

# MAHINGA KAI PROJECT

Anzac Drive Reserve

## Background

Te Rūnanga o Ngāi Tahu, Ngāi Tūāhuriri, the Avon Ōtākaro Network and the Canterbury Waterways Research centre have agreed to work together to develop a proposal for a mahinga kai project in Christchurch.

The Natural Environment Recovery Programme for greater Christchurch has as its Project 17 to 'Act on opportunities to restore and enhance mahinga kai', with Ngāi Tahu (Ngā Papatipu Rūnanga and Te Rūnanga o Ngāi Tahu) as the lead agency.

The approach being taken is to develop an exemplar project that demonstrates how a mahinga kai project could be developed and what outcomes would be expected. This document summarises the project, including information and issues provided through a workshop on 20 November 2013.

## Objectives

- To restore and re-develop a mahinga kai in greater Christchurch to include recognition of cultural and heritage values, and restoration and enhancement of ecosystems, natural habitat, biodiversity, inanga spawning, pathway connections, stormwater treatment, land drainage, food production and active and passive recreation.
- To implement a mahinga kai exemplar project that could then be applied to other ecological and recreational reserves along the Avon River/Ōtākaro and Heathcote River/Ōpāwaho corridors from the city to sea.
- To use Anzac Drive Reserve as an exemplar mahinga kai site.

## Mahinga Kai

Mahinga kai is a key Ngāi Tahu value for earthquake recovery. It is an important aspect of the Ngāi Tahu Settlement Claim.

Mahinga kai is the concept that exemplifies the complex, interconnected cultural beliefs and practices of Ngāi Tahu in relation to the environment, describing not only the species gathered but the places and practices involved in doing so. It includes the direct and indirect use of resources for ceremonial, medicinal and sustenance purposes.

Mahinga kai, meaning to mahi ngā kai (work the food), is a management concept, a way of thinking that involves and understands the simultaneous protection and use of resources. Ngāi Tahu approach this from an integrated management model known as Ki Uta Ki Tai (from the mountains to the sea).

Mahinga kai management and its associations are important to local hapū and rūnanga, especially those who continue to live around, protect and utilise important mahinga kai, wāhi tapu and wāhi taonga. This is particularly true for Ngāi Tūāhuriri who hold mana whenua over the areas most affected by the earthquakes. Protecting, rehabilitating, enhancing and maintaining mahinga kai sites and resources, and the rights of Ngāi Tahu to access these, is critical. Cultural harvest of any of these resources will occur only when the resource is sustainable.

Ngāi Tahu supports the metaphor of a plaited rope with the weaving of exotic and indigenous species, and of Pākehā and Ngāi Tahu traditions.

Ngāi Tahu interprets mahinga kai in its broadest sense to include food for body, mind and spirit. Education, learning ('food for thought') and spiritual sustenance are thus as much a part of mahinga kai as the physical food.

## **The Anzac Drive Reserve Site**

The Anzac Drive Reserve site is illustrated in the map below.

The site is a rectangle about 200m wide (on average) and 800m long ie c16ha. It runs either side of Anzac Drive, a busy arterial and primary freight transit route between the Port of Lyttelton and the north. There are no plans to relocate this thoroughfare and it has recently been repaired and raised following significant earthquake damage.

The site is an important aquatic connection between Travis Wetland Nature Heritage Park in the north-west, the QEII site in the north-east and the Avon River/Ōtākaro in the south.

While the site is reserve land in CCC management it is flanked to the west and east by residential red zone land which is in the process of being bought by the Crown, vacated and cleared of housing. No decision has been made on the future use of this red zone land.

## **Information from Workshop**

**A workshop was held on 20 November 2013 at Travis Education Centre to initiate this project.**

The workshop was jointly convened by Te Rūnanga o Ngāi Tahu, Ngāi Tūāhuriri, Avon-Ōtākaro Network and Environment Canterbury (NERP).

The workshop was attended by: Joseph Hullen, Chrissie Williams, Evan Smith, Graham Coker, Mike Hickford, Mark Taylor, Matt Morris, Bryan Jenkins, Ann Kennedy, Ross Campbell, Rodney Chambers, Mark Gibson, Anne Wilkins.

