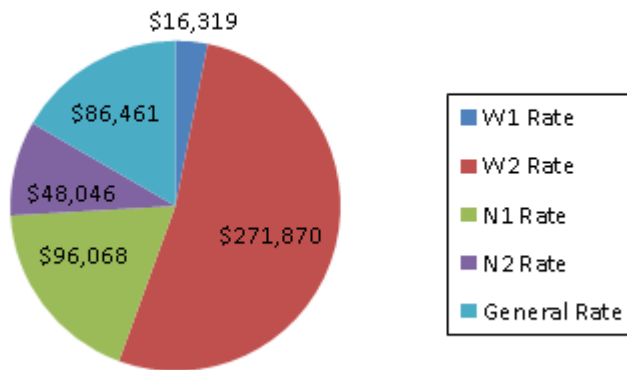


Lower Whanganui Scheme

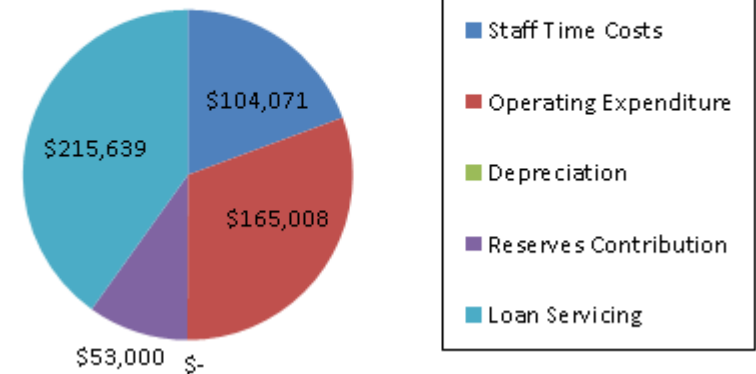
- Provides flood protection (FP) to Balgownie and Kowhai Park/ Anzac Parade areas of Whanganui;
- Accordingly operational focus is solely relating to the provision of FP ie:
 - inspecting and maintaining FP assets (stopbanks/ floodwalls);
 - undertaking erosion protection works necessary to provide flood protection eg where river bank erosion threatens the integrity of a section of stopbank;
 - monitoring channel capacity.

Scheme Income and Expenditure

Scheme Income 2016/17 FY



Scheme Expenditure 2016/17 FY



SCHEME RATING MAP

LOWER WHANGANUI

Plan No.
4751/3
Lower Whanganui Plan 4751/1, 4751/2, 4751/3
Map 1 of 1 maps





DESCRIPTION:
2022 Lower Whanganui INDIRECT (UAC)
N2 auto calculated by HRC
All VNZs in the Whanganui district (is_code = 37)
excluding roll numbers 13080 to 13280 inclusive

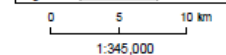
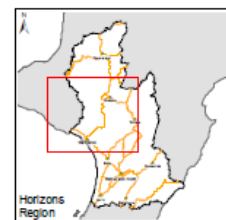
2023 Lower Whanganui INDIRECT (CV)
N1 auto calculated by HRC
Rolls numbers 13080 to 13280 inclusive

