



Critical Areas Management Plan

Richard Mowll



Guthrie Bowron
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Critical Areas Identified (1993)

- Thorndon.
- Hutt Estuary.
- Ngauranga Gorge.
- Paremata Road Bridge.
- Petone Overbridge...
- (a total of 22 critical areas identified).

Critical Areas Identified (2010)

Wellington Lifelines Group

Update of Critical Areas

21-May-10

Critical Area	Lifelines Involved											Key Asset Owner	Significant Exposure			Inventory	Summary of Mitigation since 1993 Report
	Water	Sewerage	Stormwater	Telecomms	Electricity	Gas	Fuel	Road	Rail	Port	Airport		Earthquake	Flooding	Coastal		
A Thorndon	√	√		√	√	√	√	√	√	√					1050mm & 525mm (2No.) water mains, main fibreoptic duct, road, rail, ferry berthing; fuel lines	Thorndon and Aotea Overbridges strengthened. Little other mitigation	
A Petone Foreshore	√	√				√									Orongorongo/Karori water main, major collecting sewer (and 6 major pumping stations), gas line	No mitigation known	
A Haywards	√	√		√	√			√							AC/DC link substation; water main to Porirua and Wellington incl. reservoirs; SH58	Bulk water main has been relocated in better ground	
A Seaview Wharf/Point Howard area		√		√		√	√	√		√					Fuel lines, storage tanks, main sewage pumping stations and treatment plant, main outfall sewer, gas mains and road to Eastbourne; fibreoptic cable	New sewage treatment plant. No mitigation known re fuel lines and storage tanks; criticality of fuel post-disaster better appreciated	
A Paekakariki/ Pukerua Bay			√	√				√	√						Road, rail and fibreoptic cable	No mitigation; better appreciation of extent of landsliding possible	
B Te Marua Lakes (& assoc. pipework)	√											GW			Major mains crossing fault	Mitigation work undertaken but offset by better appreciation of the impacts of a rupture of the Wellington Fault	
B Wellington Airport		√						√			√	WIAL			Main sewer runs parallel to and under the runway	New airport terminal	
B Main Port area/ Container terminal										√		Centre Port			Cranes to load/unload. Food in refrigerated containers	No major mitigation known; port vulnerability better appreciated following Kobe and other earthquakes	
B Petone Overbridge						√		√	√						Road, rail, 100mm PE gas line	No mitigation known	
B Silverstream bridge area	√	√						√				UHCC			Watermain and road; rail bridge adjacent; sewer from Upper Valley runs under river	Bridge partially strengthened	

Thorndon Critical Area Project - Objectives

- Create a draft framework for activities: -
 - PRE-event (asset renewals, assessing interactions).
 - POST-event (recovery works and interactions).
- Identify a 'lead' or 'owner' organisation of the overall plan (not WeLG).
- Act as a motivator for Lifelines that have not participated so far to be involved.

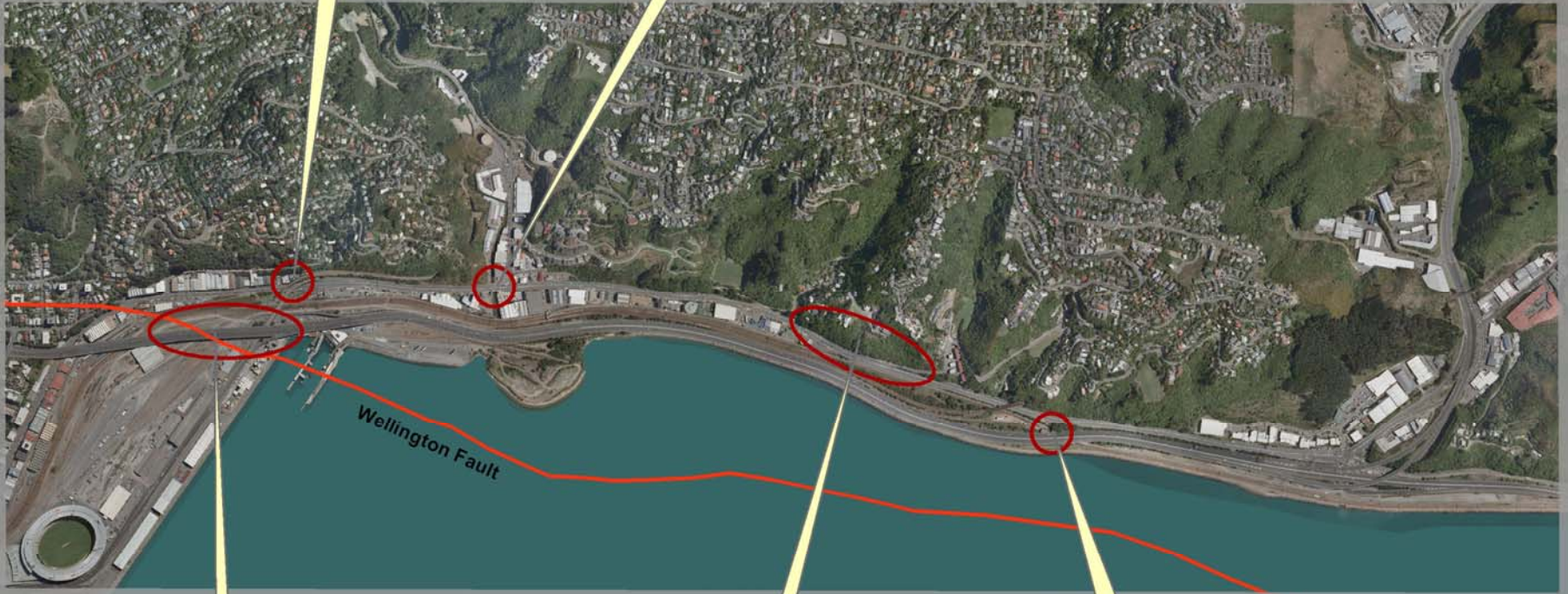
Thorndon Critical Area Project - Activities

