2.0 Te Waka Road Route

2.1 Route Description

The assessed route has been developed from the alignment proposed in the submissions received as part of consultation on the preferred route. There are minor variations to the option in the vicinity of the Otaki River and Te Waka Road to meet geometric standards. The indicative centre line is shown on the aerial photograph in Figure 2.

Appendix 1 shows the possible configuration of three options along the corridor based on aerial photographs. These options would vary only in the Te Waka Road area and location of crossing the Otaki River. These plans show the configuration of intersections and additional local access roads. Topographical data has not been acquired for this option so earthwork requirements are indicative only. However the design involves the same expressway standards proposed for the Preferred Route.

The route would commence some 400 metres north of Taylors Road just south of a stream gully and in the vicinity of a small collection of rural dwellings. It would cross agricultural and market garden land before it would bridge over the North Island Main Trunk Railway and Taylors Road, which are adjacent to each other at this point.

The route would then cross undulating pasture and cropping land, bridge over the Waitohu Stream and pass through a small exotic woodlot before it would cross Convent Road.
It would then sweep south in a wide curve keeping just to the east of the 110 KV transmission line corridor. If Convent Road is crossed at grade it would sever access to the Otaki Golf Club and rural land to the north. A bridge structure bringing Convent Road over the expressway would therefore be proposed at this location. The route would cross Tasman Road between Otaki Town and Otaki Beach to the west of Te Wananga-o-Raukawa. A full grade separated interchange would be required at Tasman Road by bridging Tasman Road over the expressway. The southern off and on ramps would also provide linkage to Rangiuru Road.

The intersection would involve a significant zone of land impact extending south to Rangiuru Roads. This area is used for pasture, residential properties and market gardens.

From this point there are three options.

Option 1 would take a more eastern alignment through the Kapiti Coast District Council sewage treatment plant irrigation disposal area close to the oxidation ponds. It would pass through part of Winstone Aggregate’s stockpiling area and would cross the river at an oblique angle with a bridge span of approximately 470 metres.

Te Waka Road is located close to and along the edge of old sea cliffs on the upper level. Option 1 would link with this upper level and pass east of, and parallel to Te Waka Road. The route would pass through a number of productive horticultural and agricultural operations but to the rear of most of the dwellings in this vicinity. Further south this option would gradually drop to the lower level as it approaches Te Horo Beach Road.

Option 2 would cross the Otaki River at a more perpendicular angle, 630 metres further west of Option 1. It would cross an intensive market gardening area around Lethbridge Road and then would align along the existing Te Waka Road at the top of the old sea cliff.

Option 3 would follow the alignment of Option 2 except that it would be set at the bottom of the old sea cliffs immediately west of Te Waka Road.

Option 1 would also require a bridge structure over the expressway along Addington Road linking Lethbridge Road and Te Waka Road to the east via Addington Road. A new local access road extending Te Waka Road south to Te Horo Beach Road would also be required for all three options. The reestablishment of part of Te Waka Road east of the expressway would be required for Options 1 and 2.
All three options revert to one single alignment north of Te Horo Beach Road where there would be a further grade separated interchange required for all movements.

The interchange design at Te Horo Beach Road would involve realignment of part of Te Horo Beach Road, which would bridge over the expressway. The redundant section of Te Horo Beach Road would be used as part of the local access road from the north. Some rural dwellings on Te Horo Beach Road would be affected by the land required for the expressway and interchange but south of this point the route would use a relatively open area of agricultural land before cutting into the easternmost edge of the sand dune country which is largely in pasture.
The option would avoid the former Mary Crest home buildings and would rejoin the widened existing highway corridor of the Preferred Route 400 metres north of Te Hapua Road. As with the Preferred route, a local access road would be required west of the expressway north from Peka Peka Road. This would bridge over the expressway where it leaves the existing highway alignment south of Mary Crest to provide a continuous local access link north and south.
2.2 Achievement of Project Objectives