REFERENCE:
n/a

CREATED BY:
N.Batchelor, Catchment Information
9 Nov 2011

APPROVED BY:
n/a

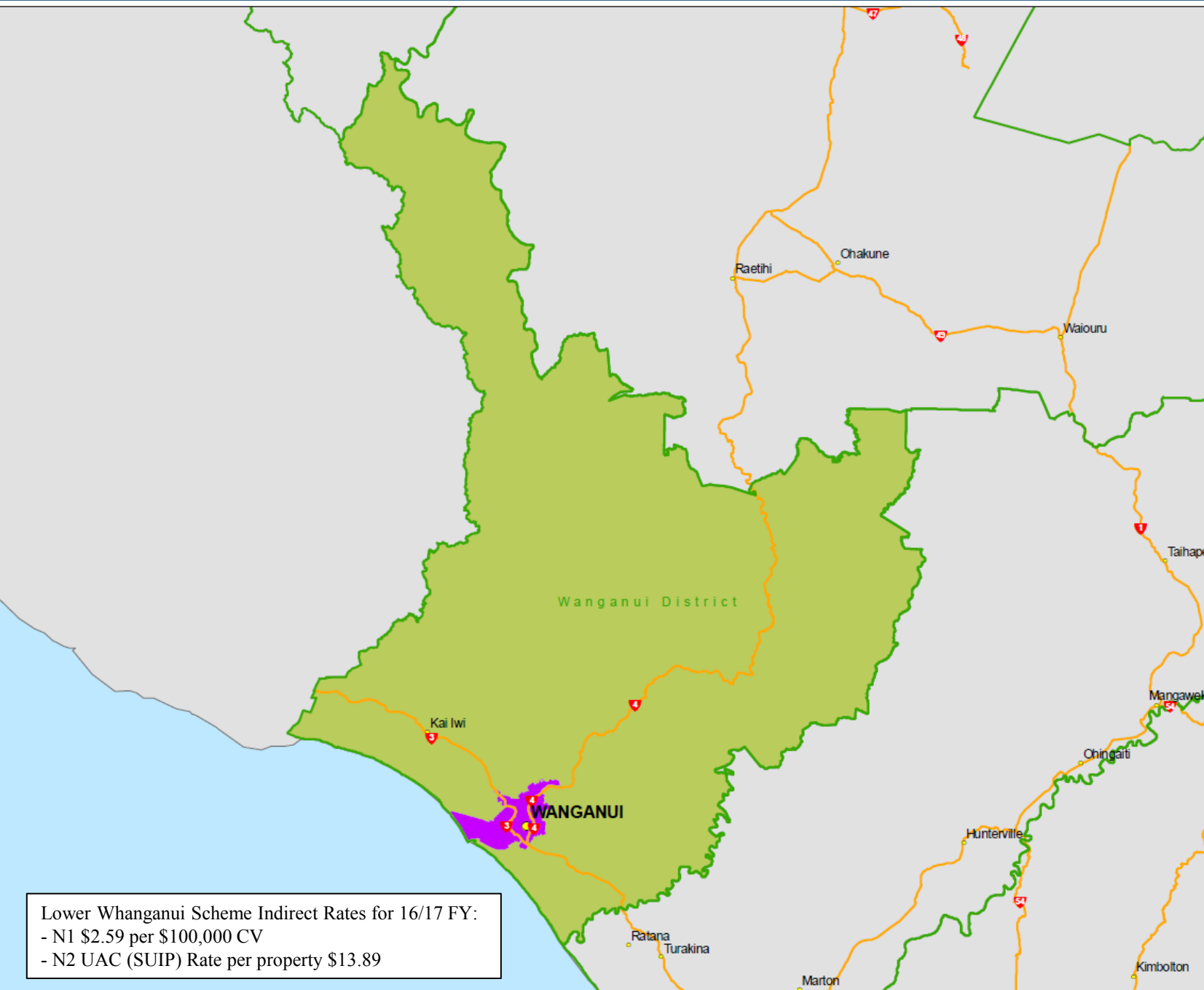
-  Highway
-  TLA
- 2022 INDIRECT (CV)**
-  N1
- 2023 INDIRECT (UAC)**
-  N2



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Lower Whanganui Scheme Indirect Rates for 16/17 FY:
- N1 \$2.59 per \$100,000 CV
- N2 UAC (SUIP) Rate per property \$13.89

LOWER WANGANUI

Plan No.
4751/1
Lower Wanganui Plans 4751/1, 4751/2, 4751/3
Map 1 of 1 maps

2021 DIRECT

DESCRIPTION:
2021 Lower Wanganui DIRECT (CV).
W1 = selected valuations only
W2 auto calculated by HRC
Roll numbers 13260 to 13260 (inclusive) but
not including differential W1

PREPARED BY:
N.Batchelor, Catchment Information, 30 Jun 2011

AMENDMENT 1:
Desc: Anzac Parade properties taken from W2
and added to W1.
Ref: 075237
Aoor: Peter Blackwood, Operations, 05 June 2014
Updated: N. Batchelor, CI, 05 June 2014

Legend

- W1 (High Benefit)
- W2 (Med Benefit)



EXCLUSION OF LIABILITY ARISING FROM SUPPLY OF INFORMATION

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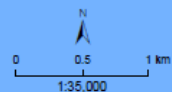