This took the form of an introductory round table discussion, a field excursion around the site and a further round table discussion. The information arising from the discussions and field excursion are summarised below:

### **Avon Ōtākaro Network**

- Avon-Ōtākaro River Residential Red Zone (RRZ) is ~450ha along with ~150ha adjoining green space
- *"The Avon-Ōtākaro Network [AvON], is a network of individuals and organisations promoting the future use of the Ōtākaro/Avon River and the surrounding red zone lands as an ecological and recreational reserve for the community. We wish to establish a community-driven science-informed living memorial to rejuvenate and nurture the long-term environmental, economic, community and spiritual wellbeing of the eastern suburbs and of those living throughout greater Christchurch. Our aim is to create a place of hope and inspiration for the people of Christchurch by restoring health and vitality to our river and its lands."*
- AvON views the Mahinga Kai Project as providing the core infrastructure of the AvON vision: the restoration of natural habitat throughout the Avon-Ōtākaro RRZ. As such AvON is an enthusiastic and committed champion and partner of the Mahinga Kai Project.
- CERA and the government currently have no public policy on future use of RRZ, and do not allow any activity on RRZ land
- CERA/CCC have a cost sharing arrangement which includes the transfer of reserve land within the RRZ from CCC to CERA.

### **Natural Environment Recovery Programme (NERP)**

- NERP has been developed and adopted by Environment Canterbury. Now in implementation stage
- It is an advocacy/influencing document, rather than a statutory one.
- Mahinga Kai project 17 is included in the NERP, and links with many of the other NERP projects

## **Regulatory**

- Anzac Drive Reserve land zoned as Living 1 in CCC District Plan
- There is a designation for SH74 – a limited access road
- The area is within CCC District Plan flood management area (FMA)
- We need to ascertain land tenure of Atlantis Park, and its availability for trees/nursery

## **Land level changes**

- From 2010 to post June 2011 LiDAR shows
  - up to 1m drop in elevation on either side of Lake Kate Sheppard, and
  - a rise of up to a 1.5m in the residential area to the west of the area from fill

## **CERA interim land treatment**

- Area to the west of the reserve to be grassland, with a narrow riparian buffer on the northern boundary between the reserve and the RRZ, and with the pond area in the south west corner being riparian buffer
- On the east the area to Waygreen Ave, and slightly further east in the southerly section is designated as a wet area in CERA's land treatment

## **CCC Land Drainage recovery programme**

- Contacts are Owen Southern and Mike Gillooly at CCC
- Goal is to increase flood capacity - pre EQ system was designed for flood waters to flow back into Travis Wetland for storage - a tidal pump
- CCC could dredge or could widen waterways (eg take inland to the east of the site) to increase capacity
- Understanding hydrology and circulation of system
- Corser's stream connected to Travis Wetland. Is Corsers Stream important for land drainage?
- Is it also possible to connect Lake Kate Sheppard to Travis Wetland?
- Question the purpose of gates at Lake Kate Sheppard outlet to Avon River – could they remain open most of the time?
- Waterways influence by tidal effects – pre EQ Lake Kate Sheppard would rise ~½ m each tide.
- Need survey of profiles of streams, lakes

## **Water quality**

- Stormwater management/treatment important
- Flushing flows needed
- Sediment management – contact Jon Harding
- Sediments, bacteriological, heavy metals

## **Inanga spawning sites research and rehabilitation**

- Limit of saline effects from tides? – not uniform across river – centre channel higher salinity than edges
- Avondale Bridge site still a spawning area – spawning moved vertically up the bank, not longitudinally along the river.
- Spawning area pre EQ in Lake Kate Sheppard on SE (400-500m) and S edges of lake
- Pre EQ spawning at S end of Corsers Steam
- Inanga spawning site design
  - Need shade, humidity, substrate, dependent on hydrology, dredging, water levels , bank shaping
  - Need areas with low disturbance at key times
  - Water depth important for protection of adult fish from predators (eg shags)
  - Planting – inanga preference for exotic grasses, rushes if dense enough, not flax, not yellow flag iris
  - Soil structure – need water holding properties to stay moist. Liquefaction silt dries

