

1 MacKays to Peka Peka Expressway

Welcome

to the MacKays to Peka Peka Expressway Expo 2

The Expo is an opportunity to

- Find out about the design development of the expressway.
- Provide us with your comments on the design of the expressway. Feedback forms are available here today - look for the boxes. You can also take a feedback form away and respond - drop it into the information centre or post it. To send feedback by email visit our website. You can provide feedback until 27 June 2011.

If you run out of time to see everything today, or think of any new questions, please call into one of our other open days

Sunday 15 May 2011	10am - 4pm	Southward Car Museum, Otaihanga
Tuesday 17 May 2011	4pm - 8pm	Waikanae Memorial Hall
Thursday 19 May 2011	4pm - 8pm	Kāpiti Community Centre
Friday 20 May 2011	4pm - 8pm	Raumati South Memorial Hall

Responding to your feedback

Comments received from the 2010/2011 consultation told us that you were concerned about how the expressway would affect the community and the environment. The following information panels show how the expressway design addresses these concerns and what the expressway will look like.

Panels:

- Welcome
- Overall route
- Poplar and Leinster Avenues
- Raumati Road and Wharemauku Stream crossing
- Kāpiti Road - Paraparaumu town centre
- Mazengarb and Otaihanga Roads / Waikanae River
- North of Waikanae River
- Te Moana Road interchange
- Ngarara, Smithfield and Peka Peka Roads
- Noise, vibration and air quality management
- Ecology
- Stormwater
- Cultural heritage
- Walking and cycling
- Landscape
- Former State Highway 1
- Construction and temporary works

Project timeline

2011

May to June

This third stage of consultation (Expo 2) will focus on the design of the expressway.

July to December

Design refinement and statutory consent applications to be prepared to lodge with the Environmental Protection Authority (EPA).

2012

Application for consents will be publicly notified. There will be opportunity for public to make submissions on the application.

2013

Detailed design and construction can begin if consent approvals are given by EPA.





Poplar Avenue
Interchange

Kāpiti Road
Interchange

Te Moana Road
Interchange

Peka Peka Road
Interchange

1 MacKays to Peka Peka Expressway

Poplar and Leinster Avenues

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Poplar Avenue

- From MacKays Crossing the Raumati Straight will be widened with a new edge strip along Queen Elizabeth Park. This will include shaped swales (channels) to catch and treat stormwater runoff from the road, planting and a shared cycle/walk path.
- The expressway will cross over Poplar Avenue, which keeps its connection with the former state highway.
- A partial interchange at Poplar Avenue will provide traffic from Poplar Avenue with access to the expressway and the former state highway. Northbound expressway traffic will be able to leave the expressway at Poplar Avenue and access the former state highway.
- The potential for a future railway station and carpark will be retained.

Leinster Avenue

- Leinster Avenue will be closed at the expressway end, but the entrance to a new separate lane parallel to the expressway for access to properties north of Leinster Avenue will be provided.
- The landscape and planting in this area will be developed to provide visual and noise buffers between the expressway and the residential properties at Leinster Avenue.
- A shared cycle/walk path will also be provided.
- Stormwater management will be integrated with retained wetland areas to recognise the low lying nature of some of the surrounding area.



Indicative aerial view of the Poplar Avenue partial interchange looking south - before mitigation work.



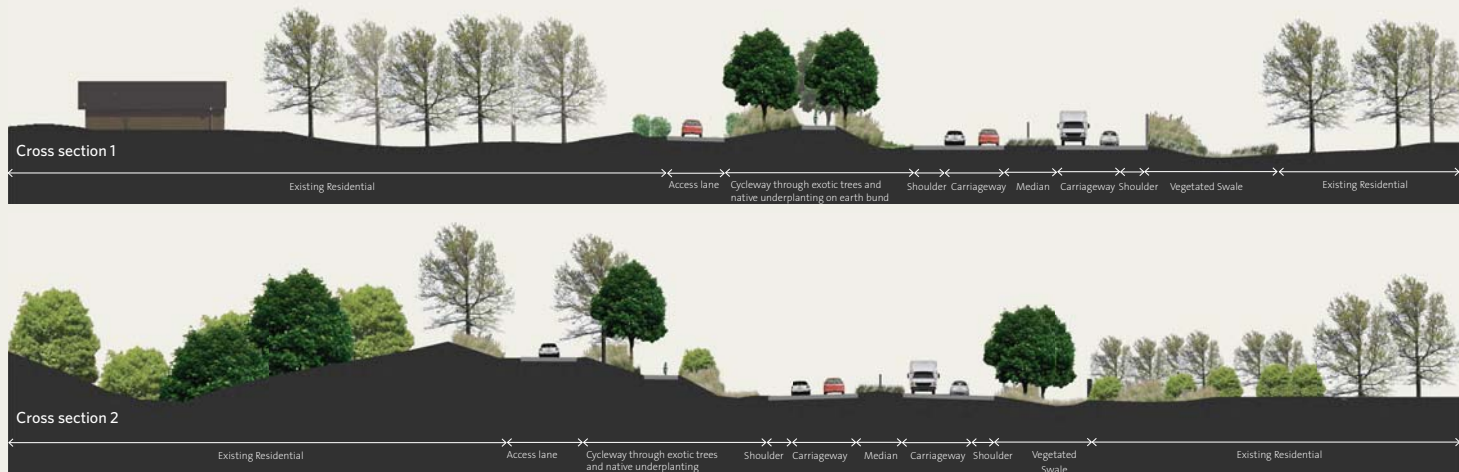
The indicative mitigation design includes the integration of landforms - bunds - to buffer residential properties from the expressway. A combination of dense native underplanting and taller exotic trees matches the existing planted landscape. Noise barriers will also be incorporated in some areas with their design to reflect the nearby property's purpose. The wetland areas will be retained and will have a stormwater management function.



Indicative street level view looking towards the former state highway - before mitigation work.



Indicative street level view looking to the end of Leinster Avenue.



Indicative cross sections through the Leinster Avenue area showing existing residential properties to the left, through to the new expressway.

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Raumati Road and Wharemauku Stream crossing

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The expressway will cross over Raumati Road and continue along the side of the dune to the north before dropping to ground level behind Kiwi Road. The expressway will rise up again and cross over the Wharemauku Stream. Sufficient space will be left beneath the bridge for a potential future Ihakara Street connection through to the airport development.

A large wetland area will be formed on the town centre side of the expressway to detain floodwater and to treat stormwater runoff prior to its release into the stream.

