

Subject: Assets and infrastructure report

From: Jilden <jilden@xtra.co.nz>

Date: 11/10/2018 7:08 AM

To: Dean / Jill <jilden@xtra.co.nz>

Assets and infrastructure report

I have very little to report today apart from having the chance to look at the Otara bridge Reconstruction. It certainly was in bad need of attention so hopefully what we're doing now will see this bridge return to 44 t weight limit very soon.

On the old Mangaweka bridge, personally, I believe that it would be absolutely a travesty to demolish it, as with the ever-increasing biking trails appearing around the country and tourist attractions especially around this bridge it would seem to me to be quite ludicrous not to give it the test of time.

Dean

Sent from my iPhone

TABLED DOCUMENT

Assets & Infrastructure
Tabled at _____ Committee.

on 11 October 2018

Item 8

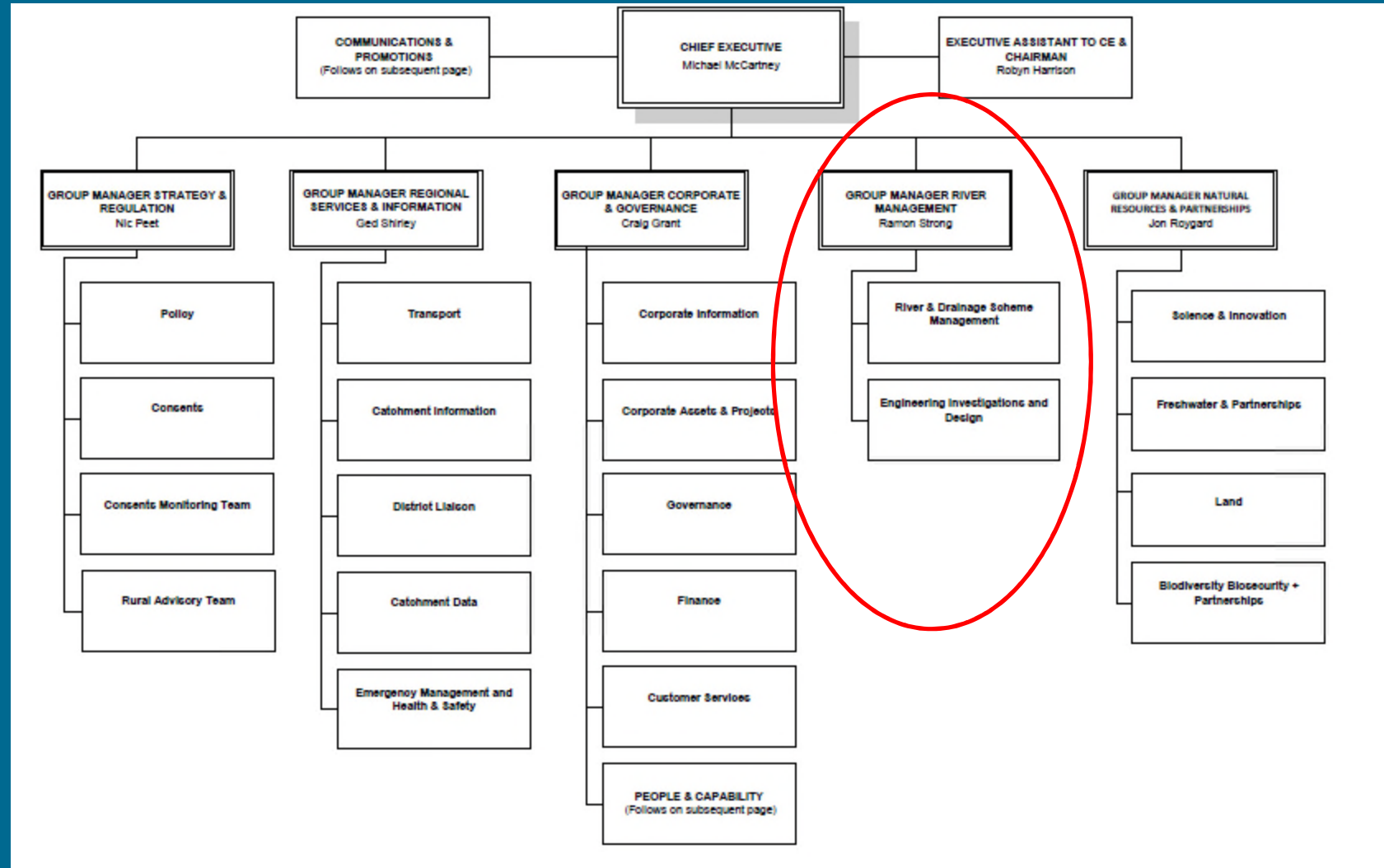


**River Management Briefing
Rangitikei District Councillors
11 October 2018**

Horizons River Management

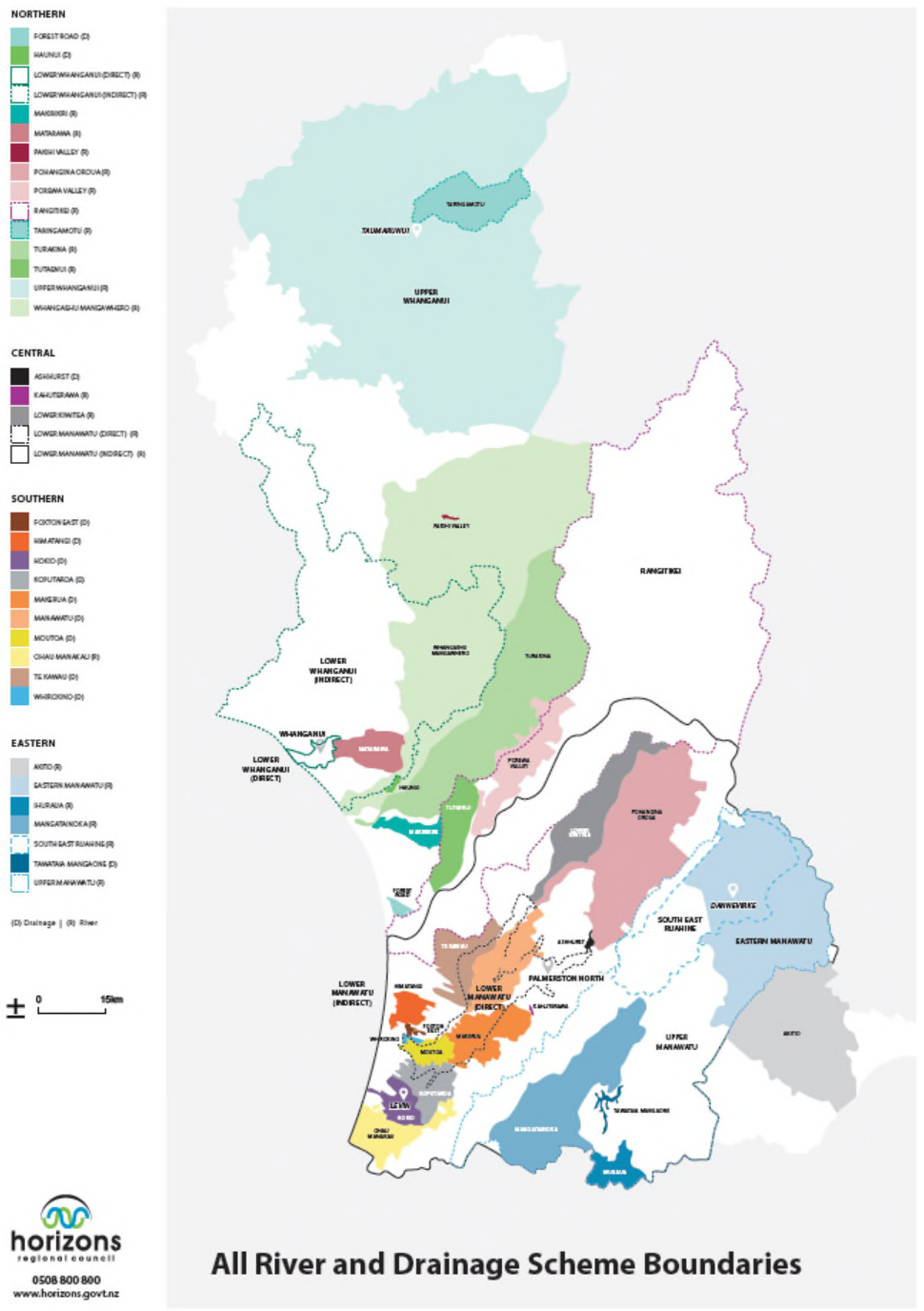
- Overview/ Infrastructure Strategy/ LTP outline;
- Rangitikei river management;
- Detention dams assessment project.