Direct Rate per \$100,000 CV per year for 16/17 FY



WANGANUI CITY

Whanganui River



Depreciation

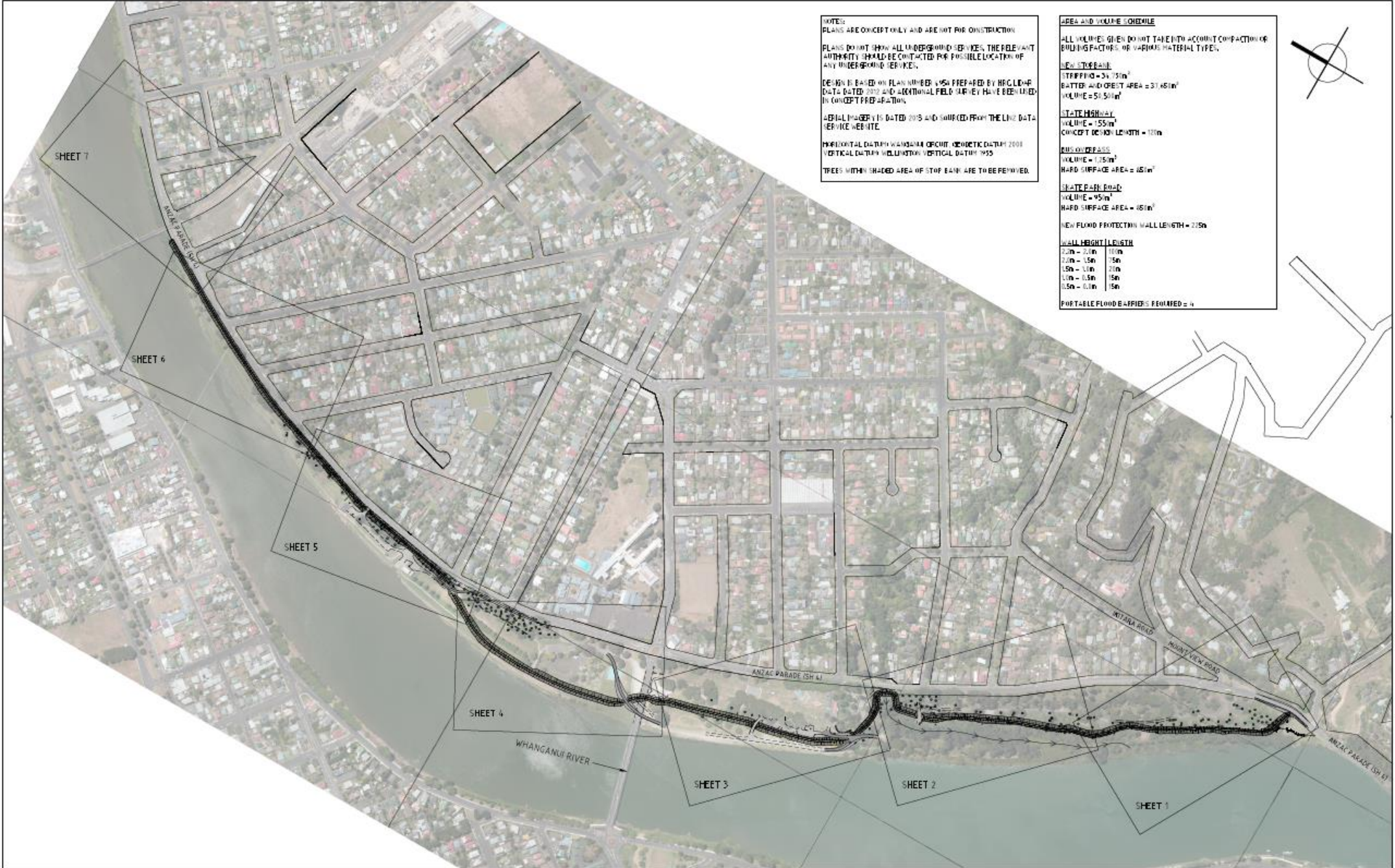
- Under the Local Government Act Councils are obligated to set aside funding for the cost of replacing an asset (referred to as depreciation) when it reaches the end of its life;
- Although the Scheme has depreciable assets (assets that have a finite life), Council policy exempts the need to set aside such funds where debt is being repaid;
- Given the relatively long debt repayment timeframes this will translate to future (albeit relatively modest) capital expenditure over and above current/ projected expenditure levels;
- Note that stopbanks are not depreciable (their performance does not reduce over time).

