



The Chathams: Reducing Fuel Demand in an Isolated Community August 2011

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**LOW
VOLUME
ROADS
WORKSHOP
2011**



Roading Network

Road Grades - **1** = 51km, **2** = 86km, **3** = 49km, **4** = 11km

Chatham Island

- Sealed network 13km
- Unsealed network 160km

Pitt Island

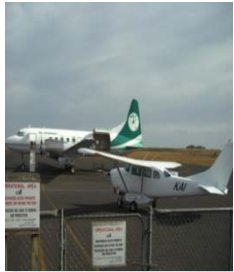
- Unsealed Network 15km

Traffic Loadings

- Light vehicles / cars / vans / utes up to 2t = 80%
- Mid range light commercial between 2t & 5t = 15%
- Heavy plant greater than 5t = 5%



Island Roothing History



Professional Services

- Commenced 1956 Royds Sutherland & McLay, now MWH
- Professional services contract negotiated annually

Roothing Maintenance

- Chatham Islands Council Works Unit
- 1993 Downer purchased the CIC works unit
- Maintenance competitively tendered through to 2015



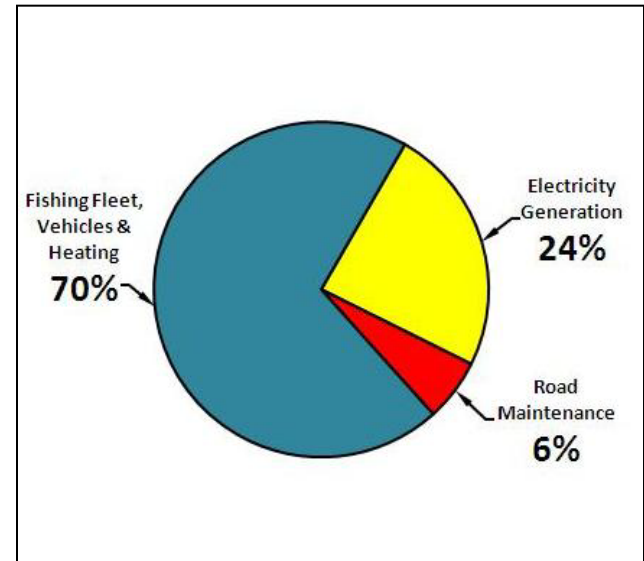
Project Background – 2008/9

Project Drivers

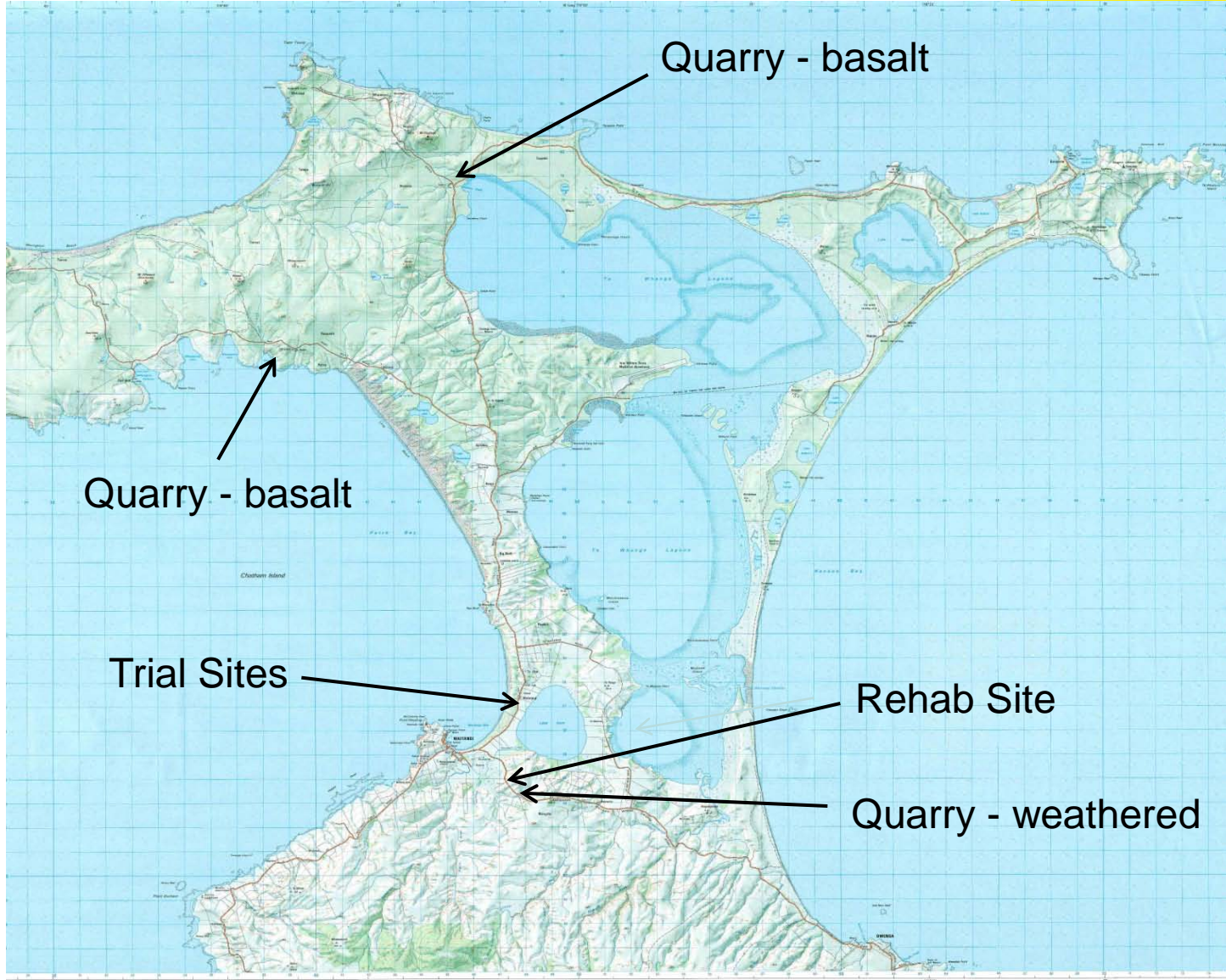
- Unknown pavement layers
- Pavement failure
- Longer haul distances for quality materials
- Low quality materials at site
- Other options available?

Council wanted

- Better quality work
- Innovation/sustainability



Building Experience; Delivering Value



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Actions

Investigations

- Test pits
- Benkelman Beam Testing

Design

- Material testing
- Pavement design
- Construction methods & trials
- Cost of options/innovation

Report to Council

- Testing (repeated)
- Presentation

Site Investigation – Trial Site Test Pits





Depth to Lime Sand Base Below Surface

Site:	Chatham Islands North Road	Trial Site
Date:	03/04/2008	
Photo Location	RP 2327	
RP	LH / CL / RH	Depth to lime sand base below chip seal pavement mm
2198	RH	70
2200	CL	140
2221	RH	115
2239	LH	150
2245	CL	155
2282	RH	20
2298	LH	205
2327	LH	30
2355	CL	80
2356	RH	60
2373	RH	20
2391	CL	50
2437	LH	20

Building Experience; Delivering Value



- Weight is applied to the pavement through a loaded 8 tonne truck axle.
- The deflection of the road is measured with a Benkelman beam