Horizons River Management



Horizons River Management

- 32 staff with a current FY budget of \$11.8M
- 32 River and drainage schemes
- Providing protection/benefit to 10 urban areas and 75,000 hectares of rural land

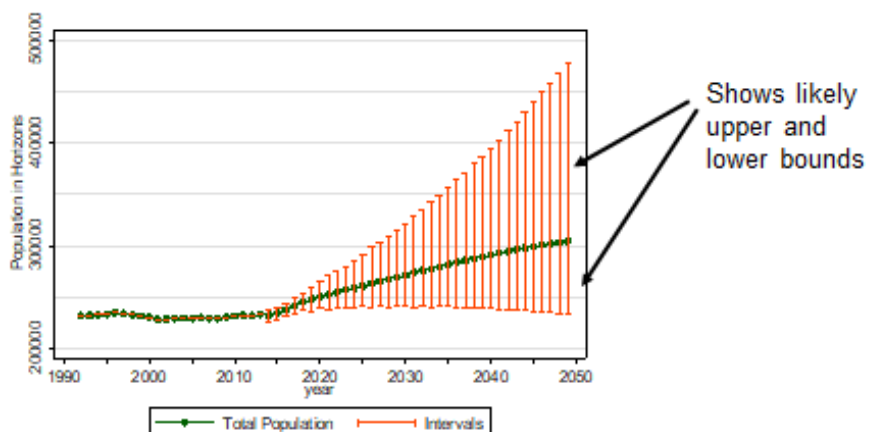




- 1,270km of river channel
- 1,100km of drain
- 23 pump stations with a total discharge capacity of 43m³/s
- 53 detention dams that store 4.3 million cubic metres of floodwater
- 500km of stopbanks



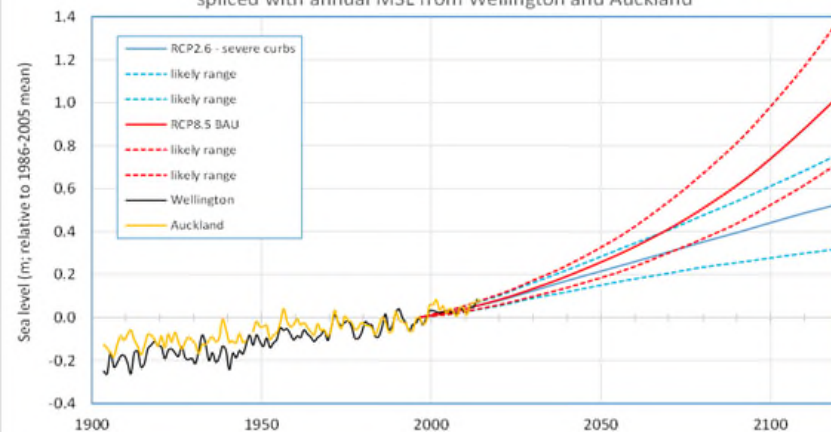
The population within the region is likely to grow to over 300,000 by 2050.



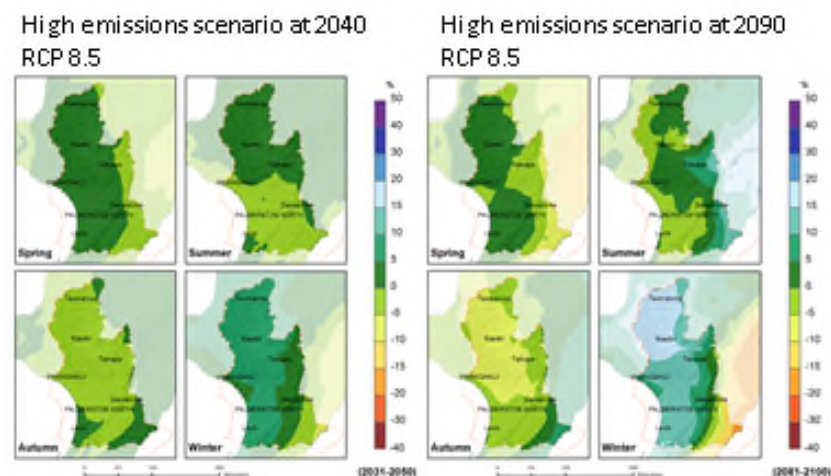
Annual growth for 1995-2015 was almost 0%
For 2015-2048 population projected to grow at an average of 0.9%



AR5 global mean sea-level projections extended to 2120 (RCP2.6 & RCP8.5) spliced with annual MSL from Wellington and Auckland



