Resisting the pressure for quick fixes to create long term infrastructure value

Ingenium Conference 2010

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Background

- 1971 – 1986 = 8% GDP
- Assisted by 2 major construction phases – Think Big, 1980's 'Construction Boom'
- 1986 – 2008 = 4% GDP
- 1996 – 2001 = 2.8% GDP c.f. OECD average 4.4% GDP
- 2001 – 2006 almost at OECD average

Expenditure Area	2010 - %GDP	2030 - %GDP	2050 - %GDP
Debt Projections	10%	55%	223%
Superannuation	4%	7%	9%
Education	6%	5%	5%
Health	6%	9%	12%
Total S+E+H	16%	21%	26%
Difference 2010		+5%	+10%
Infrastructure	7%	? 4%	? 2%

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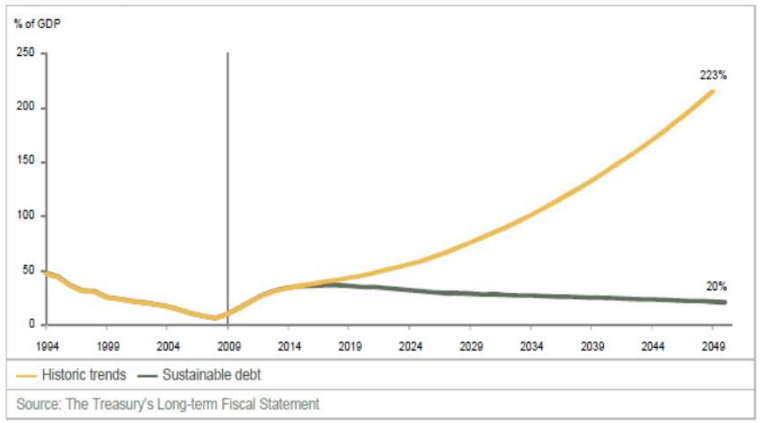
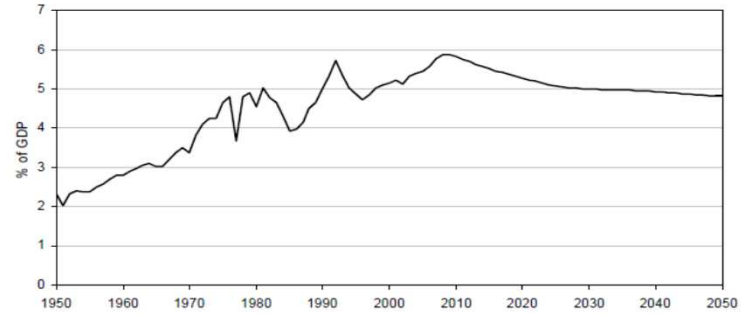
Government Expenditure

Figure 12: Debt projections



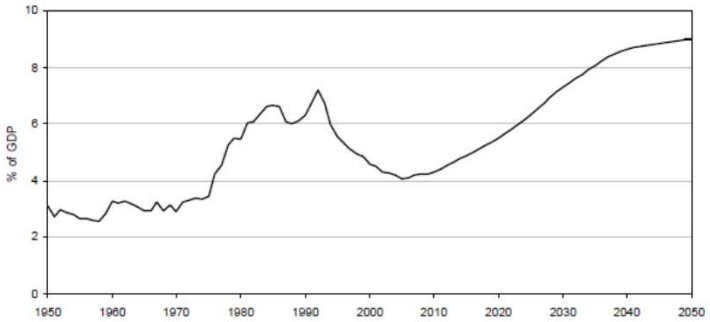
Source: The Treasury's Long-term Fiscal Statement

Figure 18: Demographics reduce the projected GDP share of education spending



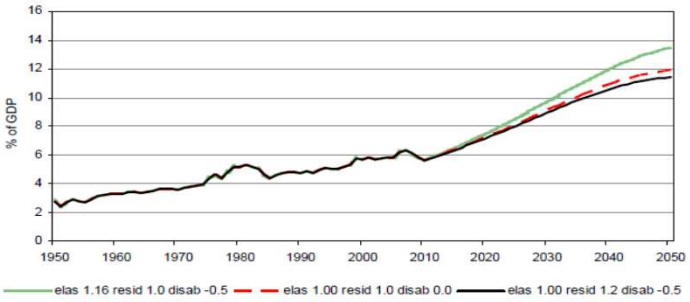
Source: The Treasury

Figure 2 New Zealand Superannuation and its predecessors



Source: The Treasury

Figure 24: The GDP share of Core Crown Health spending continues to grow



Source: The Treasury

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Short Term pressure to Act- Media

Odour in bay coming from sewer manhole

Home » Your Town » Timaru

Wed, 18 Nov 2009

The Regions: Canterbury | Your Town: Timaru

CLICK PHOTO TO ENLARGE

Former Timaru resident Megan Waghorn is happy to see Caroline Bay has been redeveloped, but she is horrified a sewer manhole is ruining its appeal by creating an intermittent odour.