The new cycle/walk path parallel to the expressway will connect to Raumati Road and continue parallel, but separate from the expressway, to Wharemauku Stream. The path will cross over the Wharemauku Stream on a new bridge to provide north and south continuity. The path will join the existing cycle/walk path that runs alongside the Wharemauku Stream.



Indicative aerial view of the Raumati Road expressway bridge. The shared cycle/walk path can be seen on the right - before mitigation work.



Indicative aerial view of the Wharemauku Stream expressway bridge. The shared cycle/walk path can be seen on the right - before mitigation work.



Indicative street level view looking west on Raumati Road - before mitigation work. The bridge design detail has yet to be undertaken.



Indicative view looking west on the Wharemauku Stream path - before mitigation work. The bridge design detail has yet to be undertaken.



Indicative street level view looking east on Raumati Road - before mitigation work. The bridge design detail has yet to be undertaken.



Indicative view looking east on the Wharemauku Stream path - before mitigation work. The bridge design detail has yet to be undertaken.

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Kāpiti Road – Paraparaumu town centre

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At Paraparaumu town centre there will be an interchange that connects the expressway with Kāpiti Road. The expressway will cross over Kāpiti Road.

Kāpiti Road will need to be widened to provide the additional capacity for the expressway traffic and the on and off ramps. Where the expressway on and off ramps join Kāpiti Road, traffic lights will control traffic. This makes it easier for pedestrians and cyclists to cross, and regulates the flow of traffic on Kāpiti Road.

Mitigation considerations

- The visual appearance of the interchange bridge to people using Kāpiti Road is important.
- The use of noise barriers and planting to minimise effects of the interchange on adjacent residential properties.

- The need to integrate the interchange bridge design with on and off ramps and the local space is recognised. Trees, plants, construction finishes and lighting will be designed in a way that is sensitive to the environment and urban context.
- The ability to maintain views of Kāpiti Island or the western hills through the bridge is significant.
- The future form of Kāpiti Road itself in terms of footpaths, cycleways, signs, lanes, crossings, trees and other amenity influences will recognise the importance of this east-west connection to the community.
- The sustainable management of stormwater and existing floodable land will provide for the water runoff that will be generated by the expressway.



Indicative aerial view of the Kāpiti Road expressway interchange. The shared cycle/walk path can be seen on the left side - before mitigation work.



The indicative mitigation design for the area around the interchange will consider the architecture of the bridge, the landscape design of the ground around the structure, and the way in which people move around and experience the bridge from below. This interchange is also a key 'gateway' point for expressway users and the way this is experienced by these users will be considered.



Indicative street level view looking east on Kāpiti Road with the hills in the distance - before mitigation work. The bridge design detail has yet to be undertaken.



Indicative street level view looking west on Kāpiti Road with the island in the distance - before mitigation work. The bridge design detail has yet to be undertaken.



Indicative cross section through the Kāpiti Road area.

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Mazengarb and Otaihanga Roads

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From Kāpiti Road north, the expressway will be within a confined corridor. The space at the edges will be used as planted buffers to the residential properties that border the expressway.

In some places noise walls will be integrated into the landscape with planting. A shared cycle/walk path will run parallel but separate from the expressway.

The expressway will go over Mazengarb Road. The road will be slightly lowered to reduce the height requirement of the expressway.

At Otaihanga Road the expressway crosses over it, and Otaihanga Road will remain in its current rural road form. The shared cycle/walk path continues to run parallel and will allow for connections to the local roads and paths.

Between Mazengarb Road and Otaihanga Road there are several wetland areas. Some of these will be utilised for stormwater management and combined with ecological enhancement. One has high ecological values and will not be utilised for stormwater treatment.



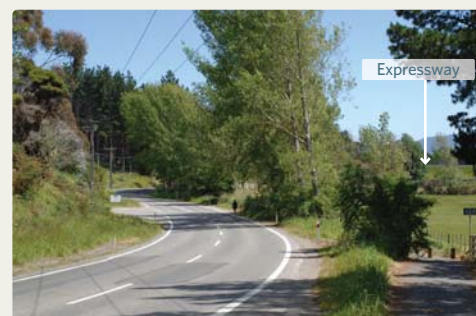
Indicative aerial view of the Mazengarb Road expressway bridge. The shared cycle/walk path can be seen on the right side - before mitigation work.



Indicative aerial view of the Otaihanga Road expressway bridge. The shared cycle/walk path can be seen on the right side - before mitigation work.



Indicative street level view looking east on Otaihanga Road - before mitigation work.



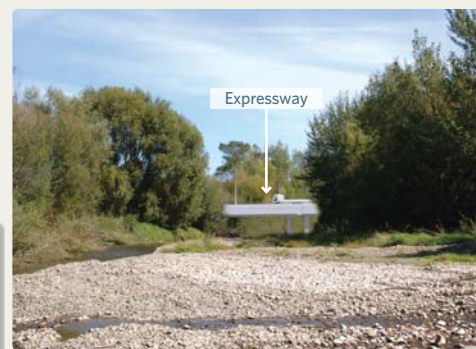
Indicative street level view looking west on Otaihanga Road - before mitigation work.

Waikanae River

The expressway will cross Waikanae River on an architecturally designed bridge. The bridge is approximately 180m long and its supports must be carefully placed to take into account the significance of the river flow during floods.

The quality of the space beneath the bridge will be carefully designed in recognition of the importance of the river corridor for recreational uses.

A cycle/walk path will also cross here, to provide another crossing point in addition to the cyclist/pedestrian bridge lower down the river. A new access to El Rancho will be provided under the bridge.



Indicative view down the river west towards the coast showing the expressway crossing over - before mitigation work. The bridge design detail has yet to be undertaken.



Aerial oblique view of the existing Waikanae River area - the open rural landscape is visible to the left and El Rancho is visible to the right.



Indicative aerial view of the Waikanae River expressway bridge - before mitigation work.

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North of Waikanae River

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North of Waikanae River the expressway will curve around in a cutting on the west side of the Maketu tree. It will then run east of the high dune system.

The expressway follows the toe of this dune passing through the man-made ponds - at this point it is about 16m below the urupa (burial grounds). Past the urupa the expressway will be cut through the dune which faces east before proceeding to Te Moana Road.

The expressway runs to the east of the urupa but passes across a corner of the wāhi tapu area.