Horizons rainfall projections



Significant river management issues for the Region

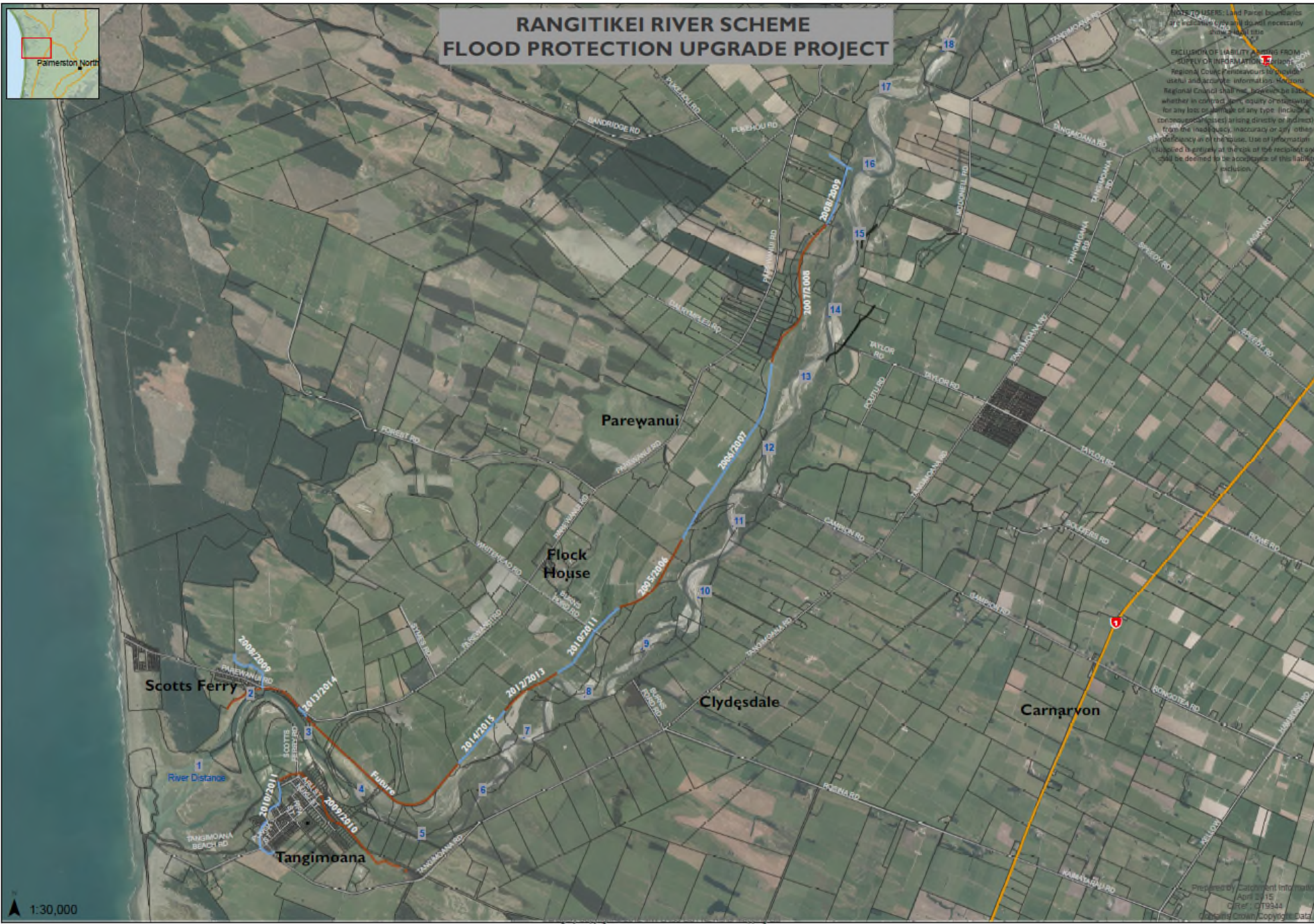
- Operational reliability
- Sediment build-up reducing flood protection standards
- Urban growth
- Climate change

LTP Matters Specific to the District

- Completing the upgrade of the Rangitikei stopbanks;
- Increased funding for the Rangitikei Scheme to address:
 - June 2015 berm scour damage;
 - Removing the gates across Tangimoana Beach Rd;
 - Building reserves.
- Increased O&M spend for Porewa and Tutaenui schemes;
- Stepped transition for Porewa from 80/20 targeted rate/ regional rate funding to 60/40 (intending to approach central govt. around funding).



RANGITIKEI RIVER SCHEME FLOOD PROTECTION UPGRADE PROJECT



- Commenced in 2006;
- \$6.1M budget;
- Impacting by June 2015 flood event;
- Some cost pressures but tracking under budget;
- Scheduled for completion in 2021.



- No shortage of management challenges with the Rangitikei River.....

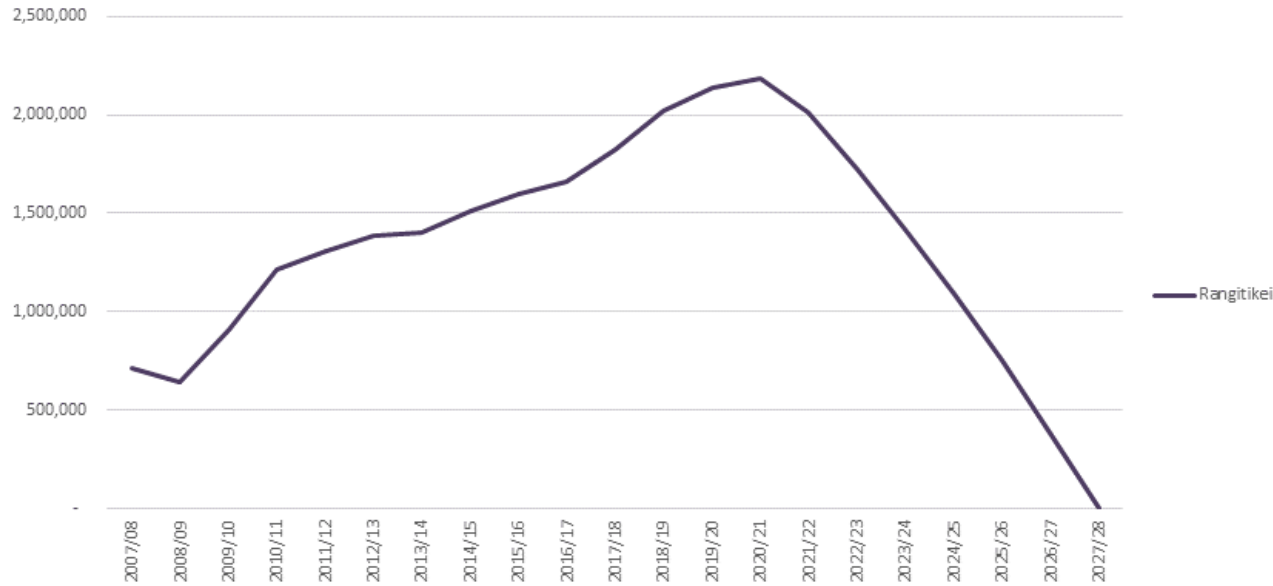
18/09/2018



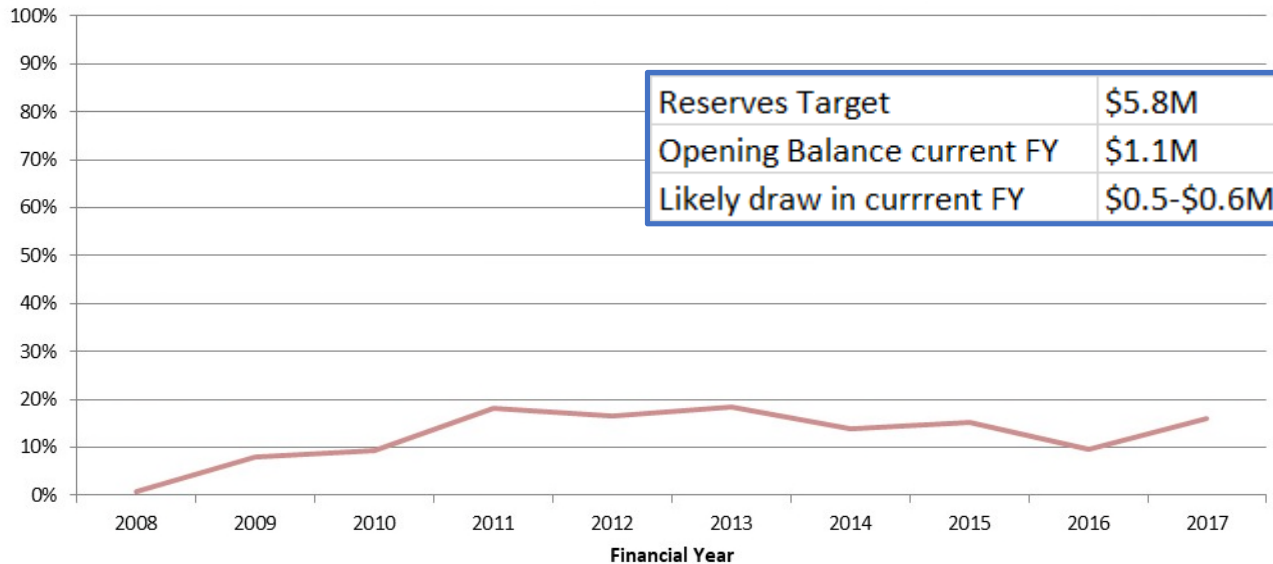
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Rangitikei Scheme Financial Health