The project objectives are set out in Section 1.2 above. From the analysis and assessment achievement of the project objectives can be summarised as:

<table>
<thead>
<tr>
<th>Scheme Objectives</th>
<th>Compliance</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) Safe and efficient</td>
<td>FAIL¹</td>
</tr>
<tr>
<td>b) Four lane median divided expressway</td>
<td>PASS</td>
</tr>
<tr>
<td>c) Minimise/eliminate access</td>
<td>PASS</td>
</tr>
<tr>
<td>d) Separate local and through traffic</td>
<td>PASS</td>
</tr>
<tr>
<td>e) Utilise existing highway</td>
<td>PASS²</td>
</tr>
<tr>
<td>f) Minimise adverse effects</td>
<td>FAIL³</td>
</tr>
<tr>
<td>g) Staging opportunities</td>
<td>FAIL</td>
</tr>
</tbody>
</table>

Table 1 Te Waka Road Route, Achievement of Project Objectives

Notes
1 Although equally safe the route would be 2km longer than existing highway (Refer to Section 6 Economic Evaluation).
2 The existing highway would be used as a local road
3 Refer to the following assessment of environmental effects.

2.3 Preliminary Assessment of Environmental Effects

2.3.1 Introduction

A preliminary assessment of the environmental effects of the Te Waka Road Option was undertaken by the following specialists.

- Mary O’Keeffe (Archaeology / Historic Heritage)
- Ian Bowman (Built Heritage)
- Malcolm Hunt (Noise)
- John Campbell (Ecology)
- John Hudson (Landscape)
- Noreen Barton (Social)
- Paul Thomas (Planning)
- Darrell Statham (Engineering).
As part of that work, a direct comparison was made against the preferred route.

These assessments were reviewed at a recent project workshop. The comparative analysis is set out in the following section. This section focuses on the environmental effects of the Te Waka Road options.

In addition Nga Hapu O Otaki has provided a preliminary Cultural Impact Assessment of this option. This is reported in this section and is included in full in Appendix 2.

2.3.2 Land Use Impacts

The route makes use of a relatively open rural agricultural corridor and consequently has a significant impact on agricultural activities. This ranges from an area of intensive market gardening to dairying and sand country pasture.

Severance of production units could be a significant issue however without detailed property ownership information and consultation this cannot be fully assessed. Being a longer route by about 1800 metres would mean that overall the land required for the project would be greater than the Preferred Route by approximately 13, 18 and 19 hectares for Options 1, 2 and 3 respectively.

While the route is predominately rural there are a number of locations where impacts on land use activities would be more extensive. These would include:

- SH 1 (At the point where the north end of the route leaves the existing highway) - a group of four to five rural dwellings would be affected.
- Taylors Road Area - An area of smallholdings where at least 2 rural dwellings would be displaced.
- Convent Road Area - At least two dwellings would be displaced as well as proximity to the Tainui Marae, urupa and Otaki Golf Course. One of these dwellings is a cottage accommodating an aromatherapy business.
- Bennetts Road - Loss of 2-4 dwellings at the end of Bennetts Road and on the north side of the road.
- Rangiuru Road - Loss of 6-10 residential dwellings on either side of the road.
- Te Waka Road - Impacts would depend on the route taken. Option 1 would have a major impact on 15 to 20 properties fronting Te Waka Road with loss of a significant part of the productive land for these units, although the houses would remain. It is likely that a high proportion of these landowners would not want to remain in this location.
• Te Horo Beach Road – 2-4 rural dwellings lost.

2.3.3 Flooding

The option would have the potential to affect flood levels. Otaki is severely affected by flood hazard from the Otaki River. Overflow paths tend to run down the existing road corridors including Riverbank Road and Tasman Road. Flooding is also an issue in the Waitohu Stream valley and could affect the Convent Road area. While design detailing is likely to be able to overcome any adverse effects on flood risk it is an issue that would require detailed consideration and may require the expressway to be more elevated or embanked than would otherwise be the case.

