which the purpose is to be achieved. The following is an assessment of the proposal under these provisions.
3.5.6.2 Section 5

Alteration Z to the existing Hamilton Section will provide a safe and efficient Expressway corridor which will meet the transportation needs of future generations. Subject to the existing NOR 1 and NOR 2 conditions of the existing designation, the alterations will safeguard the life-supporting capacity of air, water, soil and ecosystems. Additionally, it is considered that the existing conditions of the designation will mitigate any adverse effects on the environment. Therefore, Alteration Z is in accordance with the purpose of section 5 of the RMA.

3.5.6.3 Section 6

Workshops were held with the TWWG to ensure that the proposed alterations to the Hamilton Section maintained the relationship of Tangata Whenua with cultural sites, waahi tapu, and other taonga (section 6(e)). Subject to the existing conditions on the designation which require an accidental discovery protocol in the event an archaeological feature is discovered during works, any taonga or sites of historic heritage will be protected in the alteration areas. Accordingly, Alteration Z is in accordance with the relevant matters within section 6 of the RMA.

3.5.6.4 Section 7

The existing conditions on the designation which are proposed to be extended to Alteration Z will ensure the maintenance and enhancement of amenity values (6(c)), and maintenance and enhancement of the quality of the environment (6(f)). Comprehensive conditions covered by the regional consents will have regard to the intrinsic values of ecosystems, particularly with regard to the effects on bats (6(d)). Overall, Alteration Z is in accordance with the purpose of section 7 of the RMA.

3.5.6.5 Section 8

The NZTA has facilitated Tangata Whenua’s participation in the consultation process to enable the latter to contribute fully to the investigation and assessment of the alterations and thereby to enable them to take steps to protect their interests. The Treaty signifies a partnership and requires the Crown and Maori partners to act toward each other reasonably and with the utmost good faith (Waitangi Tribunal, 1991). NZTA has acted reasonably and with good faith. In order for a Treaty partner to act in good faith, fairly and reasonably towards the other, it is obliged to make informed decisions. NZTA has consulted with the Tangata Whenua about the effects of the alterations on the latter’s interests and considers that it has sufficient information to make an informed decision about the alterations. Therefore, Alteration Z is in accordance with the purpose of section 8 of the RMA.

3.5.7 Other Relevant Statutory Provisions

3.5.7.1 Waikato-Tainui Raupatu Claims (Waikato River) Settlement Act 2010

The grassed conveyance swales will trap a portion of the sediments while flowing to the wetlands, which will then remove hydrocarbons, pollutants that adhere to the suspended soils, and dissolved pollutants. Sediment into the Waikato River will be mitigated by detaining and slowly-releasing flow from the wetlands to minimise the discharge from the road and the potential for scouring material from stream beds which flow into the river. Flood attenuation will control the peak
discharge rates from the less frequent extremely intense storms and ensure that the peak discharge rates following construction of the road do not exceed the predevelopment rates.

Subject to the existing conditions on the designation and the proposed WRC resource consent conditions, Alteration Z will protect the health and wellbeing of the Waikato River for future generations; therefore, the alteration is in accordance with the Settlement Act.

3.5.7.2 Historic Places Act 1993

Although there is a recorded archaeological site in the area of the Southern Interchange and Cambridge Road Widening alteration, an authority to modify/damage the archaeological site will be sought from the NZHPT and the existing conditions on the designation (NOR 1 - 3.2 to 3.4) will mitigate any archaeological effects of discovery during earthworks.

Accordingly, Alteration Z is in accordance with the HPA.

3.5.7.3 National Environmental Standards

The following national environmental standards are particularly relevant to the Project:

Air Quality
As discussed above under section 3.6.4.4, the Southern Interchange and Cambridge Road Widening alteration air quality effects can be mitigated during construction through the existing conditions on the designation to ensure that dust emissions are kept within the boundaries of the altered designation. In addition, the operation of the Hamilton Section will only be a small contributor to the Hamilton airshed, the air quality effects of the operation of Alteration Z will comply with the carbon monoxide, nitrogen dioxide, and fine particulate thresholds of the NES for Air Quality.

Accordingly, Alteration Z is in accordance with the NES for Air Quality.

Assessing and Managing Contaminants in Soil to Protect Human Health
Although an orchard site has been identified on Cambridge Rd having potentially contaminated soils in the vicinity of the proposed Southern Interchange and Cambridge Road Widening alteration, investigation, remediation and monitoring of contaminated sites will be overseen by a SQEP, and included in the construction contract documents and EMP.

The SQEP will be responsible for ensuring that the investigative and assessment procedures followed, together with the appropriate remedial actions, and any necessary monitoring plans are prepared, implemented and in agreement with the NES for Assessing and Managing Contaminants in Soil to Protect Human Health and WRC requirements.

Any NES resource consent required from WDC and HCC will be sought at the outline plan approval stage, once the contractors and final design of the Expressway have been confirmed.

Subject to resource consent, and appropriate EMP and ESCP, Alteration Z is in accordance with the NES for Assessing and Managing Contaminants in Soil to Protect Human Health.
3.5.7.4 Waikato Regional Policy Statement (RPS)

Operative RPS October 2000
The Operative RPS sets out issues, objectives and policies relating to the natural and physical resources of the Waikato Region. As discussed above, the effects of Alteration Z can be mitigated by the existing conditions on the designation to a no more than minor level. In addition, the effects from the take and discharge of water, and earthworks will mitigated through the resource consent which have been applied for from the WRC.

Therefore, Alteration Z is in accordance with the provisions of the Operative RPS.

Proposed RPS August 2010
Similarly, Alteration Z is in accordance with the provisions of the Proposed RPS as effects of the alteration will be mitigated by the existing conditions on the designation and the proposed WRC resource consent conditions.

3.5.7.5 Waikato Regional Plan

The appropriate water take and disposal, and earthworks consents have been applied for from the WRC. Subject to the existing conditions on the designation and the proposed WRC resource consent conditions, Alteration Z is in accordance with the Waikato Regional Plan.

3.5.7.6 Regional Land Transport Strategy 2011-2041 (RLTS)

The Expressway is provided for in the RLTS. Alteration Z is in accordance with the provisions of the RLTS as it will be part of a strategic corridor, will improve road safety, and provide for future demand and encouraging alternative modes of transport.

3.5.7.7 Waikato District Plan (Operative April 2013)

The Waikato District Plan promotes the sustainable management of natural and physical resources in the Waikato District, primarily by managing the effects of land use on the environment. The underlying zoning over Alteration Z is Rural.

Alteration Z is in accordance with the provisions of the Waikato District Plan for the following reasons:

» The alteration will improve the safety, efficiency and sustainability of the roading network within the district;

» The existing Hamilton Section designation is already included in the Waikato District Plan and the alteration will improve access to the Expressway;

» The existing conditions on the designation and the proposed WRC consent conditions will avoid, remedy or mitigate the adverse effects on the environment to a no more than minor level;

» The NZTA has undertaken extensive consultation with statutory bodies, Tangata Whenua, key stakeholders and people who are affected by, or who have an interest in the Project.
3.5.7.8  Tamahere Structure Plan (Plan Change 3)

The Tamahere Structure Plan includes a number of changes to the local road hierarchy. Of particular significance, the status of the section of road from Birchwood Lane to Devine Road Link has been changed from Country Living Collector to Local Road. The Country Living Collector road status has instead been applied to Newell Road (from SH1 through to the Devine Road/Proposed Link Road intersection). This is relevant to the project given that the Southern Interchange will connect into the East-West Link, which will feed traffic into the Tamahere local road network.

Through discussions with Council staff, it has been advised that the change in road status was an interim measure as the Birchwood Lane to Devine Road section of road has not yet been completed. Once completed, it is understood the intention of the Council is to reclassify this section of road with the Country Living Collector status. This will ensure the road is provided and maintained as the most efficient route for those using the Tamahere West network as an alternative to providing the south-facing ramps on the Expressway.

The Tamahere Structure Plan also places tighter controls around the management of stormwater. The stormwater from Alteration Z is being managed as part of the Project stormwater management system being in accordance with the controls and mechanisms, during and post construction, that have already been accepted as ensuring the environmental effects are not more than minor. The design criteria for the system have been determined in consultation with the relevant councils, including WDC.

3.5.8  Future Environment

3.5.8.1  Future Proof Growth Strategy and Implementation Plan 2009

The Future Proof Strategy identifies the Waikato Expressway corridor as a key regional infrastructure element. The Southern Interchange will provide for growth within the surrounding area, by enabling greater connectivity to the Expressway. Provisions are also being made for a new pedestrian and cyclist connection between Bollard Road and the existing Tamahere interchange. This will provide a more efficient connection across the Expressway to the school and village hub. This in turn will assist in encouraging pedestrians and cyclists, reducing vehicle congestion in the community, and contributing to positive health outcomes.

Therefore, Alteration Z is considered to be in accordance with the provisions of the Future Proof Strategy.

3.5.9  Alteration Z Conclusion

The alteration involves a substantial change in design of the Southern Interchange compared with the existing designation, providing a grade-separated facility which includes the removal of the south-facing ramps. To provide the necessary connectivity, the interchange will connect with the East-West Link Road, which is being designated by WDC concurrently. The alteration also includes some small areas of localised widening to accommodate the interchange, and widening of Cambridge Road from the interchange through to just south of Riverlea Road. To meet the necessary vertical separation between roads the Expressway has been lowered which results in an additional 506,000m³ of cut material over that proposed in the original designation.
Since lodgement of the original designation in 2001, the NZTA has taken a stronger focus on road safety, adopting the principles of Safe Systems and establishing a new set of design standards for RoNS projects. Based on current traffic projections it was also determined that the existing designation design for the Southern Interchange (which include an at grade connection to Cherry Lane) would provide a very low level of service and safety during peak periods. In response to this the southern interchange has been reviewed and modifications made to the original designation. The proposed alterations to the Southern Interchange and Cambridge Road were confirmed only after a wide range of alternative arrangements were investigated, and after extensive consultation with the local community and other key stakeholders.

Subject to the existing conditions on the designation and the proposed WRC resource consent conditions, Alteration Z will have no more than minor effects on the surrounding environment. The effects of the final design of the interchange and wetland will be mitigated through the outline plan process.

Furthermore, Alteration Z upholds the sustainable management purpose of the Resource Management Act, adequately provides for Part 2 matters, and is consistent with both the Regional Policy Statements and Regional Plans.

Accordingly, the NZTA looks forward to a favourable recommendation regarding this notice of requirement.
4 Statutory and Planning Assessment

This section provides further assessment against relevant statutory and planning provisions.

4.1.1 The Resource Management Act 1991

The RMA governs the use and development of New Zealand’s natural and physical resources. Sections particularly relevant to the Project are Part 2 which establishes the purpose and principles of the RMA.

4.1.1.1 Section 5 – Purpose of the RMA

The purpose of the RMA is to promote the sustainable management of natural and physical resources. Sustainable management is defined in section 5(2) as:

“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 well-being and for their health and safety while—

(a) Sustaining the potential of 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, remediying, or mitigating any adverse effects of activities on the environment.”

4.1.1.2 Section 6 – Matters of National Importance

Section 6 of the RMA sets out matters of national importance, which shall be recognised and provided for as follows:

“In achieving the purpose of this Act, all persons exercising functions and powers under it, in relation to managing the use, development, and protection of natural and physical resources, shall recognise and provide for the following matters of national importance:

(a) 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:

(b) The protection of outstanding natural features and landscapes from inappropriate subdivision, use, and development:

(c) The protection of areas of significant indigenous vegetation and significant habitats of indigenous fauna:

(d) The maintenance and enhancement of public access to and along the coastal marine area, lakes, and rivers:

(e) The relationship of Maori and their culture and traditions with their ancestral lands, water, sites, waahi tapu, and other taonga:

(f) The protection of historic heritage from inappropriate subdivision, use, and development:

(g) The protection of recognised customary activities.”
Assessment

Each of the Alterations U, V, W and Z has been assessed against Section 6 of the RMA in the preceding section of this report. In summary, the alterations satisfy these requirements by:

Section 6(a) – Preserving the natural character of the gullies (Alteration Z) through restoration and landscape planting that will be undertaken once the Project is completed.

Section 6(b) – Protecting the gullies which constitute significant habitat of indigenous fauna, by minimising effects on the gullies to the extent possible, as well as incorporating measures to protect bats and undertaking habitat enhancement and restoration.

Section 6(e) - Recognising and providing for the relationship of Maori and their culture and traditions with their ancestral landscape through the extensive consultation undertaken with iwi during development of the Project and ensuring any values identified are avoided or protected as appropriate.

Section 6(f) – Protecting historic heritage by designing the southern interchange to avoid one of the borrow pits (Site S14/248) and by incorporating protocols in the event that an archaeological feature is discovered during the works.

4.1.1.3 Section 7 – Other Matters

Section 7 of the RMA lists certain matters to which particular regard is to be had in making resource management decisions. Section 7 provides:

“In achieving the purpose of this Act, all persons exercising functions and powers under it, in relation to managing the use, development, and protection of natural and physical resources, shall have particular regard to—

(a) Kaitiakitanga:

(aa) The ethic of stewardship:

(b) The efficient use and development of natural and physical resources:

(ba) The efficiency of the end use of energy:

(c) The maintenance and enhancement of amenity values:

(d) Intrinsic values of ecosystems:

(f) Maintenance and enhancement of the quality of the environment:

(g) Any finite characteristics of natural and physical resources:

(h) The protection of the habitat of trout and salmon:

(i) The effects of climate change.”

Assessment

Each of the Alterations U, V, W and Z has been assessed against Section 7 of the RMA in the preceding section of this report. In summary, the alterations satisfy these requirements by:

Section 7(a) - Kaitiakitanga through the extensive consultation undertaken with iwi during development of the Project
Section 7(b) - The efficient use and development of the State highway and local road networks through improvements to connections with local road networks (e.g. Alterations U and W), and improvements to the State highway (e.g. Alteration Z).

Section 7(c) - The maintenance and enhancement of amenity values and the quality of the environment by applying the existing designation conditions which address matters such as noise, vibration, dust and landscaping.

Section 7(d) - The intrinsic value of ecosystems by the measures included in the Project to protect and enhance the gullies and associated habitat.

Section 7(i) - The effects of climate change by providing capacity for increased rainfall and associated management of stormwater runoff from the Project.

4.1.1.4 Section 8 – Treaty of Waitangi

Section 8 of the RMA requires those exercising powers or functions under the RMA to take into account the principles of the Treaty of Waitangi as follows:

“In achieving the purpose of this Act, all persons exercising functions and powers under it, in relation to managing the use, development, and protection of natural and physical resources, shall take into account the principles of the Treaty of Waitangi (Te Tiriti o Waitangi).”

Assessment

Each of the Alterations U, V, W and Z has been assessed against Section 8 of the RMA in the preceding section of this report. In summary, the alterations satisfy these requirements by means of the NZTA’s extensive consultation with iwi in relation to the Project.

4.1.1.5 Overall Balancing under Part 2 of the RMA

All the matters to which WDC and HCC must have regard to when considering the NOR are subject to Part 2 of the RMA.

As discussed within this report, there are a number of potential adverse effects that may arise as a result of the alterations to designation. These effects include:

- Changes to the effects of noise on neighbouring properties
- Additional land requirement
- Changes to the visual and landscape impacts of the Project
- Changes to the social impacts of the Project
- Localised effects as a result of changes to traffic movements on local and connecting roads
- Effects on Long-Tailed Bat habitat

Most effects identified are less than, or no more than minor with appropriate mitigation. This is largely due to the fact that the alterations are relatively small changes in context of the existing designation, which has already been approved through the RMA process. Further to this, all
alterations will be subject to the existing designation conditions which remedy or mitigate the effects that have been identified. In the case of the potential effects on the Long-Tailed Bat, extensive measures to mitigate these effects will be employed, and these measures are covered by the Project’s resource consent applications.

When assessing the alterations against the requirements of Part 2, the adverse effects need to be weighed against the benefits of the alterations. Whilst the alterations are small in themselves (in context of the existing designation), they are the result of a further detailed investigation, and represent a refining of the designation which enables the Project to better achieve its objectives, and better respond to changes that have occurred since the Project route was first designated. Therefore, the benefits of the alterations need to be considered in the context of the Project (Hamilton Section) and Waikato Expressway as a whole.

All the proposed alterations will allow changes to the Project which will facilitate greater benefits overall, being to:

- Improve economic growth and productivity for Auckland, Waikato and Bay of Plenty through more efficient movement of people and freight between Auckland, Hamilton, Tauranga and Rotorua;
- Improve the reliability of the transport network by providing a more robust and safer road network between Auckland, Hamilton, Tauranga and Rotorua;
- Reduce travel times between Waikato and Auckland; and
- Support the growth strategy for the central Waikato.

Adverse environmental effects are inherent to any large-scale project such as the Hamilton Section. The effects of the alterations have been evaluated in this report, and the evaluation demonstrates that adverse effects on the environment can be avoided, remedied or mitigated, and the life-supporting capacity of air, water, soil and ecosystems maintained.

Taking into account the benefits to the whole community of allowing the alterations, the consequences of not allowing them, and the measures that will be implemented to avoid, remedy or mitigate adverse effects, overall, the alterations satisfy the requirements of RMA section 5. As demonstrated above, the Project also satisfies the requirements of the RMA sections 6, 7 and 8, and therefore, all of Part 2 of the RMA.

4.1.1.6 Section 181 – Alteration of Designation

To be processed as an alteration to designation under section 181 of the RMA, the following must be satisfied:

1. A requiring authority that is responsible for a designation may at any time give notice to the territorial authority of its requirement to alter the designation;

2. Subject to subsection (3), sections 168 to 179 shall, with all necessary modifications, apply to a requirement referred to in subsection (1) as if it were a requirement for a new designation;

3. A territorial authority may at any time alter a designation in its district plan [or a requirement in its proposed district plan] if—

   a. The alteration—

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(i) Involves no more than a minor change to the effects on the environment associated with the use or proposed use of land or any water concerned; or
(ii) Involves only minor changes or adjustments to the boundaries of the designation [or requirement]; and

(b) Written notice of the proposed alteration has been given to every owner or occupier of the land directly affected and those owners or occupiers agree with the alteration; and

(c) Both the territorial authority and the requiring authority agree with the alteration — and sections 168 to 179 shall not apply to any such alteration.

(4) This section shall apply, with all necessary modifications, to a requirement by a territorial authority to alter its own designation [[or requirement]] within its own district.

Assessment

The ability of each alteration to meet sections 181(2) and 168 to 179 of the RMA is outlined under section 3 of this report. The assessment is in relation to the effects of the alterations above those effects generated by the existing designation and those effects mitigated through conditions on the designation.

4.1.1.7 Section 171 – Recommendation by Territorial Authority

In accordance with section 171 of the RMA, a territorial authority must take into account the following:

(1A) When considering a requirement and any submissions received, a territorial authority must not have regard to trade competition or the effects of trade competition;

(1) When considering a requirement and any submissions received, a territorial authority must, subject to Part 2, consider the effects on the environment of allowing the requirement, having particular regard to:

(a) Any relevant provisions of:

   (i) A national policy statement;

   (ii) A New Zealand coastal policy statement;

   (iii) A regional policy statement or proposed regional policy statement;

   (iv) A plan or proposed plan; and

(b) Whether adequate consideration has been given to alternative sites, routes, or methods of undertaking the work if:

   (i) The requiring authority does not have an interest in the land sufficient for undertaking the work; or

   (ii) It is likely that the work will have a significant adverse effect on the environment; and

(c) Whether the work and designation are reasonably necessary for achieving the objectives of the requiring authority for which the designation is sought; and
(d) Any other matter the territorial authority considers reasonably necessary in order to make a recommendation on the requirement.

(2) The territorial authority may recommend to the requiring authority that it:

(a) Confirm the requirement:

(b) Modify the requirement:

(c) Impose conditions:

(d) Withdraw the requirement.

(3) The territorial authority must give reasons for its recommendation under subsection (2).

4.1.2 Waikato-Tainui Raupatu Claims (Waikato River) Settlement Act 2010

On 25 November 2010, the Waikato-Tainui Raupatu Claims (Waikato River) Settlement Act 2010 (the Settlement Act) came into force in its entirety. The Settlement Act effectively creates Iwi co-management of the Waikato River in partnership with the Crown.

The overarching purpose of the Settlement Act is to restore and protect the health and wellbeing of the Waikato River for future generations. Although this project is not located directly on or adjacent to the Waikato River, section 6 of the Settlement Act clearly defines the Waikato River as: “The Waikato River and its catchments including all water courses, tributaries, streams, and watercourses flowing into the River”.

Te Ture Whaimana o Te Awa o Waikato – the Vision and Strategy for the Waikato River is set out in Schedule 2 of the Settlement Act. The Vision and Strategy is the primary direction-setting document for the Waikato and Waipa Rivers and their catchments.

Under the Settlement Act, the Vision and Strategy is deemed, in its entirety, to be part of the Regional Policy Statement.

2.4.2 Objectives for the Waikato River (Proposed Waikato Regional Policy Statement)

(a) The restoration and protection of the health and wellbeing of the Waikato River

(b) The restoration and protection of the relationships of Waikato-Tainui with the Waikato River, including their economic, social, cultural, and spiritual relationships.

(c) The restoration and protection of the relationships of Waikato River Iwi according to their tikanga and kawa with the Waikato River, including their economic, social, cultural and spiritual relationships.

(d) The restoration and protection of the relationships of the Waikato Region’s communities, with the Waikato River, including their economic, social, cultural and spiritual relationships.

(e) The integrated, holistic and co-ordinated approach to management of the natural, physical, cultural, and historic resources of the Waikato River.

(f) The adoption of a precautionary approach towards decisions that may result in significant adverse effects on the Waikato River, and in particular, those effects that threaten serious or irreversible damage to the Waikato River.
(g) The recognition and avoidance of adverse cumulative effects, and potential cumulative effects, of activities undertaken both on the Waikato River and within the catchment on the health and wellbeing of the Waikato River.

(h) The recognition that the Waikato River is degraded and should not be required to absorb further degradation as a result of human activities.

(i) The protection and enhancement of significant sites, fisheries, flora and fauna.

(j) The recognition that the strategic importance of the Waikato River to New Zealand’s social, cultural, environmental and economic wellbeing, requires the restoration and protection of the health and wellbeing of the Waikato River.

(k) The restoration of water quality within the Waikato River so that it is safe for people to swim in and take food from over its entire length.

(l) The promotion of improved access to the Waikato River to better enable sporting, recreational, and cultural opportunities.

(m) The application to the above of both maatauranga Maaori and the latest available scientific methods.

**Assessment**

Many of the matters referred to below are relevant only to the Project’s necessary resource consents, but have been included here for reference and completeness.

» The Project will include a number of components that contribute to the restoration and protection of the Waikato River. These include:

- Restoration of affected areas of gully, and of the wider area identified alongside the TWWG.
- Protection of water quality through a high level of stormwater treatment, erosion and sediment control measures (construction) and associated conditions of consent.
- Protection of receiving streams through attenuation in constructed wetlands and then subsequent slow release via the outlet structures. Outlet structures will incorporate energy dissipation and scour protection measures to protect stream beds.

» Engagement with the TWWG has been undertaken throughout the Project process and provided the opportunity to share knowledge with the Project Team around economic, social, cultural and spiritual relationships. This has resulted in the Project Team improving their knowledge around the importance of the gullies for local iwi, and the historic significance of these areas. This in turn enables the Project Team to better incorporate measures to restore and protect these relationships e.g. understanding of historic use of gully systems, and the ability to reintroduce plants through restoration that enable rongoa Maori (medicinal use of plants).

» The restoration will improve the gully systems providing opportunities to enable greater access and enjoyment of these areas for the Waikato River Iwi and Waikato River communities.

» The restoration process may provide opportunities for learning and involvement of Waikato River Iwi and Waikato River communities.

» The NZTA’s involvement in the initial start-up of a wider gully restoration initiative represents taking an integrated, holistic and co-ordinated approach. The NZTA recognises
the importance of this type of approach for achieving good outcomes in the gully systems in the long term.

- The Project assessments have not identified any potential for significant adverse effects on the gully streams. The stormwater treatment system is considered to treat water to a high standard, and the erosion and sediment controls are considered to be effective for managing potential effects on streams during construction.

- The project recognises the importance of the Waikato River and catchments by adopting a high level of stormwater treatment, and ensuring that best practice erosion and sediment control measures are employed during construction.

- From consultation with the TWWG, the NZTA understands the importance of the gully systems and their function as a habitat of flora and fauna and also as sites of cultural and spiritual significance. The restoration of these areas is considered to protect and also enhance the gully systems.

- The water quality in the streams will be protected through the stormwater treatment system including conditions of consent. The restoration has the potential to improve water quality and also to introduce traditional food sources (such as kākahi/fresh water mussels).

- Access to the gullies in the vicinity of the Expressway is currently very difficult due to the terrain and also as much of the land is in private ownership. Over time, the restoration strategy may provide opportunities for improving access, and working in collaboration with other stakeholders including the Councils (who are steadily obtaining esplanade strips when subdivision occurs).

- Working alongside the TWWG has enabled maatauranga Maori to be incorporated in the project alongside the Project team’s engineering and scientific methods and knowledge.

2.4.3 Strategies for the Waikato River (Proposed Waikato Regional Policy Statement)

(e) Develop and share local, national and international expertise, including indigenous expertise, on rivers and activities within their catchments that may be applied to the restoration and protection of the health and wellbeing of the Waikato River.

(f) Recognise and protect waahi tapu and sites of significance to Waikato-Tainui and other Waikato River iwi (where they do decide) to promote their cultural, spiritual and historic relationship with the Waikato River.

(i) Encourage and foster a ‘whole of river’ approach to the restoration and protection of the Waikato River, including the development, recognition and promotion of best practice methods for restoring and protecting the health and wellbeing of the Waikato River.

(j) Establish new, and enhance existing, relationships between Waikato-Tainui, other Waikato River iwi (where they so decide), and stakeholders with an interest in advancing, restoring and protecting the health and wellbeing of the Waikato River.

Assessment

- The process of working with TWWG has enabled the sharing of knowledge, both from the members of the TWWG and from the project team. This knowledge has included expertise
in gully restoration and also TWWG expertise and knowledge about the gully systems. This sharing of knowledge has formed the basis of the proposed gully restoration.

> Through the consultation process the project team has learnt about the significance of the gully systems to local iwi. The proposed restoration is considered to recognise and protect the waahi tapu of the gullies by ultimately improving the state of the gullies, and providing the opportunity for the TWWG to incorporate the restoration into a wider strategy for the gullies.

» The proposed restoration and gully strategy represents an approach that recognises the importance of taking a ‘whole of river’ approach and adopting best practice methods.

» The proposed restoration and gully strategy represents an approach that would involve a wide range of stakeholders.

Overall, the Project is considered to be consistent with the Vision and Strategy for the Waikato River.

4.1.3 National Environmental Standards (NES)

Territorial authorities must take into account National Environmental Standards (NES) under section 171(a)(i) of the RMA. The following NES are particularly relevant to the Project:

» National Environmental Standard – Air Quality; (Operative 8 October 2004)

» National Environmental Standard- Assessing and Managing Contaminants in Soil to Protect Human Health (Operative 1 January 2012)

NES are technical environmental regulations prepared in accordance with sections 43 and 44 of the RMA that prescribe any or all of the following technical standards, methods, or requirements. Local and regional councils must enforce these standards (or they can enforce stricter standards when the standard provides for this). The standards aim to protect people and secure a consistent approach and decision-making process throughout New Zealand.

4.1.3.1 Air Quality

The NES for Air Quality includes three ambient (outdoor) air quality standards, which relate to air emissions from motor vehicles and are therefore relevant to the Project. Schedule 1 of the NES sets out ambient air quality concentration limits for carbon monoxide (CO), nitrogen dioxide (NO2), and fine particulate matter, that is, less than 10 micron in diameter (PM10).

Assessment

The construction and operation of the Expressway will result in construction dust and vehicle emissions, being discharges to air. The air quality effects and mitigation measures of the alterations are discussed under section 3 of this report.

The Air Quality Assessment Report identifies that the additional contribution of air contaminants during the operation of the Project will not significantly affect the air quality in the region and will not exceed any of the relevant standards within the NES.

4.1.3.2 Assessing and Managing Contaminants in Soil to Protect Human Health

The NES for Assessing and Managing Contaminants in Soil to Protect Human Health:
Provides a nationally consistent set of planning controls and soil contaminant values

Ensures that land affected by contaminants in soil is appropriately identified and assessed before it is developed - and if necessary the land is remediated or the contaminants contained to make the land safe for human use.