Current Levels of Service

- Four 'compartments' to river-related Whanganui flooding:
 - Balgownie. Protected to a 200 year RP standard;
 - Kowhai Park/ Anzac Parade: Protected to a 30 year RP standard with no freeboard;
 - Taupo Quay/ CBD eastern end. Not protected;
 - Putiki. Not protected.
- No provision for any further increase in flood protection standards for Whanganui in Council's current 30 year Infrastructure Strategy.

Anzac Parade Flood Hazard

- Existing stopbank passed to Horizons in 2008;
- Cost of achieving 200 year RP protection standard (2.5km of stopbank) estimated in 2011 at \$4.05M;
- Council resolved not to include in 2012-22 Long Term Plan;
- Subsequent decision made to upgrade stopbank to 30 year RP standard, work completed in 2014 at a cost of just over \$1M;
- No provision in Horizons' current 30 year Infrastructure Strategy.



NOTES:
 PLANS ARE CONCEPT ONLY AND ARE NOT FOR CONSTRUCTION
 PLANS DO NOT SHOW ALL UNDERGROUND SERVICES, THE RELEVANT AUTHORITY SHOULD BE CONTACTED FOR POSSIBLE LOCATION OF ANY UNDERGROUND SERVICES.
 DESIGN IS BASED ON PLAN NUMBER 1450 PREPARED BY HCC LEVING DATA DATED 2010 AND ADDITIONAL FIELD SURVEY HAVE BEEN USED IN CONCEPT PREPARATION.
 SERIAL IMAGES 1 IS DATED 2015 AND SUNKED FROM THE LINE DATA SERVICE WEBSITE.
 HORIZONTAL DATUM: WANGANUI ORIGIN: GEODETIC DATUM 2000
 VERTICAL DATUM: NEW ZEALAND VERTICAL DATUM 1955
 TREES WITHIN SHADDED AREA OF STOP BANK ARE TO BE PRESERVED.

AREA AND VOLUME SCHEDULE

ALL VOLUMES GIVEN DO NOT TAKE INTO ACCOUNT COMPACTION OF BUILDING FACTORS, OR VARIOUS MATERIAL TYPES.

NEW STOP BANK
 STRIPPED = 34,750m³
 BATTER AND GREET AREA = 37,450m²
 VOLUME = 51,500m³

STATE HIGHWAY
 VOLUME = 1550m³
 CONCEPT DESIGN LENGTH = 100m

NEW CURB PAVES
 VOLUME = 1,750m³
 HARD SURFACE AREA = 450m²

STATE BANK ROAD
 VOLUME = 450m³
 HARD SURFACE AREA = 450m²

NEW FLOOD PROTECTION WALL LENGTH = 2750m

WALL HEIGHT | LENGTH

2.0m - 2.10m	100m
2.0m - 1.50m	750m
1.50m - 1.00m	270m
1.00m - 0.50m	150m
0.50m - 0.10m	150m

PORTABLE FLOOD BARRIERS REQUIRED = 4

Anzac Parade Flood Hazard

- To achieve a 200 year standard of flood protection requires the crest to be raised by 1.5m;
- Will require a much larger footprint than the existing structure which amongst other things will require the removal of a large number of trees;
- Estimated construction costed at \$4.05M in 2011;
- More realistic cost is around \$6M:
 - The effect of the June 2015 flood on our assessment of the height of a 200 year RP flood (ie a higher stopbank);
 - Knowledge/ understanding gained from June 2014 work;
 - Other impacts with higher stopbank eg piping risk, trafficability for SH4, vehicle ramps etc.