WDC defends strategy over sewage spills

Andre Hueber | 7th January 2010

- Email Story
- Print
- larger | smaller

The Whangarei District Council has hit back at claims its planned sewerage system upgrade is tinkering with a failing system and its "pipes and pumps" approach should be ditched.

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Short Term pressure to Act- Media

3.1.4 Dominion Post 26/03/10

Polluted Beach Closed for Eighth Week

Owhiro Bay

Auckland is growing by 50 people a day -they need 21 homes and bring in 35 additional cars. Now, a report warns of the pressures on the new-look Super City

Expand

A warning sign on a beach tells people to stay out of the water due to a sewage overflow. Photo / Dean Purcell

Auckland's natural environment is in decline and will continue to worsen unless the new Super City council delivers a shake-up, say monitoring officers.

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Short Term pressure to Act- Regulators

- Political
- The role and use of standards
- Not an excuse to do nothing

Expenditure Area	Financial	Legal, Standards
Roads	Office of Auditor General (OAG) NZTA	NZTA
Water Utilities	OAG	EPA, MOH, MfE, Regional Councils
Parks and Recreation	OAG	Regional Councils
Buildings	OAG	BIA, Consents

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Infrastructure Management Guidance

Expenditure Area	Asset	Life (years)
Roads	Pavements	35 - 100
	Shoulder	10 - 100
	Traffic Islands	30 - 100
	Footpath Surface	20 - 75
	Surface Water Channels	50 - 100
	Drainage	50 - 100
	Bridges	75 - 150
	Major Culverts	70 - 100
	Retaining Walls	70 - 100
	Tunnels	500 - 1000
	Underpasses	50 - 150
Water	Pipes	50 - 150
	Valves / Hydrants	25 - 75
	Pump Stn Structures	50 - 1000
	Inlet/Outlet Structures	75 - 100
	Mechanical Gates	50 - 100
	Tanks	40 - 100
	Structures	75 - 100
Wastewater	Pipes	40 - 150
	Manholes	60 - 100
	Structures	40 - 100

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Infrastructure Management Guidance

Expenditure Area	Asset	Life (years)
Stormwater	Pipes	60 - 150
	Channels	60 - 100
	Structures	50 - 100
Parks	Trees	50 - 100
	Structures	50 - 100
	Concrete Walls	50 - 100
	Bridges	50 - 80
	Service Connections	50 - 100
	Base – courts/surfaces	80 - 100
Buildings	Foundation	100 - 125
	Floors	75 - 100
	Walls	75 - 100
	Concrete Tile Roofing	75 - 100
	Precast concrete walls	100 – 150
	Windows – metal / wood	50 - 75

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Infrastructure Management Guidance