The NES mandates the methods for setting applicable numerical standards for contaminants in soil that have the potential to impact on human health. Applicable standards for 12 contaminants (called “priority contaminants” in regulation 7(2) of the NES) were derived and must be used if the land use fits within the particular exposure scenario. All territorial authorities (district and city councils) are required to give effect to and enforce the requirements of the NES. The NES does not affect existing land uses.

Assessment

There are a number of properties along the proposed route of the Expressway with potentially contaminated soils on the basis of past and present land use. The contamination effects and mitigation measures of the alterations are discussed under section 3 of this report. Any consents required under the NES will be sought at the outline plan approval stage, once the contractors and final design of the Expressway have been confirmed.

4.1.4 Waikato Regional Policy Statement (October 2000)

Territorial authorities must take into account regional policy statement or proposed regional policy statement in accordance with section 171(a)(iii) of the RMA.

The Operative RPS sets out issues, objectives and policies relating to the natural and physical resources of the Waikato Region. District and Regional Plans must give effect to the RPS. The RPS addresses a wide variety of significant resource management issues.

Those considered relevant to the alterations are discussed below. Note that an assessment against the objectives and policies of the RPS is also provided in association with the resource consent applications for the Project.

3.3.8 Soil Contamination

Objective: The range of existing and foreseeable uses of the soil resource not reduced as a result of the contamination of soils.

Policy One: Discharges of contaminants into or onto land should be carried out in a manner designed to avoid any adverse effects on the soil resource.

Assessment

The proposed alterations do not involve any direct contamination of soils. During the construction phase there is potential for the accidental release of hazardous substances, however this matter is addressed in detail in the proposed Resource Consent conditions, by including requirements for managing hazardous substances. Where existing contaminated sites are affected, earthworks will be managed to address the potential for release of contaminated materials into the environment.

3.6.3 Regional and Local Air Quality

Objective: Significant characteristics of areas of:
3.11.4 Maintenance of Biodiversity

Objective: Biodiversity within the region maintained or enhanced.

Policy One: Avoid, Remedy or Mitigate Adverse Effects on Biodiversity - Allow the use and development of natural and physical resources while avoiding, remediying or mitigating adverse effects on biodiversity in the Region.

Policy Three: Protection and Management of Indigenous Vegetation and Habitats of Indigenous Fauna

- Ensure the existing characteristics that identify natural areas as significant indigenous vegetation and/or significant habitats of indigenous fauna are protected in an appropriate way from adverse effects when using or developing natural and physical resources except:
  - where those effects cannot be avoided, in which case the effects are to be remedied or mitigated in such a way that biodiversity is maintained or enhanced, having particular regard to the specific characteristics that identify the area as significant.

Assessment

Alterations U, V and W are located within areas that have been described by the Project Ecologist as having minimal ecological value, generally comprising improved pasture, with a small amount of exotic shelter belts and isolated mature exotic trees. Bats have not been detected in any of these locations.

Alteration Z is located within an area with a mixture of vegetation, including some indigenous vegetation however, none has been described by the Project Ecologist as being significant indigenous vegetation. In addition, some of this vegetation potentially provides habitat for the Long-Tailed Bat. As discussed in Section 3.5.4.7, this issue is being managed through comprehensive conditions.
On this basis planting, restoration and bat management measures that will be undertaken will ensure that the Project achieves consistency with this policy, particularly the requirement to maintain or enhance biodiversity.

3.15.3 Heritage
Objective: The protection of heritage resources of significance to Maori

Policy One: Protection of Maori Heritage – Seek to avoid accidental or intentional damage or interference to heritage resources of significance to Maori.

Assessment

The proposed alteration for the Southern Interchange (Alteration Z) will impact on Maori prehistoric gardening sites. A high level of consultation has been carried out with the Tangata Whenua Working Group, including discussions on protection of some parts of the site (refer to Appendix C). As a result of discussions with the TWWG, it is likely that one of the borrow pits will be protected, and public access provided.

4.1.5 Proposed Waikato Regional Policy Statement (February 2013)

The Proposed Waikato RPS sets out issues, objectives and policies relating to the natural and physical resources of the Waikato Region.

At its meeting of Thursday 25 October 2012, WRC adopted the recommendations of the hearing committee as the Council decisions on the Proposed RPS. These decisions were publicly notified on 2 November 2012. There have been 37 appeals lodged with the Environment Court against the decisions on the Proposed RPS. An “Appeals Version” (reflecting the parts of the decisions that have been appealed) of the Proposed RPS was released on 1 February 2013 and the appeals are being dealt with through the Environment Court process.

For provisions in the Proposed RPS that are under appeal, consideration must be given to both the Operative and Proposed RPS. Those parts of the Proposed RPS that are not under appeal remain ‘proposed’ until such time as they are made operative but are weighted to such a degree as to be considered operative.

The Expressway is recognised in the Proposed RPS as a significant transport corridor within the Greater Hamilton area.

The following Proposed RPS objectives and policies are relevant to the alterations:

Objective 3.1A Resource Use and Development
The sustainable management of natural and physical resources, and of their use and development, recognises the social, economic and cultural benefits to the regional and national community.

Assessment

The proposed alterations are part of a significant infrastructure development project that is expected to deliver multiple social and economic benefits to the region and nation, whilst ensuring sustainable management of natural and physical resources.
Objective 3.3 Health and Wellbeing of the Waikato River
The health and wellbeing of the Waikato River is restored and protected and Te Ture Whaimana o Te Awa o Waikato (the Vision and Strategy for the Waikato River) is achieved.

Assessment
The proposed alterations on their own are not anticipated to have any significant impacts on the restoration and protection of the Waikato River. However, the Project as a whole has the potential to adversely affect the River through stormwater discharge and earthworks. These matters are addressed in the regional consents and mitigated through design of the Project and conditions proposed.

Objective 3.7 Ecosystem Services
The range of ecosystem services associated with natural resources are recognised and maintained or enhanced to enable their ongoing contribution to regional wellbeing.

Assessment
All alterations will be subject to the existing conditions, which include controls on air quality (dust emissions) and vegetation disturbance. Other impacts of the Project (e.g. water quality, discharge from contaminated sites, and specific management plans for construction) are addressed by the resource consents. Therefore, the Project as a whole, including alterations, is considered consistent with the objective to recognise, maintain or enhance the range of ecosystem services associated with natural resource that are affected by the Project.

Objective 3.8 Relationship of Tāngata Whenua with the Environment
The relationship of tāngata whenua with the environment is recognised and provided for, including:

a) The use and enjoyment of natural and physical resources in accordance with tikanga Māori, including mātauranga Māori;

b) The role of tāngata whenua as kaitiaki.

Assessment
The Project has recognised the relationship of tangata whenua with the environment, through consultation with the TWWG, mandated on behalf of the local hapu. Matters of relevance to Tangata Whenua have been taken into account during the development of the Project, and the outcomes of the consultation are identified in Appendix C.

Objective 3.10 Air Quality
Air quality is managed in a way that:

a) Ensures that where air quality is better than national environmental standards and guidelines for ambient air, any degradation is as low as reasonably achievable;

b) Avoids unacceptable risks to human health and ecosystems, with high priority placed on achieving compliance with national environmental standards and guidelines for ambient air; and

c) Avoids, where practicable, adverse effects on local amenity values and peoples’ wellbeing including from discharges of particulate matter, smoke, odour, dust and agrichemicals, recognising that it is appropriate that some areas will have a different amenity level to others.
Assessment

The effects of the alterations on air quality will be no more than minor and therefore the proposal is considered consistent with the above objective and policies.

**Objective 3.11 Built Environment**

Development of the built environment (including transport and other infrastructure) and associated land use occurs in an integrated, sustainable and planned manner which provides for positive environmental, social, cultural and economic outcomes, including by:

a) Promoting positive indigenous biodiversity outcomes;

b) Integrating land use and infrastructure planning, including by ensuring that development of the built environment does not compromise the safe, efficient and effective operation of infrastructure corridors;

c) Recognising and protecting the value and long-term benefits of regionally significant infrastructure;

e) Minimising land use conflicts, including minimising potential for reverse sensitivity;

f) Anticipating and responding to changing land use pressures outside the Waikato region which may impact on the built environment within the region;

Assessment

The Project and necessary alterations is considered to be regionally significant infrastructure which will provide for positive environmental, social, cultural and economic outcomes. The planning of the Project has been integrated with the planning of the environs of Hamilton; both Future Proof and the PRPS recognise and provide for the Project (see Map 6.1A in the PRPS). The proposed alterations are necessary to protect the value and long-term benefits of the Expressway as regionally significant infrastructure.

**Objective 3.17 Historic and Cultural Heritage**

Sites, structures, landscapes, areas or places of historic and cultural heritage are protected, maintained or enhanced in order to retain the identity and integrity of the Waikato region’s and New Zealand’s history and culture.

Assessment

The proposed alteration for the Southern Interchange (Alteration Z) will impact on Maori prehistoric gardening sites. A high level of consultation has been carried out with the Tangata Whenua working group, including discussions on protection of some parts of the site (refer to Appendix C) to ensure that any cultural values are identified and addressed through the mitigation of the Project.

**Policy 4.3 Tāngata whenua**

Tāngata whenua are provided appropriate opportunities to express, maintain and enhance the relationship with their rohe through resource management and other local authority processes.

Assessment

The Project has recognised the relationship of tangata whenua with the environment, through consultation with the TWWG, mandated on behalf of the local hapu. Matters of relevance to
Tangata Whenua have been taken into account during the development of the Project, and the outcomes of the consultation are identified in Appendix C.

**Policy 5.1 Improve Degraded Air Quality**
Reduce the adverse effects on air quality caused by cumulative, diffuse, broad scale or multiple discharges from home heating appliances and transport, with particular emphasis on:

a) Discharges of fine particulate matter; and

b) Areas where there are unacceptable risks to human health and ecosystems.

**Assessment**

The effects of the alterations on air quality will be no more than minor and therefore the proposal is considered consistent with the above objective and policies.

**Policy 5.3 Manage adverse effects on amenity**
Ensure discharges to air are managed so as to avoid, remedy or mitigate objectionable effects beyond the property boundary.

**Assessment**

The alterations to designation will be subject to the existing designation conditions, which include a requirement to contain within the boundaries any dust nuisance arising from construction. Therefore any effects from discharges to air will be managed in a way to be consistent with this policy.

**Policy 6.1 Planned and co-ordinated development**
Development of the built environment, including transport, occurs in a planned and co-ordinated manner which:

a) Has regard to the principles in section 6A;

b) Recognises and addresses potential cumulative effects of development; and

c) Is based on sufficient information to allow assessment of the potential long-term effects of development.

**Assessment**

The Project is considered to have regard to the principles in section 6A of the PRPS, in particular it will:

- support the existing urban area of Hamilton and connect well with existing development and infrastructure through the strategic location of interchanges;
- provide a clear delineation between urban and rural areas by generally forming the urban boundary of Hamilton City;
- tie into existing and planned infrastructure, thereby not compromising the safe, efficient and effective operation and use of existing and planned infrastructure;
- promote positive indigenous biodiversity outcomes through the restoration of part of the affected gullies (detailed in the resource consent applications), and also through landscape planting along the route;
- be designed to allow adaptation to the effects of climate change through the stormwater design (refer resource consent applications); and
• support the vision and strategy for the Waikato River as a result of the standard of stormwater treatment proposed, as well as the restoration and enhancement of the affected gully systems (refer to resource consent applications).

Specialist reports have been prepared for the Project, and these provide sufficient information to allow assessment of the potential long-term effects of development, and also consider cumulative effects where relevant.

Policy 6.3 Co-ordinating Growth and Infrastructure
Management of the built environment ensures:

a) The nature, timing and sequencing of new development is co-ordinated with the development, funding, implementation and operation of transport and other infrastructure, in order to:
   i) Optimise the efficient and affordable provision of both the development and the infrastructure;
   ii) Maintain or enhance the operational effectiveness, viability and safety of existing and planned infrastructure;
   iii) Protect investment in existing infrastructure; and
   iv) Ensure new development does not occur until provision for appropriate infrastructure is in place;

b) The spatial pattern of land use development, as it is likely to develop over at least a 30-year period, is understood sufficiently to inform reviews of the Regional Land Transport Strategy. As a minimum, this will require the development and maintenance of growth strategies where strong population growth is anticipated;

c) The efficient and effective functioning of infrastructure, including transport corridors, is maintained, and the ability to maintain and upgrade that infrastructure is retained; and

d) A co-ordinated and integrated approach across regional and district boundaries and between agencies.

Assessment

The NZTA is working closely with the Waikato District and Hamilton City Councils in order to ensure the appropriate coordination with development of the surrounding local road network. This will provide the opportunity to optimise the efficient and affordable provision of future infrastructure.

Policy 6.6 Significant infrastructure and energy resources
a) Management of the built environment ensures that the effectiveness and efficiency of existing and planned regionally significant infrastructure is protected.

b) Regard is given to the benefits that can be gained from the development and use of regionally significant infrastructure and energy resources, recognising and providing for the particular benefits of renewable electricity generation.

Assessment

November 2013
The Project as a whole (including associated alterations) is considered to result in regional and national benefits. Protection of the areas required as alterations to the designation will ensure that the effectiveness and efficiency of the planned Expressway is protected.

### 4.1.6 Waikato Regional Plan

The Waikato Regional Plan (WRP) became operative on 30 August 2007, except those parts of the plan subject to Proposed Variation Numbers 2 (Geothermal Module), 5 (Lake Taupo Catchment), 6 (Water Allocation) and 7 (Minor Variation and Geothermal Maps). The WRP is intended to provide direction regarding the use, development, and protection of natural and physical resources in the Waikato Region. It gives effect to the Operative and Proposed RPS and focuses on Waikato Regional Council’s statutory functions under the RMA. The WRP contains modules covering Matters of Significance to Maori, Water, River and Lake Beds, Land and Soil, Air, and Geothermal Resources.

**Assessment**

Water and discharge permits, along with land use resource consents are required from the WRC and applications have been lodged.

### 4.1.7 Regional Land Transport Strategy 2011-2041 (RLTS)

The RLTS is a statutory document prepared under the LTMA. The RLTS examines the transport outcomes for the Waikato Region and sets in place a strategic plan to achieve those outcomes over a 30-year period. The strategic approach for the RLTS is strategic corridors, road safety, and managing demand and encouraging alternative modes of transport.

**Assessment**

The strategic corridors aspect is directly relevant to the project, as the Waikato Expressway is identified in the strategy as the number one strategic transport project for the Waikato Region. The Project, including alterations proposed, is therefore consistent with the strategic approach of the RLTS.

### 4.1.8 Future Proof Growth Strategy and Implementation Plan 2009

Future Proof Growth Strategy and Implementation Plan 2009 (Future Proof) is a 50 year growth strategy for the Hamilton, Waikato, and Waipa sub-region. The strategy focuses on managing growth within the sub-region, and creating more compact urban areas based around Hamilton and existing rural townships and villages.

Future Proof provides a high level blueprint for development in the form of a preferred settlement pattern. Future Proof is not a statutory document, but has considerable weight in planning and decision making processes and primarily feeds into the RPS. Future Proof examines and provides approaches to the issues associated with growth, including future urban and rural land use, natural and cultural resources, roads, and other essential infrastructure.

With respect to future growth, WRC’s Proposed RPS also sets out land use and population targets for the Waikato Region area through to 2061. Version 7 of the Waikato Regional Transportation Model (WRTM v7) is based on the RPS land use and population projections. However, the Future
Proof project is continuing to refine land use and population projections and update the WRTM accordingly.

**Assessment**

The strategy identifies the Expressway as the pre-eminent and key transport project for both the sub-region and the Waikato region. The location of the Expressway designation is identified on the Future Proof settlement pattern map, and roughly forms the boundary between the City and the District (urban and rural). The completion of the Expressway is one of the key assumptions behind the settlement pattern, and progressive implementation of the Expressway as the highest priority strategic transport corridor, and road of national significance forms one of the actions to achieve the strategy.

The Future Proof strategy therefore provides the high level strategic context for development and growth within the sub-region, including the development of the Expressway corridor.

### 4.1.9 Access Hamilton Strategy

The purpose of Access Hamilton is to meet the changing travel demands of the city by providing an affordable, safe, responsive and sustainable transport system that contributes to Hamilton’s strategic vision and achieves community outcomes in a way that is consistent with national and regional objectives.

Access Hamilton is one of Hamilton’s eight key strategies that assist HCC to achieve its strategic objectives. It guides the city’s development and transport infrastructure planning over the next thirty years. It is a high-level integrated transport strategy that identifies the strategic transport aspirations of the city to deliver HCC objectives, and contributes to national goals and regional priorities. Access Hamilton will meet the changing travel demands of the city by providing an affordable, safe, responsive and sustainable transport system. Hamilton’s strategic objectives have a long term focus and are consistent with the objectives of the Land Transport Management Amendment Act and the NZ Transport Strategy.

In broad terms, Access Hamilton aims to:

- Support Hamilton’s economic, social, environmental and cultural well-being;
- Support the land use, sustainability and economic development objectives for a compact city with consolidation and intensification around key nodes and a vibrant city centre;
- Manage incremental change in the transport and land use system necessary to achieve Hamilton’s strategic objectives; and
- Position infrastructure and land development to meet the city’s long term needs.

To contribute to Hamilton’s strategic vision, Access Hamilton must address transport challenges over the next 30 years that relate to existing and foreseeable problems, and their exacerbation due to city growth, demography, technology, employment patterns and the wider economy.

**Assessment**
The Hamilton Section of the Waikato Expressway is recognised in the Access Hamilton Strategy as a Major Arterial Road. The Strategy also recognises some form of connection at Resolution Drive (Alteration U).

4.1.10 Waikato District Plan (Operative April 2013)

The Waikato District Plan promotes the sustainable management of natural and physical resources in the Waikato District, primarily by managing the effects of land use on the environment. The majority of the Hamilton Section is designated in the Waikato District Plan, with some areas now under the jurisdiction of HCC (but managed under the Waikato District Plan (refer Figures 1-3 and 1-4 below)).

The Waikato District Plan is relevant to the following alterations to the designation as follows:

- Alteration U: Waikato District Plan – Rural Zone, Future Urban overlay on western side of the designation
- Alteration V: Waikato District Plan – Rural Zone, Future Urban overlay on western side of the designation
- Alteration W: Waikato District Plan - Rural Zone, Future Urban overlay on western side of the designation (note also subject to Hamilton City Proposed District Plan on western side of the designation)
- Alteration Z: Waikato District Plan – Country Living Zone, Plan Change 3/Tamahere Structure Plan (now operative)

The following objectives and policies are relevant to all of the alterations to designation (Alterations U, V, W and Z):

**Indigenous Vegetation and Habitat**

*Objective 2.2.1* Indigenous biodiversity and the life-supporting capacity of indigenous ecosystems are maintained or enhanced.

*Policy 2.2.2* Areas of indigenous vegetation and habitats of indigenous fauna, and the life-supporting capacity of indigenous ecosystems should be maintained or enhanced through on-site works, and the creation of ecological buffers and linkages using eco-sourced plants.

*Policy 2.2.5* Areas of significant indigenous vegetation and significant habitats of indigenous fauna should be managed in a way that protects their long-term ecological functioning and biodiversity through such means as:
  (a) excluding stock
  (b) undertaking plant and animal pest control
  (c) retaining and enhancing vegetation cover
  (d) maintaining wetland hydrology
  (e) avoiding physical and legal fragmentation
  (ea) avoiding housing development close to such areas

**Assessment**

As identified in section 3.5.4.7, Alterations U, V and W do not affect any significant indigenous vegetation or habitat. Alteration Z will result in the removal of some indigenous vegetation, and
potentially impact on habitat of the Long-Tailed Bat. As also discussed, both the loss of indigenous vegetation, and the potential impacts on bat habitat are addressed through comprehensive conditions. On this basis, it is considered that vegetation cover will be retained to the extent possible, enhanced in some locations, and overall the Project is proposing measures to protect the long-term ecological functioning and biodiversity of the gully systems. On this basis, the Project including alterations is considered consistent with the objective and policies above.

Policy 2.2.6 Subdivision, use and development should be located and designed to avoid, remedy or mitigate adverse effects on indigenous biodiversity. This will include adverse effects on the ecological functioning and values of significant indigenous vegetation and significant habitats of indigenous fauna, in-stream values, riparian margins and gullies.

Policy 2.2.7 When avoiding, remedying or mitigating adverse effects on indigenous biodiversity, regard should be had to:

(a) the need for species to continue to have access to their required range of food sources and habitats during their life cycle
(b) the need for species to have access to refuges from predators and disturbances
(c) the maintenance of natural isolation
(d) the need to prevent invasion by exotic species
(e) the need to maintain vegetation structure, such as a continuous closed-forest canopy and under-storey, and the compactness of an area’s shape to limit edge effects such as wind damage
(f) the need to replace or restore habitats
(g) retaining and restoring the natural character and landscape values of the area
(ga) maintenance and enhancement of ecological corridors and buffer areas.

Assessment

As identified in section 3.5.4.7, Alterations U, V and W do not affect any significant indigenous biodiversity. Alteration Z will result in the removal of some indigenous vegetation, and potentially impact on habitat of the Long-Tailed Bat. As discussed (refer section 3.5.4.7), both the loss of indigenous vegetation, and the potential impacts on bat habitat are addressed through comprehensive conditions. On this basis, it is considered that the Project will allow for the continued ecological functioning and values of indigenous vegetation and habitats of indigenous fauna, specifically within the gullies. When developing the conditions regard has been had to food sources for bats, roosting sites, habitat enhancement, and ecological corridors and buffer areas.

Natural Resources

Objective 4.2.1 Physical, chemical and biological properties necessary for maintaining the life supporting capacity and productive use of the soil, especially high quality soil, are retained.

Assessment

The location of the proposed alterations is largely a product of the existing designation. Whilst the proposal will result in some additional loss of high quality soils, this loss is considered minor in the context of the existing designation.

Natural Hazards
Objective 5.2.1 Risks from natural hazards to health, safety and property, resulting from use, development or protection of land, are minimised.

Policy 5.2.5 Development should minimise impervious surfaces, provide adequate stormwater drainage, and mitigate the off-site effects of stormwater drained from the site.

Assessment

The proposed alterations will result in some increase to the area of impervious surface – e.g. through additional ramps at Resolution Drive, and through provision of the Link Road from Greenhill Interchange to the Wairere Roundabout. However, adequate stormwater drainage is provided through the comprehensive management strategy (refer to regional resource consent applications).

Policy 5.2.11 Hydrological characteristics of the Mangaonua, Mangaone and Mangaharakeke Streams and their tributaries are retained.

Policy 5.2.12 Subdivision, use and development must be undertaken in a manner that maintains or enhances the overall hydrological characteristics of the area including maintaining surface and groundwater flow regimes, ponding and drainage patterns.

Assessment

A stormwater management strategy has been developed as part of the scheme design, which involves the use of constructed wetlands and grass conveyance swales to treat and attenuate stormwater run-off. Existing drainage is provided for by installation of culverts to allow water to drain from one side of the Expressway to the other. Effects on groundwater have been assessed and a full report is provided in the Groundwater AEE, Volume 2. Whilst the proposal is anticipated to result in some changes to groundwater flows due to interception from the deep road cuts, these are not expected to be significant and where ground or surface water takes are affected, the NZTA will employ techniques to mitigate the effects.

Land Transport Network

Objective 8.2.1 An integrated, safe, responsive and sustainable land transport network is maintained, improved and protected.

Policy 8.2.2 Design, construction and operation of roads should be consistent with their function in the road hierarchy.

Policy 8.4.1 Land transport networks are provided, while not compromising the qualities and character of surrounding environments.

Policy 8.4.2 Road and rail maintenance, construction and operation should minimise adverse effects on people, communities and the environment by managing:

(a) discharge of stormwater
(b) effects of contamination, including discharge of stock effluent
(c) disturbance to natural landforms, soil resources, indigenous vegetation and habitats, and cultural and heritage sites
(d) severance of property and communities
(e) road surface noise
(f) connections between communities
(g) glare and light spill from street lighting.

Assessment

The Project (including alterations) represents an improvement to the land transport network, and the alterations to designation enable protection of the network. The design, construction and operation of the road will be consistent with its status as a Road of National Significance. The Project (including alterations) will be constructed and operated in such a way as to not compromise the qualities and character of surrounding environments, through measures such as landscaping, noise mitigation, stormwater management, remediation and management of contaminated sites crossed by the project, measures to retain community connectivity and containment of light spill. The existing conditions will be applied to the alterations, and provide controls to manage effects.

Contaminated Land

Objective 9.2.1 Human health or the environment is not harmed by the use or development of contaminated land.

Policy 9.2.4 Remediation of contaminated land should not pose a more significant risk to human health or the environment than if remediation had not occurred.

Policy 9.2.5 Material removed from contaminated land should be disposed of in a manner that avoids further adverse effects on human health or on the environment.

Policy 9.2.7 Development or use of land known to have been occupied by a potentially contaminating activity should not occur until any risk to human health or the environment has been investigated.

Assessment

Where the Project crosses contaminated land, contaminated soils will either need to be removed, or capped and buried. Specific assessment will be required and forms part of the recommended conditions for the regional resource consents. Subject to the recommended controls, the construction of the road is not expected to result in harm to human health or the environment, and in some cases, locating, characterising and removing contaminated soil will have an environmental benefit.

Social, cultural and economic wellbeing

Objective 11.2.1 Towns, villages, neighbourhoods and localities have social coherence and a sense of place.

Policy 11.2.6 Activities should avoid breaking up community and neighbourhood coherence, having particular regard to the cumulative effects of activities.
Objective 11.4.1 Cultural practices and beliefs of tangata whenua are respected.

Policy 11.4.2 Subdivision, use and development should not compromise the cultural and spiritual significance of areas, including waahi tapu, urupa, maunga and other landforms, mahinga kai, and indigenous flora and fauna.

Assessment

With the exception of Alteration Z, none of the alterations make any change to the existing local road network, or to the level of connectivity provided by the existing designation.

Alteration Z results in a change to the level of connectivity provided for residents in Tamahere East as a result of removing the south-facing ramps. However, as discussed in Section 3.5 of this report, the proposed alteration will still provide community connectivity.

The Project has recognised the relationship of tangata whenua with the environment, through consultation with the TWWG, mandated on behalf of the local hapu. Matters of relevance to Tangata Whenua have been taken into account during the development of the Project, and the outcomes of the consultation are identified in Appendix C.

Historic Heritage

Objective 12.2.1 Historic heritage is retained.

Policy 12.2.7 Archaeological sites and areas, sites of significance to Maori (including waahi tapu sites and waahi tapu areas), and places of historic significance should be protected from adverse effects of development or activities on those sites.

Assessment

The proposed alteration for the Southern Interchange (Alteration Z) will impact on Maori pre-historic gardening sites. A high level of consultation has been carried out with the Tangata Whenua working group, including discussions on protection of some parts of the site (refer to Appendix C). As a result, it is likely that one of the borrow pits will be protected, with public access provided.

Amenity Values

Objective 13.2.1 Adverse effects of activities on amenity values are managed so that the qualities and character of the surrounding environment are not unreasonably compromised.

Policy 13.2.2 Adverse effects associated with lighting, litter, electromagnetic radiation, vermin, traffic, spray drift, and noise should be contained within the site where they are generated.

Policy 13.2.3 Adverse effects associated with offensive or objectionable dust, smoke and odour should be contained within the site where they are generated.

Policy 13.2.4 Adverse effects that cannot be contained on the site where they are generated must be remedied or mitigated.
Policy 13.2.5 Amenity values, health and safety should be protected from adverse traffic effects including:
(a) noise, vibration, dust, lighting and glare
(b) vehicle emissions
(c) accelerated or contaminated stormwater runoff
(d) visual effects of parking and loading areas
(e) traffic safety and congestion.

Assessment
A significant amount of work has gone into the assessment of effects on amenity values including traffic, noise, vibration, and dust. As detailed in the specialists reports and controlled through the existing conditions on the designation, the proposed alterations will be managed so that the qualities and character of the surrounding environment will not be unreasonably compromised. Conditions also require that dust is contained within the site. Where noise will adversely affect neighbouring properties, mitigation will be employed. The alterations are therefore considered to consistent with the objective and policies above.

4.1.10.1 Tamahere Structure Plan/Plan Change 3

Plan Change 3 – Tamahere Structure Plan (TSP) to the Waikato District Plan was notified in July 2012, with hearings in November 2012 and was officially declared operative by Council on 8 July 2013.

The TSP relates to those areas zoned Country Living within Tamahere. It addresses the issues of land availability for small business development and recreation. It also sets out objectives and policies relating to rivers, natural hazards, amenity, and heritage, as well as social and economic well-being.