2.3.4 Kapiti Coast District Plan

The Kapiti Coast District Plan provides the current resource management framework for land uses. Relevant points to note from the Plan include:

• The Te Waka Road option would be predominately within the rural zone of the Plan with the exceptions being an area of residential zone in the vicinity of Rangiuru Road and part of the Riverbank Road Industrial Zone.

• The Otaki Water Bore at Tasman Road is a designated site, and the sewage treatment plant and disposal area is also designated in the District Plan.

• In addition the abandoned sea cliffs at Te Waka Road are listed as a significant geological feature and also listed as a heritage site is the sign depicting the site of the battle of Haowhenua, which is also on Te Waka Road.

These comments on land use effects provide a context for consideration of more specific issues in the following sections.

2.3.5 Social Impacts

The social impact of this option has been considered in terms of the impact north and south of the Otaki River. The relative social impact is assessed in terms of severance, household/business displacement and impact on existing residential amenity. While household/business displacement is a property matter and therefore assessed in terms of property costs there is also a social component in terms of the loss of households and business enterprises to a community.
Key issues north of Otaki river would include:

- There would be a significant change in character of part of the Taylors Road lifestyle block area with a new elevated bridge crossing the area with associated visual and noise impacts.

- A further bridge would be required at Convent Road affecting the character of the Convent Road area which includes the Tainui Marae and urupa. St Mary’s Church and St Peter Chanel Catholic Primary school are also nearby.

- The expressway would pass in close proximity to the established lifestyle blocks on Bennetts Road substantially changing the character of this essentially rural lifestyle area and would require the removal of several dwellings.

- Existing dune formations would provide a buffer between the expressway and the Kura kaupapa and Kohanga Reo. The interchange would bring new roading close to the Maori University Te Wananga-o-Raukawa. However, there would be a separation distance of approximately 200 metres for residential development fronting the western side of Convent Road.

- The major intersection for Otaki Town would be at Tasman Road and this would also be the main local access route linking the beach settlement with the town. This local link would need to be maintained and designed for pedestrian, cycle and vehicle access.

- The indicative alignment would swing south and east to sever Rangiuru Road and River Road and would then cross the Otaki River. Rangiuru Road provides a second local link to an area of permanent residential dwellings to the west as well as the south end of the Otaki Beach settlement. It also services the Otaki River Mouth and estuary area. Predominantly urban scale housing fronts Rangiuru Road in the vicinity of the proposed expressway and there is a formed and continuous footpath along one side of Rangiuru Road. A Rangiuru Road link would need to be restored for pedestrian, cycle and vehicle access. This has been addressed through the initial interchange design concept. South of Rangiuru Road the alignment would pass through open rural land to the west of the industrial area and would sever Riverbank Road west of the sewage treatment plant.
The proposed interchange design concept at Tasman Road would result in severance of Rangiuru Road and Riverbank Road for through traffic. Even though Rangiuru Road would be linked into the interchange, the only east west link between the beach and the village would be via Tasman Road. Presently the industrial area can be accessed directly off SH 1 via River Road. The design of the interchange would also mean that industrial traffic exiting northbound off the expressway would pass through the Main Street and then through the residential development fronting Rangiuru Street or Aotaki Street to access the industrial area.

Key issues south of the Otaki River would include:

- Option 1 would pass just behind most of the dwellings located on the cliff top (Hautere Plains) and accessed off Te Waka Road. This would sever 15-20 horticultural blocks fronting Te Waka Road and may make these properties uneconomic, resulting in the loss of these rural enterprises. The quiet rural environment for the residential development along Te Waka would be substantially changed with the introduction of traffic noise and the visual presence of an expressway.