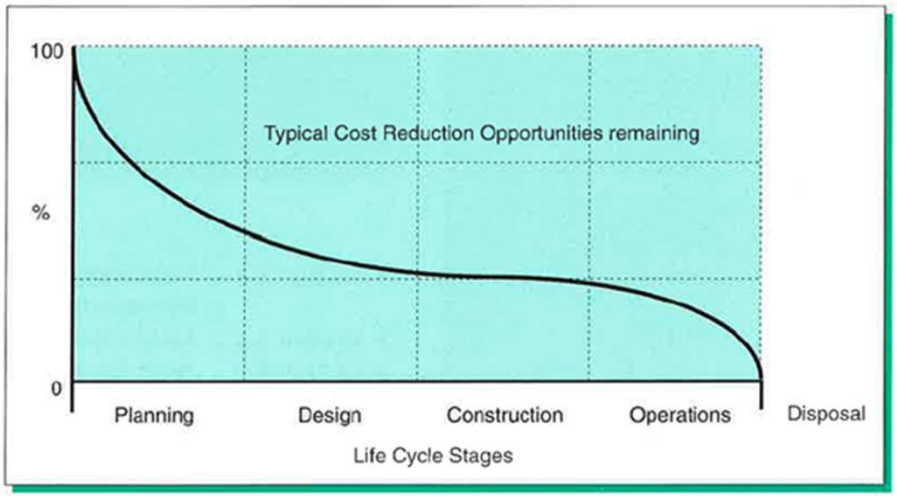

Figure 2.1.3: Lifecycle Cost Reduction Opportunities

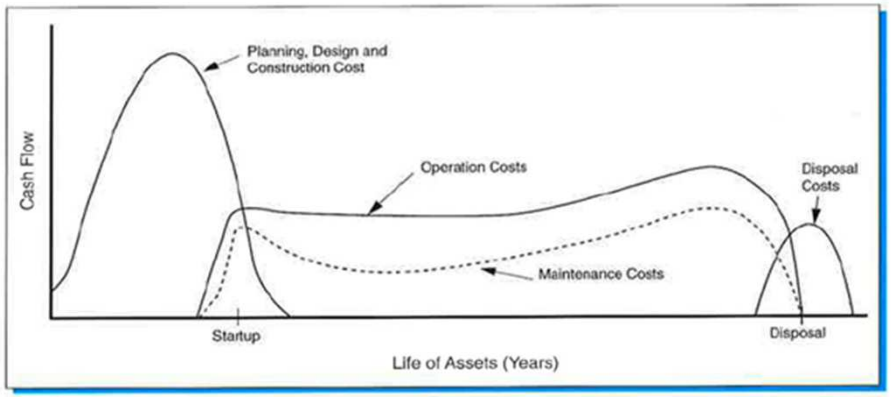

Figure 4.7.1: Lifecycle Cost Profile

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Case study 1: Timaru DC Main Trunk Sewer Renewal

- **Project Summary**

Item	Description	Notes
Project Cost	$32M	Main Trunk Sewer Renewal
Project Initiation	1998	
Project Completion	2013	
Project Duration	15 years	
Asset Lives	100 years	Major components
Action Pressures	Regulator (Ecan)	2 prosecutions
	Local Media	
Suggested Solution	Tanks at Pump Stations	
	4 hours storage	ARC standard
Adopted Solution	New tunnels, new alignment	Away from coast
	Waste Stream separation	
Innovation	Reconfiguration of trunk network	
	Use of modern construction techniques to achieve results	
Design Solution	Modelling of effects, risk, costs	
	Long term optimised lifecycle cost	Included achievement of multiple goals
	Major Environmental risk reduction from current situation	By realignment of sewer and waste stream separation
	Wastewater Working Party formed	Consultation involved major stakeholders

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Case study 1: Timaru DC Main Trunk Sewer Renewal

- **Overview**

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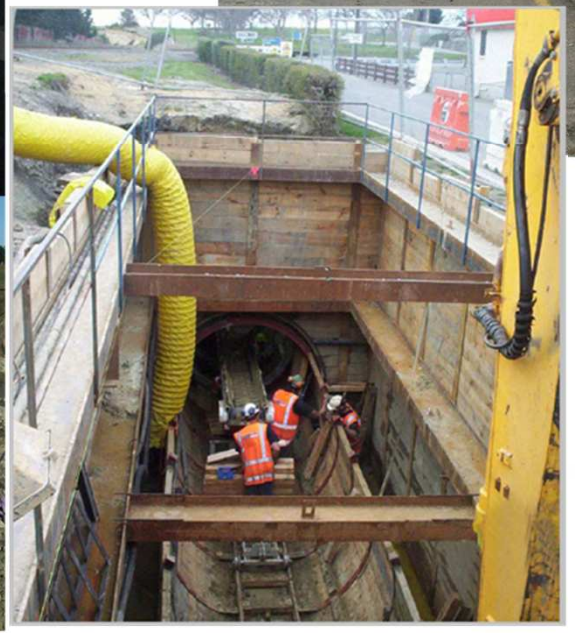
Case study 1: Timaru DC Main Trunk Sewer Renewal

- **Project Solution**



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Case study 1: Timaru DC Main Trunk Sewer Renewal

- **<u>Acknowledgements</u>**
- **TDC staff:**
  - Ashley Harper
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  - Dave Hooke
  - Grant Hall
- **Consultants:**
  - Beca CH2M Hill
- **Contractors:**
  - Downer EDi Works (MTSR 1, 2 and 4)
  - Harker Underground Ltd (MTSR 3)

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Case study 2: Hastings DC Wastewater Treatment

- **Project Summary**

Item	Description	Notes
Project Cost	$55 / household / year	
Project Initiation	1998	Consent lodged
Project Completion	2009	Project completed
Project Duration	11 years	
Asset Lives	75 years	Major structures
Action Pressures	Regulator (HBRC)	
	Iwi Concerns	
Suggested Solution	Status quo consent – fine screen plus outfall	
Adopted Solution	Intermediate and finished solution	
	Alternative treatment configuration that addresses cultural concerns	
Innovation	Innovative project governance and management	Stand 'shoulder to shoulder' with Maori
	Two stage consent and solution	
	Innovative Technological approach	
	Reduced costs per household	
Design Solution	Use of multi criteria assessment and decision making	
	Lateral thinking by Tangata Whenua – good relationships with Council	
	New approach to treatment	
	Huge savings (1/3 of traditional approach)	
	Consent changed without hearing	