Taupo Quay/ CBD Eastern End

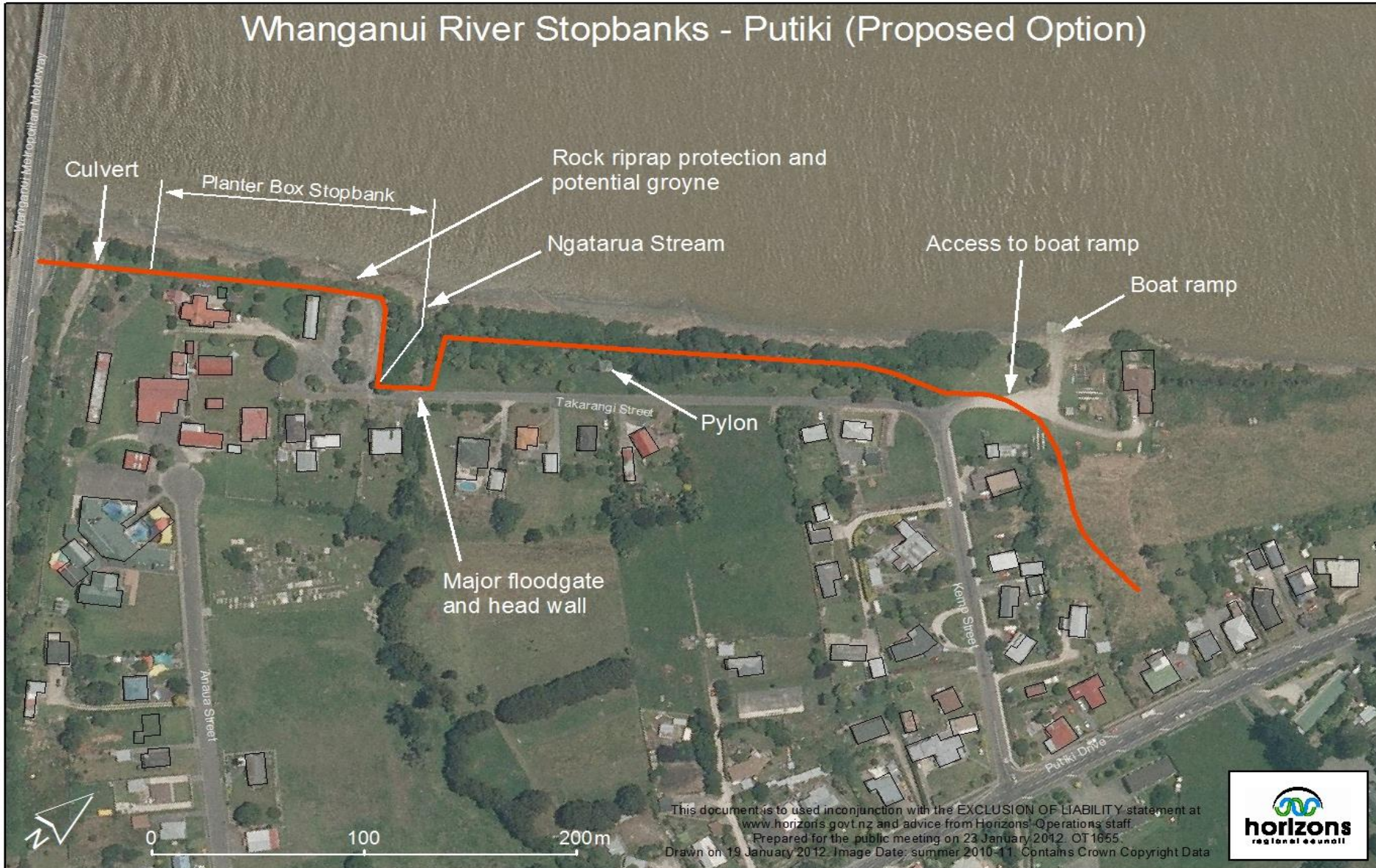
- Very conceptual design undertaken in 2012 identifying the requirement for 2.5km of stopbank/ floodwall;
- Has many inherent challenges including:
 - Narrow berm upstream of City Bridge;
 - Riverbank stability;
 - Tram line;
- For those reasons (and with the increased estimated 200 year RP flood level) the cost estimated in 2011 of \$4.05M is likely to be light;
- Construction not provided for in Horizons' current 30 year Infrastructure Strategy.

Putiki

- Similarly conceptual/ preliminary design work undertaken and consulted on in 2012 but no provision has been made in Horizons' current Long-Term Plan;
- Estimated 2011 cost \$620,000 for 600m of stopbank;
- Again June 2015 event has added around 400mm to estimates of the 200 year Return Period flood height;
- That and accommodating Ngatarua Stream (requires further investigation and analysis) will take the cost closer to \$1M.

2011 Proposal for Putiki

Whanganui River Stopbanks - Putiki (Proposed Option)



Putiki

