TRB Transportation Asset Management

New Zealand Experience

October 2009

WAUGH

ideas | analysis | solutions

Agenda

1. Introduction
2. NZ Asset Management Drivers
3. Observations of Practice
4. Results over past 13 years

WAUGH
ideas | analysis | solutions

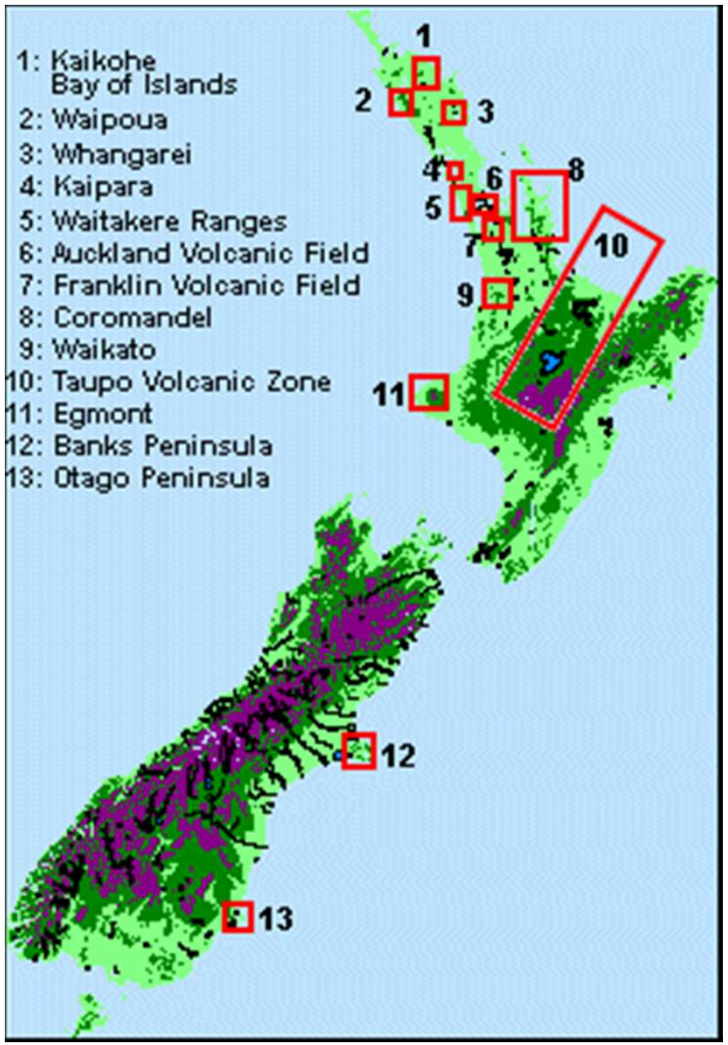
Introduction

- Thank you for the opportunity
- Greetings from Ingenium – an APWA partner
- These partnerships bring the opportunity to share and learn from each other
- NZ and Australian colleagues attending