Considerations

- Rehabilitating the land by carefully reshaping affected dunes to forms that reflect the local landscape character.
- Retaining as much of the existing wetland areas as possible, extending them and replanting with locally-sourced native plant species to recognise the visual amenity, cultural, habitat and water management functions.
- Retaining areas of regenerating native forest and wherever possible extending, and joining existing areas and enhancing them to recognise their value as habitat and visual amenity.
- The use of noise barriers, bunds (earth mounds) and planting to recognise effects of the expressway on adjacent residential properties on Puriri and Kauri Roads.
- Working to determine the appropriate design including construction processes and protocols, to recognise that the wider area has cultural and archaeological significance.



Aerial view looking south showing mitigation concept of stormwater wetland, existing wetland enhancement and revegetation.



Indicative aerial view of the expressway looking south. The urupa is visible on the grassed dune hilltop - before mitigation work.



The mitigation treatment includes the natural shaping of landforms and replanting with dense native planting. Noise barriers - bunds and walls - will also be incorporated in some areas with their design to respond to the adjacent property. The wetland areas will be extended and enhanced, and will have a stormwater management function.



Indicative cross section below the wāhi tapu area.

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Te Moana Road interchange

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At Te Moana Road there will be an interchange that provides access to the expressway for Waikanae. The expressway will cross over Te Moana Road. Near the bridge, Te Moana Road will need to be widened to accommodate roundabouts which will manage traffic flow to and from the on and off ramps.

The cycle/walk paths will be positioned to make crossing the on and off ramps safe and to give access to existing paths on Te Moana Road. Provision for horse riding will also be made.

Mitigation considerations

- The visual appearance of the interchange bridge to people using Te Moana Road is important.
- The garden suburb character of Waikanae will be represented through formal exotic specimen tree planting.
- The need to integrate the interchange bridge design with on and off ramps and the local space is recognised. Trees, plants, and lighting will be designed in a way that is sensitive to the environment and semi-rural area between Waikanae town and beach communities.
- The future form of Te Moana Road itself in terms of footpaths, cycleways, signs, lanes, crossings, trees and other amenity influences will recognise the importance of this east-west connection to the community.
- The sustainable management of stormwater and existing floodable land recognises that the expressway will generate water runoff, and that the area is an overland floodway in the event of the Waikanae River breaching its banks.



Indicative aerial view of the Te Moana Road expressway interchange. The shared cycle/walk path can be seen crossing from the east to the west (right) side - before mitigation work.



Indicative street level view looking west on Te Moana Road - before mitigation work.



Indicative street level view looking east on Te Moana Road - before mitigation work.



The indicative design for the area around the interchange will consider the architecture of the bridge, the landscape design of the ground around the structure and the way in which people move around and experience the bridge from below. The design aims to utilise the large areas of space between on and off ramps for dense planting and exotic trees to reflect the garden suburb character of Waikanae. This interchange is also a key 'gateway' point for expressway users and the way this is experienced by these users will be considered. The open land on the east side of the expressway provides for overland flood flows.

KEY	
Ⓐ Wetland stormwater area	Ⓜ Shared cycle/walk path
Ⓑ Stream planting	Ⓨ Exotic tree area
Ⓒ Dense planting on embankment	Ⓩ Noise barrier on bridge edge
Ⓓ Dense planting on bund	ⓐ Swale (channel)
Ⓔ Open grassed areas	ⓑ Floodpath



Indicative cross section through the Te Moana Road area.

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Ngarara, Smithfield and Peka Peka Roads

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Ngarara Road

- The expressway will go under Ngarara Road - the local road will be on a bridge and will be realigned slightly from its current position.
- The rural form of Ngarara Road will be maintained.
- The wetland areas around Ngarara Road have been carefully avoided and any stormwater function of these will be designed to protect their value.

Smithfield Road

- The current road will be retained up to the edge of the expressway to give access to properties on the west side of the alignment.
- A new local road connection will be formed over the expressway on a bridge to provide access to properties east of the alignment, including Nga Manu Nature Reserve.
- This connection will also facilitate the planned future development of the North Waikanae Growth Area.

Peka Peka Road

- A southbound off ramp from the expressway will connect to Peka Peka Road. The connection from Peka Peka Road to the former highway and Hadfield Road will be by a bridge over the expressway. Northbound Peka Peka traffic can connect to the expressway.
- Traffic from Peka Peka going south will use the former highway to Waikanae and can join the expressway at the Te Moana Road interchange.
- Hadfield Road traffic can join the expressway here to go north. Southbound traffic will also use the former highway to Waikanae.
- Traffic from north of Peka Peka Road can exit the expressway to the former highway to get to Waikanae or can continue to the interchange at Te Moana Road to get to Waikanae.



Indicative aerial view of the Ngarara Road expressway overbridge looking south. The shared cycle/walk path can be seen on the west (right) side - before mitigation work.



Indicative aerial view of the new connection overbridge looking south. Smithfield Road is closed - access to Nga Manu (in the top left corner of the image) will be from the new local road. The shared cycle/walk path can be seen on the west (right) side - before mitigation work.



Indicative aerial view of the partial interchange at Peka Peka Road looking south. A new elevated crossing over the railway is provided for Hadfield Road - before mitigation work.



Indicative view of expressway from Hadfield Road area looking west - before mitigation work.

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Noise, vibration and air quality management

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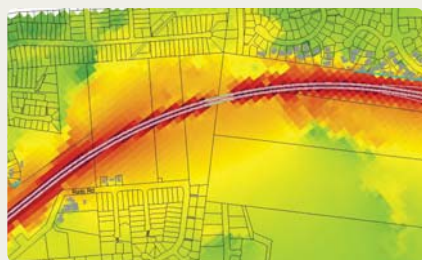
The need to consider noise, vibration and air quality in the design of the expressway is extremely important. In addition to meeting national standards and guidelines, internationally recognised best practice measures are being followed to reduce noise and vibration, and to maintain air quality for nearby premises and facilities.

Noise management

The noise mitigation methods contained in New Zealand Standard NZS 6808:2010 Acoustics will be followed.

Typical noise sources from traffic on the expressway are vehicle tyres on the road surface and engines. Construction noise will also occur and is addressed on the Construction panel.

Noise monitoring is being undertaken to understand what the noise levels are in the area now, before the expressway is built.



Noise modelling shows the areas near the expressway where a high increase in noise levels may occur (red). Low increases in noise levels are also shown (orange to yellow to green). Noise mitigation will be designed to achieve the lowest practicable level of noise near houses as described on this panel.

Some parts of the route will be near residential areas. A different approach to manage any noise from the expressway will be followed where the land use requires a more sensitive approach.