The key features of the Structure Plan are:
» Approximately 0.88 hectares of land zoned Tamahere Village Business Zone. This land will be the first land zoned for business use in the Tamahere area;
» Approximately 7.19 hectares of land in total zoned Tamahere Recreation Zone. The Recreation Zone will consist of approximately 6.75 hectares of land for recreation facilities (sports fields) and approximately 0.44 hectares of land for the Village Green;
» Two additional schedules specific to the new Tamahere Village Business Zone and the Tamahere Recreation Zone;
» The establishment of new design guidelines for development in the Tamahere Recreation Zone and the Tamahere Village Business Zone. The design guidelines will ensure that the recognised character of the area is maintained and enhanced, and that future development is designed and constructed in accordance with sound urban design principles;
» Additional District Plan objectives, policies and rules to implement the above proposals; and
» An update of the District Plan Maps includes changes to the following:
  • Relevant Zone Maps;
The following objectives and policies introduced through PC3 are relevant to Alteration Z (note that no development is proposed within the Tamahere Village Business Zone):

Policy 5.2.11 Hydrological characteristics of the Mangaonua, Mangaone and Mangaharakeke Streams and their tributaries are retained.

Policy 5.2.12 Subdivision, use and development must be undertaken in a manner that maintains or enhances the overall hydrological characteristics of the area including maintaining surface and groundwater flow regimes, ponding and drainage patterns.

Policy 5.2.13 Modifications to flow paths, ponding areas and drainage patterns should be limited to minor adjustments that enable an overall enhancement of the environment or restore previously modified systems.

Policy 5.2.14 Stormwater should be managed as close to its source as is practicable.

Policy 5.2.15 Risks from ponding of surface water and poor drainage are avoided.

Assessment

Alteration Z is located within the Tamahere Structure Plan area. Run-off from the areas of impervious surface within Alteration Z will be treated and disposed as part of the Project stormwater management system. As outlined in the resource consent applications, the stormwater management system is designed to limit the release of sediment during construction, limit the discharge of road-derived pollutants to the Waikato Catchment and to groundwater, avoid or mitigate flooding, stream erosion and the Project’s effect on overland flowpaths, prevent the Project from becoming inundated during intense storms, and minimise on-going maintenance.

The detailed design of the stormwater discharge structure will be undertaken during the design and construct phase of the Project, by the successful contractor.

4.1.11 Hamilton City Operative District Plan (July 2012)

The Hamilton City Operative District Plan (Operative District Plan) provides a framework of resource management policy and implementation methods to manage the effects of the use, development or protection of land and associated natural and physical resources in the city.

The Operative District Plan is only relevant to a small area of the designation within which no alterations are proposed. Therefore no further assessment is provided of the objectives and policies of this plan.
4.1.12 Hamilton City Proposed District Plan

The Hamilton City Proposed District Plan (Proposed District Plan) was notified in December 2012. The Proposed District Plan sets the rules for future city development and defines how and where the city grows and how its natural and physical resources are managed. The Proposed District Plan includes the Rototuna Structure Plan and Ruakura Structure Plans.

The Proposed District Plan is early in the public process, with submissions having closed on 29 March 2013. Further Submissions have now closed and preparation for the hearings is now underway for August – December 2013.

The Hamilton City Proposed District Plan is relevant to Alteration W. Specifically the area of the alteration to the west of the designation is within the Ruakura Structure Plan area, and the western-most part of the Link Road (connecting the interchange to Wairere Dr roundabout) traverses General Residential Zone (note that the Waikato District Plan also applies to this area and alterations to the east of the designation).

The following objectives and policies of the Hamilton City Proposed District Plan are relevant to Alteration W:

Structure Plans

Objective 3.3.1 Optimised, long-term, positive environmental, economic, social and cultural effects of greenfield development.

Policy 3.3.1a Development should be in general accordance with the relevant Structure Plan

Policy 3.3.1d Interim land use and development should not compromise the integrity and viability of the long-term vision for the relevant Structure Plan

Assessment

The alteration to the designation is consistent with the Ruakura Structure Plan as notified with the Proposed Hamilton City District Plan. The Structure Plan anticipates an interchange in this location, and also anticipates the proposed alteration connecting the interchange directly with the Wairere Drive roundabout via the Link Road. The interim development of the Expressway as per the proposed alteration will therefore not compromise the integrity and viability of the long-term vision for the Ruakura Structure Plan.

4.1.12.1 Rototuna Structure Plan

The Rototuna Structure Plan was notified on 18 September 2010 as Variation 12 to the Hamilton City Proposed District Plan. The variation has been through the hearing process in November 2011. HCC adopted the recommendations of the Independent Commissioners on 11 April 2012. Six appeals have since been received and work is underway to resolve these.

The primary purpose of Variation 12 is to rezone approximately 490 hectares of land primarily within Rototuna Stages 3 and 4 to a variety of urban zones. The Rototuna Structure Plan includes:

» A new suburban centre (Rototuna Suburban Centre Zone) that will provide for a mix of land uses (retail, employment and community facilities). Part of the Suburban Centre Zone adjoins the Expressway;
The majority of the remainder of Stages 3 and 4 will be rezoned for residential use. Rules include the requirement for larger lots/setbacks where development is adjacent to the proposed Expressway - minimum lot size 1000m² and building setback from the expressway boundary is 35 metres, except that, if the location of the carriageway within the designation corridor of the Expressway has been confirmed in writing by NZTA; or construction is underway or completed; the setback is 40m measured from the actual carriageway edge of the Expressway;

The proposed Rototuna Secondary School site (which adjoins the Expressway designation) will be zoned for Community Facilities, with specific rules pertaining to this site; and

The land within the ‘severance’ area (land to the east of the Expressway) is zoned as Large Lot Residential.

Assessment

Although there are no proposed alterations to the designation located within the Rototuna Structure Plan, the effects of the Resolution Drive Interchange on the RSP are discussed under section 3.2 of this report.

4.1.12.2 Ruakura Structure Plan

The Ruakura Structure Plan was notified as part of the Hamilton City Proposed District Plan in December 2012. The Structure Plan has been developed jointly by HCC and Tainui Group Holdings Limited (TGH).

The Ruakura Structure Plan covers the general area which has recently been transferred into HCC – between Greenhill Road to just south of SH26. The Structure Plan will accommodate a wide range of activities including:

- Logistics and freight handling next to an Inland Port;
- A new innovation and research precinct;
- A range of new housing and residential neighbourhoods;
- New commercial and retail areas; and
- Open space, parks and cycleways linking all parts of the estate.

On 24 June 2013 the Environmental Protection Agency (EPA) received an application from TGH and Chedworth Properties Limited requesting a change to the operative Hamilton City District Plan in relation to the proposed Ruakura Development. HCC will support the EPA process as it considers TGH’s application for a plan change for the Ruakura Inland Port project.

The Minister for the Environment has directed the Ruakura Development Plan Change Request to be considered by an independent Board of Inquiry (BOI).

Assessment

As the BOI has yet to make a decision on the Ruakura Structure Plan, no alterations to the existing designation are proposed in the Ruakura Structure Plan area.
5 Conclusion

The NZTA proposes to alter the existing designation for the Hamilton Section of the Waikato Expressway (Hamilton Section) and obtain resource consents from WRC in order to construct, operate and maintain the Hamilton Section.

The NZTA is a Crown entity and its objective pursuant to section 94 of the Land Transport Management Act 2003 (LTMA) is to contribute to an integrated, safe, responsive, affordable and sustainable land transport system.

The GPS was released in July 2012 and identified the Waikato Expressway (the Expressway) as one of the seven RoNS, which are considered by the Government to be the Country’s most important transport routes requiring significant development to reduce congestion, improve safety and support economic growth.

The purpose of listing particular roads as nationally significant was to ensure these priority roading projects are taken into account fully in the development of the National Land Transport Programme. The NZ Government expects that planning for the future development of the land transport network should reflect the importance of these roads from a national perspective and the need to advance them quickly.

The Expressway will extend from the Bombay Hills in the north to just south of Cambridge. The Expressway has been divided into 12 sections. It is expected the Expressway will:

» Improve economic growth and productivity for Auckland, Waikato and Bay of Plenty through more efficient movement of people and freight between Auckland, Hamilton, Tauranga and Rotorua;

» Improve the reliability of the transport network by providing a more robust and safer road network between Auckland, Hamilton, Tauranga and Rotorua;

» Reduce travel times between Waikato and Auckland; and

» Support the growth strategy for the central Waikato.

The Hamilton Section is approximately 22km in length, located on the eastern side of the city of Hamilton, and adjoins the Ngaruawahia Section (currently under construction) to the north and the existing Tamahere Interchange to the south.

The route selection and alignment of the Hamilton Section was determined as part of a wider project which commenced in 1995 and covered the long term development of SH1 between Ohinewai and Cambridge. The Notice of Requirement for the current designation was lodged in 2001 and the designation was secured in 2005, following an appeal hearing before the Environment Court in 2004.

Key aspects of the designated route were:

» The need for the Hamilton Section of the expressway to provide convenient and efficient connections to the City's arterial network - as well as providing for the efficient and uninterrupted passage of inter-regional traffic on the nation's primary trunk route;
A decision by Transit NZ that the Hamilton Section should pass to the east of Hamilton City - rather than to the west;

An early agreement with the commercial arm of Waikato Tainui concerning the location of the route within their Ruakura Raupatu property; and

A decision by Transit NZ confirming that the southern end of the route should link into the existing State Highway at Tamahere - rather than link directly into the designated Cambridge Bypass via an alignment generally following the Cambridge Branch rail line. This issue was the main focus of the appeal hearing in 2004.

Public engagement was undertaken with statutory bodies, Tangata Whenua, key stakeholders and people who are affected by, or who have an interest in, the Project. All landowners who are directly affected by proposed alterations to the designation (in terms of property impacts) have been consulted during the SARA phase and a Hamilton Section specific Tangata Whenua Working Group was established. Engagement was undertaken over the past three years, using various consultation methods. As such, the consultation is considered to meet the requirements of the RMA and the LTMA.

The NZTA has given notice to both Waikato District and Hamilton City Councils of a requirement for alterations to designations “J16 (Ngaruawahia Bypass) and “J17” (Hamilton Bypass) of the Waikato District Plan, and “90” (Hamilton Bypass) of the Hamilton City District Plan. The nature of the alteration work is as follows:

- Alteration U – Resolution Drive Interchange and Stormwater Wetland;
- Alteration V – Puketaha Road;
- Alteration W – Greenhill Road Interchange and Stormwater Wetland; and
- Alteration Z – Southern Interchange and Cambridge Road Widening.

Subject to the existing conditions on the designation and the proposed WRC resource consent conditions, the above alterations will have no more than minor effects on the surrounding environment. The effects of the final design of the Hamilton Section will be mitigated to a suitable level through the outline plan process.

Furthermore, the alterations uphold the sustainable management purpose of the Resource Management Act, adequately provides for Part 2 matters, and is consistent with both the Regional Policy Statements and Regional Plans.

Accordingly, the NZTA looks forward to a favourable recommendation regarding this notice of requirement.
Waikato Expressway
Hamilton Section
Notice of Requirement to Alter the
Designation
Ruakura Interchange
February 2014
Signed by:  Kaye Clark
Highway Manager
NZ Transport Agency
Pursuant to an authority by NZ Transport Agency

Dated this 19th day of February 2014

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Glossary of Terms:

AEE  Assessment of Environmental Effects
Agency  New Zealand Transport Agency
CMP  Construction Management Plan
HCC  Hamilton City Council
HCV  Heavy Commercial Vehicle
HPA  Historic Places Act 1993
LOS  Level of Service
LTMA  Land Transport Management Act 2003
NOR  Notice of Requirement
NZHPT  New Zealand Historic Places Trust
NZS  New Zealand Standard
Opus  Opus International Consultants
PIR  Project Investigation Report
PPC  Private Plan Change
Project  The Waikato Expressway-Hamilton Section
PT  Public Transport
PWRPS  Proposed Waikato Regional Policy Statement – also referred to as PRPS
RLTS  Waikato Regional Land Transport Strategy 2007
RMA  Resource Management Act 1991
RoNS  Roads of National Significance
RPS  Waikato Regional Policy Statement
SARA  Scheme Assessment Report Addendum
SH1  State Highway 1
TDM  Travel Demand Management
TGH  Tainui Group Holdings Ltd
TWEENA  Tangata Whenua Effects Assessment Report
TWWG  Tangata Whenua Working Group
vpd  Vehicles per day
WDC  Waikato District Council
WRC  Waikato Regional Council
WRP  Waikato Regional Plan
WRPS  Waikato Regional Policy Statement (Operative) – also referred to as RPS
WRTM  Waikato Regional Transportation Model
1 Introduction

1.1 Overview

The New Zealand Transport Agency (the Agency) has prepared this Notice of Requirement (NOR) to alter the designation for the Hamilton Section of the Waikato Expressway (Hamilton Section) in order to accommodate an interchange at Ruakura, remove the currently designated two north facing ramps at SH26/Morrinsville Road interchange, and the relocation of Ruakura Road. This alteration is required should the Inland Port project proceed as described in further detail later in this report.

This report provides the documentation, including an assessment of environmental effects, to support the NOR to alter the designation.

1.2 New Zealand Transport Agency

The Agency is a Crown entity. The Agency's objective pursuant to section 94 of the Land Transport Management Act 2003 (LTMA) is to contribute to an effective, efficient, and safe land transport system in the public interest.

1.3 Roads of National Significance

In July 2012, the Government Policy Statement on Land Transport Funding (GPS) was released, which identified seven Roads of National Significance (RoNS), which are considered by the Government to be the Country’s most important transport routes, requiring significant development to reduce congestion, improve safety and support economic growth. The Ruakura Interchange forms part of the Hamilton Section of the Waikato Expressway (the Expressway), which is one of the seven RoNS.

The purpose of listing particular roads as nationally significant was to ensure these priority roading projects are taken into account fully in the development of the National Land Transport Programme. The NZ Government expects that planning for the future development of the land transport network should reflect the importance of these roads from a national perspective and the need to advance them quickly.

1.4 Waikato Expressway

The Expressway will extend from the Bombay Hills in the north to just south of Cambridge. The Expressway has been divided into 12 sections (see Figure 1-1). It is expected the Expressway will:

- Improve economic growth and productivity for Auckland, Waikato and Bay of Plenty through more efficient movement of people and freight between Auckland, Hamilton, Tauranga and Rotorua;

- Improve the reliability of the transport network by providing a more robust and safer road network between Auckland, Hamilton, Tauranga and Rotorua;

- Reduce travel times between Waikato and Auckland; and

- Support the growth strategy for the central Waikato.
Figure 1-1 – Map of the Waikato Expressway
1.5 **Waikato Expressway – Hamilton Section**

The Hamilton Section is located on the eastern side of the city of Hamilton. The Hamilton Section adjoins the recently completed Ngaruawahia Section to the north, and the existing Tamahere Interchange to the south. It is approximately 22km in length. Figure 1-2 shows the scope of the Hamilton Section.

![Figure 1-2 – Map of the Waikato Expressway (Hamilton Section)](image-url)
1.6 Project Specific Objectives

The specific project objectives for the Hamilton Section are as follows:

- Contribute to the GPS priorities of national economic growth and productivity;
- Take into account the principles of the Treaty of Waitangi;
- Form part of an ultimate expressway facility between Auckland and Cambridge;
- Provide a high level of service and safety for inter-regional and inter-centre traffic for a planning horizon of at least 30 years;
- Provide for the safe and efficient movement of state highway traffic between Hamilton and major destinations to the north of Hamilton;
- Minimise any adverse impacts and improve where feasible, the natural, physical, cultural and social environment of the region;
- Provide an appropriate return on investment for the project as a whole; and
- Maximise the economic viability of the project as measured by its Benefit/Cost Ratio and general value for money principles.

1.7 Ruakura Interchange – Proposed Alteration

The purpose of this NOR is to alter the existing designation and specifically includes the following:

- Widening of the designation to accommodate the Ruakura Interchange ramps, connecting roundabouts, and stormwater wetland;
- Closure of the existing Ruakura Road either side of the Expressway and consequently shortening of the bridge over the rail line;
- Retention of Ruakura Road on both sides of the Expressway in order to provide continued property access;
- Relocation of Ruakura Road between the Ruakura Road/Silverdale Road intersection and the existing Ruakura Road near the Vaile Road intersection to connect with the proposed Ruakura Interchange, including:
  - Existing Ruakura/Silverdale intersection closed via cul-de-sac (road retained for access) and creation of a new relocated Ruakura Rd/Silverdale Rd intersection
  - New relocated Ruakura Road/Existing Ruakura Road (west) intersection
- Provision of a tee intersection where the relocated Ruakura Road meets the existing Ruakura Road (east);
- Upgrading the existing Ruakura Road between the new intersection with the relocated Ruakura Road and the Ruakura Road/SH26 intersection;
• Extension of the designation to cover the existing Ruakura Road (from the intersection with
the relocated Ruakura Road up to SH 26);

• Provision for the relocated Ruakura Road to pass either over or under the Expressway; and

• Provision for stormwater attenuation and disposal from the relocated Ruakura Road and
Ruakura Interchange.

Refer to Figure 1-3 below for the Scope of Works.
Figure 1-3 – Scope of Works
2 Background

2.1 Existing Designations and Conditions

The route selection and alignment of the Hamilton Section was determined as part of a wider project which commenced in 1995 and covered the long term development of State Highway 1 (SH1) between Ohinewai and Cambridge. The Notice of Requirement for the original designation was lodged in 2001 and the designation was secured in 2005, following an appeal hearing before the Environment Court in 2004.

Key aspects of the designated route are:

- The need for the Hamilton Section of the Expressway to provide convenient and efficient connections to the City's arterial network - as well as providing for the efficient and uninterrupted passage of inter-regional traffic on the nation's primary trunk route;
- A decision by the Agency that the Hamilton Section should pass to the east of Hamilton City - rather than to the west;
- A decision by the Agency confirming that the southern end of the route is to link into the existing State Highway at Tamahere - rather than link directly into the designated Cambridge Bypass via an alignment generally following the Cambridge Branch rail line. This issue was the main focus of the appeal hearing in 2004.

Table 1-1 summarises the existing designations for the Hamilton Section and other existing relevant designations by the Agency.

<table>
<thead>
<tr>
<th>District</th>
<th>District Plan Map No.</th>
<th>Code</th>
<th>Activity</th>
<th>Location</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Waikato</td>
<td>1, 3, 4, 8, 13, 14</td>
<td>J1</td>
<td>State Highway 1 (Limited access except those parts within the former boroughs of Huntly and Ngaruawahia as at October 1989, and that part of Taupiri between Mangawara bridge and Kainui Road)</td>
<td>From Franklin District/Waikato District boundary north of Meremere to Hamilton City/Waikato District boundary at Ruffell Road, and then from Hamilton City/ Waikato District boundary at Newell Road to Waipa District/Waikato District boundary at Racecourse Road</td>
<td></td>
</tr>
<tr>
<td>Waikato</td>
<td>14, 15, 19</td>
<td>J3</td>
<td>State Highway 26 (limited access)</td>
<td>From Hamilton City/Waikato District boundary at Matangi Road to Matamata Piako District/Waikato District boundary</td>
<td></td>
</tr>
<tr>
<td>Waikato</td>
<td>8, 13, 14, 33, 36, 37</td>
<td>J16</td>
<td>Road for state highway and road for access to state highway (Waikato Expressway, Ngaruawahia Bypass.)</td>
<td>Taupiri to Horotiu</td>
<td></td>
</tr>
</tbody>
</table>
Ruakura Board of Inquiry

Ruakura Interchange – Notice of Requirement

<table>
<thead>
<tr>
<th>District</th>
<th>District Plan Map No.</th>
<th>Code</th>
<th>Activity</th>
<th>Location</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Waikato</td>
<td>37, 14, 20, 22, 24A</td>
<td>J17</td>
<td>Road for state highway and road for access to state highway (Waikato Expressway, Hamilton Bypass.)</td>
<td>Lake Road to Bollard Road</td>
<td>Designation lapses in 2015</td>
</tr>
<tr>
<td>Hamilton</td>
<td>2, 3</td>
<td>90</td>
<td>Hamilton Bypass – State Highway and Access to State Highway</td>
<td>Kay Road to Gordonton Road</td>
<td>10 year designation (lapses 2015)</td>
</tr>
<tr>
<td>Hamilton</td>
<td>20, 21, 30, 31, 40, 48, 49</td>
<td>90a</td>
<td>To manage the State highway system, including planning, funding, design, supervision, construction, and maintenance and operations, and improvements in accordance with the Land Transport Act 2003 and the Government Roading Powers Act 1989.</td>
<td>Greenhill Road to Mangaonua Gully (rollover from Waikato District Plan)</td>
<td>10 year designation (lapses 2014)</td>
</tr>
</tbody>
</table>

Table 2-1 – Existing Designations

There are two sets of conditions that relate to the existing Hamilton Section designation. These are:

- NOR 1 – Waikato District – Horotiu to Tamahere; and
- NOR 2 – Hamilton City – Horotiu to Tamahere.

Each set contains ten conditions, and both address the following matters (with some variations in wording of individual conditions):

- Description of works;
- Construction Management Plan;
- Archaeological/Cultural Matters;
- Network Utilities;
- Noise;
- Landscape and Visual;
- Effects of construction on existing drainage works;
- Lighting;
- Community Liaison; and
- Term of Designation.

The conditions were confirmed with the designation in 2005, following the Environment Court hearing in 2004. The NOR2 conditions only relate to a portion of the designated Expressway between Kay Road and Horsham Downs Road. These conditions were required because at that time only this section of the designated Expressway was located within Hamilton City, with the balance of the designated Expressway being within the Waikato District. Since that time, the boundaries between the two territorial authorities has changed, but the physical location of the designations has

19 February 2014
remained the same. As a consequence, the NOR1 conditions originally for the designations located within the Waikato District now apply to some of the designations located within Hamilton City. Only the NOR1 conditions apply to the designations to be altered by this NOR (J17 –Waikato District Plan, and 90a Hamilton City Proposed District Plan). A full set of the NOR1 conditions is provided in Appendix A.

2.2 Alterations to the Designation

On 30 September 2013, the Agency lodged a NOR detailing a series of alterations to the existing designation. The NOR was divided into two bundles. The first bundle included the following alterations to the designation, which the Agency requested be publicly notified under s95A(2)(b) of the Resource Management Act 1991 (RMA). Accordingly these alterations were notified on 20 November 2013. A total of 18 submissions were received.

<table>
<thead>
<tr>
<th>Alteration</th>
<th>Relevant Council</th>
</tr>
</thead>
<tbody>
<tr>
<td>Resolution Drive Interchange (Alteration U)</td>
<td>WDC</td>
</tr>
<tr>
<td>Puketaha Road Arrangement (Alteration V)</td>
<td>WDC</td>
</tr>
<tr>
<td>Greenhill Interchange (Alteration W)</td>
<td>WDC &amp; HCC</td>
</tr>
<tr>
<td>Southern Interchange and Cambridge Road Widening (Alteration Z)</td>
<td>WDC</td>
</tr>
</tbody>
</table>

*Table 2-2 – Publicly Notified Alterations*

The second bundle included twelve minor alterations providing for local widening and narrow points, and to make provision for stormwater treatment facilities. These alterations were lodged in a separate bundle under the expectation that they were likely to be non-notified due to their minor nature.

2.3 Resource Consents

On the same date (30 September 2013), the Agency lodged applications for the necessary resource consents with Waikato Regional Council (WRC). As with the large alterations, the Agency requested that these applications be publicly notified under s95A(2)(b) of the RMA. Accordingly these resource consents were publicly notified on 20 November 2013.

The following resource consents are currently being sought from the WRC:

<table>
<thead>
<tr>
<th>Land use</th>
<th>Undertake earthworks including: soil disturbance, roading, tracking, and vegetation clearance both within and outside of high risk erosion areas; cleanfill and overburden disposal; and, any associated discharges of contaminants to water or air association with the Hamilton Section of the Waikato Expressway</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water permit</td>
<td>To dam and divert surface water in the Mangaonua and Mangaharakeke/ Mangaone gullies as a consequence of road construction in association with the Hamilton Section of the Waikato Expressway</td>
</tr>
<tr>
<td>Land use</td>
<td>Construction, operation, maintenance and removal of temporary bridges over the Mangaonua and Mangaone streams including any associated discharges of contaminants to water or air in association with the Hamilton Section of the Waikato Expressway</td>
</tr>
</tbody>
</table>
Ruakura Inte

– Notice of Requirement

<table>
<thead>
<tr>
<th>Land use</th>
<th>Construction, operation and maintenance of the Mangaonua and Mangaone Stream bridges including any associated discharges of contaminants to water or air in association with the Hamilton Section of the Waikato Expressway.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water Permit</td>
<td>To drill below the water table to install bridge piles in association with the Hamilton Section of the Waikato Expressway.</td>
</tr>
<tr>
<td>Water permit</td>
<td>To take and divert groundwater and discharge groundwater to water in association with the Hamilton Section of the Waikato Expressway.</td>
</tr>
<tr>
<td>Discharge permit</td>
<td>To divert and discharge stormwater into water, and/or into or onto land, including the installation, operation and maintenance of discharge structures in association with the Hamilton Section of the Waikato Expressway.</td>
</tr>
<tr>
<td>Land use</td>
<td>Construction, operation and maintenance of culverts including any associated discharges of contaminants to water or air in association with the Hamilton Section of the Waikato Expressway.</td>
</tr>
<tr>
<td>Water Permit</td>
<td>To dam and divert surface water in association with culvert construction, operation and maintenance.</td>
</tr>
</tbody>
</table>

Table 2-3 – WRC Consent Applications

19 submissions were received in relation to the notified WRC consent applications. A joint hearing for the alterations and WRC consents is scheduled for April 2014. The alterations and consent applications do not specifically address the Ruakura Interchange proposal with the exception of the land use consent for earthworks, which has taken into consideration the requirements for the Ruakura Interchange. Accordingly, there is a requirement to seek a separate alteration and resource consents for the new Ruakura Interchange and associated works.
3 Planning Context

3.1 Local Authority Boundary Changes

The future plan for local authority boundary changes is set out in the Strategic Agreement on Future Urban Boundaries between the WDC and HCC, dated March 2005. The agreement identifies the principles, direction and process for transfer of land.

Since the original designation was confirmed, boundary changes have occurred between HCC and WDC.

The boundary between HCC and WDC generally follows the centreline of the Expressway in the following locations:

- Between Horsham Downs Road and old Borman Road; and
- Between Greenhill Road and the Mangaonua Gully.

The rest of the Expressway designation is either wholly within the WDC or HCC jurisdictions as follows:

- Waikato District: Lake Road to Kay Road, Gordonton Road to Greenhill Road, Mangaonua Gully to Tamahere interchange; and
- Hamilton City: between Kay Road and Horsham Downs Road, and between old Borman Road and Gordonton Road.

In relation to the Ruakura Interchange NOR, it is noted that the jurisdictional boundary generally follows the centreline of the Expressway from Greenhill Road through to the Mangaonua Gully. The NOR is therefore to both the WDC and HCC.

3.2 Ruakura Structure Plan

As discussed above, recent boundary changes between HCC and WDC have meant that a significant area of land at Ruakura is now within the HCC jurisdiction. The development of this land is identified in a number of high level documents including the Hamilton Urban Growth Strategy, the Access Hamilton Transport Strategy and the Proposed Regional Policy Statement.

To enable the progressive development of this area, the Ruakura Structure Plan (Structure Plan) was developed and notified as part of the Hamilton City Proposed District Plan (Proposed District Plan) in December 2012. Submissions and further submissions have been received, and hearings have been in progress since late 2013. In the meantime, the planning rules of the WDC’s District Plan still apply to this area, despite now being within the jurisdiction of the HCC.

The Structure Plan includes an inland port, freight and logistics hub and other industrial land. The Inland Port as proposed has an intermodal facility so that freight can be transferred to and from road and rail. The Structure Plan also provides for research and innovation activities, and residential areas for an eventual population of approximately 1,800 households, including the development of a neighbourhood centre.
Development of the Ruakura Logistics Zone and Ruakura Industrial Park Zone is proposed in three stages which tie in with the Waikato Regional Policy Statement’s (RPS) industrial land allocation in the Future Proof Area.

At the time of notifying the Structure Plan (as part of the Proposed District Plan), discussions around the location of an interchange to service the Inland Port were still ongoing and this is reflected in the wording of the Structure Plan.

The Agency has made a number of submission points in relation to the Structure Plan, as part of its overall submission on the Proposed District Plan. The Agency is generally supportive of the Structure Plan and in particular made reference to being in support of an interchange on the Waikato Expressway in the general vicinity of the Inland Port.

### 3.3 Ruakura Development Private Plan Change

Tainui Group Holdings Limited (TGH) is the predominant landowner affected by the Structure Plan and is keen to see it being implemented. However, it was identified that existing planning rules transferred over from the WDC’s District Plan prohibit any application being made for urban development within this area. Given that the WDC rules are currently operative, they continue to apply until the Proposed Hamilton City District Plan (that includes the Structure Plan) has been made operative. Given the potential for lengthy delays, TGH have sought a Private Plan Change (PPC) for what is known as the Ruakura Development through the Environmental Protection Authority (EPA). On 31 July 2013, a ministerial direction was released, referring the PPC request to a Board of Inquiry (BOI).