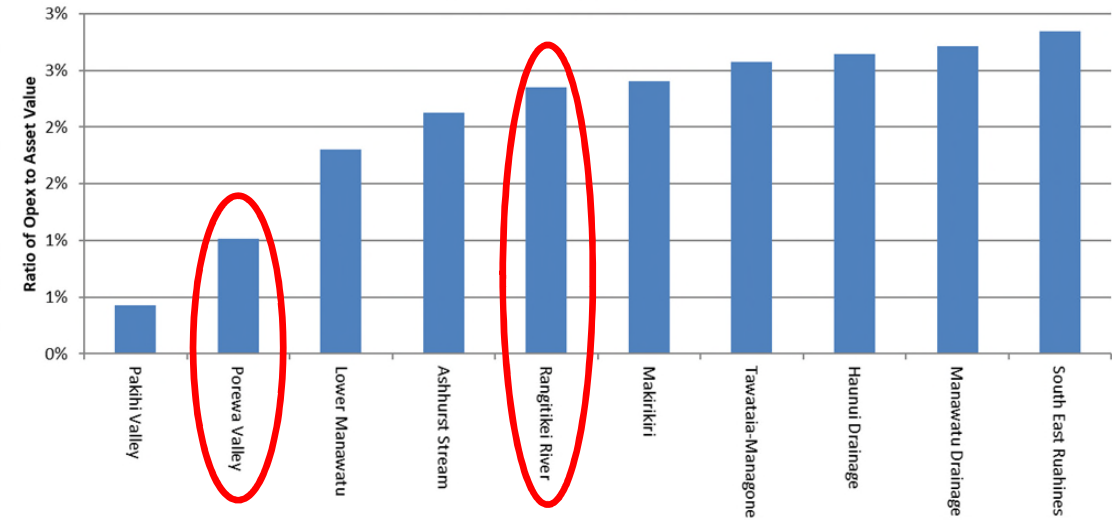
Scheme Loan Balance - Rangitikei

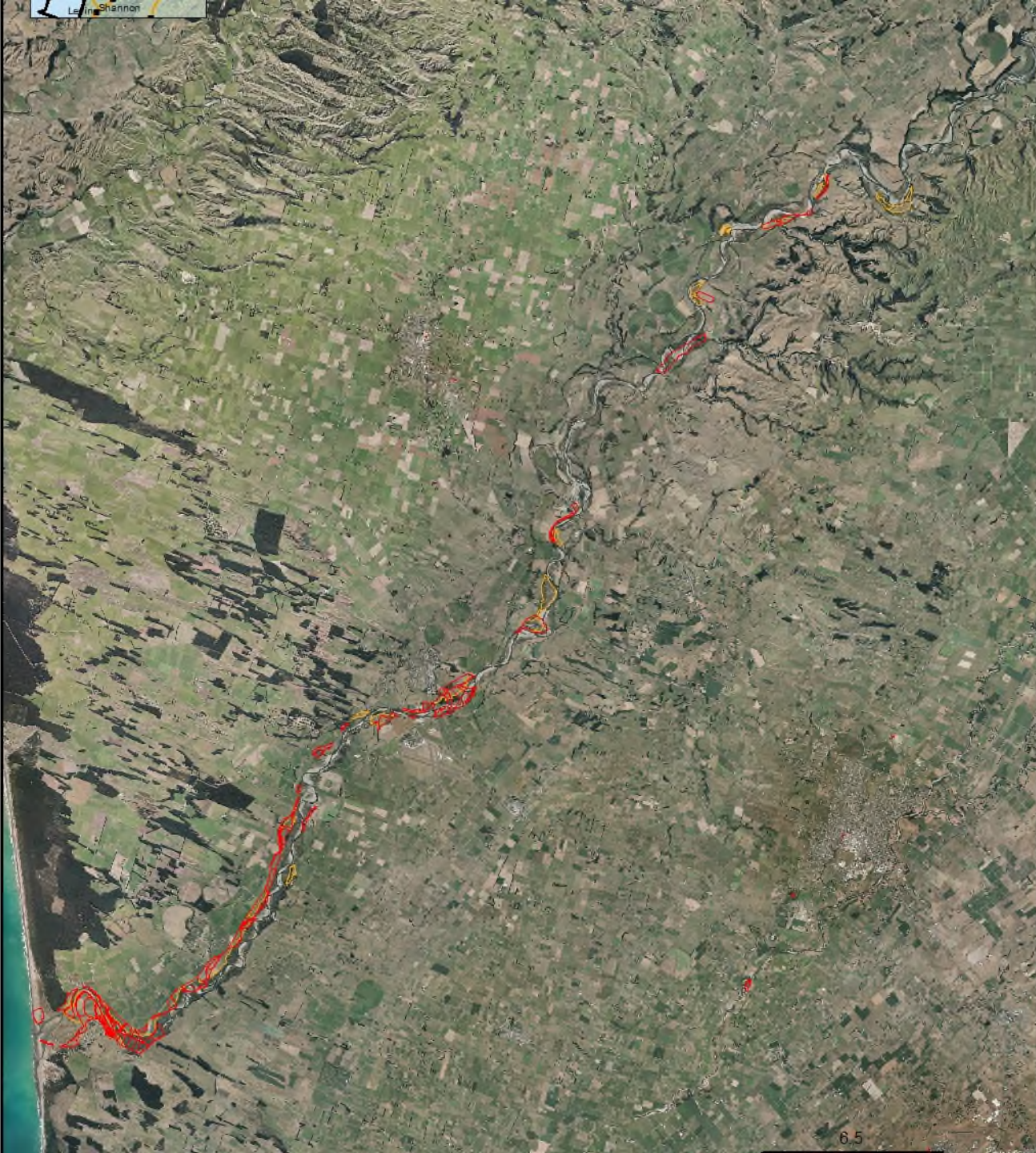


Rangitikei Scheme - Reserves Balance as a % of Target Balance



10 Lowest Schemes





Longer-term Issues and Strategy



TARARUA RIVER MANAGEMENT

BACKGROUND

Horizons, like most other regional councils, carries out flood protection and drainage activities using a scheme-based management approach. 34 river management schemes cover a large part of the Region providing a variety of services, each tailored to meet the needs of the particular community that receives the benefit of those activities. Those activities range from protecting people and property from flooding to minimising river/stream erosion of productive land and the provision of land drainage.