To meet the standard (and to reduce noise levels below it where possible) the expressway design will use the following approaches:

- considering the alignment of the expressway to avoid as many sensitive receptors as practicable
- maintaining a buffer space between the expressway and the sensitive receptors
- using smooth asphalt surfaces that reduce the noise generated by tyres on the road
- positioning noise barriers and bunds (earth mounds) to obstruct the noise transmission to sensitive receptors.



Example of a planted bund to provide a barrier to noise.



Example of a noise barrier in the form of a wall.

Air quality

The quality of air near the expressway is a major concern for many people. Taking into account future traffic volumes, we anticipate that the width of the expressway corridor is sufficient to ensure that there will be no adverse effects.

The extent of any adverse health effects depends on the volume of traffic on the expressway, the degree of congestion, and the proximity of the expressway to houses and people.

The effects of vehicle exhaust emissions from the expressway have to be considered in the context of existing pollution sources (such as domestic fires). All combustion sources discharge similar types of contaminants, and the contaminants from all sources have to be combined to assess the overall effects of the expressway. National Environmental Standards and national and regional Ambient Air Quality Guidelines are used to assess any adverse effects of exhaust emissions.

We have set up a monitoring station on Raumati Road, to measure the existing air quality. This station will operate for a year, however we will have enough information to support a basic air quality assessment by August 2011.



Air quality monitoring station on Raumati Road

Vibration

Heavy vehicles can generate vibrations that travel through the ground to nearby buildings. In some cases this may be felt by people in those buildings. Vibration levels are lower the further away the building is from the source.

During construction, higher vibration levels may occur, the Construction panel describes how this will be managed.

Monitoring of vibrations that currently occur is being undertaken, and the ground conditions studied.

An appropriate separation distance from the expressway to buildings will be determined as a buffer to vibration, and the design will reflect this.

Design approaches to manage vibration may include:

- using smooth asphalt surfaces that reduce the vibration generated by trucks on the road
- maintaining a suitable buffer distance between the expressway and buildings
- using subsurface structures to lessen the transfer of vibration.

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Ecology

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The Kāpiti Coast environment has been highly modified over the years by vegetation clearance and wetland drainage for farming and urban development.

Because there is so little left of the original wetlands and coastal vegetation the remaining areas are of ecological significance. This significance is because they provide:

- assistance to east-west bird movements between Kāpiti Island, Hemi Matenga Reserve and the Tararua Ranges – the wetlands and water bodies are staging points for bird movements
- habitat for rare or threatened freshwater fish species, including giant kokopu, brown mudfish and long-finned eel
- habitat for a wide range of plant species including naturally uncommon wetland species such as dwarf mistletoe (*Korthalsella salicornioides*)
- potential habitat for native birds and lizards in the wetlands and isolated stands of regenerating manuka, kanuka and mahoe.



Left: Patches of indigenous vegetation provide habitats for birds and connections within the east-west bird movement corridors. Right: Nesting Fernbird.

A number of the ecological areas are identified on the KCDC District Plan. Some areas are recognised by QEII covenants. These are included on this composite plan showing known ecological areas (in green).



To recognise and provide for the ecological values in this area the expressway design will use the following approaches:

- undertake ecological investigations to understand the values of the wetlands and other habitats
- identify places where wetlands can be restored or upgraded from their current state in association with the expressway
- ensure the alignment of the expressway avoids as many ecological areas as practicable
- existing wetlands will not be used to treat stormwater which would degrade these further. The new wetlands created for stormwater treatment can also provide habitat value but their key function will be to treat stormwater
- recognise the importance of groundwater flows in the engineering design, as these are required to sustain wetlands
- design the landscape around the expressway to support wetland areas and habitat through the use of locally appropriate vegetation.



Ecological investigations at Waimeha Stream.



Investigations are used to confirm fish species – this is an example at Paetaea watercourse.



Existing wet areas that would have once been wetlands can be restored and can assist with stormwater management where they are close to the expressway.



Scattered patches of indigenous vegetation and wetlands provide habitat for birds and connections within the east-west bird movement corridors.

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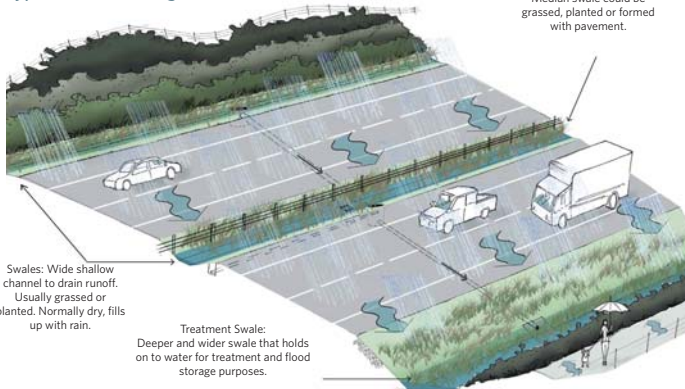
Stormwater

Runoff from rainfall on the expressway (stormwater) needs to be managed carefully, both for the expressway and to protect the environment.

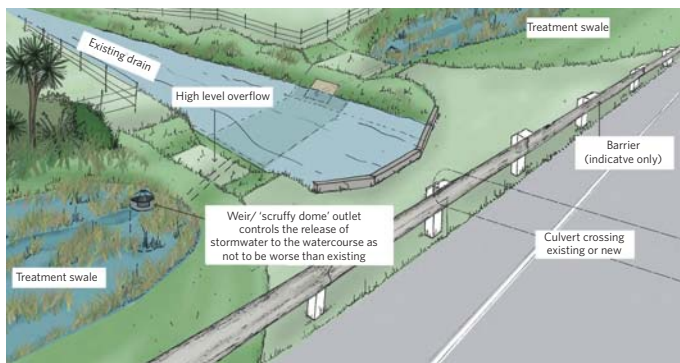
Stormwater management involves:

- Quantity of water, which can generate flooding, scouring and erosion.
- Quality of water, which can contain contaminants (including sediment).
- Wider floodplain issues as a result of the expressway obstructing flood flowpaths.
- Drainage of the expressway surface and how this is managed by sumps, pipes, swales (channels) and wetlands.
- Crossings of existing watercourses and wetlands with associated design of bridges and culverts.