- Info gathering on utilities present.
 - One-to-one meetings with ‘key’ Lifelines.
 - Info gathering from other Lifelines with assets present in area.
- Workshop with ‘key’ Lifelines.
- Write-up of plan, confirmation (with Lifelines orgs), hand-over, dissemination.



Overbridges on Hutt Road at risk from seismic hazards

Kaiwharawhara culvert carries utilities lifelines



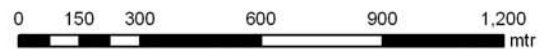
Wellington Fault

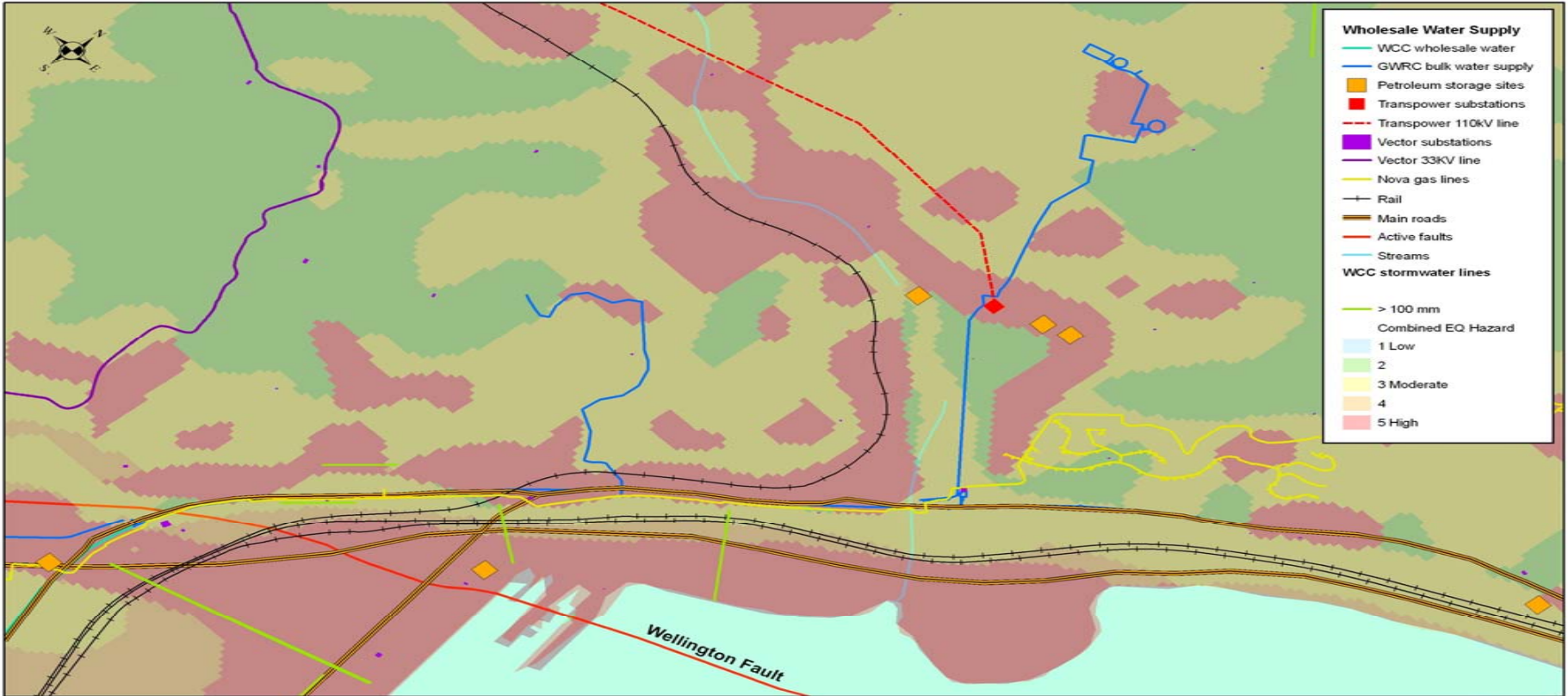
Hutt Road vulnerable to slips

SH 1 bridge over rail vulnerable to earthquake and liquefaction damage

SH 1 Thorndon bridge straddles Wellington Fault

Thorndon Area Aerial Photograph (2009) showing closeup inset





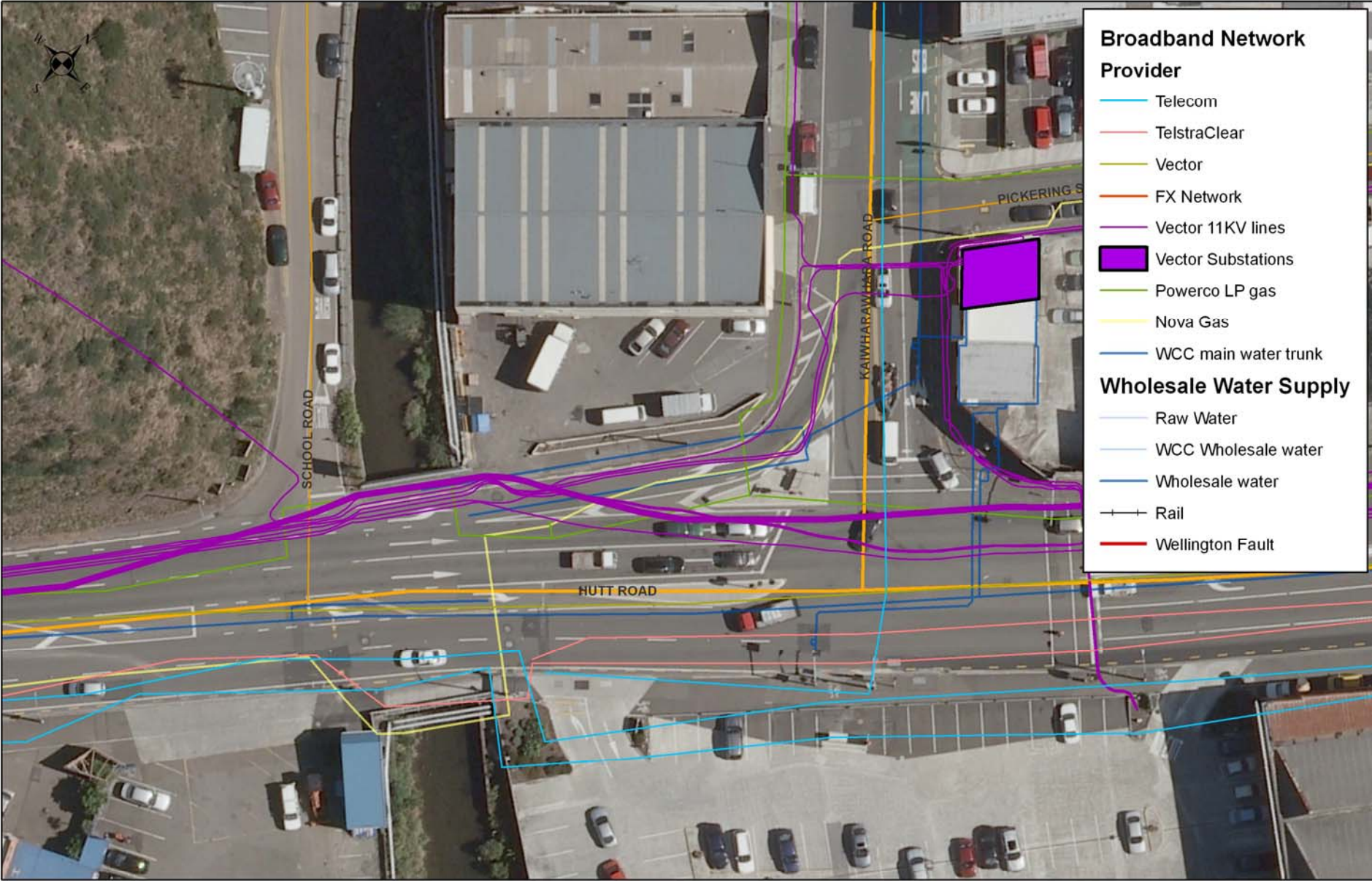
Thorndon Area Lifelines with Combined Seismic Hazard