In 2014 we undertook an assessment that sought to identify all of the flood protection, river erosion and land drainage issues currently not being collectively managed by Horizons. That assessment identified 28 separate issues across the Region.

Horizons currently has seven river management schemes in place across the Tararua district – the 2014 assessment has the potential (subject to more detailed investigation and community consultation) to double this number. A large number of those schemes would sit adjacent to each other, with many managing very similar issues such as willow control and debris management in very similar contexts.

As part of updating our Long-term Plan we've considered how we can best provide this service in the most efficient way and how we can be more responsive to issues as they arise. In our view the best outcome for the community is not more separate schemes but having a more integrated approach across the district.

THE PROPOSAL

We're proposing to dissolve the Akitio, Eastern Manawatu and Ihuraua Schemes, instead creating a district-wide Tararua River Management (TRM) Scheme. The three major schemes that provide specific levels of service around both river control and flood protection, the South Eastern Ruahines, Mangatainoka and Upper Manawatu, would remain unchanged. The Tawataia Scheme east of Eketahuna would also be retained as it includes a detention dam that provides protection from flooding to the valley floor downstream of the dam.

The new TRM Scheme would undertake a programme of willow control and channel management work across the district focusing initially on known issues such as the Tiramea, Makuri, Mangatoro and Wairui rivers/streams. It'd also undertake follow-up maintenance work to the Manawatu and Akitio rivers that currently fall under the Eastern Manawatu and Akitio Schemes. Other issues would be assessed as they're identified and added to a prioritised works programme.

The new scheme would have the ability to undertake limited drain maintenance, encompassing the Ihuraua Scheme works

programme and other areas that have sufficient merit. It'd provide river management advice to all ratepayers, intervene in matters such as mouth openings, and look to undertake targeted enhancement work particularly in areas that have high public access.

The TRM Scheme would look to develop and regularly update a forward works programme, retaining a part of the operating budget to enable a quick response to issues and events as they arise, requiring regular assessment of work priorities. We'd look to ensure community input to that on an ongoing basis through staff interactions with ratepayers, communications such as Horizons' Across the Region publication, and regular public meetings.



RUAPEHU RIVER MANAGEMENT

BACKGROUND

Horizons, like most other regional councils, carries out flood protection and drainage activities using a scheme-based management approach. 34 river management schemes cover a large part of the Region providing a variety of services, each tailored to meet the needs of the particular community that receives the benefit of those activities. Those activities range from protecting people and property from flooding to minimising river/stream erosion of productive land to the provision of land drainage.

In 2014 we undertook an assessment that sought to identify all of the issues flood protection, river erosion and land drainage issues currently not being collectively managed by Horizons. That assessment identified 28 separate issues across the Region.

Horizons currently has three river management schemes in place across the Ruapehu district – the 2014 assessment has the potential (subject to more detailed investigation and community consultation) to more than double that number. Most of those schemes would sit adjacent to each other, with many managing very similar issues (willow control, channel and debris management) in very similar contexts.

As part of updating our Long-term Plan we've considered how we can best provide this service in the most efficient way and how we can be more responsive to issues as they arise. In our view the best outcome for the community is not more separate schemes but having a more integrated approach across the district.

THE PROPOSAL

We're proposing to dissolve the Taringamou Scheme and create a district-wide Ruapehu River Management (RuRM) Scheme, retaining the Upper Whanganui and Pakihi Schemes that provide flood protection to Taumarunui and the Pakihi valley between Ohakune and Raetihi. These schemes maintain stopbanking and detention dams, providing flood protection benefit to specific areas.

The new RuRM Scheme would undertake a programme of willow control, channel and debris management across the district initially focussing on the issues identified in the 2014 report – Mangaroa, Makotuku, Mangawhero and Ongarue rivers/streams. It'd also undertake follow-up maintenance work to the Taringamou River that currently falls under the Taringamou Scheme. Other issues would be assessed as they're identified and added to a prioritised works programme.

The new scheme would have the ability to undertake limited drain maintenance where a community (rather than one or two landowners) stood to benefit from the work. It'd provide river management advice to all ratepayers and look to (in conjunction with Iwi) undertake targeted enhancement work, particularly in areas that have high public access.

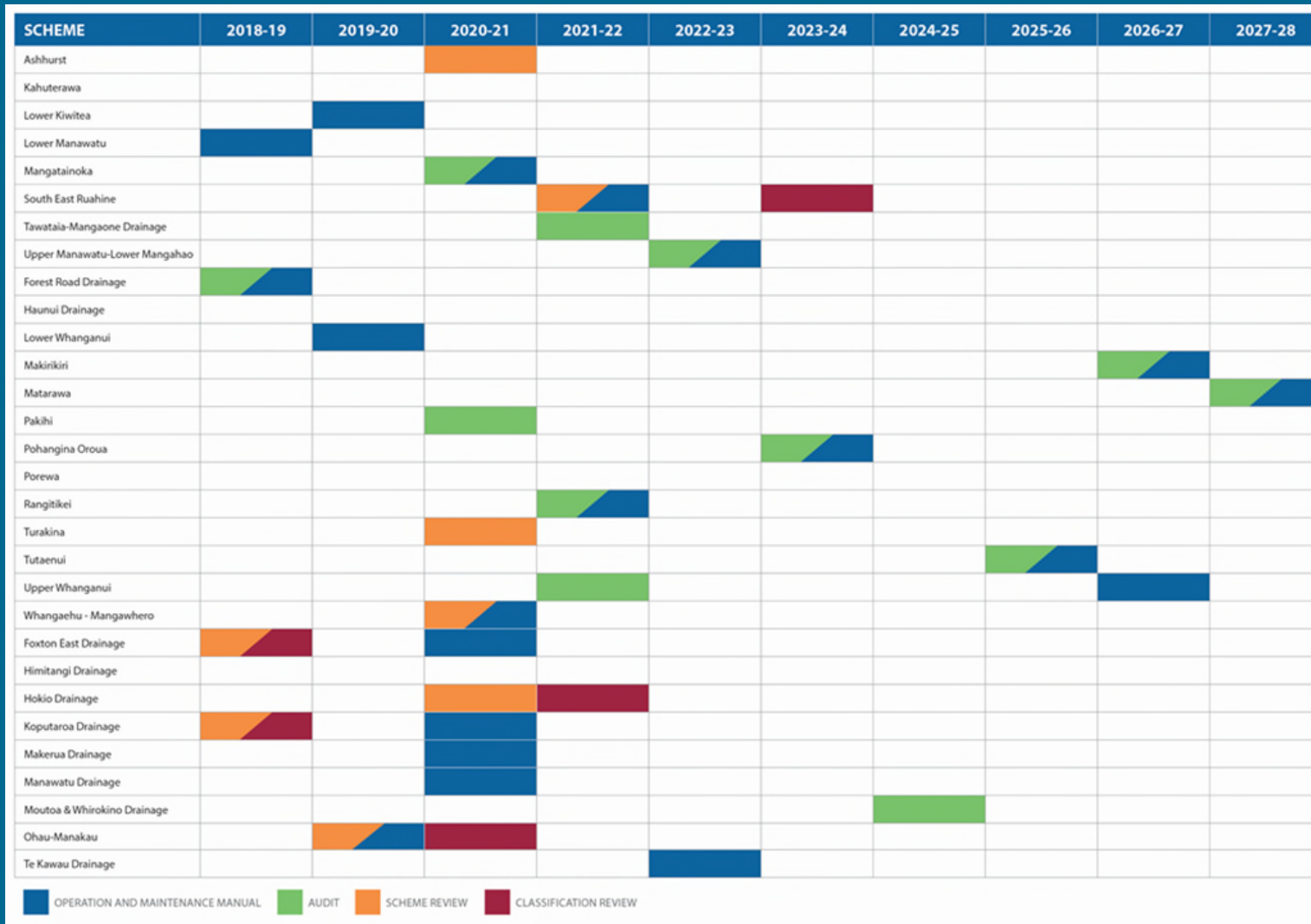
The RuRM Scheme would look to develop and regularly update a forward works programme, retaining a part of the operating budget to enable a quick response to issues and events as they arise, requiring regular reassessment of work priorities. We'd look to ensure community input on a regular basis through staff interactions with ratepayers, communications such as Horizons' Across the Region publication, and regular public meetings.