## **Ecology**

- Want to restore indigenous vegetation for biodiversity, habitat, education
- Ecology related to hydrological connections with Travis Wetland
- Treatment of willows

- Kahikatea
  - An ideal large native tree for this area.
  - If planting, plant in groves, shelter with ribbonwood to start
- Birds
  - Currently present kotare/kingfisher, papango/scaup, putangitangi/paradise shelduck, kereru/native pigeon
  - Design to discourage Canada geese

#### **Urban forest/food forests**

- Community garden requires strong community nearby to take ownership
- Atlantis Park more suitable for food forest, orchard, fruit tree nursery. Opportunity for heritage varieties to extend blossom and fruiting season
- Need to determine what resources would be required eg access to water, sheds, plants, money, maintenance ...
- Matt to discuss at hui at BHU on 30 November

#### **Weed and pest control**

- Maintenance costs of controlling weeds need to be considered in design and ongoing operation of project
- Water ways transfer weeds from one area to another eg yellow flag iris in Avon River – risk to move to Travis Wetland, beggars tick in Travis Wetland – risk to move to other wetland areas and Avon River
- Purple loosestrife now controlled at Cockayne Reserve, don't want it infesting other area
- Grey willow – useful as a nursery plant if female removed – finding at Travis Wetland that males reverting to female if all females removed – regular vigilance required
- Rudd numbers appear low

#### **Kate Sheppard –former retirement village site**

- In RRZ
- National Council of Women wish to develop a heritage orchard on the site

#### **Recreation and Education**

- Need to understand context and assess connectedness with wider area – green network, blue network
- Consider access, circulation patterns, parking; consider facilities for cycling, walking, picnics, contemplation
- Need noise attenuation
- Think of pathways as story ways, a place for oral transmission of knowledge

## Next Steps

### **Convene a Meeting with CCC Drainage Team** [Evan/Ross to action]

*[Invitees to include inanga spawning specialists, freshwater management specialists, reps from Ngai Tahu, ECan, & AvON]*

- To gain an understanding of the hydrology and drainage characteristics, constraints, goals and plans that impact the reserve and its relationship with Avon River, Travis Wetland and Corsers Stream.
- To facilitate waterways designs that optimise inanga spawning and indigenous wildlife habitat along with stormwater treatment while also meeting drainage imperatives.
- To explore whether there is a case for Corsers stream and its riparian edge to be excluded from the residential red zone.
- To advocate for this project to be given priority.

### **Convene a Meeting with appropriate CCC staff** [Evan/Ross/Chrissie to action]

- To establish legal status of the reserve including Atlantis Park
- To establish what strategies, policies and plans apply to the lands and waterways of the reserve that might impact progressing the project
- To gain broad support of CCC staff at appropriate levels for the Mahinga Kai Exemplar Project
- To advocate for this project to be given priority.

### **Convene Meeting between Forage Forest, Urban Forest and Landscape Specialists**

[Matt/Graham/Anne to action]

- To gain/define support from forage forest/community garden communities and urban forest hub group
- To work on concept for Atlantis Park
- To work on vegetation solutions elsewhere that assist in the attenuation of noise from traffic etc.

### **Reconvene Project Team:**

- To delegate drafting of parts of the concept plan
- To coordinate integration into a complete document