0 0.08 0.16 0.24 0.32 0.4 Km



Thorndon Area Aerial Photograph with Lifelines

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Broadband Network Provider

- Telecom
- TelstraClear
- Vector
- FX Network
- Vector 11KV lines
- Vector Substations
- Powerco LP gas
- Nova Gas
- WCC main water trunk

Wholesale Water Supply

- Raw Water
- WCC Wholesale water
- Wholesale water
- Rail
- Wellington Fault

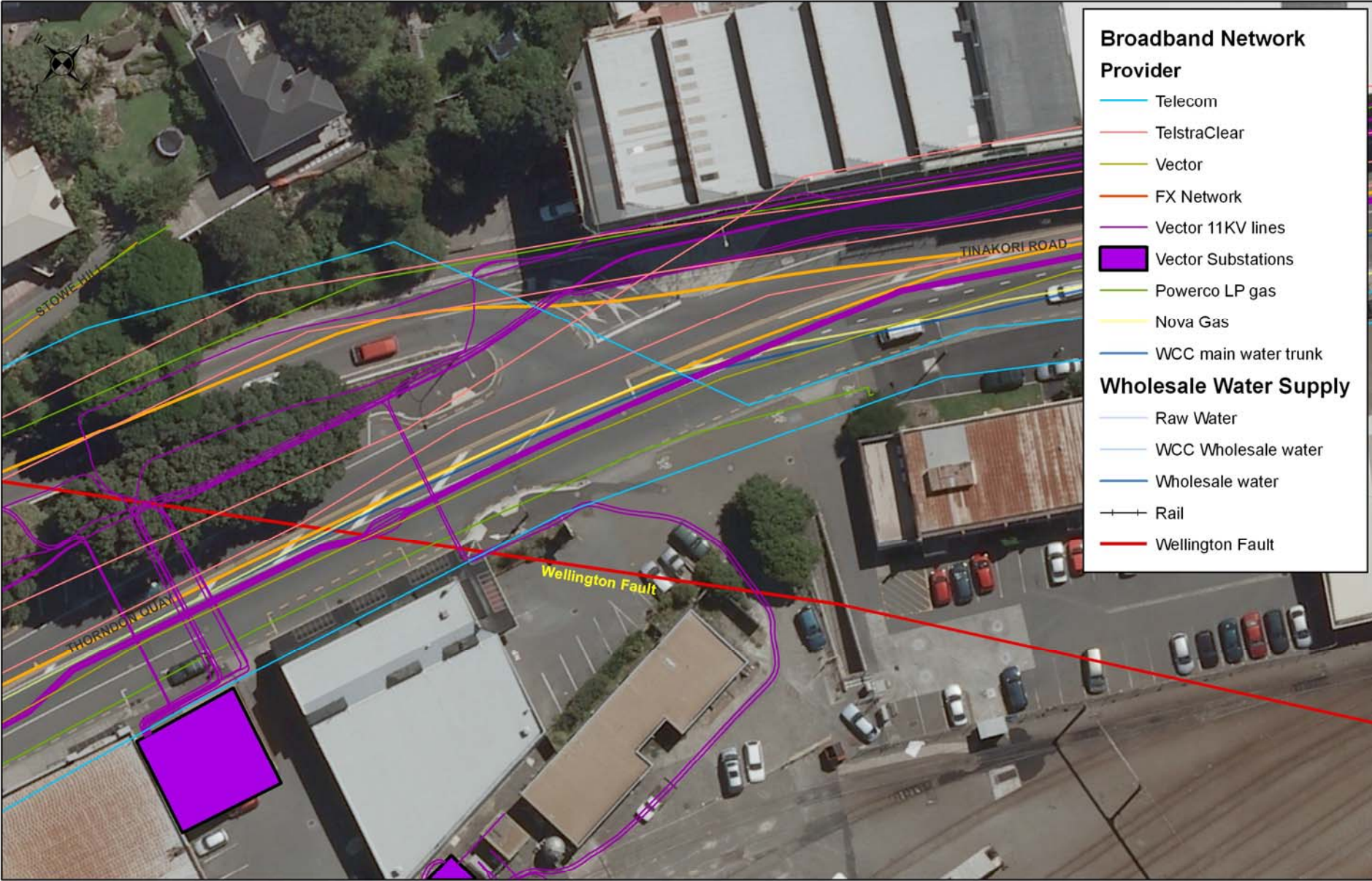
Kaiharawhara Culvert Area Lifeline Utility Networks



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Thorndon Area Lifeline Utility Networks



THIS IS

A

HOT SPOT