Issue: being able to be more responsive and flexible.

Response: district wide river management.

Longer-term Issues and Strategy



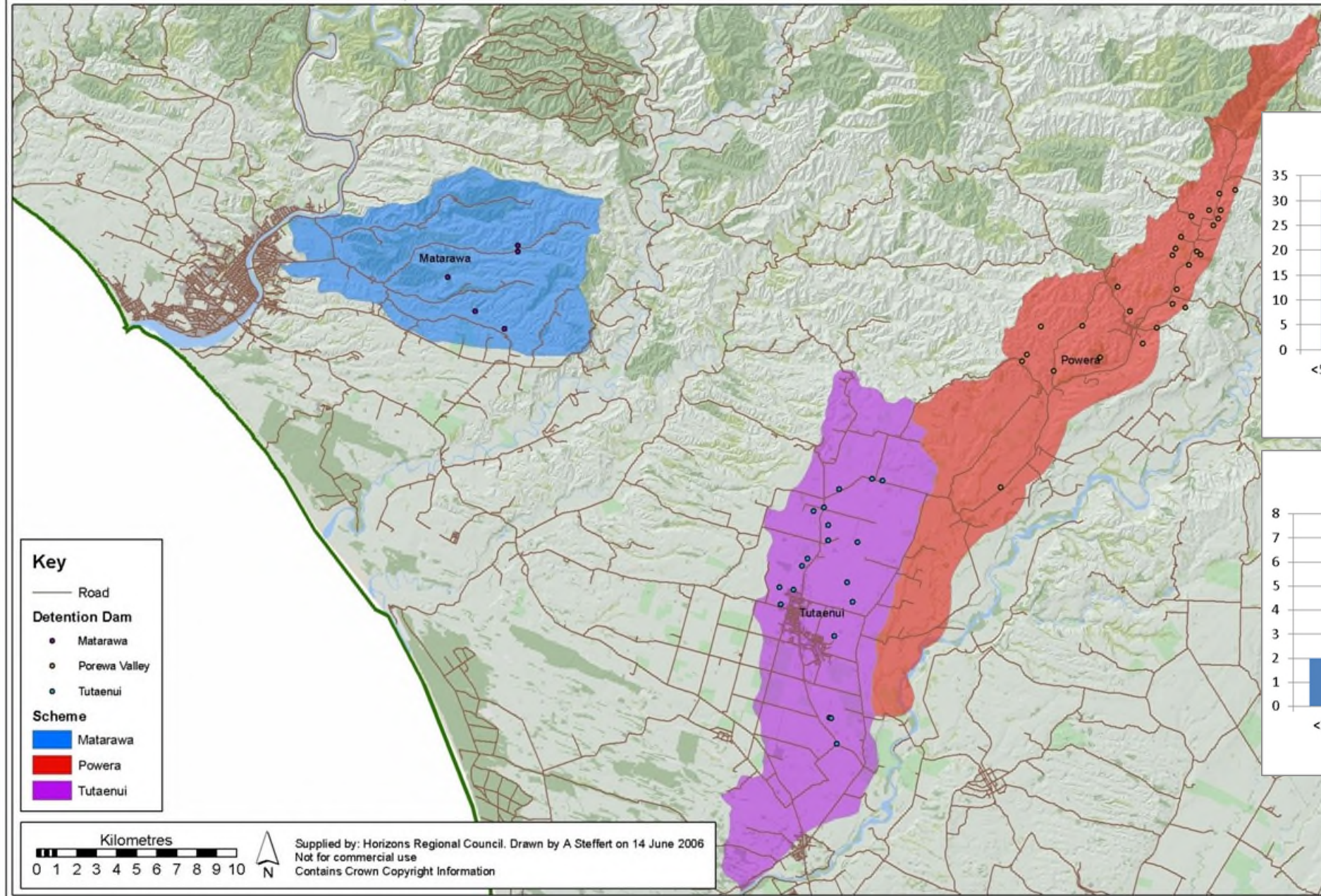
Issue:

Improving operational reliability:

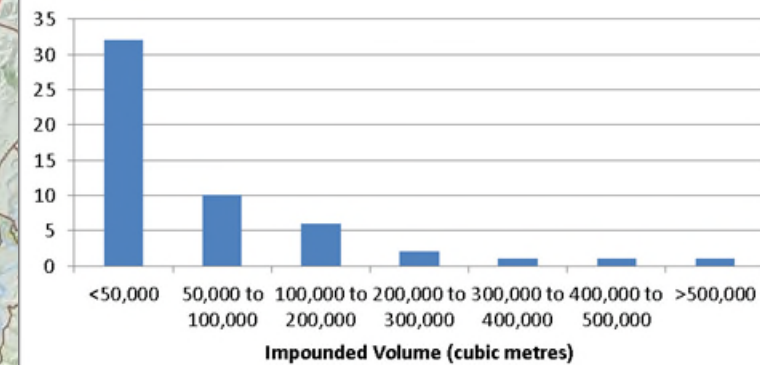
Response:

- Upgrade of AM systems;
- Develop operations and maintenance manuals.