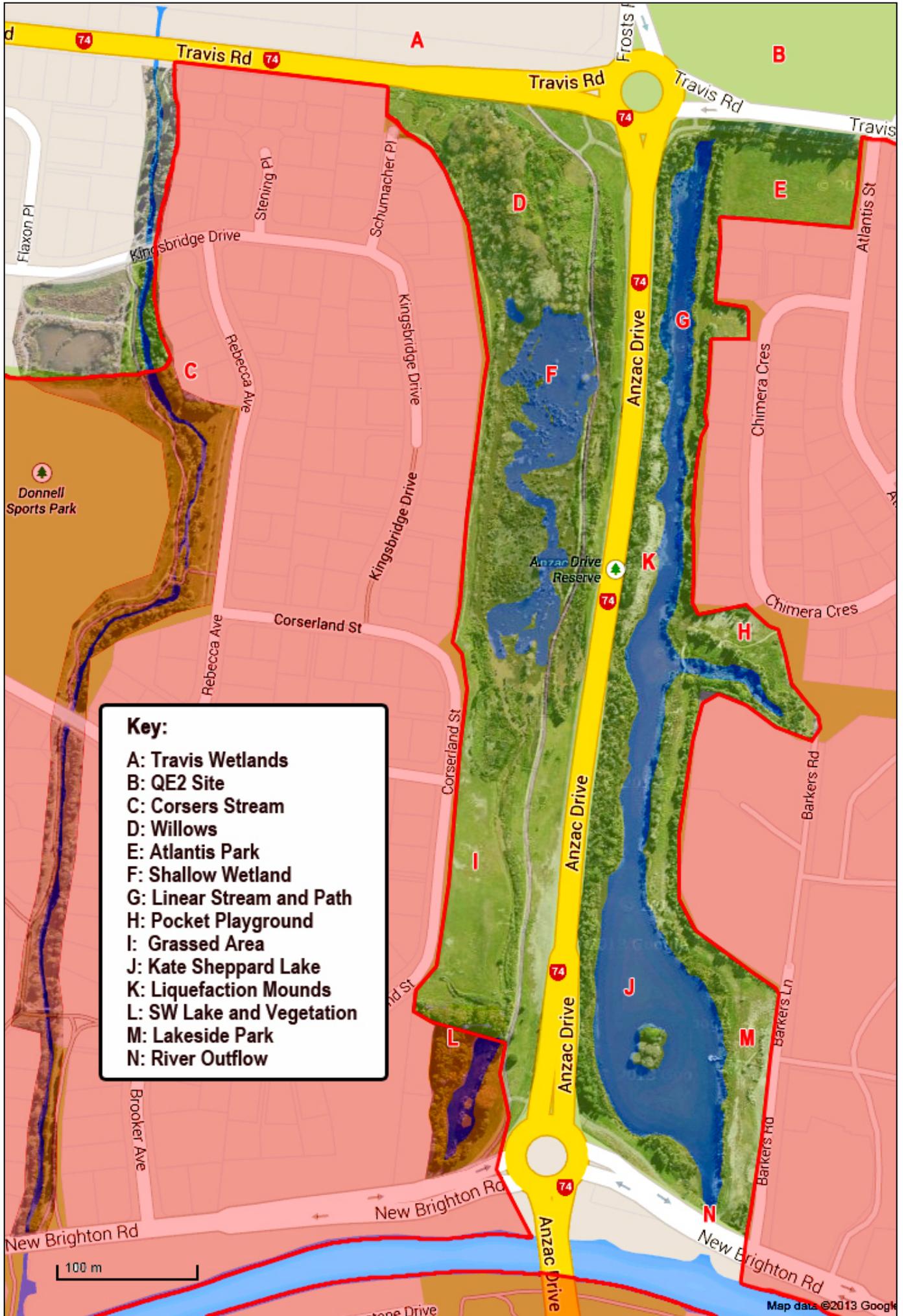
### **Deputation to Council:**

- To make the case for the Mahinga Kai Exemplar Project
- To gain support of Council to progress the project as a matter of priority

## Site Description & Map

The site neighbours and comprises a number of different habitats and environments:

Area on map	Description
<b>A</b>	Travis Wetland Nature Heritage Park
<b>B</b>	Former QEII Park
<b>C</b>	Corsers Stream is the primary stream connecting Travis Wetland and the Avon River/Ōtākaro and runs in a parallel course about 300m to the west of the site through the residential red zone.
<b>D</b>	Wetland grey willow (considerable dead trees?) Fenced with barbed wire to the north – in need of attention
<b>E</b>	Grassed urban park – Atlantis Park – small pocket park the size of a football field. Has potential to be developed as community garden / forage forest/ orchard site nested within indigenous planting
<b>F</b>	Emergent shallow wetland – land that has subsided during the quakes and is now below the water table. Cycleway/path adjacent to this pond is submerged. Work is currently underway on the pathway to the immediate west of Anzac Drive through areas I and F on the map. This is being rebuilt higher and wider than the original pathway. Downer is undertaking these works for SCIRT. There appears to be a lot less care with regard to contamination of the wetlands than was exercised in the rebuild of the roadway.
<b>G</b>	Linear canal-like water way previously planted in indigenous vegetation either side. There is room for cycle and foot paths on the eastern side.
<b>H</b>	Park and Inlet. Swing and damaged slide and other play equipment still in situ: could be repaired. Inlet provides a pleasant contemplation area with wooden seating and has a damaged wooden bridge.
<b>I</b>	Grassed area – supports a number of Canada Geese, ground covered in their faeces – slopes down to drainage channels that appear to drain back into the wetland in Area F
<b>J</b>	Lake Kate Sheppard. At the southern end of the “canal” with wooden jetty which has subsided and needs repair/replacement. Like the “canal” has considerable liquefaction so is now much shallower than pre-quakes and thus no longer good habitat for scaup – currently mainly supports black swan, common species of duck and Canada Geese (often seen on the Southern shore between the lake and the road), swallow, heron. These waterways were successfully developed as an inanga spawning area pre-quakes.
<b>K</b>	There is an area where Liquefaction sands appear to have been dumped in mounds on the western flank hidden from Anzac Drive by vegetation.
<b>L</b>	SW lake – small lake surrounded by vegetation (both exotic and indigenous) with considerable canopy cover – black shag and cormorant, also kotare. Filled with liquefaction so now shallower. Connection to the river? This area has been included in the red zone so is subject to the CCC/CERA cost share agreement
<b>M</b>	Lakeside Park – a linear strip of previously grassed urban park that is now in disrepair and sports a home-made BMX jump. Has potential to be developed into a lakeside picnic and/or community meeting or educational space (and possibly some cycle facility)
<b>N</b>	River Outlet – Under-road culvert connecting the lake with the river with flap valves at the northern end. Valves appear to be wedged open slightly (to allow passage of inanga?)



## Project Strengths and Opportunities

- **Cultural Heritage strengths and connections:**
  - Link to Oruapaeroa
  - Restoration of Mahinga Kai
  - Kate Sheppard and women's suffrage
  - Anzac Memorial (Poppies) and nationhood
  
- **Ecological benefits and connections:**
  - Inanga spawning
  - Indigenous terrestrial and aquatic habitat
  - Link to Travis Wetland Nature Heritage Park
  - Link to Avon River/ Ōtākaro
  - Stormwater treatment potential
  - Flood mitigation
  
- **Recreational activities and connections:**
  - Walking and links to other pathways
  - Cycling and links to other cycleways
  - Children's play
  - Bird-watching
  - Community gardening
  - Link to QEII recreational facilities
  - Link to river-based recreation
  
- **Community strengthening:**
  - Significant Opportunities for Community Volunteering in the Development
  - Community Garden / Orchard / Forage Forest
  - Community Picnic / Outdoor Meeting Area(s)
  - Educational Opportunities for Schools and General Public (Ecology, Food, Cultural Heritage, Water Treatment)
  
- **Possible funding support:**
  - CEAT Support
  - CCT Support
  - CCC Support (pathways)
  - Other (eg Rangiora Earthquake Express: forage forest, etc)
  - Budgetary Benchmark for Future Developments Elsewhere
  
- **Political support:**
  - Desire for an early-win exemplar
  - CERA CEO
  - Ngāi Tūāhuriri / Ngāi Tahu
  - CCC Mayor
  - Community