WAUGH
ideas | analysis | solutions

New Zealand AM Drivers

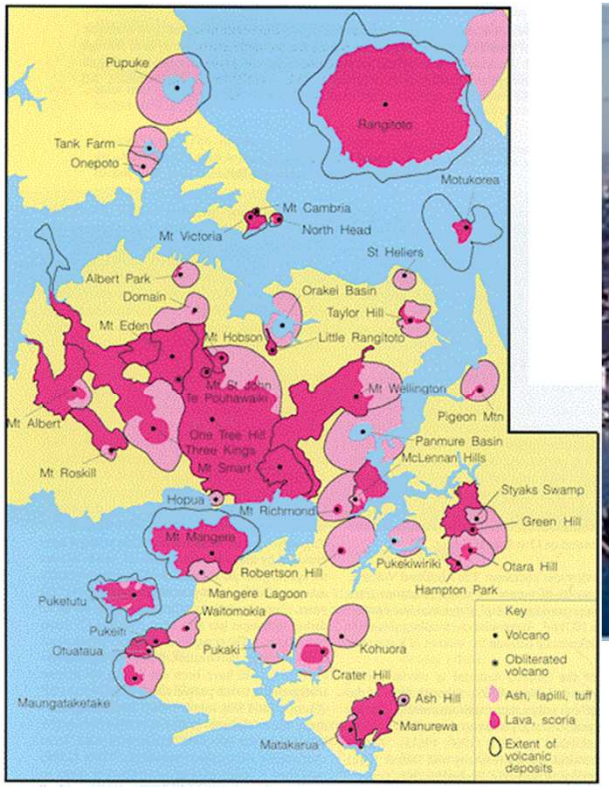
NZ Overview



- 4 million population
- Federal Roads – 10905km(6800 mile)
- Local Urban Roads – 17298km(10750 mile)
- Local Rural Roads – 65600km(40800 mile)
- Total Roads – 93805km(58300 mile)