The PPC seeks to enable development of up to 389ha of land at Ruakura. This area is only part of the wider development proposed as part of the Structure Plan. TGH state that the area equates to approximately 30 years of development and aligns with the RPS industrial land allocations.

The PPC will enable development to occur in the interim, but it is intended that it will be fully superseded by the Structure Plan once the Proposed District Plan is confirmed. Accordingly the PPC does not re-zone any land, rather it proposes to adopt mechanisms providing an overlying ‘schedule’. This allows a range of activities to be undertaken in identified areas, as well as existing rural activities.

The PPC states that the construction of the Expressway has a direct relationship to land release, and that the industrial land allocation is limited to 80ha prior to the Expressway being opened.

The PPC was publicly notified on 30 November 2013. Submissions have now closed, and 77 were received, including one by the Agency. The BOI hearing is scheduled to take place in May 2014.

The Agency’s submission supports in part the PPC, subject to further information and amendments being made on specific matters as listed in the submission.
4 Ruakura Interchange

The Agency is seeking to alter the existing designations for the Waikato Expressway (Hamilton Section) in order to accommodate an interchange at Ruakura. This includes the relocation of Ruakura Road, and removing the two north facing ramps at the SH26/Morrinsville Road interchange. Should the Inland Port/Logistics Area and Industrial Area be approved through the BOI hearing, it is imperative that a direct link is made to the Hamilton Section of the Waikato Expressway, rather than relying on local roads to accommodate heavy vehicle movements. The establishment of an interchange at Ruakura that will tie in with the Ruakura Development is the safest and most efficient way of connecting this area to the wider roading network.

4.1 Form 18

Section 181 Resource Management Act 1991

To: Waikato District Council
    Private Bag 544
    Ngaruawahia

And Hamilton City Council
    Private Bag 3010
    Hamilton

The NZ Transport Agency (the Agency), a requiring authority pursuant to section 167 of the Resource Management Act 1991, and having financial responsibility for this proposed public work, gives notice to both Waikato District and Hamilton City Councils of a requirement for alterations to the following designations:

- J17 (Hamilton Bypass) of the Waikato District Plan; and
- 90a (Hamilton Bypass) of the Hamilton City Proposed District Plan.

Designation Purpose:

Alteration to J17: Road Purposes - State Highway & Access to State Highway

Alteration to 90a: Road Purposes – Local Road & Access to State Highway

Designation Lapse Period:

- Waikato District Plan – 2015
- Hamilton City Proposed District Plan – 10 years (2015)

The site to which the requirement applies is as follows:

- Waikato District Council
  Part Lot 3 DPS14267 (SA11D/1380),
  Lot 8 DPS66853 (SA53C/665); and
- Road Reserve – Ruakura Road, Vaile Road and Davison Road
**Hamilton City Council**  
Lot 1 DPS77458 (SA61C/243),  
Lot 1 DPS78549 (SA61C/246),  
Lot 8 DPS66853 (SA53C/665); and  
Road Reserve – Ruakura Road and Silverdale Road

Please refer to **Appendix B** for copies of the Certificates of Title.

3. The nature of the alteration work is as follows:

- **Widening of the designation to accommodate the Ruakura Interchange ramps, connecting roundabouts, and a stormwater wetland;**

- **Closure of the existing Ruakura Road either side of the Expressway and consequently shortening of the bridge over the rail line**

- **Retention of Ruakura Road on both sides of the Expressway in order to provide continued property access**

- **Relocate Ruakura Road between the Ruakura Road/Silverdale Road intersection and the existing Ruakura Road near the Vaile Road intersection to connect with the proposed Ruakura Interchange, including:**
  - Existing Ruakura/Silverdale intersection closed via cul-de-sac (road retained for access) and new relocated Ruakura Rd/Silverdale Rd intersection
  - New relocated Ruakura Road/Existing Ruakura Road (west) intersection

- **Provision of a tee intersection where the relocated Ruakura Road meets the existing Ruakura Road (east)**

- **Upgrading the existing Ruakura Road between the new intersection with the relocated Ruakura Road and the Ruakura Road/SH26 intersection**

- **Extension of the designation to cover the existing Ruakura Road (from the intersection with the re-aligned Ruakura Road up to SH 26)**

- **Provision for the relocated Ruakura Road to pass either over or under the Expressway**

- **Provisions for stormwater attenuation and disposal from the relocated Ruakura Road and Ruakura Interchange**

Please refer to **Appendix C** for plans in support of the NOR.

4. The nature of the proposed restrictions that would apply are:

In context of the assessment of environmental effects that follows, it is considered that the existing conditions applying to the designation for the Hamilton Section of the Waikato Expressway (NOR1), will adequately mitigate any potential environmental effects associated with the alteration. Notwithstanding this, some further mitigation of effects will need to be addressed in the WRC consents yet to be applied for.
The existing designation conditions (NOR1) are included in Appendix A of this report and the Agency requests that these conditions apply to this alteration.

5 The effects that the public work will have on the environment and the ways in which any adverse effects will be mitigated are:

Please refer to the effects assessment below.

6 Alternative sites have been considered to the following extent:

The Agency has investigated alternatives and undertaken consultation to inform and gain feedback from the public. Please refer to section 4.2 below.

7 The public work and designation are reasonably necessary for achieving the objectives of the requiring authority because:

The proposed alteration is the outcome of a Network Connections investigation which concluded that interchanges at Greenhill and Ruakura best served the area if the Ruakura Structure Plan and in particular the Inland Port were to proceed. This alteration is lodged on the basis that the upcoming BOI process for the PPC justifies the establishment of an interchange at Ruakura.

8 The following resource consents are required from the Waikato Regional Council:

At this time the Agency is only seeking to lodge the NOR for the Ruakura Interchange. The Agency is aware of the need to seek resource consents from the WRC for a number of matters including, but not limited to: earthworks, water diversions, water takes, water discharges, placement of structures within stream beds and stormwater discharges. The Agency will seek the necessary consents from the WRC in due course.

9 The following consultation has been undertaken with the affected landowners:

Consultation undertaken by the Agency with respect to this NOR is detailed in Section 5 of this report.

10 The following information is required to be included in this notice by the district plan, regional plan, or any regulations made under the Resource Management Act 1991:

Notice of requirement assessment of effects;

Notice of requirement alteration plans.
4.2 Consideration of Alternatives

In early 2013, transport modelling work was undertaken to inform a network connections study to ascertain the most favourable network between Greenhill Road and SH26, with a view to integrating the Waikato Expressway connectivity with the proposed Structure Plan and associated generation of a large number of heavy commercial vehicle movements.

The study identified that interchanges at Greenhill and Ruakura best served the area if the Structure Plan and in particular the Inland Port were to proceed.

The outcomes were discussed with HCC, WDC and TGH (and generally accepted as appropriate) prior to being subject to the Agency’s internal approval process.

The assessment was based on the fundamental assumption that an Inland Port would be developed along with the logistic zone activities. It is therefore expected that the connection at SH26 would be retained and no connection provided at Ruakura if alternative forms of development were to occur. This point has been reiterated in the Agency’s submission on the PPC.

The full assessment of options between Greenhill Road and SH26 is contained in the report ‘Network Connections Summary Report – March 2013 Update’, prepared by Opus and attached as Appendix D.

4.3 Assessment of Environmental Effects

4.3.1 Baseline for the Environmental Effects Assessment

In terms of assessing the potential environmental effects of the Ruakura Interchange, careful consideration needs to be given to what constitutes the baseline for the assessment. The sole purpose for establishing the Ruakura Interchange is to provide an appropriate link between the Ruakura Development and the Expressway. It follows that if the Ruakura Development does not proceed, then there is no basis for the Agency to pursue the Ruakura Interchange and development of the Expressway will continue with the north facing ramps at the SH26 interchange.

Given the trigger effect that the Ruakura Development has on the Ruakura Interchange, it follows that the baseline for assessing the Ruakura Interchange should include the Ruakura Development. However, as the PPC will be superseded by the Structure Plan once the Proposed District Plan is made operative, this NOR has used the Proposed District Plan to form the baseline upon which the potential environmental effects of the Ruakura Interchange have been assessed. This approach is considered appropriate given that the land use as set out in the Structure Plan is underpinned by the policy direction given by the RPS, the Future Proof Strategy, the Hamilton Urban Growth Strategy and the Access Hamilton Strategy.

The key components of the Proposed District Plan that form the baseline for this assessment include:

- Inland Port/Ruakura Logistics (~150ha); and
- Industrial Park (~210ha).

It also follows that the Expressway (as currently designated) is included as part of the baseline, as this will proceed regardless of whether the Structure Plan is given effect to.
The potential environmental effects associated with the Ruakura Interchange alteration have been assessed under the following headings: traffic effects, drainage and flooding effects, landscape, visual amenity and urban design effects, contamination effects, noise effects, ecological effects, archaeological effects, air quality effects and vibration effects.

4.3.2 Traffic Effects

The potential traffic effects of the Ruakura Interchange and relocated Ruakura Road have been assessed by a Transportation Engineer familiar with the Expressway project and site. The potential effects and proposed mitigation are summarised below.

Baseline for Traffic Effects Assessment

For the purpose of this traffic assessment the baseline includes the completed Waikato Expressway and the Proposed District Plan on the basis that the Ruakura Structure Plan with its Inland Port will proceed. It includes:

- Land use as proposed by the Structure Plan. This includes an Inland Port (shaded red in Figure 4-1 below) and associated activities within the Ruakura Development area, industrial parks and residential development in the north (Chedworth Park Development).

- Relocation of a section of Ruakura Road (between Silverdale Road and Holland Road) to allow the Ruakura Inland Port to be developed as this relies on direct access to the East Coast Main Trunk Railway. To achieve this requires stoppage of Ruakura Road either side of the Expressway. However, to ensure continued access to Percival Road and Ryburn Road, Ruakura Road west of the Expressway will remain open.

- The existing Hamilton Section of the Waikato Expressway designation, which has north facing ramps at SH26, a full interchange near Greenhill Road (to the north) and south facing ramps at the Southern Interchange (near Cherry Lane).

For the purpose of the traffic assessment the adopted network baseline is illustrated on Figure 4-1 below.

The only difference between the assumed baseline described above and the Ruakura Interchange NOR is therefore the replacement of the SH26 north facing ramps with a full interchange on the relocated Ruakura Road. Note, by year 2041, the Spine Road (future connection between Ruakura and Greenhill as part of the Structure Plan) is considered to be part of the baseline.
In year 2012 Ruakura Road carried 5,100vpd between Silverdale Road and Holland Road and 2,900vpd between Holland Road and SH26, based on existing traffic count data. The existing sealed carriageway width is between 7m and 8m wide consisting of two 3.5m traffic lanes and a narrow shoulder. The Waikato District Council Plan lists Ruakura Road as an Arterial Road. Hence its main function is to:

1. form a strategic network of district importance and
2. provide for the collection and distribution of goods significant to the district’s economy.

The District Plan also notes that the through traffic function needs to be balanced against the property access function. On this basis the use of a section of Ruakura Road to provide connectivity between SH26 and the Expressway is in our view in line with its intended function.

Methodology

The traffic flows have been extracted using the Waikato Regional Transportation Model (WRTM). This model has been developed by a consortium of road controlling authorities, known as Local Authority Shared Services (LASS), which includes the majority of local authorities within the Waikato Region and the NZTA.
The WRTM has a validated 2006 network and two forecast years being 2021 and 2041. The model was peer reviewed as fit for purpose by Flow Transportation Specialists on behalf of LASS. Morning and afternoon peaks (as 2 hour periods) are modelled in conjunction with an interpeak period (also 2 hours), which when compiled together provide an estimate of the average daily flow. Traffic flows are available for all-vehicle types or just the heavy vehicle component. The latter has been used to determine the percentage of Heavy Commercial Vehicles (HCV) for the intersection analysis.

Traffic flows have been extracted from the project models referred to as Network 28 and 29, both of which have adopted the Structure Plan. Network 28 reflects the existing Hamilton Section designation including the north facing ramps on SH26. Network 29 includes all the proposed Alterations to Designation which have already been lodged and publicly notified and includes the Ruakura Interchange (north and south facing ramps).

Key junctions within the Ruakura area have been subjected to a detailed assessment of the likely operating level of service (LOS) resulting from the Notice of Requirement (NOR). The key intersections are considered to be:

- Existing intersection of Ruakura Rd/SH26 (cross road),
- The new intersection of Relocated Ruakura Rd/Existing Ruakura Road (Tee layout),
- the Ruakura Interchange ramp terminal junctions (roundabouts),
- The Relocated Ruakura Rd/Silverdale Rd intersection, and
- The revised intersection layout at Ruakura Road/Silverdale Road (2021) and when the Spine Road is added in the year 2041 network.

Intersection capacity and LOS has been determined using the SIDRA modelling software based on year 2041 peak hour flows. The exception to this is the Ruakura Road/Silverdale Road intersection which has also been assessed using year 2021 flows, because the junction layout does not include the Spine Road in year 2021.

The SIDRA modelling parameters adopted for the assessment include:

- use of peak hour factors (0.95) with a 30min peak period,
- heavy vehicle content based on predictions from the project traffic models,
- lane capacity values based on the SIDRA software recommendations,
- Level of Service based on the Highway Capacity Manual intersection delays for the intersection type being assessed.

Although the SIDRA results have been tabulated as per the software output this in no way indicates a high level of accuracy with the results. Intersection delays include the geometric delay component associated with turning vehicles negotiating the intersection. A copy of the SIDRA outputs can be provided in request.

Traffic Flows on the Network

Traffic flow diagrams have been created to illustrate the change in daily 2041 traffic volumes on key routes most likely to be affected by the Ruakura Interchange. The four figures below represent daily flows on the following networks:
• Figure 4-2 indicates the ramp flows at SH26 (baseline) and Ruakura Interchange (NOR).

• Figure 4-3 indicates the assumed Baseline flows (Network 28). As the figure illustrates this includes north facing ramps only at SH26 (Morrinsville Road) for local traffic to access the Expressway.

• Figure 4-4 indicates the NOR flows with a Ruakura Interchange and no connection between the Expressway and SH26 (Network 29).

• Figure 4-5 indicates the difference in daily flows between the baseline (Figure 4-3) and NOR (Figure 4-4).

In all cases the black numbers represent the total daily flow, whilst the number of HCV’s are shown in red.

---

**Figure 4-2: Year 2041 Traffic Flows on the Interchange Ramps**
Figure 4.3 – 2041 Daily Traffic Flows for Baseline (Network 28)
Figure 4-4 – 2041 Daily Traffic Flows for NOR (Network 29)
Figure 4.5 – 2041 Difference in Daily Traffic Flows (Alteration minus Baseline)
In general the traffic flow diagrams illustrate that:

- The Ruakura Interchange attracts an additional 4,900vpd (1,400 HCVs) onto the southern portion of the Hamilton Section of the Expressway which is an increase of +34%. This is considered a positive effect as it reduces traffic flows on Cambridge Road and the western end of SH26.
- Similarly, the interchange attracts an additional 2,300vpd (1,500 HCVs) onto the section of Expressway immediately north of the Ruakura Interchange. Again this is a positive impact as it significantly reduces traffic on the Spine Road which would otherwise traverse through residential areas.
- As the Ruakura Interchange provides a direct connection onto the Expressway, the relocated Ruakura Road shows a significant increase in predicted traffic flows either side of the Expressway. This is not considered to be detrimental as the road is located in an industrial area and will be constructed to cope with the expected traffic flows. The increase on Ruakura Rd however is offset by a positive reduction in traffic flows on the Spine Road and the Greenhill Arterial connection.
- Ruakura Road between Vaile Road and SH26 is expected to increase by 1,600 vehicles per day as traffic from SH26 uses Ruakura Road to access the Ruakura Interchange. The majority of this increase consists of light vehicles. To improve safety, the Agency will widen Ruakura Road between the intersection of the Relocated Ruakura Road and SH26 to provide a minimum of two 3.5m traffic lanes with a 1.5m wide shoulder on either side of the road.
- Relocated Ruakura Road between the interchange and the main entrance to the proposed port site will increase by approximately 8,300vpd. A significant portion of this are HCV's (2,600vpd). This increase is due to the improved connectivity between the Inland Port and the Expressway, rather than traffic using the Spine Road and the Greenhill Interchange. This is also evidenced by the high number of HCV’s using the Ruakura Interchange ramps (Figure 4-2).

Overall it is concluded that the change in traffic flows on the network resulting from the NOR are no more than minor. It also encourages the “right traffic” onto the “right roads”. That is, HCV’s have direct access onto the Expressway and therefore do not need to traverse through city roads to access the Greenhill Interchange or Southern Interchange.

Traffic Effects Assessment

In terms of traffic effects this assessment considers the proposal in terms of the effects on various intersections affected by the alteration, property access, alternate transport modes and effects during construction.

Ruakura Interchange On/Off Ramps

The NOR layout proposes two new roundabouts on Relocated Ruakura Road to serve the Expressway off and on ramps. The roundabouts are expected to be about 35m in diameter to cater for the large number of heavy vehicles that are expected to use the interchange. The speed limit on Relocated Ruakura Road is proposed to be 60km/h west of the eastern roundabout. Intersection sight lines to and from the intersections will be in accordance with the relevant design standards.

Using the SIDRA software, both the off-ramp and on-ramp configurations can adequately cope with the excepted year 2041 peak period flows, providing a likely level of service (LOS) B (on a scale of A: excellent to F: poor) as shown in Table 4-1. The project objective is to ensure a LOS C or better at all Expressway ramp terminals, hence the proposed roundabouts meet this criteria. Please refer to
Appendix E – Traffic Assessment Results for detailed analysis of the information provided in the following tables.

<table>
<thead>
<tr>
<th>Intersection</th>
<th>Approach Movement</th>
<th>Demand Flow (vph)</th>
<th>Average Delay (seconds)</th>
<th>95%ile Queue (m)</th>
<th>LOS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>AM</td>
<td>PM</td>
<td>AM</td>
<td>PM</td>
</tr>
<tr>
<td>Eastern Roundabout</td>
<td>East Ruakura Road</td>
<td>321</td>
<td>243</td>
<td>8</td>
<td>9</td>
</tr>
<tr>
<td></td>
<td>North – Off Ramp</td>
<td>231</td>
<td>296</td>
<td>14</td>
<td>18</td>
</tr>
<tr>
<td></td>
<td>West Ruakura Road</td>
<td>207</td>
<td>595</td>
<td>9</td>
<td>13</td>
</tr>
<tr>
<td>Western Roundabout</td>
<td>South – Off Ramp</td>
<td>313</td>
<td>152</td>
<td>15</td>
<td>13</td>
</tr>
<tr>
<td></td>
<td>East Ruakura Road</td>
<td>501</td>
<td>363</td>
<td>6</td>
<td>6</td>
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<tr>
<td></td>
<td>West Ruakura Road</td>
<td>360</td>
<td>879</td>
<td>6</td>
<td>6</td>
</tr>
</tbody>
</table>

Table 4-1: On and Off Ramp Predicted Intersection Delays at Ruakura Interchange – Year 2041

It is recognised that the addition of two new intersections on Relocated Ruakura Road will pose some additional safety risk on users of the existing Ruakura Road due to the introduction of new vehicle conflicts. However, the NOR removes the two Tee intersections on SH26 that were part of the existing designation. Accordingly, an assessment of the overall safety effect has been conducted using available crash prediction models. This indicates that although there is a potential for more injury crashes with the NOR, the lower speed limit on Ruakura Road (60km/h) will result in an overall lower social cost per injury crash as shown in Table 4-2 below.

<table>
<thead>
<tr>
<th></th>
<th>Baseline (Two Tee-intersections within 80km/h speed environment)</th>
<th>NOR (Two Roundabout intersections within 60km/h speed environment)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Predicted Injury crashes per year</td>
<td>0.587</td>
<td>0.837</td>
</tr>
<tr>
<td>Social Cost per Injury</td>
<td>$427,000</td>
<td>$195,000</td>
</tr>
<tr>
<td>Total Cost/yr</td>
<td>$251,000</td>
<td>$163,000</td>
</tr>
</tbody>
</table>

Table 4-2: Comparison of Predicted Accident Cost for Baseline and NOR

It should also be noted that traffic modelling indicates more vehicles (light and heavy) use the Expressway under the NOR than with the Baseline. Hence, we would expect an overall reduction in crashes with the NOR layout as the vehicles transfer from city roads onto the Expressway, which has no conflicting intersections or adjoining property access.

Existing Ruakura Road/SH26

Traffic modelling shows that traffic flows and patterns at this intersection will change due to the NOR. Although the existing intersection has been the site of a number of fatalities over the past three years, there appears to be no capacity issues. The existing SH26/Ruakura Road/Lissette Road intersection provides a fully dedicated right turn bay. Site distance is also considered to be more than adequate for the 80km/h speed environment.
Figure 4-6: Location Map

The following tables (4-3 to 4-6) summarise the traffic assessment. The green highlighted cells indicate an improvement, whilst the red cells show a dis-benefit.

In all cases the intersection is expected to operate as well as the existing or slightly better. The maximum increase in delays is 1sec/vehicle, whereas for some movements the delay reduces by up to 6sec/vehicle. In reality motorists would not be aware of such a small change. The main change is the increase in right turn traffic flows into Ruakura Road and the increase in the left turn flows out of Ruakura Road. This is offset by a decrease in the through flow on SH26.

<table>
<thead>
<tr>
<th>Approach</th>
<th>Demand Flow (vph)</th>
<th>Deg Sat</th>
<th>Average Delay (s/veh)</th>
<th>95% Queue (m)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Baseline</td>
<td>NOR</td>
<td>Baseline</td>
<td>NOR</td>
</tr>
<tr>
<td>Lissette Rd</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Left</td>
<td>5</td>
<td>5</td>
<td>0.04</td>
<td>0.03</td>
</tr>
<tr>
<td>Through</td>
<td>5</td>
<td>5</td>
<td>0.04</td>
<td>0.03</td>
</tr>
<tr>
<td>Right</td>
<td>5</td>
<td>5</td>
<td>0.04</td>
<td>0.03</td>
</tr>
<tr>
<td>Sh26 westbound</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Left</td>
<td>5</td>
<td>5</td>
<td>0.26</td>
<td>0.22</td>
</tr>
<tr>
<td>Through</td>
<td>460</td>
<td>397</td>
<td>0.26</td>
<td>0.22</td>
</tr>
<tr>
<td>Right</td>
<td>77</td>
<td>145</td>
<td>0.07</td>
<td>0.12</td>
</tr>
<tr>
<td>Ruakura Rd</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Left</td>
<td>24</td>
<td>72</td>
<td>0.03</td>
<td>0.09</td>
</tr>
<tr>
<td>Through</td>
<td>5</td>
<td>5</td>
<td>0.28</td>
<td>0.18</td>
</tr>
<tr>
<td>Right</td>
<td>75</td>
<td>65</td>
<td>0.28</td>
<td>0.18</td>
</tr>
<tr>
<td>Sh26 eastbound</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Left</td>
<td>98</td>
<td>62</td>
<td>0.06</td>
<td>0.04</td>
</tr>
<tr>
<td>Through</td>
<td>241</td>
<td>201</td>
<td>0.14</td>
<td>0.12</td>
</tr>
<tr>
<td>Right</td>
<td>5</td>
<td>5</td>
<td>0.14</td>
<td>0.12</td>
</tr>
<tr>
<td>Overall</td>
<td>1006</td>
<td>974</td>
<td>0.28</td>
<td>0.22</td>
</tr>
</tbody>
</table>

Table 4.3: Existing Ruakura Road/SHELissette Road Intersection 2021 AM Peak
<table>
<thead>
<tr>
<th>Approach</th>
<th>Demand (vph)</th>
<th>Flow (vph)</th>
<th>Deg Sat</th>
<th>Average Delay (s/veh)</th>
<th>95% Queue (m)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Baseline NOR</td>
<td>Baseline NOR</td>
<td></td>
<td>Baseline NOR NOR</td>
<td>BASELINE NOR</td>
</tr>
<tr>
<td>Lissette Rd</td>
<td>Left</td>
<td>5 5</td>
<td>0.04</td>
<td>0.04</td>
<td>19 19</td>
</tr>
<tr>
<td></td>
<td>Through</td>
<td>5 5</td>
<td>0.04</td>
<td>0.04</td>
<td>19 18</td>
</tr>
<tr>
<td></td>
<td>Right</td>
<td>5 5</td>
<td>0.04</td>
<td>0.04</td>
<td>19 19</td>
</tr>
<tr>
<td>Sh26 westbound</td>
<td>Left</td>
<td>5 5</td>
<td>0.17</td>
<td>0.15</td>
<td>11 11</td>
</tr>
<tr>
<td></td>
<td>Through</td>
<td>302 264</td>
<td>0.17</td>
<td>0.15</td>
<td>0 0</td>
</tr>
<tr>
<td></td>
<td>Right</td>
<td>35 89</td>
<td>0.04</td>
<td>0.10</td>
<td>13 13</td>
</tr>
<tr>
<td>Ruakura Rd</td>
<td>Left</td>
<td>84 151</td>
<td>0.14</td>
<td>0.25</td>
<td>17 17</td>
</tr>
<tr>
<td></td>
<td>Through</td>
<td>5 5</td>
<td>0.34</td>
<td>0.22</td>
<td>27 21</td>
</tr>
<tr>
<td></td>
<td>Right</td>
<td>91 77</td>
<td>0.34</td>
<td>0.22</td>
<td>27 21</td>
</tr>
<tr>
<td>Sh26 eastbound</td>
<td>Left</td>
<td>68 59</td>
<td>0.05</td>
<td>0.04</td>
<td>11 11</td>
</tr>
<tr>
<td></td>
<td>Through</td>
<td>454 395</td>
<td>0.26</td>
<td>0.22</td>
<td>2 1</td>
</tr>
<tr>
<td></td>
<td>Right</td>
<td>5 5</td>
<td>0.26</td>
<td>0.22</td>
<td>12 12</td>
</tr>
<tr>
<td>Overall</td>
<td>1065 1066</td>
<td>0.34</td>
<td>0.25</td>
<td>6 7</td>
<td>16 12</td>
</tr>
</tbody>
</table>

Table 4-4: Existing Ruakura Road/SH26/Lissette Road Intersection 2021 PM Peak

<table>
<thead>
<tr>
<th>Approach</th>
<th>Demand (vph)</th>
<th>Flow (vph)</th>
<th>Deg Sat</th>
<th>Average Delay (s/veh)</th>
<th>95% Queue (m)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Baseline NOR</td>
<td>Baseline NOR</td>
<td></td>
<td>Baseline NOR NOR</td>
<td>BASELINE NOR</td>
</tr>
<tr>
<td>Lissette Rd</td>
<td>Left</td>
<td>5 5</td>
<td>0.04</td>
<td>0.03</td>
<td>19 19</td>
</tr>
<tr>
<td></td>
<td>Through</td>
<td>5 5</td>
<td>0.04</td>
<td>0.03</td>
<td>19 18</td>
</tr>
<tr>
<td></td>
<td>Right</td>
<td>5 5</td>
<td>0.04</td>
<td>0.03</td>
<td>19 18</td>
</tr>
<tr>
<td>Sh26 westbound</td>
<td>Left</td>
<td>5 5</td>
<td>0.23</td>
<td>0.21</td>
<td>11 11</td>
</tr>
<tr>
<td></td>
<td>Through</td>
<td>431 380</td>
<td>0.23</td>
<td>0.21</td>
<td>0 0</td>
</tr>
<tr>
<td></td>
<td>Right</td>
<td>106 146</td>
<td>0.10</td>
<td>0.12</td>
<td>13 12</td>
</tr>
<tr>
<td>Ruakura Rd</td>
<td>Left</td>
<td>35 73</td>
<td>0.05</td>
<td>0.09</td>
<td>15 15</td>
</tr>
<tr>
<td></td>
<td>Through</td>
<td>5 5</td>
<td>0.28</td>
<td>0.22</td>
<td>23 21</td>
</tr>
<tr>
<td></td>
<td>Right</td>
<td>89 82</td>
<td>0.28</td>
<td>0.22</td>
<td>24 21</td>
</tr>
<tr>
<td>Sh26 eastbound</td>
<td>Left</td>
<td>137 99</td>
<td>0.08</td>
<td>0.06</td>
<td>11 11</td>
</tr>
<tr>
<td></td>
<td>Through</td>
<td>269 241</td>
<td>0.15</td>
<td>0.13</td>
<td>2 2</td>
</tr>
<tr>
<td></td>
<td>Right</td>
<td>5 5</td>
<td>0.15</td>
<td>0.13</td>
<td>13 13</td>
</tr>
<tr>
<td>Overall</td>
<td>1099 1053</td>
<td>0.28</td>
<td>0.22</td>
<td>6 6</td>
<td>9 7</td>
</tr>
</tbody>
</table>

Table 4-5: Existing Ruakura Road/SH26/Lissette Road Intersection 2041 AM Peak
Table 4-6: Existing Ruakura Road/SH26/Lissette Road Intersection 2041 PM Peak

Over the past 3 years, there have been two fatal crashes and a number of non-injury crashes at this intersection. Although there is an expected increase in turning traffic volumes, a safety review using appropriate accident prediction models, indicates that there is virtually no change in the predicted number of injury crashes. This is because the combination of turning and opposing traffic flows are virtually the same between the baseline and NOR.