- For Option 2 it is likely that several dwellings would be removed in the vicinity of the present Swamp Road / Te Waka Road intersection and along Te Waka Road. This option would also sever existing local access to the current SH 1 for Swamp Road residents (approximately 20 dwellings) and most of the Te Waka Road residents (approximately 20 dwellings). These areas would rely on the new access road linking to Te Horo Beach Road.

- Option 3 crosses Lethbridge Road. There are no dwellings on this road, although there are a number of sheds apparently used in association with the market garden activities. Local access between Swamp Road and existing SH 1, involving approximately 20 dwellings would be maintained by the construction of a local road link to Te Horo Beach Road.

- Option 3 would be unlikely to require the removal of any dwellings although the alignment would change the essentially quiet rural residential character for the approximately 10 dwellings along the top of the cliffs immediately above the alignment. This option would not affect the existing local links between Addington Road/Te Waka Road and Existing SH 1.
2.3.6  Impacts on Business Vitality

Improvements to the land transport network generally benefit national business activity through improved and more efficient access to suppliers and markets. However, there can be local effects on business vitality that can affect the sustainable management of specific communities.

The Te Waka Road option is likely to have a significant adverse effect on business activity that has developed at Otaki around access from the existing State Highway. The option develops a wholly new corridor with intersections limited to Te Horo Beach Road and Tasman Road. It is expected that there would be a significant shift in traffic to the new expressway although being a longer route the traffic would tend to split between the existing highway and new expressway. Those wishing to use services currently close to the existing highway are likely to continue to use the present SH 1, others may choose to stop for services elsewhere.

This proposed option may stimulate new business opportunities in Otaki Beach and Otaki Town, which would have effective access to the expressway at Tasman Road, however it is assessed that there would likely be a net reduction in overall business activity in Otaki as a whole when compared to the preferred route.

2.3.7  Noise

Although a detailed noise assessment has not been carried out, site specific noise impacts identified in an initial examination of the route found sites such as the urupa, church and school at Convent Road which are within 200 to 400 metres of the possible road corridor and would likely experience adverse traffic noise effects.

It is expected that 50 to 70% of traffic are expected to use a Te Waka Road route with the remaining 30 to 50% remaining on the existing SH 1 alignment. The net effect in noise terms is that the Te Waka route would not deliver significant benefits. Although there are fewer houses affected along the Te Waka Route, the increase in noise expected at these house locations would be significant. An increase from current low rural noise levels to a level of around 60 dBA at 50 metres from the new alignment would represent an increase of 20 dBA for day time and possibly as much as 30 dBA over existing night time noise levels.
The method of assessing traffic noise impact is based on the procedures and guideline levels in Transit New Zealand’s "Guidelines for the Management of Traffic Noise". Ambient sound levels determine the degree to which noise from the new or altered route may increase before a level of effect is reached such that mitigation is necessary. For rural sites with low ambient levels an increase of 12 dBA is permissible before mitigation must be considered. Increases of 20 dBA or more would result in even some of the more distant residences requiring noise mitigation.

Increases of 20 dBA are considerable and would require a number of the isolated rural dwellings found in the area to receive acoustic mitigation (number not yet confirmed, depends upon the finally selected option). The most common cost-effective method of mitigation is to use a barrier fence, however the economics of such fences are poor for isolated rural dwellings where 100 metres or more of fencing are required to protect each dwelling to the desired degree.

Increases in noise received at currently quiet rural sites are not offset by commensurate reductions along the existing SH 1 route as a result of the bulk of the traffic flow using the new route. Traffic engineers have predicted a reduction in traffic flows on the existing SH 1 of 50 to 70%. Although an appreciable reduction in bulk flow, this would only produce a drop of 5 dBA for existing houses alongside the state highway. While noticeable, this noise reduction does not offset the impact at isolated rural dwellings along the Te Waka route which would experience far greater increases in noise levels.