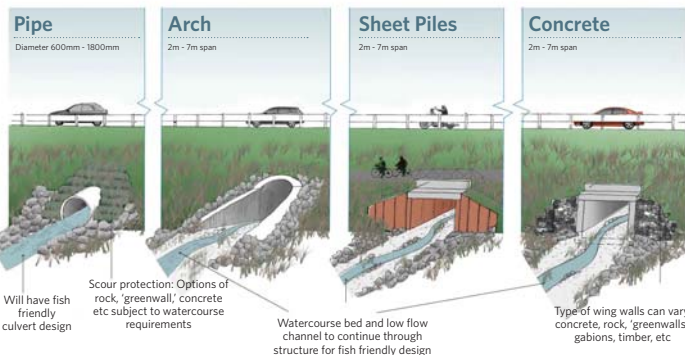
Typical swale arrangement



Typical swale outlet



Culvert design options being considered



Example of wetland in good condition after several years growth

Our approach to stormwater management

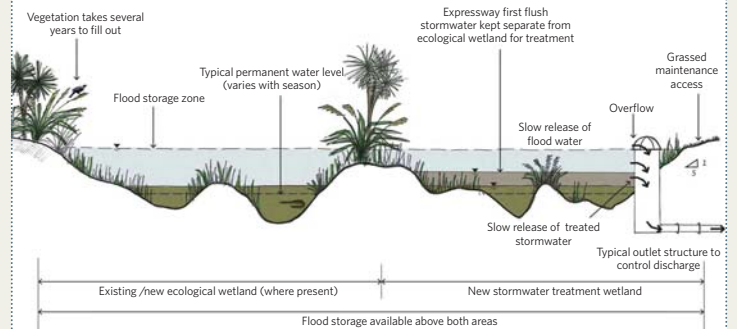
- Recognises the significance of the watercourses and wetlands.
- Addresses stormwater contaminants through a combination of swales and treatment wetlands that improves the water quality prior to its discharge.
- Uses best practice design approaches to meet KCDC, GWRC and NZTA standards which include, for example, requirements for climate change, flooding, treatment and fish passage.
- Bases the watercourse crossings on KCDC's & GWRC's models in order to test and refine the designs and proposed mitigation measures.
- Recognises the opportunities for combined stormwater and ecological enhancements and benefits to both.
- Incorporates habitat value in watercourse crossing design including the use of bridges, fish friendly design and continuing streambeds through larger culverts.
- Uses storage to hold back stormwater and slowly release it to avoid flooding (ie attenuation) - typically with swales and wetlands.
- Maintains floodpaths and allows for storage areas eg Waikanae River and along the Wharemauku Stream.
- Minimises the use of pipes to increase the potential for soakage into the ground where appropriate.
- Recognises wetlands require long term involvement and maintenance.

Wetlands and groundwater

The expressway crosses a mix of rural and urban catchments over both sand and peat with many drains, streams, creeks and the Waikanae River. There are also a number of wetlands in the lower lying areas. The expressway will interact with all of these features, many of which are environmentally and culturally significant.

Groundwater connectivity across the expressway, particularly important between wetlands, will be investigated, modelled, and measures included in the design so that the current groundwater connections are maintained.

Wetland function



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Cultural heritage

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The Kāpiti Coast has always been a highly desirable place to live. Radiocarbon dates suggest people were present there around the 14th century.

During the earliest phases of Polynesian settlement in New Zealand, Maori would have been attracted to the Kāpiti Coast for its environment rich in natural resources and opportunities.

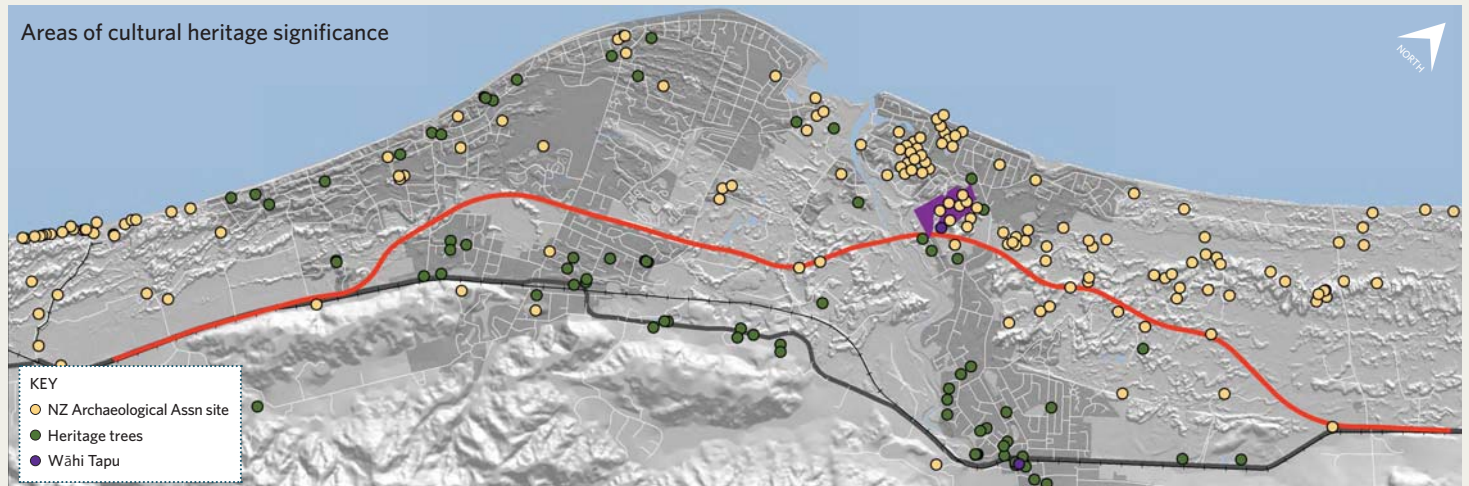
The first Europeans to settle in the region were missionaries and whalers, and their industries included flax milling, whaling and farming. Maori also took up the opportunities from access to new horticultural tools and techniques, which increased the range of available food.

Construction of the main trunk rail line in the 1880s enabled development for commerce and farming along the line on the Kāpiti Coast. It also facilitated urban development. The area of the coast which relates to the expressway is now a combination of urban and rural contexts.



Left: Greenaway Homestead is an example of early European occupation and sits within a landscape of mature vegetation. Right: At Waikanae the urupa (burial ground) on the dune above Puriri Road is a significant cultural heritage place for Maori.

Areas of cultural heritage significance



KEY
 ● NZ Archaeological Assn site
 ● Heritage trees
 ● Wāhi Tapu

To recognise and provide for cultural heritage values the expressway design will use the following approaches.