Based on the results of the year 2021 and 2041 traffic assessment the impact of the NOR proposal is considered to be less than minor on the operational performance of the SH26/Ruakura Road Intersection, when compared with the Baseline (North facing ramps at SH26). It is noted that the Agency is looking at improvement options for this intersection to address existing safety concerns.

Relocated Ruakura Road/existing Ruakura Road (East)

The Relocated Ruakura Road/existing Ruakura Road Intersection is located east of the proposed Ruakura Interchange and resembles a Tee junction layout on a horizontal curve. Relocated Ruakura Road will be the major road with a speed limit of 80km/h.

Tables 4-7 and 4-8 illustrate that traffic flows at this intersection are expected to increase with the NOR layout. However, the intersection is expected to operate well within its available capacity with minimal delays. The overall LOS is B or better hence traffic from Holland Road that needs to divert through this intersection should not experience any substantial delays (average predicted delay is 12sec/veh in either peak in year 2041).
### Ruakura Interchange – Notice of Requirement

#### 32

<table>
<thead>
<tr>
<th>Approach</th>
<th>Demand (vph)</th>
<th>Deg Sat</th>
<th>Average Delay (s/veh)</th>
<th>95% Queue (m)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Baseline NOR</td>
<td>Baseline NOR</td>
<td>Baseline NOR</td>
<td>Baseline NOR</td>
</tr>
<tr>
<td>Ruakura Rd Westbound Through</td>
<td>155</td>
<td>240</td>
<td>0.09</td>
<td>0.14</td>
</tr>
<tr>
<td>Right</td>
<td>7</td>
<td>12</td>
<td>0.00</td>
<td>0.01</td>
</tr>
<tr>
<td>Holland Road Extension Left</td>
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<td>0.08</td>
</tr>
<tr>
<td>Right</td>
<td>78</td>
<td>81</td>
<td>0.06</td>
<td>0.08</td>
</tr>
<tr>
<td>Ruakura Rd Eastbound Left</td>
<td>32</td>
<td>34</td>
<td>0.07</td>
<td>0.13</td>
</tr>
<tr>
<td>Through</td>
<td>85</td>
<td>200</td>
<td>0.07</td>
<td>0.13</td>
</tr>
<tr>
<td>Overall</td>
<td>366</td>
<td>578</td>
<td>0.09</td>
<td>0.14</td>
</tr>
</tbody>
</table>

**Table 4-7: Relocated Ruakura Road/Existing Ruakura Road East of Expressway - Year 2041 AM**

<table>
<thead>
<tr>
<th>Approach</th>
<th>Demand (vph)</th>
<th>Deg Sat</th>
<th>Average Delay (s/veh)</th>
<th>95% Queue (m)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Baseline NOR</td>
<td>Baseline NOR</td>
<td>Baseline NOR</td>
<td>Baseline NOR</td>
</tr>
<tr>
<td>Ruakura Rd Westbound Through</td>
<td>96</td>
<td>194</td>
<td>0.06</td>
<td>0.11</td>
</tr>
<tr>
<td>Right</td>
<td>9</td>
<td>15</td>
<td>0.01</td>
<td>0.01</td>
</tr>
<tr>
<td>Holland Road Extension Left</td>
<td>11</td>
<td>14</td>
<td>0.04</td>
<td>0.06</td>
</tr>
<tr>
<td>Right</td>
<td>48</td>
<td>49</td>
<td>0.04</td>
<td>0.06</td>
</tr>
<tr>
<td>Ruakura Rd Eastbound Left</td>
<td>92</td>
<td>82</td>
<td>0.15</td>
<td>0.20</td>
</tr>
<tr>
<td>Through</td>
<td>176</td>
<td>279</td>
<td>0.15</td>
<td>0.20</td>
</tr>
<tr>
<td>Overall</td>
<td>432</td>
<td>633</td>
<td>0.15</td>
<td>0.20</td>
</tr>
</tbody>
</table>

**Table 4-8: Relocated Ruakura Road/Existing Ruakura Road East of Expressway - Year 2041 PM**

**Relocated Ruakura Road/Silverdale Road**

The intersection of Relocated Ruakura Road and Silverdale Road will take the form of a simple Tee junction with priority given to Relocated Ruakura Road. The intersection will be in a 60km/h posted speed limit.

Table 4-9 and 4-10 illustrate that traffic flows through this intersection are likely to decrease due to the NOR. This decrease in vehicle flow has an overall positive effect on the intersection performance especially in the PM peak.

<table>
<thead>
<tr>
<th>Approach</th>
<th>Demand (vph)</th>
<th>Deg Sat</th>
<th>Average Delay (s/veh)</th>
<th>95% Queue (m)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Baseline NOR</td>
<td>Baseline NOR</td>
<td>Baseline NOR</td>
<td>Baseline NOR</td>
</tr>
<tr>
<td>Ruakura Rd NB Left</td>
<td>36</td>
<td>166</td>
<td>0.15</td>
<td>0.60</td>
</tr>
<tr>
<td>Through</td>
<td>333</td>
<td>316</td>
<td>0.75</td>
<td>0.56</td>
</tr>
<tr>
<td>Ruakura Rd SB Through</td>
<td>461</td>
<td>387</td>
<td>0.22</td>
<td>0.18</td>
</tr>
<tr>
<td>Right</td>
<td>799</td>
<td>740</td>
<td>0.87</td>
<td>0.86</td>
</tr>
<tr>
<td>Silverdale Rd Left</td>
<td>472</td>
<td>482</td>
<td>0.85</td>
<td>0.84</td>
</tr>
<tr>
<td>Right</td>
<td>55</td>
<td>49</td>
<td>0.59</td>
<td>0.44</td>
</tr>
<tr>
<td>Overall</td>
<td>2155</td>
<td>2141</td>
<td>0.87</td>
<td>0.86</td>
</tr>
</tbody>
</table>

**Table 4-9: Relocated Ruakura Road/Silverdale Road Tee Intersection Year 2041 AM**
Table 4-10: Relocated Ruakura Road/Silverdale Road Tee Intersection Year 2041 PM

This intersection of Relocated Ruakura Road and Existing Ruakura Road is located west of the Expressway and near the existing Silverdale Road intersection. It will take the form of a simple Tee layout with priority given to Relocated Ruakura Road. The existing Ruakura Road is to be retained to provide continuous access to Percival and Ryburn Road. Under the Proposed District Plan the long term solution for this intersection is a set of traffic signals when the Spine Road is connected to Relocated Ruakura Road. For this reason, it has been necessary to assess both the year 2021 and 2041 junction performance.

Table 4-11 and 4-12 indicate that through traffic flows in year 2021 on the Relocated Ruakura Road are predicted to increase slightly due to the NOR. Despite the increase, average vehicle delays are not expected to increase by more than one second. When the Spine Road is constructed the intersection will be upgraded to traffic signals. Table 4-13 and 4-14 indicate a decrease in traffic flows through the intersection with no overall change in vehicle delays.

Overall the effects on this intersection are less than minor.

Table 4-11: Relocated Ruakura Road/Existing Ruakura Road Tee Intersection Year 2021 AM
The two roads most affected by the proposed change in network flows are SH26 and Ruakura Road. The other roads are either new roads to be constructed or access controlled roads such as the Wairere Drive extension. The effect on property access for these two roads with the NOR is considered to be less than minor for the following reasons:

- On SH26, the traffic volumes are expected to reduce significantly (-26%) with the NOR, hence vehicle access to adjoining properties will be safer as the number of vehicle conflicts is reduced,
- The existing Ruakura Road between Silverdale Road and Holland Road will be closed to through traffic due to the Ruakura Road stoppage, hence the traffic flows on this section of road also significantly reduce, resulting in improved safety.
On Ruakura Road between the new intersection of Relocated Ruakura Road and SH26, the traffic volumes is expected to increase (+64%). The NOR includes road widening to provide a 1.5m sealed shoulder which can be used by property owners to access their driveways without holding up the through traffic that may arrive during the execution of the turn. This increase in traffic volume represents about one extra vehicle on this section of Ruakura Road every 30 to 35 seconds during the day. Whilst any increase in traffic volumes may be noticeable when operating at relatively low traffic volumes this increase in flow on Ruakura Road is not expected to affect the ability of property owners to safely select a gap in the traffic stream to make their turns, or create any noticeable additional waiting time whilst exiting their driveways.

Effects on Existing Property Access – Percival and Ryburn Roads

In order for TGH to construct the rail siding for the Inland Port as outlined in the Hamilton Proposed District Plan, Ruakura Road needs to be stopped either side of the Expressway. Due to this requirement, the Agency has taken the opportunity to shorten the Expressway bridge over the ECMT railway as it no longer needs to span over Ruakura Road. To ensure it can construct the shorter bridge, the NOR has included the Ruakura Road Stoppage (of which requires a separate legal process). Although the access to these roads is the same in both the network baseline and NOR (hence no effect), a traffic assessment has been undertaken to ensure all affected landowners are aware of the implications of the closure.

As previously discussed in this report, the section of Ruakura Road between the Expressway and Silverdale Road will remain open which provides continued access to the City and western destinations. However, access to the east and south is potentially affected depending on the actual destination of the trip being made.

Figure 4-7 below indicates various destinations from Origins A (Percival and Ryburn Roads) and B (existing Ruakura Road immediately east of the Expressway).
Table 4-15 and 4-16 indicate the number of likely trips, extra travel time and distance needed to complete the journey under the NOR layout when compared to the existing network as it is today. Trips in the reverse direction are expected to encounter similar additional travel distance and times.

<table>
<thead>
<tr>
<th>Percival Road/Ryburn Road Movement to:</th>
<th>Node Point Reference</th>
<th>Likely number of daily vehicles affected</th>
<th>Extra Time (seconds)</th>
<th>Extra Distance (km)</th>
</tr>
</thead>
<tbody>
<tr>
<td>West/Hamilton City</td>
<td>A to D</td>
<td>No more than 300</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>East - SH26</td>
<td>A to C</td>
<td>Less than 50</td>
<td>70</td>
<td>1.0</td>
</tr>
<tr>
<td>East – Holland Road</td>
<td>A to B</td>
<td>Less than 50</td>
<td>145</td>
<td>2.7</td>
</tr>
</tbody>
</table>

*Table 4-15 Predicted Traffic Effects for Existing Trips from Percival and Ryburn Roads*

Note the traffic flows from Percival and Ryburn Roads are considered to be those created by the existing rural lifestyle blocks. As the exact origin/destination of trips are not known, the vehicle numbers in Table 4-15 are loosely based on the assumption that 80% of trips are likely to have a destination in the city or to the west.

Other property trips likely to be affected by the NOR when compared with the existing road network (not the baseline) are included in the table below.
Table 4-16: One Way Trips Affected by the NOR

<table>
<thead>
<tr>
<th>Movement From</th>
<th>Movement To</th>
<th>Likely number of daily vehicles affected (80% have destination in City)</th>
<th>Extra Time (seconds)</th>
<th>Extra Distance (km)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 houses on Ruakura Road directly east of the Expressway</td>
<td>The City (D)</td>
<td>No more than 10</td>
<td>120</td>
<td>2.0</td>
</tr>
<tr>
<td>5 houses on Ruakura Road between Holland Rd and Relocated Ruakura Road</td>
<td>The City (D)</td>
<td>No more than 20</td>
<td>85</td>
<td>1.3</td>
</tr>
<tr>
<td>At least 15 houses on Ruakura Road between Relocated Ruakura Road and SH26 and on Vaile Road west</td>
<td>The City (D)</td>
<td>Up to 60</td>
<td>0</td>
<td>-0.4</td>
</tr>
<tr>
<td>Livestock Improvements and Dairy NZ Centre on Ruakura Road</td>
<td>The City (D)</td>
<td>Greater than 100</td>
<td>0</td>
<td>-0.4</td>
</tr>
</tbody>
</table>

Although some trips may take slightly longer, some have no change, whilst some have a shorter distance to travel. Those going north or south should find a significant reduction in travel time due to the direct connection offered by the Ruakura Interchange and Waikato Expressway.

Overall, the impacts of stopping Ruakura Road either side of the Expressway on residents of Percival Road, Ryburn Road and Ruakura Road is considered to be no more than minor when all vehicle trips are taken into consideration.

Impacts on Alternative Modes of Transport

The NOR provides a footpath berm along Ruakura Road between Vaile Road and SH26. This is being provided following consultation with Livestock Improvements to facilitate existing lunchtime walkers who currently walk on the roadway due to the lack of existing pedestrian facilities.

Cyclists will also be better accommodated on Ruakura Road between SH26 and the relocated Ruakura Road through the widening of the existing shoulder width from 0.5m to 1.5m. The relocated Ruakura Road will also have a minimum shoulder width of 1.5m, which can be used by on road cyclists.

The proposed roundabouts at the Ruakura Interchange ramp terminals will be designed and constructed to accommodate cyclists by providing riders with the ability to ride up onto the berm rather than negotiate traffic on the roundabout.

Bus routes are not considered to be adversely affected by the NOR.

Overall the NOR should not have any detrimental effects on these modes of transport.
**Construction Traffic Effects**

Construction of the Hamilton Section will involve the transport of earthworks material from various sectors of the Project and the importation of drainage components, bridge elements, pavements materials, and other materials needed to construct the Expressway.

This section considers the potential traffic effects relating to the earthwork construction, which is the single most significant aspect of the Project. As a designation is already secured for the Hamilton Section, traffic effects relate to the additional earthworks required to construct the proposed alterations.

It is noted that, if the contractor chooses to haul earthwork material via the road network, mitigation of the adverse traffic and safety effects will need to be addressed by the contractor via development of a Traffic Management Plan which will be discussed and certified by the WDC and HCC as required under the current designation conditions. This will ensure the councils are comfortable with the level of mitigation proposed. Hence, this section concentrates on identification of the potential traffic demand relating to the additional earthworks needed to construct the proposed alterations.

The NOR involves either raising of the vertical alignment of the Expressway to accommodate a Relocated Ruakura Road at ground level or retaining the original designation profile with the Relocated Ruakura Road elevated over the Expressway. At this stage the final decision on whether Ruakura Road is over or under the Expressway has not been made and may be left to the contractor. Either way, the fill embankment is similar with a need for approximately 200,000 m$^3$ of fill material required to construct the interchange. The likely source of the material will be from the Tamahere cut where there is good quality surplus material. If the contractor chooses to use this material it would involve approx. 20,000 truck and trailer movements over one earthwork season. The likely route would involve Tauwhare Road, Hoeka Road, SH26 and Ruakura Road in order to access the interchange site. The mitigation of any adverse traffic effects resulting from carting earthwork material by road will need to be addressed by the contractor via development of a Traffic Management Plan. This will be discussed and certified by the WDC as is required by current designation conditions.

**Summary**

Overall, the Ruakura Road interchange NOR is considered to have no more than a minimal traffic and safety impact based on the assessment of effects outlined above. In particular,

- The NOR encourages more traffic to use the Expressway, which reduces traffic on local roads such as Wairere Drive and the future Spine Road which travels through a residential area,
- The new intersections on Relocated Ruakura Road are expected to operate with a LOS B (on a scale of A: excellent to F: poor) in year 2041 during all peak periods,
- Any new crashes on Relocated Ruakura Road as a result of the two roundabouts at the ramp terminals will most likely be offset by the removal of potential crashes on SH26 as a result of not constructing the two Tee Intersections at the SH26 ramp terminals. There is also a significant number of vehicles that are transferring from the local road network to the Expressway which should provide a safety benefit for the local road network,
- There is no noticeable change in operating conditions at the existing Ruakura Road/SH26 intersection, or the intersections at Ruakura Road and Silverdale Road,
- The extra traffic on Ruakura Road will be accommodated on a widened cross section that provides two 3.5m lanes with 1.5m shoulder widths,
• Effects on alternative modes of transport are expected to be more than minor. The NOR includes development of a footpath berm between Vaile Road and SH26 on the eastern side of Ruakura Road,

• There is expected to be a no more than minor effect on property access for residents on Ruakura Road as a result of increased traffic flows, and

Although property access under the NOR is the same as the baseline case, an assessment of the existing property access (with Ruakura Road open) against the NOR (Ruakura Road closed) demonstrates that trip diversions for Percival Road, Ryburn Road or Ruakura Road should have no more than minor effects.

4.3.3 Drainage and Flooding Effects

The potential drainage and flooding effects of the Ruakura Interchange and relocated Ruakura Road have been assessed by an Environmental Engineer familiar with the site. The potential effects associated with drainage and flooding and proposed mitigation are summarised below.

The overall Expressway will create a large area of new pavement and will cause stormwater to run off the site at a higher rate and in larger volumes than currently occurs. This could result in erosion of stream banks, and flooding of properties of the various downstream water channels.

The Water Effects Assessment Report prepared in support of the WRC resource consent applications (lodged 30 September 2013) for the Hamilton Section of the Waikato Expressway identifies that without mitigation the Expressway has the potential to cause both short-term and long-term adverse environmental effects that are related to stormwater runoff. These potential effects apply equally to this alteration to establish the Ruakura Interchange and relocate Ruakura Road. Matters relating to sediment, pollutants in stormwater runoff, stream erosion and treatment devices will be covered in the WRC resource consent applications to be lodged with the WRC at a later date. Accordingly, this effects assessment focuses on drainage and flooding issues associated with the alteration.

Flood attenuation controls are based on the peak discharge rates from less frequent, extremely intense storms. It ensures that the peak discharge rates following construction of the road do not exceed the pre-development discharge rates and therefore the peak flood levels downstream will not be affected.

While peak discharge rates can be mitigated it will not be feasible to reduce the total volume of runoff discharged from the Ruakura Interchange and relocated Ruakura Road to preconstruction levels due to low soakage rates in critical sections of the route. This will cause the nearby farm drains to run full for a longer period of time, but should not increase the peak area affected by ponding.

The same stormwater design philosophy developed for the whole Expressway project, through consultation with HCC, WDC and WRC, will apply for this alteration to the designation. Stormwater discharges for the relocated Ruakura Road will be to existing drains with scour protection provided at the outfalls.

Drainage for the full-diamond interchange (Expressway plus ramps including the wetland) at Ruakura has already been accounted for in the consent application lodged with the WRC (Ref: 130361). A full copy of the report prepared for that application and titled: Waikato Expressway Hamilton Section – Assessment of Effects on Water (November 2013) can be provided on request.
Road runoff from the interchange will be collected and conveyed to a constructed wetland for treatment and attenuation to meet Agency standards. Peak discharges from the wetland to the Mangaonua Stream will be no greater than 80% of the pre-development discharges, thus providing flood mitigation.

The Ruakura Development by TGH has allowed for stormwater management for the section of the proposed Ruakura Road relocation between Silverdale Rd and the interchange. However, if that stormwater infrastructure is not operational when the road is required, the Agency will initially provide for stormwater management along this section. A road drainage solution has been developed using vegetated swales for treatment and attenuation within the 37m designation width. This section of road will have two discharges points to existing drains and the altered boundaries of the designation includes two discharge points, one within TGH land to the west of the Ruakura Interchange, and the other to the west of Ruakura Road/Silverdale Road roundabout, also within TGH land.

The new section of Ruakura Road to the east of the Expressway and connecting with the existing Ruakura Road will require drainage to Agency standards. The road reserve width of 25m will accommodate drainage works. Approximately 200m of the new road can be conveyed back to the Expressway wetland for treatment. The balance of the road will use vegetated swales for treatment and attenuation discharging to an existing farm drain.

Because the section of Ruakura Road between SH26 and where it joins the new Ruakura Road alignment is existing, additional drainage works are not normally required to be implemented to Agency standards. The existing drainage system combines both road and land runoff and in some locations includes discharges from subsurface groundwater.

Similar to the overall Hamilton Section project the effects of stormwater causing flooding to the receiving environment are assessed as being less than minor with appropriate mitigation measures being implemented. Such measures will be covered in the WRC consent application to be lodged in due course.

4.3.4 Landscape, Visual Amenity and Urban Design Effects

The potential landscape/visual effects and urban design effects of the Ruakura Interchange and relocated Ruakura Road have been assessed by a Landscape Architect familiar with the Expressway project and site. The potential effects and proposed mitigation are summarised below.

Baseline information through desktop studies, collating background planning information and existing studies has informed this assessment. The assessment utilises a study area that has been extended beyond the proposed designation boundary and covers the surrounding area from which the Interchange and local road network will be visible. In addition, NZTA’s Urban Design Policy¹, and HCC and the Waikato Regional Landscape Assessment², define a variety of requirements that are used in this assessment to ensure a context sensitive and appropriate design approach is achieved.

¹ http://www.nzta.govt.nz/resources/urban-design/policy/
Methodology

The methodology for this assessment is modelled on the NZTA Draft Landscape and Visual Assessment Guidelines and the NZTA Urban Design Assessment Guidelines. A number of site visits have been undertaken by the Landscape Architect over the past 24 months to evaluate the Hamilton Section project and has included the assessment of the Ruakura Interchange landscape and identification of visual receptors.

The effect of the specific change to the environment in relation to the proposed Ruakura Interchange and relocated Ruakura Road will be quantified by predicting the magnitude of the change in the effects on landscape character, amenity and visual receptors. The magnitude of the effect can have either a positive or negative value depending on their beneficial or adverse effects. The rating will be utilised to determine the need for and then the degree and extent of landscape mitigation measures.

The assessment does not attempt to predict the visual effects of seasonal changes throughout the year, but describes the ‘worst case’ position in terms of the character types or view for receptors.

Context

The proposed Ruakura Interchange is located approximately 800 m south of the East Coast Main Trunk (ECMT) railway line and Ruakura Road. The study area is located to the east of Hamilton, between Silverdale Road and Ruakura Road and is currently characterised by flat open pastoral land that is defined by hedgerows, shelterbelts and a scattering of mature trees across the landscape. However, the area to the west of the Expressway will be progressively developed as part of the comprehensive Ruakura Development, which is laid out in the Structure Plan. In the Structure Plan, the land to the west of the Interchange will contain an Inland Port zone, the Ruakura Logistics area with building heights up to 20 m, an Industrial Park area with buildings up to 20 m and an open space area that is located along the western boundary of the proposed Ruakura Development.

A cluster of rural residential houses are currently located along Ruakura Road to the west of the proposed Hamilton Section, although these will be removed in the future to allow the proposed Ruakura Development. A further house is situated at 352 Ruakura Road immediately to the east of the Expressway and two further properties occur at 410 and 414 Ruakura Road adjacent to the intersection of Ruakura and Holland Road, which are surrounded by mature trees. The residential suburb of Silverdale is located to the south of the Interchange.

Located between Ryburn and Ruakura Road is the ECMT, which splits into dual railway lines beyond the property at 352 Ruakura Road. Located within the study area and running parallel to the south of Ruakura Road are two electricity transmission lines with the towers ranging between 45 to 65 m in height, which are highly visible from the surrounding area.

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Design Description and Options

The relocation of Ruakura Road will result in the closure of Ruakura Road at the ECMT Expressway overpass and the re-alignment of Ruakura Road to connect to Silverdale Road, while tying into the Ruakura Interchange. The re-aligned road will provide a single carriageway arrangement, which will incorporate two 3.5 m wide traffic lanes. To the west of the Interchange a 1.2 m hard shoulder for cyclists is provided and a 1.5 m wide pedestrian footpath occurs to the northern side of the road. Due to space constraints and the rural character to the east of the Interchange, no pedestrian facilities have been currently been provided. The carriageway will be constructed close to existing grade.

The design options allow for a full diamond Interchange with on and off ramps connecting to the Ruakura Road roundabouts. Both designs contain an integrated stormwater pond, which is located to the southeast of the Interchange. The Options are described in more detail as follows:

• Design Option 1: The Expressway overpasses Ruakura Road (refer to Appendix C).

The Expressway overpasses the ECMT at chainage 14350 and continues on fill embankments to overpass the re-aligned Ruakura Road at chainage 15150 that will be constructed close to existing grade. The Expressway overbridge will be elevated on embankments and be approximately 8 m above Ruakura Road, thereafter the Expressway will descend back to existing grade at chainage 15800. The sloping on and off ramps will be on fill and will descend back to existing grade to tie into the Ruakura Road roundabouts.

• Design Option 2: The Expressway underpasses Ruakura Road (refer to Appendix C).

The Expressway overpasses the ECMT at chainage 14350 and descends in a southerly direction to underpass Ruakura Road at chainage 15150, which will be approximately 1.7 m above existing grade. The Expressway will continue south and return to existing grade at chainage 15350. On and off ramps will be on fill embankments to tie into the roundabouts and approach embankments of the Ruakura Road underpass bridge, with the bridge structure being approximately 9 m above the Expressway.

Effects Assessment – Realignment of Ruakura Road

Landscape and Visual Effects

The landscape effects will be the result of the earthworks to form the re-aligned Ruakura Road, which will also require the removal of a small amount of vegetation and a dwelling located along Ruakura Road at the eastern end of the relocation. This is considered to have a low landscape effect. The relocated road will tie in with the grid pattern of the existing fields to the east of the Expressway and the proposed Structure Plan located to the west of the Expressway. Therefore, the landscape effects of the re-aligned Ruakura Road will have no more than a low effect.

The properties that occur along Ruakura Road to the east of the Expressway will not discern the re-aligned road due to the mature vegetation that screens views and contains the properties, and that the re-aligned road will be constructed close to the existing grade, and will not be apparent. Therefore, the re-alignment of Ruakura Road will have no more than a low effect. It may be possible for the residents of the properties to discern traffic utilising the road, although this will be seen in context of the designated Expressway traffic and will result in a moderate-low visual effect. Where the re-aligned road is located within the Ruakura Development, this will be seen in the context of the new road layout and built form and will have no discernable visual effect. The re-aligned Ruakura
Ruakura Interchange – Notice of Requirement

Road will not be discernable to the residential area of Silverdale due to the extent of the built form of the Ruakura Development, and therefore will have no visual effect relative to this established residential area.

_Urban Design Effects_

The urban design aspects of the re-alignment will minimise the loss of productive land to the east of the Expressway due to its relatively small footprint and will allow optimal future land use and accessibility to the Ruakura Development. The closure of Ruakura Road at the ECMT overbridge will have no effect on connectivity, as the relocated Ruakura Road will maintain a direct and efficient link to Hamilton City and give access directly to the Expressway. The re-alignment of Ruakura Road will enable efficient future land development and will integrate well with the proposed Ruakura Development area.

The inclusion of a footpath and shoulder space for cyclists will provide accessibility and the opportunity for use of alternate transport modes between Hamilton City and the Ruakura Development. The incorporation of the footpath and shoulder area will be an improvement in relation to the current Ruakura Road, which does not contain any of these facilities.

_Effects Assessment – Design Option 1, Expressway Overpasses Ruakura Road_

_Landscape and Visual Effects_

The landscape and visual effects are related to the placement of the Interchange components including the approach embankments, the bridge structure, the on and off ramps and associated roundabouts. The proposed Interchange will have a minor change to land cover as the area is currently pastoral, although additional land will be required to accommodate the Interchange, the majority will align with the current Expressway form. The height of the Expressway and the placement of the on and off ramps will result in a moderate effect on landform as the extent of Expressway elevated on fill will increase, although it will be in context of the current designated Expressway scheme. The effects on land use will be low as only a relatively small amount of additional land will be required to form the on and off ramps.

The visual effect of the increased height of the Expressway and the placement of the Interchange, including the on and off ramps will be limited to residential properties (410 and 414 Ruakura Road) and from public roads (Ruakura Road) in close proximity to the east. However, the change in view and the visual amenity of the residential properties and local roads will be seen in context of the current designated Expressway form and the built form of the Ruakura Development (Logistics and Industrial Park) and therefore will result in only a moderate-low visual effect.

For properties located in Silverdale and along Silverdale Road they will not discern the Interchange as the extent of the proposed Ruakura Development will effectively screen the views from these locations. The height and extent of the built form within the development will define the visual aspect of the area, and therefore, the change in relation to the proposed Interchange will result in no visual effect.