## Project Weaknesses and Threats

- Traffic:
  - Noise: Significant Traffic Noise – includes heavy freight transporters. Impairs quiet recreational experience. Will need to be ameliorated as much as possible with appropriate planting of adequate height and density. Reduction in speed limit to 50kph?
  - Road Crossing Safety – multi-lanes, traffic volumes and speeds make it difficult to cross Anzac Drive safely by foot or cycle especially if child, with pram or impaired mobility. Need for crossings (controlled?). Centre islands. Reduction in speed limit to 50kph unlikely.
  - Threat to Indigenous Wildlife – risk being struck by vehicle on road. ‘Invisible’ barriers, fences? Under-road wildlife crossings? Reduction in speed limit to 50kph unlikely.
- Invasive Species:
  - Flora: Yellow flag iris, grey willow, etc – prevention, control and eradication
  - Fauna: Rudd, Canada geese, etc – prevention, control and eradication
- Impediments to Indigenous Fish Passage and Spawning:
  - Culvert design/substrates that support and encourage passage of indigenous fish and aquatic invertebrates while allowing appropriate control of water flow between lakes, streams and rivers for flood management etc.
  - Appropriate shoreline vegetation
  - Changes in location of tidal extent / salt wedge – measure and monitor
- Storm water run-off:
  - Roads (Anzac Drive) and paths – Direct run-off to the western wetlands rather than the Kate Sheppard Lake and ‘canal’; use permeable materials for pathways (including board walks); intercept with wetlands.
- Political:
  - Tangential red zoning issues
  - Infrastructure changes in future – roading, stopbanks, flood protection measures, etc
  - Ownership via Cost-Sharing Agreement especially SW lake, and boundaries
  - Existing development plans for the reserve – if they exist - may conflict.
  -
- Interpretation of ‘Mahinga Kai’:
  - Narrow interpretation as harvesting of food from the river especially at a time when CDHB issuing health warnings re whitebaiting etc. Need to educate and ‘market’.
  - Pakeha threatened by perceived ‘take over’ by Ngāi Tahu? Need to educate and ‘market’.

## Benchmarks

- Safe for Contact Recreation
- Healthy Eco-System
- Good Enough to Eat Out Of
- Culturally Acceptable Mahinga Kai Values
- Strong, Active, On-Going Community Support

## People and Partners

Interest/ Organisation	Role	Name	Email	Phone
Ngāi Tūāhuriri / Ngāi Tahu	Earthquake liaison, Te Rūnanga o Ngāi Tahu	Te Marino Lenihan	<a href="mailto:TeMarino.Lenihan@ngaitahu.iwi.nz">TeMarino.Lenihan@ngaitahu.iwi.nz</a>	371 2644
	Ngāi Tūāhuriri earthquake group, Mata-popore Chair Te Kōhaka o Tūhaitara Trust Aoraki North Canterbury Conservation Board	Joseph Hullen	<a href="mailto:Joseph.Hullen@ngaitahu.iwi.nz">Joseph.Hullen@ngaitahu.iwi.nz</a>	
Inanga/Whitebait Spawning Habitat Enhancement	School of Biological Sciences, Univ. of Canterbury	Mike Hickford	<a href="mailto:michael.hickford@canterbury.ac.nz">michael.hickford@canterbury.ac.nz</a>	364 2987 ext 3049
	Aquatic Ecology Limited (AEL)	Mark Taylor	<a href="mailto:info@ael.org.nz">info@ael.org.nz</a>	366 4070 02102262517
Freshwater Ecology	School of Biological Sciences , University of Canterbury	Jon Harding	<a href="mailto:jon.harding@canterbury.ac.nz">jon.harding@canterbury.ac.nz</a>	364 2987 x 4988
Freshwater Management	University of Canterbury and Lincoln University [Also AvON Strategic Steering Group]	Bryan Jenkins	<a href="mailto:bryan.jenkins@canterbury.ac.nz">bryan.jenkins@canterbury.ac.nz</a>	364 2330
	Environmental Science & Planning [Also AvON Strategic Steering Group]	Ann Kennedy	<a href="mailto:dahen@xtra.co.nz">dahen@xtra.co.nz</a>	352 7253
Natural Environment Recovery Plan	Programme Leader, Environment Canterbury [Also Eastern Vision Steering Group]	Chrissie Williams	<a href="mailto:Chrissie.Williams@ecan.govt.nz">Chrissie.Williams@ecan.govt.nz</a>	027 702 7457
Christchurch City Council	Senior Surface Water Planner	Graham Harrington	<a href="mailto:Graham.Harrington@ccc.govt.nz">Graham.Harrington@ccc.govt.nz</a>	
	Transport and Greenspace Unit Manager	John Mackie	<a href="mailto:John.Mackie@ccc.govt.nz">John.Mackie@ccc.govt.nz</a>	
	Natural Environment and Heritage Unit Manager	Helen Beaumont	<a href="mailto:Helen.Beaumont@ccc.govt.nz">Helen.Beaumont@ccc.govt.nz</a>	
	Parks Operations Manager	Ross Campbell	<a href="mailto:Ross.campbell@ccc.govt.nz">Ross.campbell@ccc.govt.nz</a>	027 438 4488
	Coastal and Parks Head Ranger	Rodney Chambers	<a href="mailto:Rodney.chambers@ccc.govt.nz">Rodney.chambers@ccc.govt.nz</a>	
Urban Forestry/ Indigenous Vegetation	Senior Scientist, SCION Research	Alan Leckie	<a href="mailto:Alan.Leckie@scionresearch.com">Alan.Leckie@scionresearch.com</a>	364 2987
	SCION Research	Karen Bayne	<a href="mailto:Karen.Bayne@scionresearch.com">Karen.Bayne@scionresearch.com</a>	364 2987
	SCION Research	Graham Coker	<a href="mailto:graham.coker@scionresearch.com">graham.coker@scionresearch.com</a>	
	Director, New Zealand Research Centre for Urban Ecology (NZRCUE) Professor of Urban Ecology, Lincoln University	Glenn Stewart	<a href="mailto:glenn01@xtra.co.nz">glenn01@xtra.co.nz</a>	329 5075
	President Travis Wetland Nature Heritage Park, Landcare Research Ecologist [Also Eastern Vision]	Colin Meurk	<a href="mailto:MeurkC@landcareresearch.co.nz">MeurkC@landcareresearch.co.nz</a>	321 9740
	Travis Wetlands Park Ranger, CCC	John Skilton	<a href="mailto:john.skilton@ccc.govt.nz">john.skilton@ccc.govt.nz</a>	027 496 8935
Environmental Planning and Design	CERA	Don Miskell	<a href="mailto:Don.Miskell@cera.govt.nz">Don.Miskell@cera.govt.nz</a>	
	Boffa Miskell	Craig Pauling	<a href="mailto:Craig.Pauling@boffamiskell.co.nz">Craig.Pauling@boffamiskell.co.nz</a>	366 8891
	Landscape Architect Group Manager, Align	Sam Martin	<a href="mailto:smartin@align.net.nz">smartin@align.net.nz</a>	928 1684