Options & Estimates

Granular Overlay

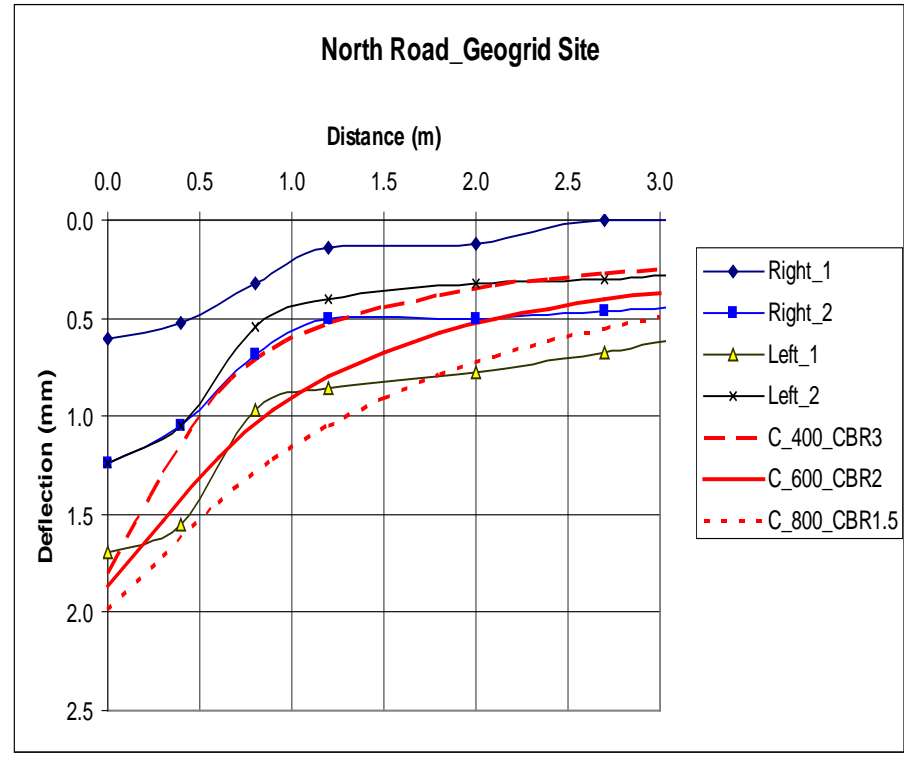
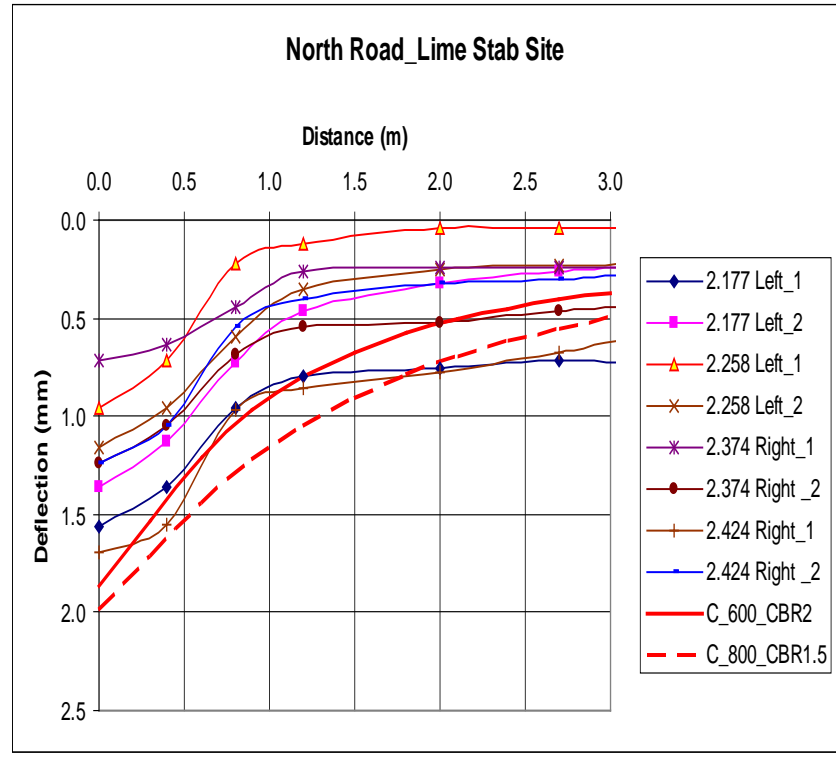


Stabilisation



Note: geogrid option trialled in previous year

Building Experience; Delivering Value



Results

- Stabilised surface more stable in inclement weather
- Stabilisation preferred
- Low pavement deflections
- Fuel savings
- Less damage to existing pavements
- Satisfied client

Questions?