- Engage iwi, hapu, whanau and community groups to achieve design solutions that seek to restore cultural heritage values through best practice methodologies integrating ecological, cultural heritage planning, urban design and engineering solutions.
- Work with the New Zealand Historic Places Trust and communities of interest to share knowledge and approaches to managing heritage and appropriate consent processes.
- Identify the areas where sites exist that cannot be avoided and plan for pre-construction studies to document, extract and preserve material so that it can be used to improve knowledge of the history of the place.
- Establish the protocols and basis for situations when construction works uncover archaeological material so that the material can be studied, documented, extracted and preserved in an appropriate manner.

Cultural heritage on the coast can be divided into three broad areas:

Pre European Maori occupation

Maori use of the sea, coast and land is evidenced by the large number of archaeological sites along the Kāpiti Coast. Successive generations of Maori settlers in this environment utilised the resources of the numerous wetlands which included flax, eels, birds and an abundance of other material critical to the tribal economy. Areas of stable soils were gardened.

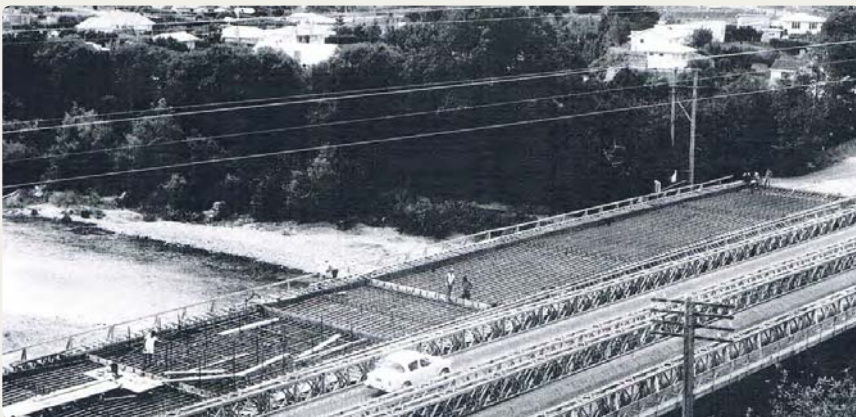
The predominant archaeological site types on the coast are middens and ovens, with the shell middens reflecting the high reliance on the sea for subsistence. Burials also occur in the shifting sands.

Post contact European-Maori occupation

Post contact European-Maori occupation is marked by the continuation of existing subsistence activities and the adoption of new ones. Grown crops included wheat and white potatoes, and steel fishhooks were utilised. Maori worked on the whaling stations that sprung up along the coast, and in new industries including flax and wheat milling.

Early European occupation

Early European heritage includes both commercial and residential sites. Houses, farms and other buildings survive on the coast, as do their archaeological remains. The Greenaway Homestead in Puriri Road is one example of an early homestead.



Constructing the existing State Highway 1 Waikanae River bridge in 1963.

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Walking and cycling

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People move around Kāpiti on foot, by bike, and by a range of other modes – such as mobility scooter or skateboard. The places that people move to and from include schools, homes, shops, libraries, parks, beaches and work. Horse riding also takes place, particularly in the northern and southern ends of the expressway project area.

Understanding the area

A survey of local area movements shows which routes people use the most and where they cross the expressway corridor. This survey has helped the expressway design to provide for these movements and to see where improvements can be made to make it easier to cycle or walk, skate or scooter.



There is frequent use of the Wharemauku Stream path to move between the east and west sides of Kāpiti.

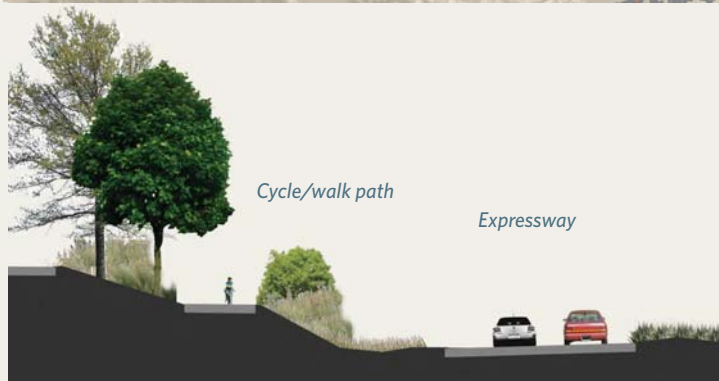
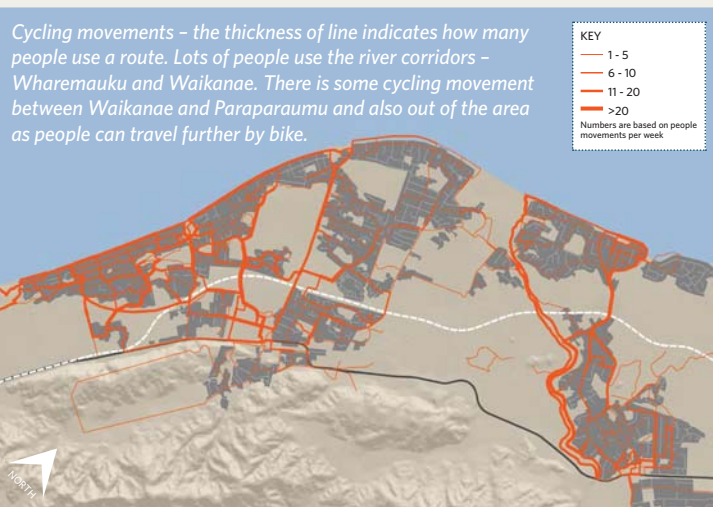
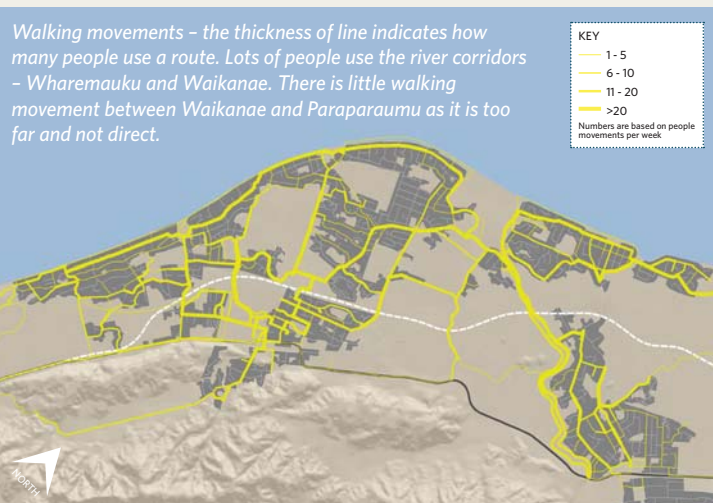
Help us build up the picture of how people walk and cycle, by filling out a survey form. The forms are available here at the EXPO and also at the Information Centre at Coastlands. They can also be downloaded from the NZTA website - www.nzta.govt.nz/m2ppproject under Local area.