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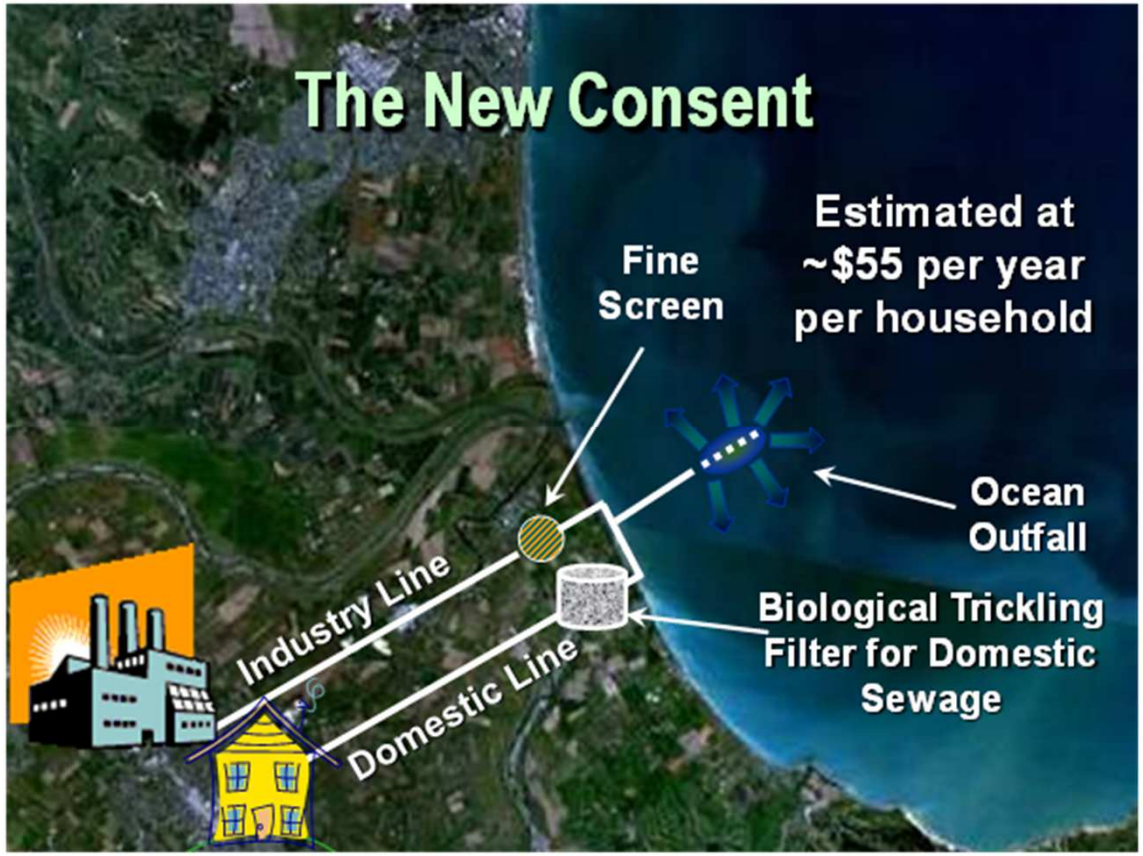
Case study 2: Hastings DC Wastewater Treatment

- **Overview**



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Case study 2: Hastings DC Wastewater Treatment

- **Project Solution**
- **Asset Lifecycle Innovation**

The asset lifecycle innovations with this project were:

- Pausing consent process to extensively consult and resolve iwi concerns
- Cultural awareness and lateral thinking
- New approach – no primary treatment, output acceptable for ocean discharge
- Treatment now secondary instead of primary
- Huge savings – a third of the traditional $
- Use of multi-criteria assessment and decision conferencing
- Consent changed without a hearing

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Case study 2: Hastings DC Wastewater Treatment

- **<u>Acknowledgements</u>**
- **HDC staff:**
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  - Mark von Dadelszen, Lawyer
- **Ngati Kahungungu elders**

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Case Study 3: North Shore CC Project Care

- **Project Summary**

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Case Study 3: North Shore CC Project Care

- **Overview**

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Case Study 3: North Shore CC Project Care

- **Project Solution**

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Case Study 3: North Shore CC Project Care

- **<u>Acknowledgements</u>**
- **NSCC DC staff:**
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- **Contractors:**

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Innovation takes effort and time

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