_Urban Design Effects_

The arrangement of the Interchange with the on and off ramps tying into the at-grade roundabouts will ensure accessibility to adjacent land, and will enable a good interface with the proposed built
form of the Ruakura Development. The placement of the Interchange will create an opportunity to
develop a ‘gateway’ entrance to the Ruakura Development.

The benefit of integrating the Ruakura Interchange will mean a more direct and efficient connection
to the Expressway and the broader road network relative to that designated, which will ensure trucks
and heavy transport will be removed from local roads in the area. Pedestrian and cycling facilities
along the western side of the relocated Ruakura Road will integrate into the Interchange to provide
a flat and easy to use cycle and pedestrian facilities that will connect back into the road structure
of Silverdale and Hamilton City. No facilities are provided to the east of the Interchange as this area
is rural, although future facilities may be considered and could be tied into the proposed pedestrian
and cycle facilities.

**Mitigation**

As the Ruakura Interchange will form part of the Hamilton Section of the Waikato Expressway it is
appropriate that the same landscaping measures (as mitigation) be applied. The landscape
mitigation will respond to the large scale Ruakura Development to the west of the Expressway and
the rural environment that is situated to the east. Therefore, mitigation to the west of the
Interchange will incorporate planting that creates a defined ‘gateway’ and responds to the urban
development through the use of large growing tree species and mass planted areas on the interchange
embankments.

The eastern aspect of the Expressway will have gentle sloping grass batters to maintain the visual
connection with the open rural landscape. Landscape planting will occur between the on and off
ramps and the Expressway to complement the ‘gateway’ environment of the future Ruakura
Development. The mitigation planting may also provide the opportunity to establish a planting
character that can be extended into the Ruakura Development at a future stage to benefit the
character of the area.

The overpass bridge structure will be designed to contribute to the ‘gateway’ entrance of the Ruakura
Development, which in turn will contribute to the visual amenity of the surrounding land and road
users to the east. The bridge will be designed to have a structure that is slender and elegant relative
to span, with a moderate to high aesthetic quality in form and finish. The bridge will be designed to
integrate with the ‘family’ of bridges that occur along the Expressway.

NOR1 (refer to Appendix A) provides a suite of conditions relating to landscape and visual amenity
mitigation. The conditions are centred on the preparation of the Landscape Management Plan to be
provided prior to construction and requiring the approval of the WDC and HCC where relevant. The
Agency proposes that this alteration be subject to the same conditions, and as such, appropriate
landscaping as approved by the WDC and HCC will need to be implemented.

**Effects Assessment – Design Option 2, Expressway Underpasses Ruakura Road**

**Landscape and Visual Effects**

The landscape and visual effects are similar to those of Option 1 with the effects related to the
placement of the Interchange components, including the approach embankments to the local road
bridge structure the sloping on and off ramps and associated ‘elevated’ roundabouts. The proposed
Interchange will have a minor change to land cover as the area is currently pastoral, although
additional land will be required to accommodate the Interchange the majority will align with the
current Expressway form. The height of the Expressway is consistent with the designated
Expressway scheme and will have no effect on landform. However, the extent of earthworks to form the on and off ramps, approach embankments and ‘elevated’ roundabouts of the local road underpass bridge will result in a moderate effect on landform. The effects on land use will be moderate-low as the increased foot print to accommodate the approach ramps will require more land than compared to Option 1 where Ruakura Road remains at grade.

The visual effect of the on/off ramps, the approach embankments and ‘elevated’ roundabouts plus the placement of the local road underpass bridge will be an obvious new feature to the residential properties (410 and 414 Ruakura Road) and from public roads (Ruakura Road) in close proximity to the east. The change in view/amenity of the residential properties and local roads will be seen in context of the current designated Expressway form and will result in a moderate-low visual effect. The placement of the underpass bridge will also have a moderate-low visual effect on Expressway users, as the structure and embankments will be new and obvious features in the landscape.

As outlined for Option 1, the properties located in Silverdale and along Silverdale Road will not discern the Interchange as the extent of the proposed Ruakura Development will effectively screen the views from these locations. The height and extent of the built form within the development will define the visual aspect of the area and therefore the change in relation to the proposed Interchange will result in no visual effect.

Urban Design Effects

The arrangement of the Interchange with the on and off ramps and roundabouts being elevated on fill will have a moderate-low negative effect in relation to the accessibility and development potential of the adjacent land. Direct access from the re-aligned Ruakura Road and the interface of the built form with the road frontage will be affected by the embankment approaches and is considered as not being the most optimal arrangement.

As outlined for Option 1, the benefit of integrating the Ruakura Interchange will mean a more direct and efficient connection to the Expressway and the broader road network, which will ensure trucks and heavy transport will be removed from local roads in the area. Although cycle and pedestrian facilities are limited at this stage to the western side of the relocated Ruakura Road, this arrangement is not ideal as possible future pedestrian and cyclist facilities will have to go up and over the local road overbridge.

Mitigation

The landscape mitigation measures will be similar to Option 1 in that they will respond to the Ruakura development to the west of the Expressway and the rural environment that is situated to the east. The mitigation planting to the west of the Interchange will incorporate planting that creates a defined ‘gateway’ and that will respond to the large scale development through the use of large growing tree species and mass planted areas to the on/off ramps and local road approach embankments.

The eastern aspect of the on and off ramps will incorporate mass planting to integrate the batters and ‘anchor’ the approach embankments. Landscape planting will occur between the on and off ramps and the Expressway to complement the ‘gateway’ environment into the future Ruakura development and help minimise maintenance requirements. The planting may also provide the opportunity to establish a planting regime that can be extended into development at a future stage to benefit the broader landscape character and visual amenity.
The underpass bridge structure design will be designed to integrate and be consistent with the ‘family’ of bridges that occur along the Expressway and incorporate spill through abutments to maintain views along the Expressway. The bridge will be designed to have a structure that is slender and elegant relative to span, with a moderate to high aesthetic quality in form and finish.

As stated above, the intention is to have this alteration subject to the same conditions for the Hamilton Section of the Waikato Expressway, and therefore a Landscape Management Plan will need to be prepared and approved prior to construction.

**Summary**

The relocation of Ruakura Road and the closure at the ECMT overpass location can be achieved without any effects in relation to the landscape, visual or urban design considerations. The placement of the relocated Ruakura Road will tie in with the existing patterns and forms within the area, maintain access and the potential for future land development of adjacent land.

The placement of an Interchange will have a moderate-low landscape and visual effect, which is limited to residential properties and local roads within the immediate vicinity. In context of the proposed Ruakura Development, the proposed Interchange will have no effect as the built form of the development will effectively screen and contain the landscape and visual effects. With both Interchange design options, the placement of the Interchange will provide a more efficient and direct access to the Expressway, while removing heavy vehicles from local roads. Option 1 will provide better cycling and pedestrian facilities and offer better facilities if in the future facilities are extended to the east of the Interchange, as the paths and hard shoulder will be at grade along the re-aligned Ruakura Road.

The provision of Design Option 1 with the Interchange close to existing grade will provide the better relation to adjacent land use, accessibility and future land development in comparison to Design Option 2. Option 1 will also provide the potential to create a ‘gateway’ entrance and give an opportunity of extending the planting theme into the Ruakura Development.

Overall, the proposed Interchange and relocated Ruakura Road can be integrated into the Hamilton Section of the Waikato Expressway with minimal effect on the landscape and visual amenity of the area, and will effectively tie in with the proposed Ruakura Development, while improving connectivity and land development opportunities.

**4.3.5 Contamination Effects**

The potential effects associated with disturbing contaminated land in giving effect to this proposal have been assessed by an Engineering Geologist familiar with the site and the overall project. The potential effects and proposed mitigation are summarised below.

Opus has prepared a preliminary site inspection (PSI) report for TGH\(^5\) associated with the Ruakura Development. The Agency has obtained permission from TGH to use the information contained within that PSI report to inform this NOR in terms of land contamination. The land area covered by this assessment includes the Ruakura Interchange road corridor area that passes through the Ruakura Development.

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It has been established through anecdotal evidence, Council records, and historical aerial photographs that the site has been subject to the following:

- Farming operations and since the 1940’s, agricultural research. Associated with this has been the storage and application of insecticides, pesticides and herbicides.
- In the past five years land to the south of Ruakura Road has been tenanted out as a dairy farm.
- A closed landfill area partially within the Ruakura Interchange footprint has been identified. This landfill had mostly accepted inert type wastes, but did occasionally include dead livestock.
- An effluent pond is located to the east of the closed landfill, and an area formerly used for solvent / liquid burning pits is located to the north of the landfill. However, both of these features are located outside of the Ruakura Interchange footprint.
- A water bore is located in the southwest part of the site, also outside of the Ruakura Interchange footprint.

In preparing the PSI report enquiries were made with the WRC, HCC and WDC with respect to records held for the subject site. The NOR footprint is not identified by Council records as being a Hazardous Activities and Industries List (HAIL) site. However, based on the site history and current site uses, there remains the possibility of contamination being present in the soils and groundwater below the site.

In accordance with the National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health 2011 (NES), a detailed site investigation should be carried out in order to realise the cost risks to the proposed development and the risks to the identified receptors (both human health and controlled waters/environment).

Under the NES and to comply with current legislation, all issues associated with the further investigation, remediation and monitoring of contaminated sites within the footprint of the Ruakura Interchange and relocated Ruakura Road must be overseen by a Suitably Qualified and Experienced Practitioner (SQEP). This requirement will be included in the construction contract documents and the Earthworks Management Plan (EMP). Any NES resource consent required from the WDC and HCC will be sought at the outline plan approval stage, once the contractors and final design of the Expressway have been confirmed.

The SQEP will be responsible for ensuring that the investigative and assessment procedures followed, together with the appropriate remedial actions, and any necessary monitoring plans are prepared, implemented and in agreement with the NES and consenting requirements.

It may be possible to retain the soils within the designation if the levels of contamination are below the appropriate published guidance values for such use. Vegetation cover will prevent long term release of dust and sediment generation by erosion. If buried or effectively capped by the road construction, long-term migration of contaminants is not an issue and it may be possible to retain them on site. However, if this were to require long term monitoring to confirm non-migration then disposal will be the preferred option. If the material cannot be retained on site then disposal to a suitably consented landfill site will be necessary.

A specific assessment of locations, soil stratigraphy, groundwater levels and contaminant types will be necessary to assess potential risks to groundwater quality. Where a significant risk is identified
the simplest means of mitigating long-term risk may be to remove the soils of concern to a suitably consented landfill. However, where the road is at grade or on embankment the soils of concern may be effectively capped preventing surface water ingress and limiting or eliminating the potential for seepage and migration of contaminants to groundwater. Good earthworks practice will limit the risk of contaminant release and the works will result in a long term net reduction of the risk to groundwater from contaminated soils along the route.

As part of the WRC consenting procedures an EMP together with, or incorporating an Erosion and Sediment Control Plan (ESCP) will need to be prepared before works commences. The professional implementation of these is sufficient to mitigate the potential effects of dust migration and sediment run-off leading to the uncontrolled spread of potential contaminants beyond the site boundaries.

Contamination can also occur from the spillage of oil or fuel from construction machinery, which may make its way into surface or groundwater. This may have adverse effects on water quality and aquatic habitat. A Hazardous Substances Management Plan as part of the EMP will be prepared with any WRC consenting requirements. Such consents will need to be obtained prior to construction works commencing. This Plan will set out the procedures to be followed to minimise the risk of discharging any hazardous materials on the site as the first priority, and to deal with any discharge that does occur. Examples of techniques used include storing all fuel away from watercourses, undertaking refuelling away from areas where any accidental spill could enter water, and having appropriate procedures in place for cleaning machinery that could result in contamination. Hazardous materials in this context mean any substances that would damage the environment or injure people if discharged into the environment. It includes, for example, vehicle fuels and lubricants and cement and lime that might be used in soil stabilisation.

Subject to an EMP and ESCP, it is considered that the Ruakura Interchange alteration will have no more than minor contaminated land effects as locating, characterising, removing or capping any contaminated areas potentially has an environmental benefit that will outweigh any short term effects from disturbance of the material.

4.3.6 Noise Effects

The potential effects associated with construction and traffic noise have been assessed by a Transport Research and Noise Specialist. The potential effects and proposed mitigation are summarised below.

The noise assessment for the NOR is intended to be read in conjunction with the October 2013 report “Noise assessment for NOR AEE, Waikato Expressway, Hamilton Section: Assessment of road-traffic noise and construction noise”. That report presents the noise conditions on the existing designation and the approach for considering the effects of alterations to that existing designation, namely:

In considering the proposed alterations, the existing noise environment is the one that includes the existing designation being used for the purposes for which it is granted.

The October 2013 report describes how the noise effects of the proposed alterations are assessed as noise levels that would occur with the proposed alterations and altered route design in place and also the mitigation needed to make those noise levels achieve, subject to practicability, the Noise Guidelines\(^6\).

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As per the October 2013 report, to facilitate assessment of the potential effects of the proposed alteration, it is assumed that the “do-minimum” approach is adopted for the project. For example, the Expressway and all other roads have been sealed with Grade 3/5 two-coat chipseal as a default assumption. This is a noisy road surface and roads may in reality be surfaced with a quieter single-coat chipseal or other road surface.

A copy of the October 2013 report can be provided on request.

Construction Noise

Construction noise effects of the proposed alteration can be practicably managed so that effects will be less than minor. Key points are:

- Generally most road construction activity readily complies with the noise limits in Table 2 of NZS 6803 where there is more than 40 to 60 metres separation between the main construction activity and the receiver. This is the situation for the majority of this proposal.
- Where receivers are nearest to the proposed alterations, works will be of a nature akin to typical road maintenance activities of resurfacing and minor realignment.
- For other receivers, the proposed alterations result in only small to moderate changes in separation distance between the construction activity and nearby receivers compared with separation distances with the existing designation. Therefore it is expected that the ability for the altered designation to comply with NZS 6803 is little changed from the ability of the existing designation to comply, and the periods of time for which alternate noise management methods may need to be used will also be similar.
- The conditions of NOR1 include the requirement for a Noise Management Plan to be prepared and approved prior to construction commencing. Assuming these conditions are applied to this alteration as proposed by the Agency, appropriate measures will be implemented to address noise effects during the construction period.

The remainder of this assessment focuses on the road-traffic noise effects of the proposed alteration.

Hamilton Section/SH 26 Interchange

The designated Hamilton Section includes a partial interchange between the Expressway and SH 26. The proposed alteration would remove this interchange. With the proposed alterations, the Expressway will pass under SH 26 and there will be no ramp access between the Expressway and SH 26.

Previous noise assessments of the Hamilton Section/SH 26 interchange options have determined minor mitigation is likely to be required, either in the form of barriers or sections of low-noise road surfaces. The interchange ramps were factors in these determinations. The proposed alterations will have negligible effect on the noise sources of the Expressway and SH 26, but will remove the noise source of the interchange ramps. Therefore, the extent of mitigation required with the proposed alteration will be no more, and probably less than, the mitigation required for the designated Hamilton Section of the Waikato Expressway.

Ruakura Road/SH 26

Associated with the proposed removal of any interchange between the Expressway and SH 26, the proposed alteration will include minor improvements at the Ruakura Road/SH 26 intersection. The intersection exists and residential receivers near to it are located at 7A Lisette Road (adjacent to SH 26), 11 Lisette Road, 17 Lisette Road, 309 SH 26, and 598 Ruakura Road.

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7 NZS 6803: 1999 Acoustics – Construction Noise
The nature of the intersection will not be significantly changed from that which currently exists by the proposed alteration so noise level changes will be small or negligible. The existing road surface at the Ruakura Road/SH 26 intersection appears to be a chip seal. This is a typical road surface and would likely be the ‘do-minimum’ road surface for the proposed alteration. However, if the proposed alteration requires noise mitigation, a stonemastic asphalt road surface would be a “lower noise” road surface relative to a chip seal and would likely be a practicable option.

The proposed alteration will also increase the traffic volumes using the Ruakura Road connection to this intersection. There are some properties located adjacent to this section of Ruakura Road, but generally buildings are set back from the road. The residential building at 3 Vaile Road is located near the legal road boundary. For this section of Ruakura Road, the total traffic volumes associated with the proposed alterations are only moderate. Noise effects are not expected, however if the proposed alteration requires noise mitigation, a section of “lower noise” road surface would likely be practicable.

The proposed alterations will also alter Ruakura Road to connect to the Ruakura Interchange. This introduces a section of road which will require acquisition of the 480 Ruakura Road property. It also introduces a corner near the 495 Ruakura Road property. 495 Ruakura Road is currently near to a straight section of Ruakura Road and exists with a fence facing Ruakura Road. At this stage, the habitable spaces of 495 Ruakura Road have not been ascertained. Noise level changes are likely to be small and noise effects are not expected, however if the proposed alteration requires noise mitigation, upgrade of the fence (with means of ensuring road-facing gateways are normally closed) or a section of “lower-noise” road surface would be noise mitigation options.

Ruakura Road/Silverdale Road

The proposed alteration will realign intersections around Ruakura Road/Silverdale Road. There are few noise-sensitive receivers near to this area; the nearest being the University of Waikato’s Te Timatanga Hou classrooms. These classrooms are currently located near to the intersection of Ruakura Road and Silverdale Road and the proposed alterations will move this intersection further away from the classrooms.

Ruakura Interchange

The proposed alterations include the Ruakura Interchange and there are two design options for that interchange. The Ruakura Interchange has been assessed in two stages; first considering the design option of “Ruakura Road over the Expressway”, then considering the other design option of “Ruakura Road under the Expressway”.

Ruakura Road over the Expressway

Figure 4-8 shows the noise environment with the designated project. This represents the existing noise environment against which the proposed designation alteration is considered.

Figure 4-9 shows the noise environment with the altered project as the design option of Ruakura Road passing over the Expressway.

Comparison of Figure 4-8 and Figure 4-9 clearly shows the movement of the Ruakura Road traffic, from the existing Ruakura Road southwards to a new road connecting to the Ruakura Interchange. With the proposed alterations, the primary role of the current Ruakura Road becomes property access (no thoroughfare), with a concomitant decrease in traffic volumes and road-traffic noise levels for the facades facing the current Ruakura Road.

Figure 4-8 and Figure 4-9 indicate there are few buildings very near to the new west-east Ruakura Road connecting to the Ruakura Interchange.
Figure 4-8: Façade Noise Levels with the Designated Project

Figure 4-9: Façade Noise Levels with the Altered “Ruakura Road Over the Expressway” Project

Figure 4-10 shows the change in noise levels due to the proposed alteration of “Ruakura Road over the Expressway”. It is calculated as the noise environment with the altered “Ruakura Road over the Expressway” project, Figure 4-9, minus the noise environment with the designated project, Figure 4-8. Noise level changes less than zero indicate the proposed alteration decreases the road-traffic noise levels compared to the designated project; and noise level changes greater than zero indicate the proposed alteration increases the road-traffic noise levels compared to the designated project.
In Figure 4-10, the west-east line of dark green/large noise level decrease and the west-east line of dark red/large noise level increase indicate the movement of the Ruakura Road traffic discussed above.

The green/noise decrease indicated to the south of the interchange (far right of Figure 4-10) is due to elevation changes between the designated project and this proposed alteration.

Only two of the four interchange ramps are labelled in Figure 4-10, but the figure shows the position of the four ramps as lines of noise level increases. This is because the proposed alteration introduces ramps where the designated project has no ramps. The Expressway through the interchange (and south of the interchange) is shaded showing a noise level change of ±0.5 dB, effectively no change. This is expected as this design option has Ruakura Road passing over the Expressway, so the Expressway is at grade in both the designated project and this proposed alteration.

North of the interchange, Figure 4-10 shows green/noise level decreases around the Expressway. On the line of the Expressway, the shading shows the horizontal position of the Expressway is slightly different between the designated project and the proposed alteration. The wider area of light green shading/slight noise level decreases is due to the height of the Expressway in the designated project being higher than the height of the Expressway in this proposed alteration.

Some of the light green shading/slight noise level decreases occur over the Percival Road/Ryburn Road area. The October 2013 report discusses receivers in the Percival Road/Ryburn Road area and concludes that the best practicable option for noise mitigation can ensure noise effects of the altered project are less than minor. The design option of “Ruakura Road over the Expressway” does not affect this conclusion.

87 Davison Road is a receiver previously identified with a low ambient noise level and average noise design level of 55 dB. The noise level with the “do-minimum” designated project is 59 dB. The noise level...
level with the “Ruakura Road over the Expressway” design option is just over 58 dB. For both the designated route and the “Ruakura Road over the Expressway” design option, the best practicable option for noise mitigation is similar, likely a section of low-noise road surface, but an alternative would be an out-of-designation barrier and this would be confirmed in final design. Therefore the noise effects of the designation alterations to provide for the “Ruakura Road over the Expressway” are less than minor.

**Ruakura Road under the Expressway**

Figure 4-11 shows the noise environment with the altered project as the design option of Ruakura Road passing under the Expressway.

Figure 4-12 shows the change in noise levels comparing the proposed alteration of “Ruakura Road under the Expressway” to “Ruakura Road over the Expressway”. It is calculated as the noise environment with the altered “Ruakura Road under Expressway” design option, Figure 4-11, minus the noise environment with the altered “Ruakura Road over the Expressway” design option, Figure 4-9. Noise level changes less than zero indicate the “Ruakura Road under the Expressway” design option decreases the road-traffic noise levels compared to the “Ruakura Road over the Expressway” design option; and noise level changes greater than zero indicate the “Ruakura Road under Expressway” design option increases the road-traffic noise levels compared to the “Ruakura Road over the Expressway” design option.
Figure 4-12: Change in Noise Levels Comparing “Ruakura Road Under the Expressway” to “Ruakura Road Over Expressway” (Change > 0 Indicates “Ruakura Road Under Expressway” has Higher Noise Levels than “Ruakura Road over the Expressway”)

Figure 4-12 indicates only minor noise level changes at the receivers between the “Ruakura Road under Expressway” design option and the “Ruakura Road over the Expressway” design option. Therefore, for the majority of the area it is concluded that the Ruakura Interchange configuration finally selected will not significantly affect the conclusion made based on assessment of the “Ruakura Road over the Expressway” design option.

87 Davison Road is inspected for confirmation. As stated before, 87 Davison Road is a receiver previously identified with a low ambient noise level and average noise design level of 55 dB. The noise level with the do-minimum designated project is 59.0 dB and the noise level with the “Ruakura Road under Expressway” design option is 58.8 dB. (The noise level with the “Ruakura Road over Expressway” design option is 58.2 dB.) Therefore the noise effects of the designation alterations to provide for the “Ruakura Road under Expressway” are negligible.

Summary

The road-traffic noise effects of the proposed alterations for the Ruakura Interchange have been assessed for two design options, of “Ruakura Road over the Expressway” and “Ruakura Road under the Expressway”. The assessment undertaken is sufficient to conclude that for both the designated route and the proposed designation alterations, the Noise Guidelines can be achieved, subject to practicability, and the extent of mitigation is similar. The best practicable option for road-traffic noise mitigation will be finalised in detailed design.

It is concluded that the construction noise effects and the road-traffic noise effects of the proposed alteration for the Ruakura Interchange are less than minor.
4.3.7 Ecological Effects

The potential ecological effects associated with this proposal have been assessed by an Ecologist familiar with the site and the wider Expressway project. The potential effects and proposed mitigation are summarised below.

The ecological effects assessment is based upon:

- a combined drive through/walkover survey of the proposed alteration to designation;
- discussions with the tenant farmer and Ruakura Research Centre site management regarding surface drainage in the areas affected by the proposals; and
- a review of existing reports relating to the ecology of the area including reports prepared by Opus International Consultants Ltd for the Assessment of Effects of the Expressway (Opus, 2013) and those prepared by Boffa Miskell relating to the Ruakura Structure Plan (Boffa Miskell, 2010, 2013 & 2014).

Description of the Existing Environment

Vegetation

The proposed alteration to designation impacts upon an intensively farmed, highly modified landscape that supports no natural ecosystems. The land is flat or gently undulating and mainly in pasture used for grazing dairy cattle. For the most part it is extremely open with very few mature trees or hedgerows.

The only locations where there are appreciable numbers of mature trees are at the existing Silverdale Road roundabout and at 480 Ruakura Road, where the proposed re-alignment will join it. Around the Silverdale Road roundabout there is a loose grouping of large deciduous and coniferous exotic trees. Most of the trees are English oak *Quercus robur* (up to 1m diameter at breast height - dbh) or holm oak *Quercus ilex* (up 2m dbh – a triple stemmed specimen).

At 480 Ruakura Road there is a loose grouping of exotic trees around the property and along the road reserve boundary. The trees include *Acacia* spp. eucalypts, copper beech *Fagus sylvatica* ‘Purpurea’, Lombardy poplar *Populus nigra* ‘Italica’ and English oak. The latter species is up to 0.7m dbh with most other specimens in this location of much smaller diameter. There is also a variety of exotic garden shrubs and also cabbage tree *Cordyline australis*.

There are virtually no indigenous plants within the proposed alteration to designation and no indigenous plant communities.

Terrestrial fauna

The bird species present are common native and exotic species typical of highly modified landscapes. Species recorded during the site visit were: harrier *Circus approximans*, welcome swallow *Hirundo tahitica*, silvereye *Zosterops lateralis*, house sparrow *Passer domesticus*, goldfinch *Carduelis carduelis*, greenfinch *Fringilla chloris*, starling *Sturnus vulgaris*, myna *Acridotheres tristis* and magpie *Gymnorhina tibicen*. It is unlikely that the habitats within the proposed alteration to designation provide significant habitat for threatened bird species.
The very open nature of the landscape means that most of the area within the alteration is unlikely to be used with any frequency by long-tailed bats *Chalinolobus tuberculatus*. The only locations with the potential to hold roosting and/or feeding bats are the stand of mature trees around the Ruakura Road/Silverdale Road roundabout and the mature trees around the property at the proposed junction with Ruakura Road to the east of the Expressway. However, the Hamilton City Bat Survey 2011-2012 (Le Roux & Le Roux, 2012) found no bats in the parks surveyed to the north of Cobham Drive and to the east of Galloway Street. This included surveys of the University Campus (c.500m from the Silverdale Road roundabout) and Chelmsford Park (within 1.5km of both stands of trees). A subsequent survey by McQuillan (2013) recorded a single bat pass in September 2013 at the Ruakura Research Centre using a hand-held detector, indicating at least sporadic use of the area by bats. Surveys of the Ruakura Research Campus and Chelmsford Park by Boffa Miskell using automatic bat detectors (ABM’s) in January 2014 recorded no bat passes (Dave Slaven pers. comm). Two of the ABM’s were placed within 250m and 500m of the Silverdale Road roundabout respectively. The bat surveys that have been undertaken around this area to date suggest that bat usage of the area is sporadic. These results are consistent with bat surveys of the Hamilton and Cambridge Sections undertaken by Opus International Consultants Ltd which has found that bat activity is low or non-existent in open landscape away from substantial stands of mature trees and/or gully habitat. The results of the various surveys suggest that it is unlikely that the trees around the Silverdale Road roundabout or property adjacent to Ruakura Road will be regularly used by roosting or feeding bats.

The habitats present are unlikely to be suitable for threatened lizard species. However, like many areas in and around the city of Hamilton the common, widespread and non-threatened copper skink *Oligosoma aeneum* may be present, particularly around dwellings, field margins and road verges.

**Watercourses**

The only watercourses crossed by the designation are artificial roadside drains along the existing Ruakura Road to the east of the Expressway and a short 100m section of roadside drain adjacent to the Silverdale Road roundabout.

The short section of roadside drain adjacent to the Silverdale Road roundabout was dry at the time of survey and does not appear to be connected to any of the other surface drains in the near vicinity (i.e. sections of drain along Ruakura Road). It is unlikely that such a short, isolated section of roadside drain will support any aquatic life of note, particularly given that it is dry for much of the year. Riparian vegetation was almost exclusive exotic grasses such as cocksfoot *Dactylis glomerata* and weed species spear thistle *Cirsium vulgare*, with a small patch of kiokio *Blechnum novae-zelandiae* the only native vegetation recorded.

Within the proposed designation stormwater from the existing Ruakura Road discharges to both swales and roadside drains. Examination of Google Earth street view images taken in spring indicates that the drains along this section of Ruakura Road hold much lower levels of water than those along Ruakura Road to the west the Ruakura Road/Holland Road junction. There is also minimal connection between the sections of drain to the west of the junction and those to the south due to the presence of swales at intervals along this section of road (i.e. there is not a single continuous connected drain). The sections of drain within the designation appear to be highly impacted by management (i.e. periodic clearance, or complete neglect). Furthermore, there is little overhanging vegetation. Overall the condition, low water levels (even during spring when other drains in the area are near capacity) and lack of connectedness of these sections of drain is such that they are unlikely to provide significant habitat for aquatic life. Although the Ruakura Road drain to
the west of the Holland Road junction is known to be inhabited by black mudfish *Neochanna diversus*, it is considered unlikely that this species is present in the sections of drain within the proposed alteration to designation.