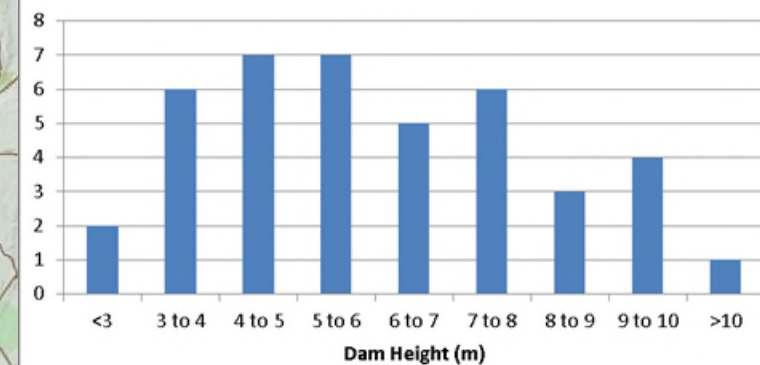
Matarawa, Porewa and Tutaenui Flood Control Schemes



Dam Volume



Dam Height



Comprehensive Dam Safety Review (CDSR)

- 17-18 FY project with \$150k budget across all 53 dams;
- Drawing on Infrastructure Reserve to offset financial impact to the Porewa Scheme;
- Undertaken by Stantec and included comprehensive site inspections complemented by archive information and LiDAR data;
- Porewa dams (27 total) were designed and built in the 1950's and 60's. 3 of the Tutaenui dams (18 total) were built in the early 1960's with the rest in the late 1970's/ early 1980's;
- Designed to fill completely in a 20 year RP event (spill occurs in larger events, negating some of their benefit).

Comprehensive Dam Safety Review (CDSR)

- Assessment of inventory, assessment of Potential Impact Classification (PIC);
- Identification of renewal and replacement works programme;
- Development of Operations, Maintenance and Surveillance manuals for each scheme;
- Assessment of impounded volume compared with design.

Comprehensive Dam Safety Review (CDSR)

- The OMS Manuals outline:
 - Operating levels and volumes of each dam and their associate appurtenant structures (low-level culvert and spillway);
 - Maintenance requirements and recommendations from site inspections;
 - Surveillance routines (including visual inspections, rainfall gauging and deformation surveys);
 - Routine inspection forms and special inspection guides;
 - Potential Failure Modes and the critical locations for visual inspection where PFM develop.

Comprehensive Dam Safety Review (CDSR)

Assessed damage level	Population at risk (PAR)			
	0	1 to 10	11 to 100	More than 100
Catastrophic	High potential impact	High	High	High
Major	Medium potential impact	Medium/High (see note 4)	High	High
Moderate	Low potential impact	Low/Medium/High (see notes 3, and 4)	Medium/High (see note 4)	Medium/High (see notes 2 and 4)
Minimal	Low potential impact	Low/Medium/High (see notes 1, 3, and 4)	Low/Medium/High (see notes 1, 3, and 4)	Low/Medium/High (see notes 1, 3, and 4)

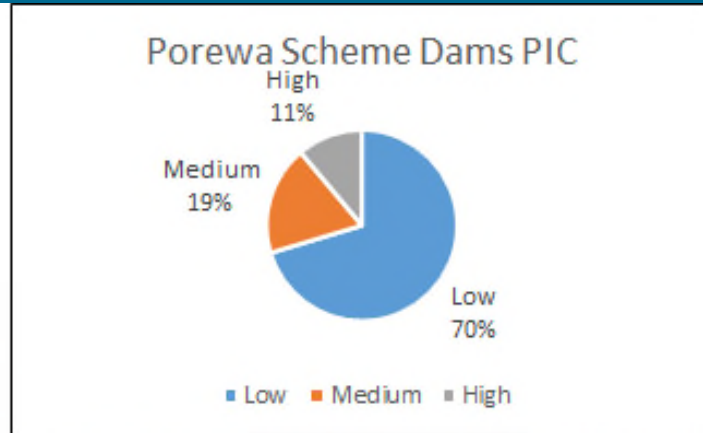


Figure 2: Potential Impact Classification of Porewa Dams

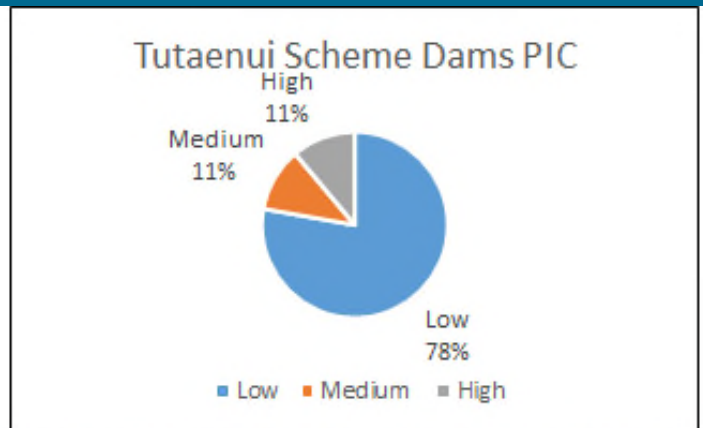
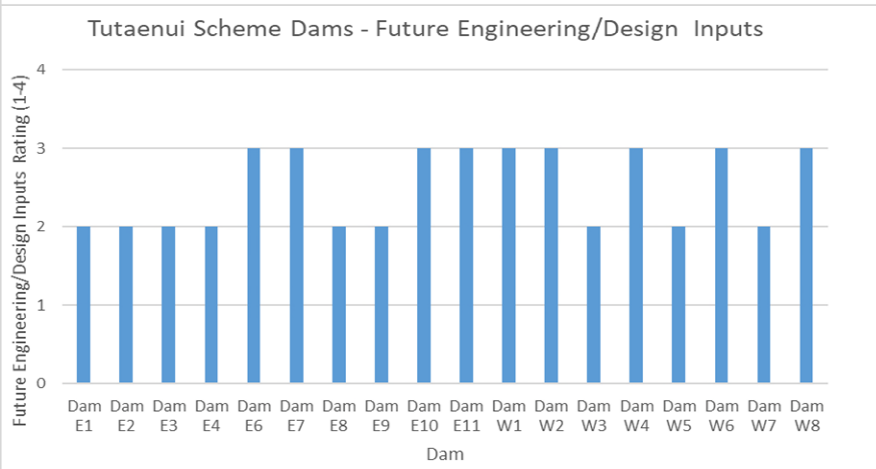
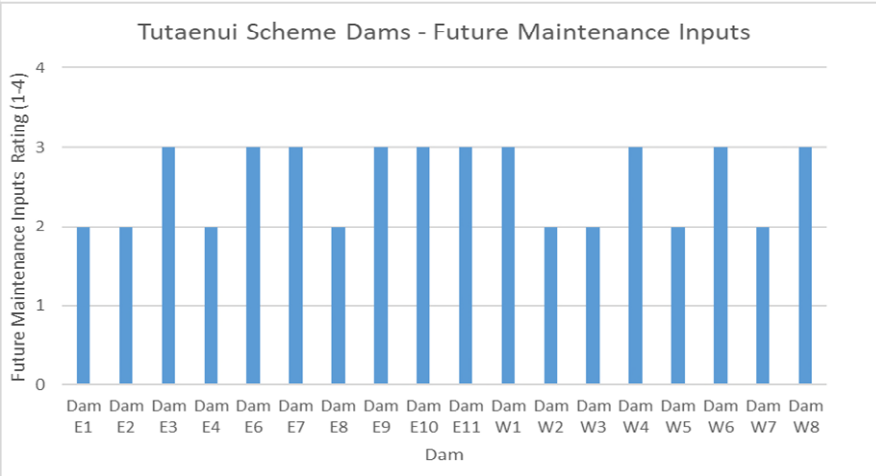
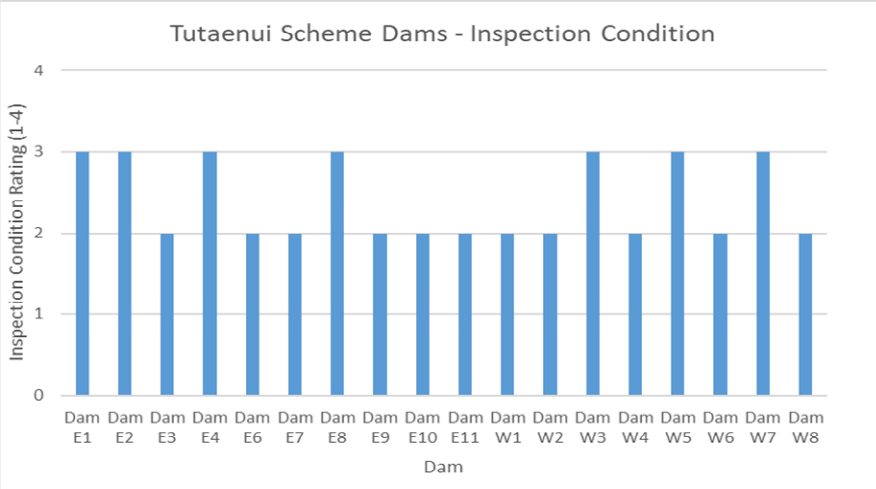