Option 3 positions the expressway against the old sea cliff with the expectation that this may limit both noise and visual effects. However, the noise assessment concludes that this would in fact have the opposite effect and noise levels at dwellings on Te Waka Road would be higher because the landform means the houses are elevated above the road level allowing noise to be easily received at these dwellings, without the benefit of ground absorption or reduction by naturally occurring obstacles and fences. From a noise perspective the route would be better located away from the sea cliff and away from Te Waka Road.

### 2.3.8 Landscape Impacts

The route option would cross through a range of different landscapes from open rural areas in the north, past built up areas in the west and then along the Te Waka escarpment with an open landscape of peat flats to the west and the expansive Te Horo plains to the east.
The proposed option would inevitably cause a significant change to this rural landscape, introducing the noise and movement of vehicles and the scale of a large constructed feature into a previously agricultural and horticultural setting. The effects of these changes on the character and amenity of such areas are normally best mitigated by the provision of a buffer zone either side of the expressway.

Full mitigation is difficult and expensive to achieve due to the scale of change taking place, but the degree of mitigation is influenced by the size and nature of the buffer, and the landscape treatment within it. Any buffer would need to be of sufficient size to reduce both the adverse visual and landscape effects for the neighbouring properties, and to allow for a highway setting that would give a positive experience for the motorist.

In terms of particular parts of the route the key landscape effects would be:

- The bridge at Taylors Road would introduce a new dominant constructed element into the landscape, but views of it from dwellings would be limited due to the extensive shelter belt and amenity planting throughout the area.

- The broad flat Waitohu Stream Valley floor is of a scale that would be able to accommodate the proposed alignment. There is potential for a buffer zone in this area to mitigate landscape and visual effects.

- At Convent Road and Bennetts Road the effects of this option would be to significantly change the character of this area from a small scale quiet rural backwater to one influenced by a substantial highway and bridge structure. However, there would be space for buffer screening between the expressway and the church, urupa and other maori sites. This would require intense planting and creation of landforms that reflect the local dune system.

- At Tasman Road the grade separated intersection would have significant effects. While there is space for dense planting, greater design details are needed to consider mitigation in detail.

- At the Otaki River crossing the presence of industrial activities such as river gravel processing and sewage treatment would mean that a new bridge could be accommodated without significantly affecting the existing character.

- The expressway would have a dramatic effect on the Te Waka Road area irrespective of which option is pursued. It would cause the removal of features that contribute to the small scale rural character of the existing road, changing the area to an open pastoral landscape with few visible dwellings and occasional shelter belts.
South of Te Waka Road the more varied landform would help mitigate the effects of the expressway. The grade separated interchange at Te Horo Beach Road would be visible for some distance but the presence of existing large trees and the varied topography of the dunes would assist integration and contribute to mitigation of the raised structures and interchange roading system.

2.3.9 Ecological impacts

The Te Waka Road option would largely avoid islands of native forest except for about 40 Totara trees near the junction of Swamp Road and Te Waka Road, and a small forest remnant on the Peka Peka straight which is also affected by the Preferred Route. Some of the Totara trees have severely misshapen crowns caused by the effects of salt laden winds. The alignment would avoid other stands, including a forest remnant south of Te Horo Beach Road, and the relic stands of forest at Mary Crest.

Between Taylors Road and Tasman Road the alignment would affect a pine plantation and exotic shelterbelts, some of which are recently planted. South of the Otaki River, several private gardens and shelterbelts on Te Waka Road would be affected if the route followed the upper level of the escarpment. These contain a mixture of native and exotic species. Two exotic trees recorded in the KCDC database of Historic Trees could be affected by the Option 2 route that runs above the escarpment. A narrow ribbon of mixed native and exotic vegetation along the escarpment could be affected if the route followed the bottom of the escarpment.

2.3.10 Archaeological and Heritage Impacts

The Te Waka Road option would have a significant impact on two areas of high archaeological value, the first in the Convent Road area called Pukekeraka and the second adjacent to Te Waka Road.