Approach

The recreational and health benefits of cycling or walking to and from destinations such as schools, home and work is recognised.

Accordingly, the expressway has been designed to:

- provide a continuous shared cycle/walk path parallel to, but separate from, the whole expressway length with bridges across waterways and connections to the local road, and cycle/walk path networks
- make the path wide enough to allow for two-way cycle traffic with an asphalt surface between Raumati and Waikanae to encourage use by road cyclists, mobility scooters, etc. North of Te Moana Road, the cycle/walk path will have an unsealed surface like the Wharemauku Stream path
- provide additional bridges to encourage east-west cycling/walking connections
- make cycling and walking safe and comfortable where the expressway crosses over local roads by providing lighting and wide paths
- provide a bridleway space alongside the cycle/walk path between Waikanae River and Peka Peka Road.



There is a continuous shared cycle/walk path parallel to but separate from the expressway.

1 MacKays to Peka Peka Expressway

Landscape

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The expressway passes through landscape with different characters - these are urban, rural-residential and rural.



Rural character (QE Park) & lower density residential urban at Raumati South



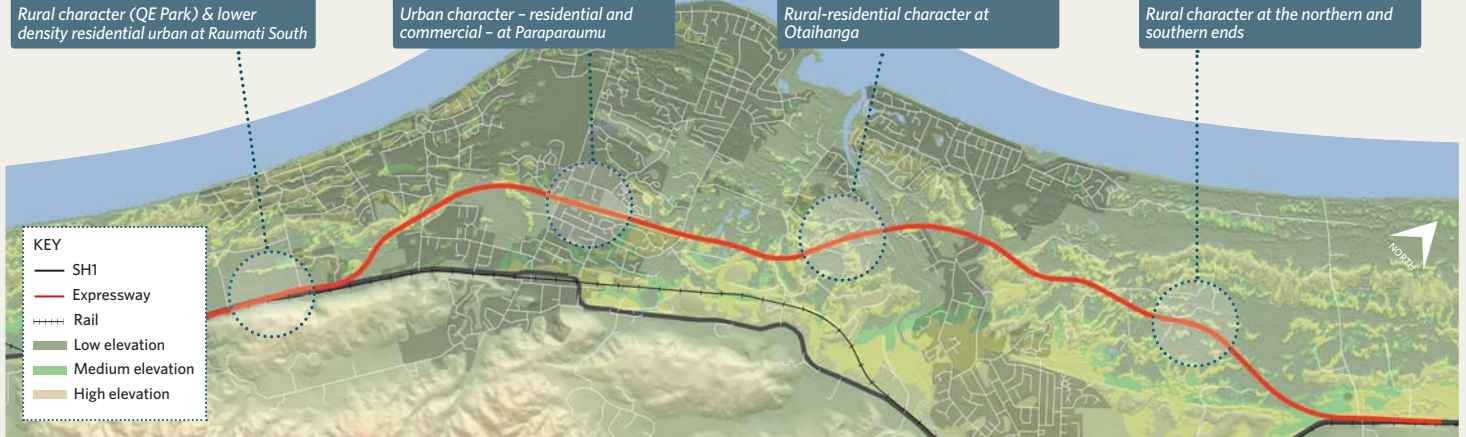
Urban character - residential and commercial - at Paraparaumu



Rural-residential character at Otaihangā



Rural character at the northern and southern ends



Landscape features

Natural features such as dunes, wetlands, streams, and vegetation are distinctive elements along the route and combine to contribute to the sense of place.



Dunes at Raumati Road - many of the dunes that originally dominated the coastal plains have been lost through urban and farming development.



Vegetation - comprises a mix of exotic shrubland, pasture, shelterbelts and amenity tree planting, and small areas of young regenerating native vegetation.



Wetlands at Otaihangā - some wetlands have degraded through weed infestation and poor quality water runoff.



Waimeha Stream - many of the once meandering streams and wetlands have been channelled into narrow drains to assist the ability of the land to be farmed or urbanised.

Approach

The landscape design approach has been to:

- avoid natural features wherever possible
- shape and integrate earthworks created by construction of the expressway with adjoining landforms
- locate planted buffer areas between the expressway and the surrounding landscape
- plant species along the route to reflect the local landscape character
- use plant species that will thrive in the local environmental conditions
- utilise wetland areas for stormwater as part of the expressway and integrate them into the design as part of the landscape mitigation.



1

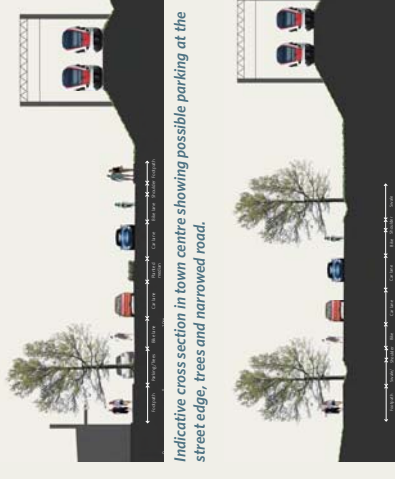
Mackays to Peka Peka Expressway

Former State Highway 1

The expressway's development will enable State Highway 1 to change from a busy national road. Once the expressway is operational, KDCDC will become the owner of the former state highway. This will generate opportunities for the community. The project team is now working on how the former state highway could be redeveloped in the future.