Figure 3: Potential Impact Classification of Tutaenui Dams

Damage Level	Specified categories				
	Residential houses ¹	Critical or major infrastructure ²		Natural environment	Community recovery time
		Damage	Time to restore to operation ³		
Catastrophic	More than 50 houses destroyed	Extensive and widespread destruction of and damage to several major infrastructure components	More than 1 year	Extensive and widespread damage	Many years
Major	4 to 49 houses destroyed and a number of houses damaged	Extensive destruction of and damage to more than 1 major infrastructure component	Up to 12 months	Heavy damage and costly restoration	Years
Moderate	1 to 3 houses destroyed and some damaged	Significant damage to at least 1 major infrastructure component	Up to 3 months	Significant but recoverable damage	Months
Minimal	Minor damage	Minor damage to major infrastructure components	Up to 1 week	Short-term damage	Days to weeks



Rating	Description
4	Good
3	Satisfactory
2	Poor
1	Very Poor

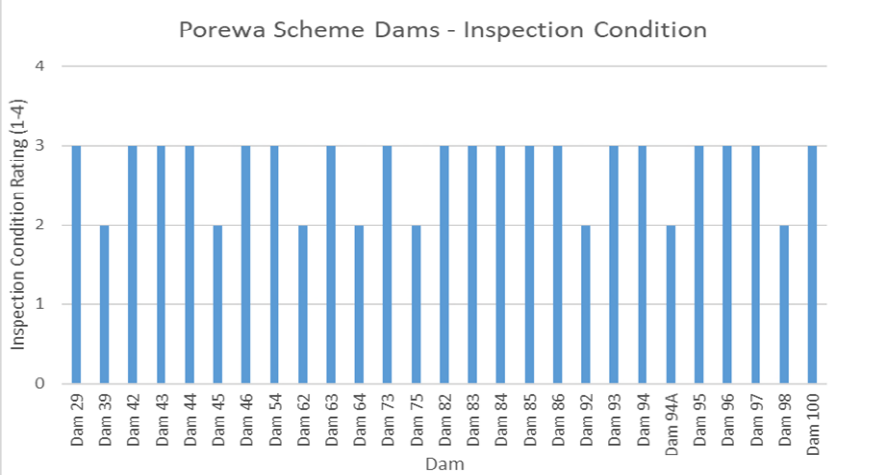
Rating	Description
4	Significantly More
3	Moderately More
2	As Historical
1	Less than Historical

Rating	Description
4	Significant
3	Moderate
2	As Historical
1	None

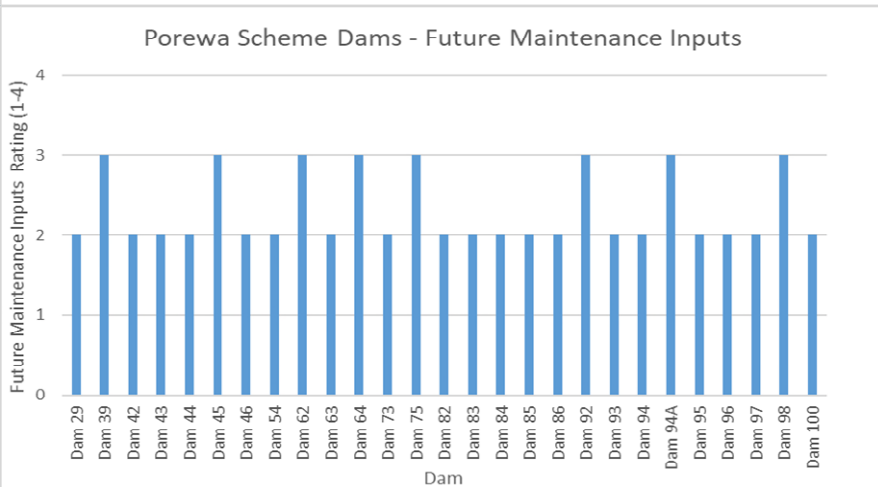
CDSR Conclusion:

The CDSR concluded that the Tutaenui and Porewa detention dams are in satisfactory condition. There were no dam safety deficiencies identified in the review.

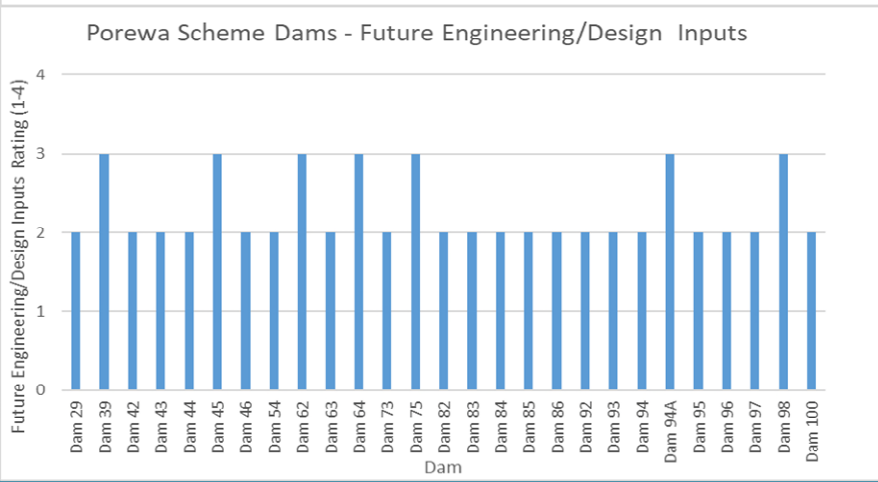
- CCTV surveys of outlet culverts still to be undertaken.



Rating	Description
4	Good
3	Satisfactory
2	Poor
1	Very Poor



Rating	Description
4	Significantly More
3	Moderately More
2	As Historical
1	Less than Historical



Rating	Description
4	Significant
3	Moderate
2	As Historical
1	None

Porewa Dam 82, 2004 Floods



Questions?

Dam 100 Construction, 1965



92