The riparian margins of these sections of road drain within the alteration to designation are dominated by exotic grasses and weed species, and support no indigenous vegetation of any note.

**Ecological Values**

Indigenous vegetation is virtually non-existent within the proposed alteration to designation and is confined to a few individual plants found along a drainage ditch and within a residential garden. Consequently there is no significant indigenous vegetation within the proposed designation footprint.

It is highly unlikely that the area of the alteration supports significant habitat for indigenous terrestrial fauna, although stands of mature trees around the Silverdale Road roundabout and property adjacent to Ruakura Road may provide sporadic habitat for long-tailed bats.

The section of artificial roadside drain adjacent to the Silverdale Road roundabout is isolated, of very low quality and was dry at the time of survey. It appears to have negligible value for aquatic flora and fauna.

The sections of artificial roadside drain along Ruakura Road are also of low quality and were dry at the time of survey. Their poor connectivity with drains to the west of the Holland Road/Ruakura Road junction, lack of cover and high level of management suggests a low probability that they provide habitat for black mudfish.

**Effects and Avoidance of Effects**

**Effects on indigenous vegetation**

Effects on indigenous vegetation will be negligible.

**Effects on long-tailed bats**

Effects on feeding and/or roosting long-tailed bats are expected to be minimal. However, tree removal protocols for potential bat roost trees to be implemented for the construction of the Expressway should be applied where applicable to this alteration.

**Effects on birds and lizards**

The effects of construction of the Ruakura Road re-alignment on populations of species of birds and lizards that are known to or likely to inhabit the proposed alteration to designation are expected to be negligible.

**Effects on fish and other aquatic life**

Any impacts of construction upon the section of drain adjacent to the Silverdale Road roundabout are expected to have negligible effect on aquatic life given its minimal ecological value.

At this stage the nature of any works that may affect these drains have yet to be determined. Such works may include widening of the seal and creation of a footpath. These works may in turn require
upgrade of the roadside drains. However, the risk of significant impact on aquatic life, including mudfish, from such works is considered low.

It is concluded that the potential ecological effects associated with the alteration to the designation for the Ruakura Interchange are less than minor.

4.3.8 Archaeological Effects

The potential archaeological effects associated with this proposal have been assessed by an Archaeologist familiar with the site and the wider Expressway project. The potential effects and proposed mitigation are summarised below.

The archaeological assessment for the Ruakura Interchange is based on a desktop and field assessment, and includes the following components:

- Historic map search;
- Search of the New Zealand Archaeological Association (NZAA) database of recorded archaeological sites;
- Field visit.

Historical Setting

Archaeological research for the Hamilton Section (Keith 2013) identified that the study area is within land confiscated following the Waikato Wars in the 1860s. The land was partitioned into 50 acre farms and awarded to British soldiers to encourage European settlement in the Waikato. The allotments were difficult for soldiers to farm as the land generally required draining and only poor access infrastructure (roads and bridges etc.) was provided by the government. Soldiers often did not have the skills or the finances to make their allotments payable and either abandoned, or on-sold their land.

With better technology and greater demand for produce, the late 19th to early 20th century saw areas such as Ruakura become favourable for farming. This was compounded during WWI and WWII, and with the advent of freezing technology enabling meat to be transportable to Europe. The land east of the city was drained and intensive dairy farms were established.

The study area is not known to have been a focus for either domestic or horticultural activity prior to European settlement. The vast majority of recorded prehistoric archaeological sites and prehistoric gardening soils occur within 1km of the Waikato River and its tributaries. The study area is c.3km from the Waikato River and over 1.5 km from the main section of the Mangaonua Stream gully system.

Archaeological Evidence

Historic plans detailing the allotments has been viewed as part of the research for this assessment. The earliest plan viewed (SO 143) shows the property boundaries as they were initially planned in 1865. The relocation of Ruakura Road passes through original allotments 243-245. No structures or buildings are shown on this plan, and no features of pre-European interest are shown.
A later plan of the Ruakura Agricultural Station (1902) also illustrates the study area (SO 12249). This plan shows property boundaries and road reserves. No buildings including dwellings or farm sheds are illustrated on the plan.

Neither of the two historical plans indicate that features of historical or pre-European interest were present within the study area.

The NZAA online database (Archsite) was viewed to identify if archaeological sites have previously been recorded in, or close to the study area. The database clearly shows that the vast majority of archaeological sites in the Hamilton area are located within close proximity to the Waikato and Waipa Rivers, and their tributaries. There are no recorded archaeological sites close to the study area. The nearest site is S14/52. This is recorded as a pa and is approximately 700m south-east of the proposal.

The Site Record Form (SRF) suggests that this pa was located at the end of Nevada Road, on the western bank of the Mangaonua Stream. Differing information is provided in the SRF by two individuals. The site was originally recorded in 1974 from aerial photographs and by hearsay. It was not physically inspected as it was considered to have been destroyed prior to 1968 by a residential subdivision. However a subsequent reassessment by Owen Wilkes in 1999 suggests that a pa never existed in this location.

The Archaeologist undertook a field visit on 29 January 2014. Weather and survey conditions were recorded as being favourable. The survey focus was the portion of land proposed for the Ruakura Road relocation. This is currently an operating dairy farm and is divided up by modern fencing into paddocks connected by cattle-races. The fields have been drained and the topography is generally flat with minor undulations evident. No historical features were identified and no prehistoric features such as borrow pits were evident. On the basis of the site visit, the likelihood of there being archaeological sites present in the study area is low.

Summary

Whilst there remains the possibility that subsurface archaeological features, deposits, or sites are located in the study area concealed below topsoil, this is considered to be minor.

There is no evidence to suggest the study area holds archaeological or historic values, and as such, there are no known reasons to alter or modify the current proposal on archaeological grounds.

As there are no known archaeological values associated within the area of proposed Ruakura Interchange alteration, accidental discovery protocol conditions are considered appropriate and with their implementation any potential effects regarding archaeology will be no more than minor. Such conditions are included in NOR1, which the Agency seeks to have applied to this alteration.

4.3.9 Air Quality Effects

The potential air effects associated with this proposal have been assessed by an Environmental Scientist familiar with the site and the wider Expressway project. The potential effects and proposed mitigation are summarised below.

There are two potential sources of discharges to air associated with the proposed Ruakura Interchange - dust emissions from earthworks during construction, and vehicle emissions from the constructed Expressway and connection roads. The effect of this section of the Expressway on the
local air quality was assessed in the Opus Research report *Waikato Expressway: Assessment of Air Quality Effects 2-31695.00 A20WL* (August 2013). A copy of this report can be provided on request. The vehicle emission dispersion modelling has been undertaken for different sections of the Waikato Expressway including the Ruakura Interchange and connection roads. Specifically for this area the modelling took into account the existing and relocated Ruakura Roads, SH 26 and the Ruakura and Silverdale Road intersection.

Results of the air pollution dispersion modelling show that the effect of the Expressway on residential properties in this area range from insignificant to less than minor, depending on the location. This assessment is also applicable to the alteration to designation for the Ruakura Interchange. The proposed interchange will be located a considerable distance from Ruakura Road and construction of the interchange will not change the local ambient air quality.

**Assessment of Vehicle Emissions**

Motor vehicle emissions from the Expressway and the interchange will consist of engine exhaust emissions, evaporation of fuel, brake dust, tyre wear and road surface dust. The amount of emitted contaminants will depend on the type of vehicles on the road and driving modes. For some contaminants such as carbon monoxide and particulates, the highest emissions occur under congested traffic conditions or at intersections, where emissions are typically much higher than when compared to free flowing traffic. For oxides of nitrogen, emission rates are highest from free flowing traffic at high speeds.

The effect of the Expressway and the interchange on the local air quality may be noticeable only for those houses, located within 50 - 150 m of the Expressway. Air pollution modelling showed that there were no measureable effects beyond this distance. Regarding connection roads, it is very unlikely that they will have any effects, because traffic volumes on these roads will be insufficient to change ambient air quality.

The modelled ambient air concentrations at potentially affected residential dwellings are shown in Table 4-17 derived from the Opus Research report (August 2013). Properties located at 318 and 352 Ruakura Road are in the immediate vicinity of the Expressway and could be affected by changes in traffic conditions on the Expressway. However, the modelling shows that these changes will be insignificant and ambient air quality at these properties will remain within the same air quality category. Concentrations of air contaminants will remain well within the Ambient Air Quality Standards (Ministry for the Environment 2005).

The property at 400 Ruakura Road is located far away from the Expressway and the proposed Interchange. Ambient air concentrations of air contaminants at this dwelling were equal to background concentrations assumed for the modelling. All other residential dwellings located the same distance from the Expressway will not be affected by the proposed Interchange.
Table 4-17: Assessed Ambient Air Concentrations at Affected Houses for 2021

The above assessment demonstrates that concentrations of air contaminants in this area will not exceed the Ambient Air Quality Standards after construction of the Ruakura Interchange and the Hamilton Section of the Waikato Expressway in 2021.

Assessment of Fugitive Dust Emissions from Construction Activities

Potential fugitive dust emissions from road construction activities consist primarily of dust and particulate materials (PM$_{10}$). Fugitive dust emissions may occur within the construction area and can be generated from soil stockpiles, unpaved access roads, moving construction materials and heavy trucks and machinery operating on site. Generally sand and materials used in construction are wet or moist and emissions are most likely to occur during the summer time under dry and windy weather conditions. A significant part of fugitive dust emissions consists of coarse particles, which have only limited dispersion and settle within or near the construction site boundary.

In this project, the potentially affected areas are those located from the western and eastern sides of the Ruakura Interchange. Dust emissions from the construction of the Ruakura Interchange and relocation of Ruakura Road, may have some short-term effects on agricultural land, such as dust deposition, if the dust control measures are not implemented properly during construction works. Based on the reports referenced above, it is anticipated that the effects will be less than minor and may occur within a distance of 200 metres from the source. The effects can be minimised and eliminated if appropriate dust control measures are implemented during the construction phase.

Control of Dust Emissions

The potential fugitive dust emissions from the road construction can be controlled very effectively at the site. There is a number of appropriate dust emission control measures, and these measures if implemented properly can eliminate dust emissions during construction. Examples of such appropriate measures to minimise or eliminate the potential impacts of dust on local air quality could include the following:

- A construction site designed in a way that minimises: top soil disturbing areas, stockpiles and travelled distances on unpaved roads.
- Watering truck or some other water spraying facilities should be available on the site to keep soil handling areas and unpaved roads damp, during windy and dry weather conditions.
- Wind fencing can be considered as a dust control measure at the site.
• Trucks used for topsoil stripping and moving soil materials need to be watered specifically under dry and windy weather conditions.

• Earthworks should be limited as far as practicable or restricted under dry and windy weather conditions.

• Vehicle speed within the construction site and on access roads should be controlled and limited as far as practicable.

• Vehicles leaving the site should be watered if there is a risk of these vehicles creating adverse dust effects off-site.

• Liaison with local residents in case of fugitive dust emission complaints, and keeping a log of all such complaints received and action taken to remediate effects.

• Monitoring of dust emissions should be organised, if it would be required, monitoring methods and a specific location of monitoring sites should be considered on the case by case basis.

NOR1 includes the requirement for a Construction Management Plan to be prepared and explicit reference is made to the containment of dust nuisance effects within the boundary of the designation. Accordingly, the adoption of those conditions for this alteration will ensure that dust nuisance effects are appropriately addressed.

Summary

The assessment demonstrates that the effect of the proposed Ruakura Interchange on the local air quality could range from “insignificant to less than minor”, depending on the mitigation measures adopted where required. It is anticipated that the ambient air concentrations at the nearest residential dwellings will remain nearly at the same levels after construction of the interchange.

The interchange and connection roads will be constructed within the farmland at the distance of several hundred metres from residential dwellings. The assessed effects of vehicle emissions from the Ruakura Interchange and new roads on the nearest residential dwellings are less than minor due to free flowing traffic conditions, low to moderate traffic volumes and the long distance from the carriageway.

4.3.10 Vibration Effects

The potential vibration effects associated with this proposal have been assessed by a Wind Engineering Consultant. The potential effects and proposed mitigation are summarised below.

Methodology

A desk-based methodology, combining previously measured vibration source levels from road construction activity and traffic operating on state highways, with scala penetrometer derived soil attenuation coefficients was employed to obtain estimates of ground vibration at occupied properties closest to the proposed Ruakura Interchange.

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Source vibration levels were derived from measurements of road construction activity and Heavy Commercial Vehicle (HCV) traffic in the Waikato region.

The source vibration representing construction activity was taken to be 5.4 mm/s peak particle velocity (PPV) at a distance of 10 metres, with a frequency of 20 Hz. This represented an excavator (Sumitomo SH 120)⁹.

The source vibration representing HCV traffic was 1.46 mm/s PPV at a distance of 5 metres, with a frequency of 13 Hz, taken from measurements of ground vibrations caused by vehicle traffic performed in the vicinity of the State Highway 29 realignment, Soldiers Road to Ngamuwahine Road.

The source vibrations were combined with a soil attenuation factor derived from scala penetrometer measurements made along the route of the proposed Expressway at four locations between Percival Road and Morrinsville Rd (SH26) to calculate separation distances required for (1) building occupants to perceive vibrations, (2) building occupants to complain about the vibration levels and (3) minor building damage to occur. The results are summarised in Table 4-18 below.

<table>
<thead>
<tr>
<th>Section along Waikato Expressway travelling north to south</th>
<th>Separation Distance from Vibration Source (m)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Operational</td>
</tr>
<tr>
<td></td>
<td>Perception</td>
</tr>
<tr>
<td>Percival Rd to SH26</td>
<td>22.5</td>
</tr>
</tbody>
</table>

*Table 4-18: Critical Separation Distances*

It is clear from Table 4-18 that vibrations from construction have the potential to be more problematic than vibrations from traffic.

**Most Affected Properties**

Occupied residences that are closest to the proposed Ruakura Interchange travelling from west to east are as follows:

- 63 Ryburn Road (4.7 m from designation boundary and 39.6 m from road edge)
- 495 Ruakura Road (10.3 m from designation boundary and 20.8 m from road edge)

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- Vaile Road (5.2 m from designation boundary and 11.2 m from road edge for Vaile Road frontage and 17.9 m from designation boundary and 23.7 m from road edge for Ruakura Road frontage)
- 588 Ruakura Road (16.1 m from designation and 22.4 m from road edge)
- 188a Morrinsville Road (SH26) (23.0 m from designation boundary and 27.4 m from road edge).
- 211 Morrinsville Rd (SH26) (15.8 m from designation boundary and 20.6 m from road edge)
- 212 Morrinsville Rd (SH26) (13.7 m from designation boundary and 17.8 m from road edge)
- 215 Morrinsville Rd (SH26) (15.9 m from designation boundary and 20.6 m from road edge)

Traffic induced vibrations once the Expressway is operational is unlikely to be an issue as in all cases the separation distance from the closest point of a dwelling to the road edge will be well in excess of the complaint threshold distance of 8 m. In fact, traffic induced vibrations are unlikely to be perceived at 63 Ryburn Road and 188a Morrinsville Road.

From this analysis, it appears more emphasis on controlling road roughness levels will have to be placed on local road connections such as Ruakura Road, Vaile Road and SH26 (Morrinsville Road) than the Hamilton Section due to the proximity of residential dwellings to these local roads.

In contrast, designation boundaries in all cases fall within either the complaint or damage separation distances for construction activity. Therefore, this brings a potential risk that if road construction takes place close to the designation boundary, building damage could result if control measures are not in place.

**Over and Under Expressway Options**

From a vibrations perspective, there is no difference between the ‘over’ and ‘under’ Expressway options as a significant amount of earthworks is associated with either option. Therefore, irrespective of what option is chosen, construction activity will have to be appropriately managed to ensure mitigation of any vibrations that could be potentially damaging to the nearby properties. NOR1 explicitly requires vibration effects to be addressed in the Construction Management Plan, and as such, it is appropriate that these existing designation conditions apply to this alteration.

**Summary**

The potential for problematic vibrations with the proposed Ruakura Road interchange primarily relate to its construction and not the operation of the Expressway. However, these construction based vibrations will be only temporary and of limited duration and so can be managed and controlled through selection of appropriate equipment and scheduling of the construction activity.

Vibration effects arising from the Ruakura Road interchange are considered to be minor provided any construction activity associated with local road connections, specifically Ryburn Road, Vaile Road and SH26 (Morrinsville Road), are specifically addressed in the Construction Management Plan.
4.3.11 Summary

The effects assessment above has considered the actual and potential effects of the Ruakura Interchange alteration including the relocation of Ruakura Road. Overall, it is concluded that the effects will be no more than minor on the environment provided that mitigation measures are adopted where necessary. The majority of such mitigation can be captured by adopting the Hamilton Section designation conditions (NOR1) for this alteration as proposed by the Agency. Other mitigation measures will be better addressed through the WRC consents that will need to be obtained prior to giving effect to this alteration.
5 Consultation

5.1 Overview

This alteration is part of the wider Hamilton Section of the Waikato Expressway. Extensive consultation has been undertaken in relation to this project as a whole, including with statutory bodies, Tangata Whenua, key stakeholders and people who are affected by, or who have an interest in, the project. This has been undertaken over the past three years, using various consultation methods.

A full recount of these consultation activities is not provided here, but can be found in the Project’s Resource Consent applications (WRC reference 130361).

5.2 Ruakura Interchange Consultation

Over the course of the secondary investigation process (which began late 2010) a number of options were considered for providing connectivity between Greenhill Road and SH26. These options were presented to the public at various points through both newsletters and information days.

As a brief summary, the following consultation activities are noted with respect to the Ruakura Interchange:

- Project update newsletters delivered to properties within 200m of the Expressway designation and to key stakeholders.
  - Update 1 (October 2010): The possibility of a Ruakura Interchange was signalled
  - Update 2 (December 2010): Advised of up-coming information day and signalled the possibility of including an interchange at Ruakura
  - Update 3 (December 2011): Summarised likely changes to the designation, including the possibility of a ‘split-diamond’ interchange between Ruakura and SH26.
  - Update 4 (September 2012): Presented the possibility of a Fifth Ave interchange and realigned Holland Road.
  - Update 5 (April 2013): Advised of up-coming information day indicated a Ruakura Interchange located as per this alteration.
  - Update 6 (October 2013): Advised that consent applications and alterations had been lodged and that these alterations excluded the Ruakura Interchange. Also highlighted the possibility of an alteration for the Ruakura Interchange, subject to the BOI process.

- Project Information Days provided an opportunity for information to be presented and for the community to discuss the overall project with Agency staff and their consultants:
  - Project Information Day (February 2011): Signalled the possibility of an interchange at Ruakura
Ruakura Information Day (September 2011): This was joint with HCC and presented the option of the Ruakura/SH26 split diamond interchange.

Fifth Ave Information Day (September 2012): Presented the option of a Fifth Ave Interchange (instead of a Ruakura Interchange).

Project Information Day (April 2013): Presented a Ruakura Interchange located as per this alteration.

- On 6 June 2013 meetings were held with Livestock Improvement and Dairy NZ, both of whom are based on Ruakura Road and employ 530 and 130 staff on-site respectively. The Ruakura Interchange and link to Ruakura Road was explained to senior management of both companies.

- In addition to the project update letters, on 10 February 2014 a letter was delivered to all properties located in the vicinity of Ruakura, Davison, Vaile (in part), Ryburn and Percival Roads, to advise landowners of the imminent lodgement of a NOR to provide for the Ruakura Interchange and relocation of Ruakura Road. The same letter was sent to a number of key stakeholders including the University of Waikato.

- The Agency issued a press release on 12 February 2014 outlining the same information delivered to properties on 10 February 2014.

The summary above demonstrates that consultation has occurred over the previous three years regarding the Ruakura Interchange alteration.

5.3 Tangata Whenua Consultation

The following summarises the consultation undertaken with Tangata Whenua for the project as a whole.

A Statement of Identified Māori Interests (SIMI) was prepared in accordance with Agency requirements in October 2010. The SIMI identified the Tangata Whenua groups to consult with in relation to the Hamilton Section of the Waikato Expressway.

An initial workshop was held with Tangata Whenua representatives on 21 October 2010.

Waikato Tainui and the Agency entered into detailed discussions in early 2011 with a view to forming a high level contract enabling a partnership to be established for the Hamilton Section. Through that process, an appointee from Waikato Tainui established responsibility for determining who the project team should engage with and how that should occur. As a result, a Hamilton Section specific Tangata Whenua Working Group (TWWG) was established in late 2011.

A working paper was prepared by the TWWG on 11 December 2011 as a means of expressing the key issues for Tangata Whenua. This paper was updated in March 2012 following more detailed discussions with Tangata Whenua.

A site visit was held on 2 March 2012 during which the TWWG and other representatives visited the southern areas of the Project. The site visit had a particular focus on the gully systems as these have been identified as areas of particular interest to Tangata Whenua. A workshop was also held on 9 March 2012 to discuss the particular issues around bridge piers, gullies and waterways.
In December 2012, the TWWG presented the Draft Tangata Whenua Effects Assessment Report (TWEAR). Following the delivery of this document, the project team held a meeting with the TWWG in February 2013 and provided a preliminary response to the issues raised in the document.

Another site visit was held on 15 March 2013, followed by a series of workshops addressing key issues for the TWWG. The workshops were held on 22 March, 4, 5 and 17 April 2013. During these workshops the project team and the TWWG were able to reach agreement on some of the key issues. A ‘mitigation document’ was also drawn up at these workshops, which captures the requests of the TWWG (as expressed in the TWEAR), the response of the Agency, and matters for further discussion or action. This is a living document and reflects the current state of discussion between the two parties.

The key issues being worked through with the TWWG are in relation to:

- Gully crossings (and in particular the matter of piers in the floodplain);
- Effects on gully flora and fauna;
- Earthworks;
- Water treatment;
- Waahi Tapu sites;
- Effects on groundwater; and
- Training and employment.

The TWWG (through its connection with TGH) is very aware of the Ruakura Interchange and have supported its inclusion as part of the Expressway throughout the period of consultation.

**5.4 Affected Landowner Consultation**

In order to give effect to this alteration land will need to be taken from the following entities:

- WDC
- HCC
- WRC
- TGH
- Landowner – 11 Davison Road

A Ruakura Transport Reference Group was established, consisting of representatives from the three Councils, the Agency, and TGH. The purpose of this group was to meet and deal with issues in respect to the timing and planning of the Expressway, and identify and work through any local roading issues. Through these discussions all parties have been aware of the need to alter the current designations in order to provide for the Ruakura Interchange.

The landowner at 11 Davison Road was contacted by Opus on behalf of the Agency and a meeting at the property was held on 4 February 2014, where the proposal and the requirement to take a portion of her land adjacent to Ruakura Road was explained. The additional land is required to improve sight visibility for vehicles turning onto Ruakura Road from Davison Road. Negotiations with the landowner were continuing at the time of writing this report.
5.5 Ruakura Structure Plan and the Ruakura Development PPC Consultation

As a part of the Ruakura Development, a series of consultation activities have been undertaken. These have been implemented primarily by the HCC as a statutory requirement, and also by TGH.

Following feedback on the Draft Hamilton City District Plan in April 2011, TGH facilitated (under observation from HCC) two public forums held at the University of Waikato, prior to the Proposed District Plan being notified. Invitations to this event were sent to approximately 8,000 households in the catchment area. Further to this event, a site visit to the Highbrook Industrial Park in Auckland was undertaken to show people a working example of an industrial park. 16 residents attended the site visit.

An initial Ruakura Structure Plan “Open Day” was held in December 2011 (led by TGH), as an initiation to the Structure Plan process. A further three “Open Days” were held in May 2012, led by HCC as part of consultation on the Draft Hamilton City District Plan. These featured information panels/graphics outlining details of the Structure Plan, and project representatives from HCC and TGH were in attendance to answer questions.

5.6 Summary

The descriptions above demonstrate that the Agency has undertaken extensive consultation regarding the Ruakura Interchange, either as part of the overall Hamilton Section of the Waikato Expressway, or in specifically addressing the proposed Ruakura Interchange and link to Ruakura Road. Furthermore, awareness of the need for the Ruakura Interchange has been expressed through consultation on the Structure Plan and PPC.
6 Statutory Assessment

6.1 Resource Management Act 1991

The RMA governs the use and development of New Zealand’s natural and physical resources. Part 2 establishes the Purpose and Principles of the RMA. The following section outlines the relevant sections of the RMA that have been considered with this alteration.

6.1.1 Section 181 – Alteration of Designation

To be processed as an alteration to designation under section 181 of the RMA, the following must be satisfied:

1. A requiring authority that is responsible for a designation may at any time give notice to the territorial authority of its requirement to alter the designation;

2. Subject to subsection (3), sections 168 to 179 shall, with all necessary modifications, apply to a requirement referred to in subsection (1) as if it were a requirement for a new designation;

3. A territorial authority may at any time alter a designation in its district plan [or a requirement in its proposed district plan] if—
   a. The alteration—
      i. Involves no more than a minor change to the effects on the environment associated with the use or proposed use of land or any water concerned; or
      ii. Involves only minor changes or adjustments to the boundaries of the designation [or requirement]; and
   b. Written notice of the proposed alteration has been given to every owner or occupier of the land directly affected and those owners or occupiers agree with the alteration; and
   c. Both the territorial authority and the requiring authority agree with the alteration — and sections 168 to 179 shall not apply to any such [alteration].

4. This section shall apply, with all necessary modifications, to a requirement by a territorial authority to alter its own designation [[or requirement]] within its own district.

Assessment

Section 181(3)(a)(i) makes reference to the alteration involving a no more than minor change to the effects on the environment associated with the use, or proposed use, of land. In the context of the Expressway and the Structure Plan, which form the ‘baseline’ for the purposes of this alteration, the proposal will result in a no more than minor change to the effects on the environment. This point is further emphasised given that the Ruakura Interchange proceeding will result in the two north facing ramps between the Expressway and SH26 being removed from the overall proposal. So in total, the proposal only results in the addition of a half diamond interchange to the Expressway and the relocation of Ruakura Road, east of the Ruakura Interchange.

Section 181(3)(b) requires that every owner and occupier of land directly affected by the proposed alteration be given written notice of, and agree to, the alteration. At the time of lodgement, the Agency is still seeking approval from the owner/occupiers of the land in question.
The Agency is also requesting that the alteration be publicly notified (in accordance with section 95A(2)(b) of the RMA and is anticipating a section 92 request for further information given that the application needed to be prepared in a very short timeframe.

As it is not possible to meet all the requirements of section 181(3) the alteration will need to be processed in accordance with section 181(2), and sections 168 to 179 shall apply with all necessary modifications as if it were a requirement for a new designation. This NOR has been prepared accordingly.

6.1.2 Section 171 – Recommendation by Territorial Authority

In accordance with section 171 of the RMA, a territorial authority must take into account the following:

(1A) When considering a requirement and any submissions received, a territorial authority must not have regard to trade competition or the effects of trade competition;

(i) When considering a requirement and any submissions received, a territorial authority must, subject to Part 2, consider the effects on the environment of allowing the requirement, having particular regard to:

(a) Any relevant provisions of:

(i) A national policy statement;

(ii) A New Zealand coastal policy statement;

(iii) A regional policy statement or proposed regional policy statement;

(iv) A plan or proposed plan; and

(b) Whether adequate consideration has been given to alternative sites, routes, or methods of undertaking the work if:

(i) The requiring authority does not have an interest in the land sufficient for undertaking the work; or

(ii) It is likely that the work will have a significant adverse effect on the environment; and

The Agency as the requiring authority does not have an interest in the land sufficient for undertaking the proposed works. Accordingly, due consideration has been given to alternatives as discussed in section 4.2 of this report.

(c) Whether the work and designation are reasonably necessary for achieving the objectives of the requiring authority for which the designation is sought; and

The proposed alteration is the outcome of a Network Connections investigation which concluded that interchanges at Greenhill and Ruakura best served the area if the Ruakura Structure Plan (and in particular the Inland Port) were to proceed. This alteration is lodged on the basis that the Ruakura Development (including the Inland Port) is given approval through the EPA process, which is currently in progress. The report on the Network Connections investigation is provided in Appendix D.
(d) Any other matter the territorial authority considers reasonably necessary in order to make a recommendation on the requirement.

(2) The territorial authority may recommend to the requiring authority that it:

(a) Confirm the requirement:

(b) Modify the requirement:

(c) Impose conditions:

(d) Withdraw the requirement.

(3) The territorial authority must give reasons for its recommendation under subsection (2).