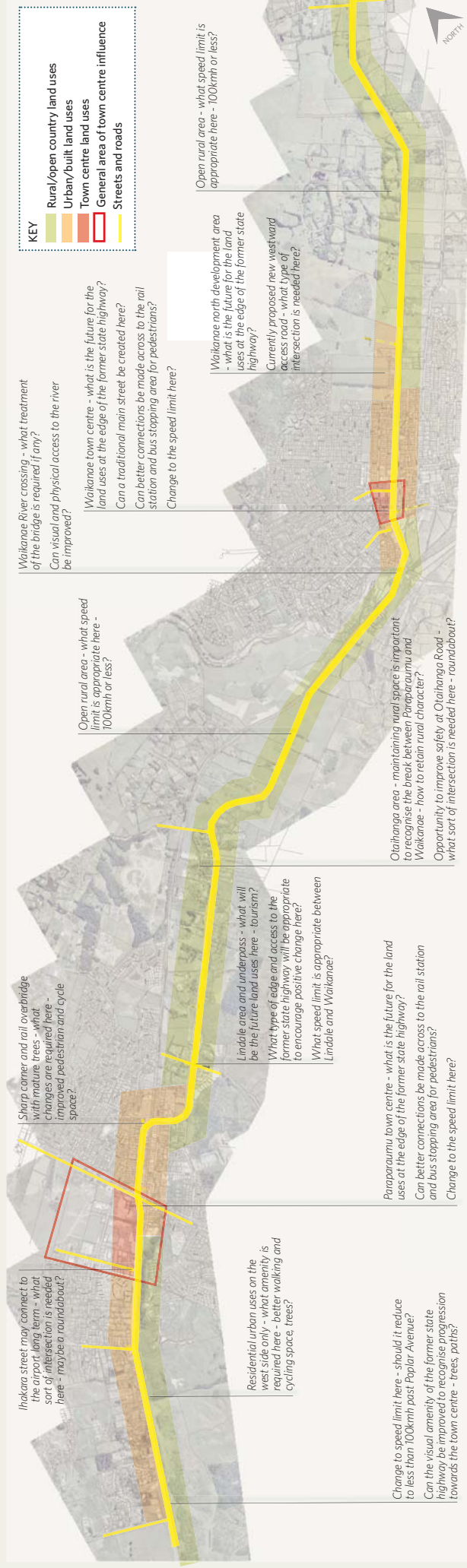
Key considerations include:

- the volume of traffic that is desirable for the former state highway
- recognising that the road will continue to serve some people gaining access to east-west roads, and also to businesses located along it
- what the speed should be for the road. Traffic speeds could be different depending on the environments through which the road passes
- how the road relates to the future land uses at its edge. For example, the town centres at Waikanae and Paraparumu could change to take advantage of less traffic and lower speeds on the former state highway, if this was considered appropriate
- how people can use the former state highway corridor for walking and cycling along, and across it at more points, to improve access between destinations like shops, rail stations, schools and other amenities
- the way in which the former state highway interacts with local roads in terms of intersection design to enable cycling and safe vehicle movements
- the cost of making any changes to the former state highway and the long term maintenance required for this road



Indicative cross section in town centre showing possible parking at the street edge, trees and narrowed road.

Indicative cross section in urban areas showing cycle lanes, trees, swales and narrowed road.

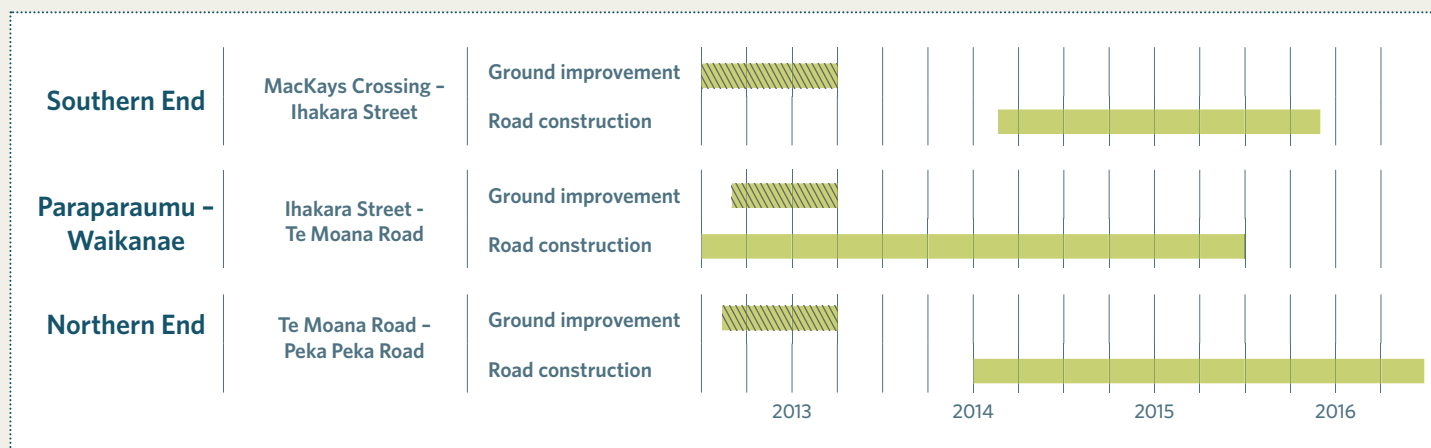


1 MacKays to Peka Peka Expressway

Construction and temporary works

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Construction will be undertaken at different times around three sectors.



Approach

There are four main components to the construction phase.

Ground improvement

Where extensive soft peat is encountered, an embankment of fill material will be placed directly on the ground. In other areas, pockets of peat will be excavated out and replaced with fill material to improve the ground.



Earthworks & drainage

Once the ground has been improved, the bulk earthworks will be undertaken to form the route of the new expressway. At this stage, drainage routes will be formed.



Bridges

While the earthworks are proceeding, bridge construction will commence. There are 13 bridges across streams and local roads along the length of the expressway.



Pavements & surfacing

Upon completion of the earthworks and bridge construction, aggregates will be brought in to form the new road pavement. Once formed, the final process will be to lay the road surface.



Environmental management

There are potential environmental effects from construction to be mitigated including:

- Noise mitigation - by building during normal working hours and selecting machines with low-noise generation. Noise levels will be constantly monitored to ensure construction noise remains within acceptable standards.
- Dust mitigation - by dampening down surfaces and applying straw to exposed sand faces.
- Vibration - by using rubber-tyred machines and non-vibrating rollers.
- Siltation - by using catchment ponds and silt traps to catch runoff before it enters waterways and limiting the extent of open construction areas.
- Traffic - construction traffic will be mostly confined to the expressway corridor and highway, to minimise the use of local roads.

A Construction Management Plan will be prepared as part of the application for consent for the expressway, which will describe how these effects will be avoided or mitigated.

Trials are being undertaken before construction starts, so that construction techniques can be refined. Local contractors will be used in, and to advise, the construction process.

During construction, a stakeholder team will be dedicated to liaising with neighbours of the expressway and the community. They will anticipate issues and deal with them before they arise. An 0800 number will provide contact with the team for any issues that may arise.



Managing dust by water dampening.