Pukekeraka is the location of the Catholic mission established by the Marist fathers in 1844. The complex comprise a number of historic structures including St Mary’s Church, the presbytery, meeting houses, way of the cross and shrines. An urupa is located on a hill nearby.

St Marys Church was built in 1858-59, and is considered to be New Zealand’s oldest surviving Catholic church still in use. Initially a raupo chapel was used for services, but this burnt down. The presbytery is the third to be built on the site. The first was a simple whare built on the hilltop in 1848 for Father Jean Baptite Comte. By then a large Maori settlement (kainga) had grown around the mission. This kainga was noted for its success with European style agriculture, and featured one of the first flour mills in the region.
St Mary’s Church is registered by the Historic Places Trust Category 1 and the Presbytery is registered Category 2. The mission is an archaeological site, which includes extant buildings that predate 1900AD, plus potential subsurface archaeological remains of original buildings and structures. While the centre line of the expressway does not threaten these building the full corridor may potentially affect archaeological sites associated with this area.

Te Waka Road is the location of the important Haowhenua battle of 1834 fought between Ngati Raukawa and Te Ati Awa. This was a large and complex battle fought beside and south of the Otaki River. Whilst few known archaeological remains of the battle remain, it is possible that there are burials located in the coastal dunes. This area is of very high cultural and spiritual significance to iwi. An authority to modify, damage or destroy archaeological sites under Part 1 of the Historic Places Act 1993 would be required. The values of this area are such that, in the opinion of archaeologist expert Mary O’Keefe, the Historic Places Trust is unlikely to grant such a consent. The Historic Places Trust has been consulted on this matter but would require a fully documented application before expressing a view on whether consents could be granted.

2.3.11 Iwi Issues

The Te Waka Road option would affect land of particular historical and cultural significance for iwi. Nga Hapu O Otaki has prepared a Preliminary Cultural Impact Assessment of this option which is included as Appendix 2.

The report notes that the Treaty of Waitangi was signed by 7 out of 11 rangatira at Pakakutu Pa near the mouth of the Otaki River. The assessment has identified the following sensitive areas:

- Taylors Road to Pukekaraka: This area was settled and used for cultivation and the waterways for eels and water fowl. There are sites of significance very close to the route.
- Pukekaraka: There are many sites of significance very close to the route in this area and the route passes close to known burial places.
- Otaki and Porirua Trust Board Lands: These are both north and south of Tasman Road and are currently farmed. There are sites of significance in the sand hills on this land called Mutikotiko. There are also some sites of significance in the Rangiuru Road area.
- Te Waka Road: The battle of Haowhenua raged across this area and many who died were buried adjacent to the battle sites in this area. Between Te Waka Road and Te Horo Beach Rod is a very significant site that marks the place where a high chief of Te Ati Awa, Te Tupu o Tu was killed in battle.
Mary Crest or Makahuri: This area provided cultivation grounds and waterways and has several sites of significance.

Nga Hapu O Otaki has concluded that the Te Waka Road option cannot be supported because of the cultural significance of sites along this option.

2.4 Geological Appraisal

The geology in this area was considered in the Himatangi to Waikanae Study: Review and Development Report - September 1999.

The Te Horo sea cliffs are effectively the division between the Rapanui Terrace materials and the Dune Sands with peat swamp areas. The Rapanui Terrace comprises sands and gravels that would be suitable for roading purposes. The swamp areas would require stabilisation and undercutting to support a road. This would increase construction costs quite considerably and may require increased on-going remedial maintenance works due to the nature of the materials.
2.5 Service Authorities

Discussions have not been held with service authorities on this option other than Kapiti Coast District Council. However, the proximity of the alignment to the Transpower transmission lines is likely to be an issue particularly in relation to the grade separated intersection at Tasman Road. Relocation of certain pylons may be necessary.

Kapiti Coast District Council has a major groundwater bore located close to Tasman Road which would be directly affected by the interchange and would need to be relocated.