	Landscape Architect, Align	Anne Wilkins	<a href="mailto:awilkins@align.net.nz">awilkins@align.net.nz</a>	982 5040
Community: Avon- Ōtākaro Network	Co-Chair	Mark Gibson	<a href="mailto:nbu.tidemark@xtra.co.nz">nbu.tidemark@xtra.co.nz</a>	021 215 5450
	Co-Chair [Also: Programme Manager Eastern Vision]	Evan Smith	<a href="mailto:Karoro.ESC@gmail.com">Karoro.ESC@gmail.com</a>	029 739 9796 or 323 6617
	Strategic Steering Group	Kathryn Bates	<a href="mailto:kathrynbat@gmail.com">kathrynbat@gmail.com</a>	
	Strategic Steering Group [Also Sport Canterbury Liaison and Director, L&R New Zealand Ltd]	Jackie Fanning	<a href="mailto:jackiefanning@lrnz.co.nz">jackiefanning@lrnz.co.nz</a>	027 555 3740
Community: Eastern Vision	Convenor Eastern Vision	Peter Beck	<a href="mailto:Peter.Beck@ccc.govt.nz">Peter.Beck@ccc.govt.nz</a>	353 7882 021 654 445
Community Food Production	Sustainability Advocate, University of Canterbury Sustainability Office Chair, Canterbury branch Soil and health Assn.	Matt Morris	<a href="mailto:matt.morris@canterbury.ac.nz">matt.morris@canterbury.ac.nz</a>	
Community Volunteers	Co-Founder / General Manager, Volunteer Army Foundation	Jason Pemberton	<a href="mailto:jason@volunteerarmy.org">jason@volunteerarmy.org</a>	0273357665
Infrastructure	NZTA	Carl Reller	<a href="mailto:Carl.Reller@nzta.govt.nz">Carl.Reller@nzta.govt.nz</a>	
	SCIRT	Anita Collie	<a href="mailto:anita.collie@scirt.co.nz">anita.collie@scirt.co.nz</a>	