6.2 Part 2

6.2.1 Section 5 – Purpose of the RMA

The purpose of the RMA is to promote the sustainable management of natural and physical resources. Sustainable management is defined in section 5(2) as:

“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 well-being and for their health and safety while—

(a) Sustaining the potential of 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.”

Assessment

The proposed alteration will allow the construction of an interchange and associated connections at Ruakura, providing an efficient connection with the Ruakura Inland Port (which has been deemed to be a project of national significance through the EPA process). This alteration is considered to represent the use and development of natural and physical resources in a way which enables people and communities to provide for their social and economic wellbeing. At the same time the proposal incorporates measures to avoid, remedy or mitigate adverse effects to ensure that resources are sustained and the life-supporting capacity of air, water, soils and ecosystems are safeguarded.

6.2.2 Section 6 – Matters of National Importance

Section 6 of the RMA sets out matters of national importance, which shall be recognised and provided for as follows:

“In achieving the purpose of this Act, all persons exercising functions and powers under it, in relation to managing the use, development, and protection of natural and physical resources, shall recognise and provide for the following matters of national importance:

... 

(e) The relationship of Maori and their culture and traditions with their ancestral lands, water, sites, waahi tapu, and other taonga:

...
Assessment

Section 6(e) is the only matter which is considered to have direct relevance to the Ruakura alteration. The extensive consultation undertaken with Tangata Whenua during development of the Hamilton Section of the Waikato Expressway has recognised and provided for the relationship of Maori and their cultures and traditions with their ancestral lands, and has ensured that any values identified are avoided or protected as appropriate. Throughout this process Tangata Whenua have demonstrated their support for the interchange.

6.2.3 Section 7 – Other Matters

Section 7 of the RMA lists certain matters to which particular regard is to be had in making resource management decisions. Section 7 provides:

“In achieving the purpose of this Act, all persons exercising functions and powers under it, in relation to managing the use, development, and protection of natural and physical resources, shall have particular regard to—

(a) Kaitiakitanga:

...

(b) The efficient use and development of natural and physical resources:

...

(c) The maintenance and enhancement of amenity values:

...

(i) the effects of climate change.”

Assessment

The following matters are considered relevant to this alteration and have been provided for as described:

Section 7(a) - Kaitiakitanga through the extensive consultation undertaken with Tangata Whenua during development of the Hamilton Section of the Waikato Expressway.

Section 7(b) - The efficient use and development of the State highway and local road networks through improvements to connections with local road networks and with planned land use.

Section 7(c) - The maintenance and enhancement of amenity values and the quality of the environment by applying the existing designation conditions which address matters such as noise, vibration, dust and landscaping.

Section 7(i) - The effects of climate change by providing capacity for increased rainfall and associated management of stormwater runoff from the proposal.

6.2.4 Section 8 – Treaty of Waitangi

Section 8 of the RMA requires those exercising powers or functions under the RMA to take into account the principles of the Treaty of Waitangi as follows:
“In achieving the purpose of this Act, all persons exercising functions and powers under it, in relation to managing the use, development, and protection of natural and physical resources, shall take into account the principles of the Treaty of Waitangi (Te Tiriti o Waitangi).”

Assessment

The Agency has facilitated Tangata Whenua’s participation in the consultation process to enable the latter to contribute fully to the investigation and assessment of the overall project and thereby enable them to take steps to protect their interests. Furthermore, the Agency’s consultation with the commercial arm of Waikato Tainui (TGH) has ensured that recognition is provided to the iwi’s economic and development interests. The Treaty signifies a partnership and requires the Crown and Maori partners to act toward each other reasonably and with the utmost good faith (Waitangi Tribunal, 1991). The Agency and Tangata Whenua have acted reasonably and with good faith. In order for a Treaty partner to act in good faith, fairly and reasonably towards the other, it is obliged to make informed decisions. NZTA has consulted with the Tangata Whenua about the effects of the alteration on the latter’s interests and considers that it has sufficient information to make an informed decisions about the overall project. Therefore, the proposed alteration is in accordance with the purpose of section 8 of the RMA.

6.3 National Environmental Standards

6.3.1 Air Quality (2004)

The NES for Air Quality includes three ambient (outdoor) air quality standards, which relate to air emissions from motor vehicles and are therefore relevant to his alteration. Schedule 1 of the NES sets out ambient air quality concentration limits for carbon monoxide (CO), nitrogen dioxide (NO2), and fine particulate matter, that is, less than 10 micron in diameter (PM10).

Assessment

The construction and operation of the Ruakura Interchange and relocation of Ruakura Road will result in construction dust and vehicle emissions, being discharged to air. The air quality effects and mitigation measures are discussed under section 4 of this report.

The assessment identifies that the additional contribution of air contaminants at the nearest residential dwelling will remain nearly at the same levels as without the Ruakura Interchange progressing. It concludes the air quality effects will range from “insignificant to less than minor”, and therefore will not exceed any of the relevant standards within the NES.

6.3.2 Assessing and Managing Contaminants in Soil to Protect Human Health (2011)

The NES for Assessing and Managing Contaminants in Soil to Protect Human Health, provides a nationally consistent set of planning controls and soil contaminant values. It also ensures that land affected by contaminants in soil is appropriately identified and assessed before it is developed and if necessary, the land is remediated or the contaminants contained to make the land safe for human use.

The NES mandates the methods for setting applicable numerical standards for contaminants in soil that have the potential to impact on human health. Applicable standards for 12 contaminants (called “priority contaminants” in regulation 7(2) of the NES) were derived and must be used if the land use
fits within the particular exposure scenario. All territorial authorities (district and city councils) are required to give effect to and enforce the requirements of the NES. The NES does not affect existing land uses.

**Assessment**

The contamination effects and potential mitigation measures associated with this alteration are discussed in section 4 of this report. It is noted that the alignment of the Ruakura Road and part of the interchange pass over a landfill and that agricultural land use may have led to contaminants being present in the soil across the site. Any consents required under the NES will be sought at the outline plan approval stage, once the contractors and final design of the Expressway have been confirmed.

### 6.4 Other Regulations

#### 6.4.1 Waikato-Tainui Raupatu Claims (Waikato River) Settlement Act 2010

On 25 November 2010, the Waikato-Tainui Raupatu Claims (Waikato River) Settlement Act 2010 (the Settlement Act) came into force in its entirety. The Settlement Act effectively creates Iwi co-management of the Waikato River in partnership with the Crown.

The overarching purpose of the Settlement Act is to restore and protect the health and wellbeing of the Waikato River for future generations. Although this project is not located directly on or adjacent to the Waikato River, section 6 of the Settlement Act clearly defines the Waikato River as: “The Waikato River and its catchments including all water courses, tributaries, streams, and watercourses flowing into the River”.

Te Ture Whaimana o Te Awa o Waikato – the Vision and Strategy for the Waikato River is set out in Schedule 2 of the Settlement Act. The Vision and Strategy is the primary direction-setting document for the Waikato and Waipa Rivers and their catchments. Under the Settlement Act, the Vision and Strategy is deemed, in its entirety, to be part of the Regional Policy Statement.

Many of the actions taken by the Agency in response to the objectives and strategies of the Settlement Act are relevant in the context of the resource consent applications already made to the WRC to give effect to the Hamilton Section of the Waikato Expressway. Those resource consents covered matters such as effects on streams and indigenous vegetation. Any further resource consents required for this alteration will be applied for in due course and the Agency will apply the same principles to give effect to the purpose of the Settlement Act. It is anticipated that with appropriate mitigation measures in place, the alteration will not result in any adverse effects on the health and well-being of the Waikato River.

It is noted that engagement with the TWWG has been undertaken throughout the overall project, including with regard to the Ruakura Interchange, which has been supported by the TWWG in their TWEAR document.

Overall, the proposed alteration is considered to be consistent with the Vision and Strategy for the Waikato River.
6.4.2 Historic Places Act 1993

There are no recorded archaeological sites within the area of the Ruakura Interchange alteration as demonstrated in the archaeological effects assessment in section 4 of this report. Existing conditions on the designation (NOR 1), provide a process to be followed should any archaeological matter be discovered during construction. If necessary, the appropriate authorities would be sought from the Historic Places Trust.

Accordingly, the proposed alteration is in accordance with the requirements of the Historic Places Act.

6.5 Regional Policy and Plans

6.5.1 Waikato Regional Policy Statement (October 2000)

The Operative RPS sets out issues, objectives and policies relating to the natural and physical resources of the Waikato Region. District and Regional Plans must give effect to the Operative RPS. The Operative RPS addresses a wide variety of significant resource management issues.

Those considered relevant to the alteration are discussed below.

3.3.8 Soil Contamination

Objective: The range of existing and foreseeable uses of the soil resource is not reduced as a result of the contamination of soils.

Policy One: Discharges of contaminants into or onto land should be carried out in a manner designed to avoid any adverse effects on the soil resource.

Assessment

The proposed alteration does not involve any direct contamination of soils. During the construction phase there is potential for the accidental release of hazardous substances, however actions to be taken when accidental spills occur will be covered in WRC consent conditions and also through the implementation of the Construction Management Plan. Where existing contaminated sites are affected, earthworks will be managed to address the potential for release of contaminated materials into the environment.

The proposal is considered to be consistent with the Operative RPS.

6.5.2 Proposed Waikato Regional Policy Statement (February 2013)

The Proposed Waikato RPS sets out issues, objectives and policies relating to the natural and physical resources of the Waikato Region. It is noted that some parts of the Proposed RPS are still under appeal, including Table 6-2, which relates to industrial land use allocation and includes Ruakura.

The following Proposed RPS objectives and policies are relevant to the alterations:

Objective 3.1A Resource Use and Development

The sustainable management of natural and physical resources, and of their use and development, recognises the social, economic and cultural benefits to the regional and national community.
Assessment

The proposed alteration is part of the wider Waikato Expressway project which is a significant infrastructure development, expected to deliver multiple social and economic benefits to the region and nation, whilst ensuring sustainable management of natural and physical resources. Furthermore, the alteration is required to support the Ruakura Development, which the EPA has identified as a project of national significance.

Objective 3.8 Relationship of Tāngata Whenua with the Environment

_The relationship of tāngata whenua with the environment is recognised and provided for, including:_

a) The use and enjoyment of natural and physical resources in accordance with tikanga Māori, including mātauranga Māori;

b) The role of tāngata whenua as kaitiaki.

Assessment

The Hamilton Section of the Waikato Expressway project has recognised the relationship of Tangata Whenua with the environment, through consultation with the TWWG, mandated on behalf of the local hapu. Matters of relevance to Tangata Whenua have been taken into account during the development of this entire project.

Objective 3.11 Built Environment

_Development of the built environment (including transport and other infrastructure) and associated land use occurs in an integrated, sustainable and planned manner which provides for positive environmental, social, cultural and economic outcomes, including by:_

a) Promoting positive indigenous biodiversity outcomes;

b) Integrating land use and infrastructure planning, including by ensuring that development of the built environment does not compromise the safe, efficient and effective operation of infrastructure corridors;

c) Recognising and protecting the value and long-term benefits of regionally significant infrastructure;

e) Minimising land use conflicts, including minimising potential for reverse sensitivity;

f) Anticipating and responding to changing land use pressures outside the Waikato region which may impact on the built environment within the region;

Assessment

The Hamilton Section of the Waikato Expressway (including necessary alterations) is considered to be regionally significant infrastructure which will provide for positive environmental, social, cultural and economic outcomes. The planning of the project has been integrated with the planning of the environs of Hamilton; both Future Proof and the Proposed RPS recognise and provide for the proposal (see Map 6.1A in the Proposed RPS). The proposed alterations are necessary to protect the value and long-term benefits of the Expressway as regionally significant infrastructure. In addition, the Ruakura Interchange alteration represents integration of land use and infrastructure planning, whilst still protecting the benefits of the Expressway as an important piece of regionally significant infrastructure.
**Policy 6.1 Planned and Co-ordinated Development**

Development of the built environment, including transport, occurs in a planned and co-ordinated manner which:

a) Has regard to the principles in section 6A;

b) Recognises and addresses potential cumulative effects of development; and

c) Is based on sufficient information to allow assessment of the potential long-term effects of development.

**Assessment**

The Project, including the Ruakura Interchange alteration is considered to have regard to the relevant principles in section 6A of the Proposed RPS, in particular it will:

- support the existing urban area of Hamilton and connect well with existing and planned development and infrastructure through the strategic location of interchanges – the Ruakura Interchange alteration is specifically required for this purpose; and

- tie into existing and planned infrastructure, thereby not compromising the safe, efficient and effective operation and use of existing and planned infrastructure.

**Policy 6.3 Co-ordinating Growth and Infrastructure**

Management of the built environment ensures:

a) The nature, timing and sequencing of new development is co-ordinated with the development, funding, implementation and operation of transport and other infrastructure, in order to:

i) Optimise the efficient and affordable provision of both the development and the infrastructure;

ii) Maintain or enhance the operational effectiveness, viability and safety of existing and planned infrastructure;

iii) Protect investment in existing infrastructure; and

iv) Ensure new development does not occur until provision for appropriate infrastructure is in place;

b) The spatial pattern of land use development, as it is likely to develop over at least a 30-year period, is understood sufficiently to inform reviews of the Regional Land Transport Strategy. As a minimum, this will require the development and maintenance of growth strategies where strong population growth is anticipated;

c) The efficient and effective functioning of infrastructure, including transport corridors, is maintained, and the ability to maintain and upgrade that infrastructure is retained; and

d) A co-ordinated and integrated approach across regional and district boundaries and between agencies.

**Assessment**

The Agency is working closely with the WDC, HCC and TGH in order to ensure the appropriate coordination with development of the surrounding local road network and the Ruakura Development, should this go ahead. This will provide the opportunity to optimise the efficient and affordable provision of future infrastructure.
The Ruakura Interchange alteration is necessary to achieve the policy above, in that it represents a co-ordinated and integrated approach to infrastructure and land use development.

**Policy 6.6 Significant infrastructure and energy resources**

a) Management of the built environment ensures that the effectiveness and efficiency of existing and planned regionally significant infrastructure is protected.

b) Regard is given to the benefits that can be gained from the development and use of regionally significant infrastructure and energy resources, recognising and providing for the particular benefits of renewable electricity generation.

**Assessment**

The Project as a whole (including the Ruakura Interchange alteration) is considered to result in regional and national benefits. Protection of the areas required as alterations to the designation will ensure that the effectiveness and efficiency of the planned Expressway is protected.

Overall, the proposed alteration is considered to be consistent with the provisions of the Proposed RPS.

### 6.5.3 Waikato Regional Plan

The Waikato Regional Plan (WRP) became operative on 30 August 2007, except those parts of the plan subject to Proposed Variation Numbers 2 (Geothermal Module), 5 (Lake Taupo Catchment), 6 (Water Allocation) and 7 (Minor Variation and Geothermal Maps). The WRP is intended to provide direction regarding the use, development, and protection of natural and physical resources in the Waikato Region. It gives effect to the Operative and Proposed RPS and focuses on WRC’s statutory functions under the RMA. The WRP contains modules covering Matters of Significance to Maori, Water, River and Lake Beds, Land and Soil, Air, and Geothermal Resources.

**Assessment**

Water and discharge permits, along with land use resource consents will be required from the WRC and applications will be lodged in due course to enable the alteration to proceed.

### 6.6 Plans and Proposed Plans

#### 6.6.1 Waikato District Plan (Operative April 2013)

The Waikato District Plan promotes the sustainable management of natural and physical resources in the Waikato District, primarily by managing the effects of land use on the environment.

The eastern portion of the proposed Ruakura Interchange alteration falls within the WDC’s jurisdiction, and is within the Rural Zone.

The following objectives and policies are relevant to the alteration:

**Natural Resources**

Objective 4.2.1 Physical, chemical and biological properties necessary for maintaining the life supporting capacity and productive use of the soil, especially high quality soil, are retained.
Assessment

The location of the proposed alteration is largely a product of the existing designation. Whilst the proposal will result in some additional loss of high quality soils, this loss is considered minor in the context of the existing designation.

Natural Hazards

Objective 5.2.1 Risks from natural hazards to health, safety and property, resulting from use, development or protection of land, are minimised.

Policy 5.2.5 Development should minimise impervious surfaces, provide adequate stormwater drainage, and mitigate the off-site effects of stormwater drained from the site.

Assessment

The proposed alteration will result in some increase to the area of impervious surface – e.g. through additional ramps at the interchange and roading upgrades. However, adequate stormwater drainage is provided through the comprehensive stormwater management strategy for the Hamilton Section of the Waikato Expressway. It has been demonstrated that adequate stormwater management for the relocation of Ruakura Road can be provided for and any consents required to give effect to this will be applied for in due course.

Land Transport Network

Objective 8.2.1 An integrated, safe, responsive and sustainable land transport network is maintained, improved and protected.

Policy 8.2.2 Design, construction and operation of roads should be consistent with their function in the road hierarchy.

Policy 8.4.1 Land transport networks are provided, while not compromising the qualities and character of surrounding environments.

Policy 8.4.2 Road and rail maintenance, construction and operation should minimise adverse effects on people, communities and the environment by managing:

(a) discharge of stormwater
(b) effects of contamination, including discharge of stock effluent
(c) disturbance to natural landforms, soil resources, indigenous vegetation and habitats, and cultural and heritage sites
(d) severance of property and communities
(e) road surface noise
(f) connections between communities
(g) glare and light spill from street lighting.

Assessment

The Hamilton Section of the Waikato Expressway represents an improvement to the land transport network, and the alteration for the Ruakura Interchange enables an improvement to the planned
network that will integrate with future land use. The design, construction and operation of the Expressway, including this alteration, will be consistent with its status as a Road of National Significance. The Project (including this alteration) will be constructed and operated in such a way as to not compromise the qualities and character of surrounding environments, through measures such as landscaping, stormwater management, and the remediation and management of contaminated sites crossed by the project. The existing conditions will be applied to the alterations, and provide controls to manage effects.

Contaminated Land

Objective 9.2.1 Human health or the environment is not harmed by the use or development of contaminated land.

Policy 9.2.4 Remediation of contaminated land should not pose a more significant risk to human health or the environment than if remediation had not occurred.

Policy 9.2.5 Material removed from contaminated land should be disposed of in a manner that avoids further adverse effects on human health or on the environment.

Policy 9.2.7 Development or use of land known to have been occupied by a potentially contaminating activity should not occur until any risk to human health or the environment has been investigated.

Assessment

Where the proposal crosses contaminated land, contaminated soils will either need to be removed, or capped and buried. Specific management and mitigation measures and any subsequent consenting requirements will be addressed at a later date once the proposed alignment is confirmed. Subject to the recommended controls, the construction of the road is not expected to result in harm to human health or the environment, and in some cases, locating, characterising and removing contaminated soil may have an environmental benefit.

Social, cultural and economic wellbeing

Objective 11.2.1 Towns, villages, neighbourhoods and localities have social coherence and a sense of place.

Policy 11.2.6 Activities should avoid breaking up community and neighbourhood coherence, having particular regard to the cumulative effects of activities.

Objective 11.4.1 Cultural practices and beliefs of tangata whenua are respected.

Policy 11.4.2 Subdivision, use and development should not compromise the cultural and spiritual significance of areas, including waahi tapu, urupa, maunga and other landforms, mahinga kai, and indigenous flora and fauna.

Assessment

The proposal includes the stopping of Ruakura Road beneath the Expressway and its relocation to coincide with the Ruakura Interchange. Whilst this will result in a detoured route for vehicles using
Ruakura Road, the changes will not result in the breaking up of communities or affect neighbourhood coherence.

The Project has recognised the relationship of Tangata Whenua with the environment, through consultation with the TWWG, mandated on behalf of the local hapu. Matters of relevance to Tangata Whenua have been taken into account during the development of the overall project.

**Amenity Values**

Objective 13.2.1 Adverse effects of activities on amenity values are managed so that the qualities and character of the surrounding environment are not unreasonably compromised.

Policy 13.2.2 Adverse effects associated with lighting, litter, electromagnetic radiation, vermin, traffic, spray drift, and noise should be contained within the site where they are generated.

Policy 13.2.3 Adverse effects associated with offensive or objectionable dust, smoke and odour should be contained within the site where they are generated.

Policy 13.2.4 Adverse effects that cannot be contained on the site where they are generated must be remedied or mitigated.

Policy 13.2.5 Amenity values, health and safety should be protected from adverse traffic effects including:
(a) noise, vibration, dust, lighting and glare
(b) vehicle emissions
(c) accelerated or contaminated stormwater runoff
(d) visual effects of parking and loading areas
(e) traffic safety and congestion.

**Assessment**

Effects of the proposed alteration with respect to changes in noise, air quality and vibration have been addressed in section 4, where it is concluded that such effects will be less than minor, subject to mitigation measures being implemented where necessary. Visual mitigation will be provided in accordance with the existing conditions on the designation relating to these matters.

Overall, the proposal is considered to be consistent with the Waikato District Plan.

### 6.6.2 Hamilton City Operative District Plan (July 2012)

The Hamilton City Operative District Plan (Operative District Plan) provides a framework of resource management policy and implementation methods to manage the effects of the use, development or protection of land and associated natural and physical resources in the city.

The Operative District Plan is not relevant to the Ruakura Interchange alteration. Therefore no further assessment is provided of the objectives and policies of this plan.
6.6.3 Hamilton City Proposed District Plan

The Hamilton City Proposed District Plan (Proposed District Plan) was notified in December 2012. The Proposed District Plan sets the rules for future city development and defines how and where the city grows and how its natural and physical resources are managed. The Proposed District Plan includes the Ruakura Structure Plan.

The Proposed District Plan is still in the public process, with hearings currently underway.

The Proposed District Plan is relevant to the proposed alteration, as the area of the alteration to the west of the existing designation is within the Ruakura Structure Plan area.

The following objectives and policies of the Proposed District Plan are relevant to the alteration:

**Structure Plans**

Objective 3.3.1 Optimised, long-term, positive environmental, economic, social and cultural effects of greenfield development.

Policy 3.3.1a Development should be in general accordance with the relevant Structure Plan

Policy 3.3.1d Interim land use and development should not compromise the integrity and viability of the long-term vision for the relevant Structure Plan

**Assessment**

The alteration to the designation is consistent with the Ruakura Structure Plan as notified with the Proposed Hamilton City District Plan. The Structure Plan identifies this location as a possible area for an interchange. The development of the Expressway as per the proposed alteration will therefore not compromise the integrity and viability of the long-term vision for the Ruakura Structure Plan. Conversely, the inclusion of the interchange is supported by the key stakeholders (HCC and TGH) and is essential to the Inland Port development.

6.7 Other Plans

6.7.1 Regional Land Transport Strategy 2011-2041 (RLTS)

The RLTS is a statutory document prepared under the LTMA. The RLTS examines the transport outcomes for the Waikato Region and sets in place a strategic plan to achieve those outcomes over a 30-year period. The strategic approach for the RLTS is strategic corridors, road safety, and managing demand and encouraging alternative modes of transport.

**Assessment**

The strategic corridors aspect is directly relevant to the project, as the Waikato Expressway is identified in the strategy as the principal strategic transport project for the Waikato Region. The Project, including alterations proposed, is therefore consistent with the strategic approach of the RLTS.
6.7.2 Future Proof Growth Strategy and Implementation Plan 2009

The Future Proof Growth Strategy and Implementation Plan 2009 (Future Proof) is a 50 year growth strategy for the Hamilton, Waikato, and Waipa sub-region. The strategy focuses on managing growth within the sub-region, and creating more compact urban areas based around Hamilton and existing rural townships and villages.

Future Proof provides a high level blueprint for development in the form of a preferred settlement pattern. Future Proof is not a statutory document, but has informed planning and decision making processes and the key principles of Future Proof have been given statutory weight in the RPS. Future Proof examines the issues associated with growth, including future urban and rural land use, natural and cultural resources, roads, and other essential infrastructure and promotes a settlement pattern aimed at managing these issues.

With respect to future growth, the Proposed RPS also sets out land use and population targets for the Waikato Region through to 2061. Version 7 of the Waikato Regional Transportation Model (WRTM v7) is based on the Proposed RPS land use and population projections. However, the Future Proof project is continuing to refine land use and population projections and update the WRTM accordingly.

**Assessment**

The strategy identifies the Expressway as the pre-eminent and key transport project for both the sub-region and the Waikato region. The location of the Expressway designation is identified on the Future Proof settlement pattern map, and roughly forms the boundary between the City and the District (urban and rural). The completion of the Expressway is one of the key assumptions underpinning the settlement pattern, and progressive implementation of the Expressway as the highest priority strategic transport corridor, and road of national significance, forms one of the actions to achieve the strategy.

The Future Proof strategy therefore provides the high level strategic context for development and growth within the sub-region, including the development of the Expressway corridor. The Ruakura Interchange will serve the Inland Port development proposed at Ruakura. This development is also supported by and reflected in the Future Proof Strategy, as a strategic employment area for the growth of the City, and Ruakura is also recognised in Table 6-2 of the PRPS for industrial land use allocation.

6.7.3 Access Hamilton Strategy

The purpose of Access Hamilton is to meet the changing travel demands of the city by providing an affordable, safe, responsive and sustainable transport system that contributes to Hamilton’s strategic vision and achieves community outcomes in a way that is consistent with national and regional objectives.

Access Hamilton is one of Hamilton’s eight key strategies that assist the HCC to achieve its strategic objectives. It guides the city’s development and transport infrastructure planning over the next thirty years. It is a high-level integrated transport strategy that identifies the strategic transport aspirations of the city to deliver HCC objectives, and contributes to national goals and regional priorities. Access Hamilton will meet the changing travel demands of the city by providing an affordable, safe, responsive and sustainable transport system. Hamilton’s strategic objectives have a long term focus
and are consistent with the objectives of the Land Transport Management Amendment Act and the NZ Transport Strategy.

In broad terms, Access Hamilton aims to:

- Support Hamilton’s economic, social, environmental and cultural well-being;
- Support the land use, sustainability and economic development objectives for a compact city with consolidation and intensification around key nodes and a vibrant city centre;
- Manage incremental change in the transport and land use system necessary to achieve Hamilton’s strategic objectives; and
- Position infrastructure and land development to meet the city’s long term needs.

To contribute to Hamilton’s strategic vision, Access Hamilton must address transport challenges over the next 30 years that relate to existing and foreseeable problems, and their exacerbation due to city growth, demography, technology, employment patterns and the wider economy.

**Assessment**

The Hamilton Section of the Waikato Expressway is recognised in the Access Hamilton Strategy as a Major Arterial Road. The Strategy also recognises the proposed future development at Ruakura and therefore the alteration will assist in meeting the purpose of the Access Hamilton Strategy as it relates to providing a safe, responsive, and sustainable transport system.
7 Conclusion

The Agency proposes to alter the existing designation for the Hamilton Section of the Waikato Expressway in order to provide for an interchange at Ruakura that will service development of land identified under the Ruakura Structure Plan (and PPC by TGH) for an Inland Port/Logistics and Industrial area.

The Agency is a Crown entity and its objective pursuant to section 94 of the Land Transport Management Act 2003 is to contribute to an effective, efficient, and safe land transport system in the public interest.

The GPS was released in July 2012 and identified the Waikato Expressway as one of seven RoNS, which are considered by the Government to be the Country’s most important transport routes requiring significant development to reduce congestion, improve safety and support economic growth. The Ruakura Interchange will be an integral component of the overall Expressway if the Ruakura Development proceeds.

TGH is pursuing their PPC for the Ruakura Development through the EPA and a BOI will be hearing this application in May 2014. As the Ruakura Interchange will be a vital component of giving effect to the Ruakura Development, it is necessary for the Agency to demonstrate its intent to proceed with the interchange, should the outcome of the BOI justify one being established. Lodging this NOR serves that purpose.

This NOR has assessed the potential environmental effects of the Ruakura Interchange and relocation of the Ruakura Road using the existing designation and the Ruakura Structure Plan land use as the baseline for the effects assessment. The only exception to this has been the traffic effects assessment which assumed that Ruakura Road has been relocated, as this must occur to give effect to the Inland Port. This baseline approach is considered appropriate given that the Expressway has been approved, and that the Ruakura Interchange will only proceed if the BOI justifies an interchange being established.

The effects assessment has demonstrated that the proposed alteration can proceed having a no more than minor change in effects compared with the current designations. This can be achieved through the implementation of mitigation measures which can be applied by adopting the conditions (NOR1) that already apply to the designations to be altered.

It is acknowledged that the Agency is yet to apply to the WRC for any necessary consents to give effect to the alteration and these will be applied for in due course.

The Agency has been involved in consultation with the public and key stakeholders regarding the Expressway and possible Ruakura Interchange for over three years and that consultation is on-going. To date, that consultation has assisted the Agency in shaping its proposal and in its consideration of alternatives.

This assessment has demonstrated that the alteration upholds the sustainable management purpose of the Resource Management Act 1991, adequately provides for Part 2 matters, and is consistent with the relevant policy statements and plans.