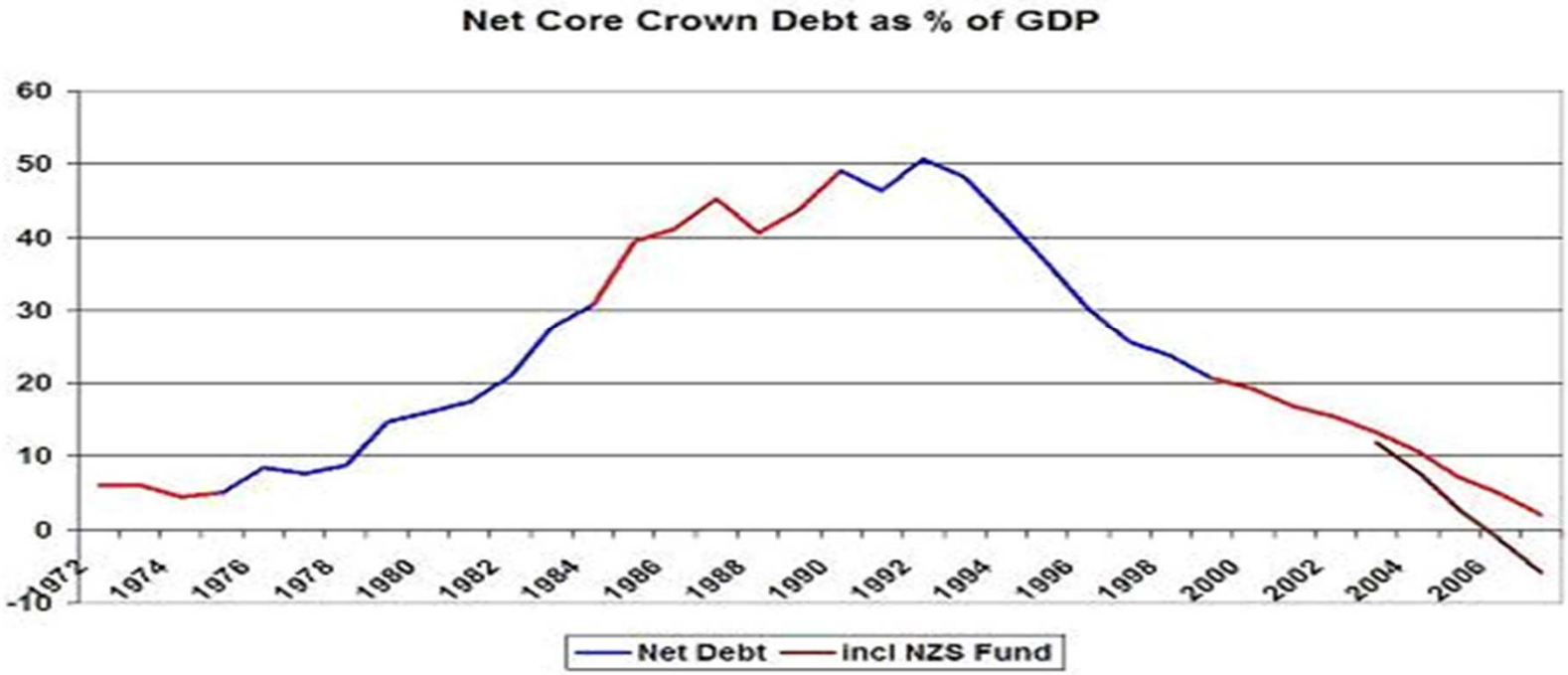
WAUGH
ideas | analysis | solutions

Auckland 1.4m pop
Isthmus and Volcanoes



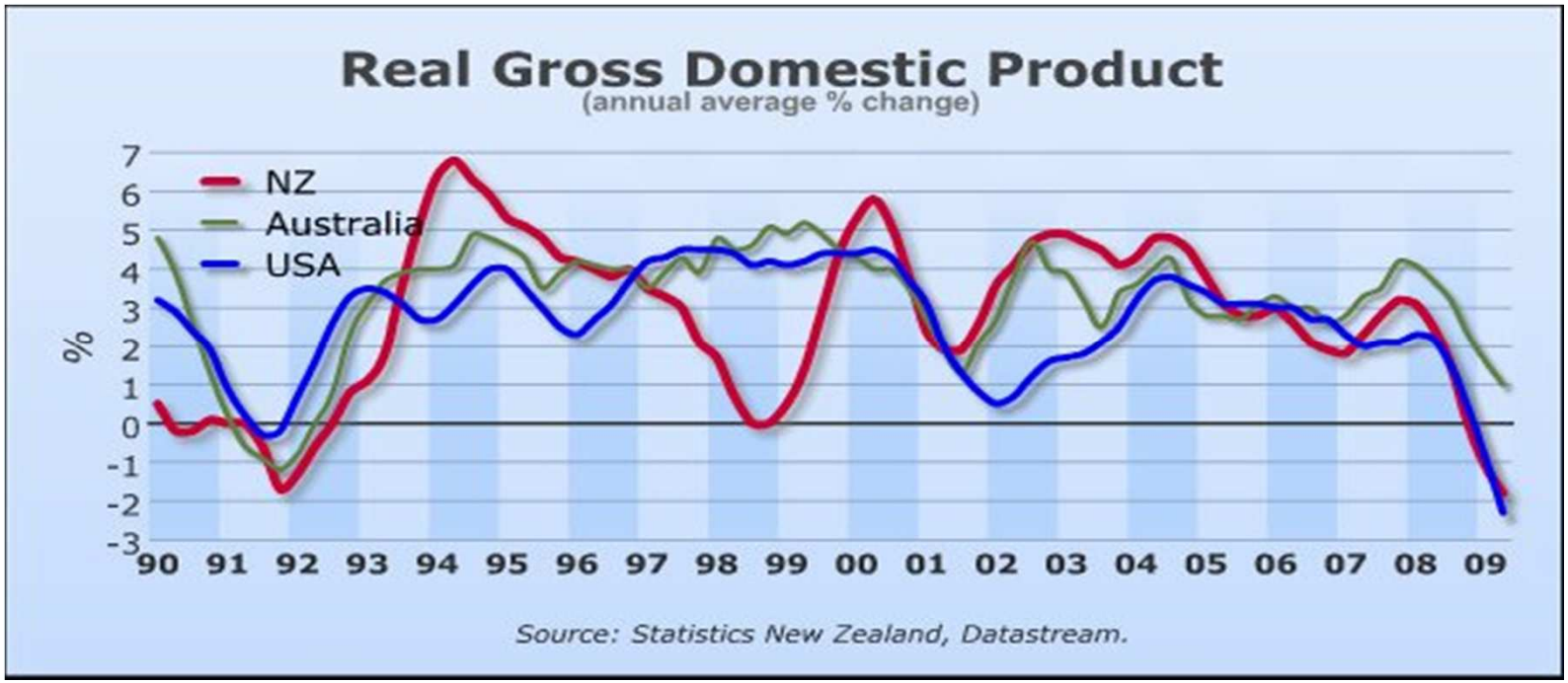
WAUGH
ideas | analysis | solutions

In 1984 NZ was Poor
Crown Core Debt 1984 - 1996



WAUGH
ideas | analysis | solutions

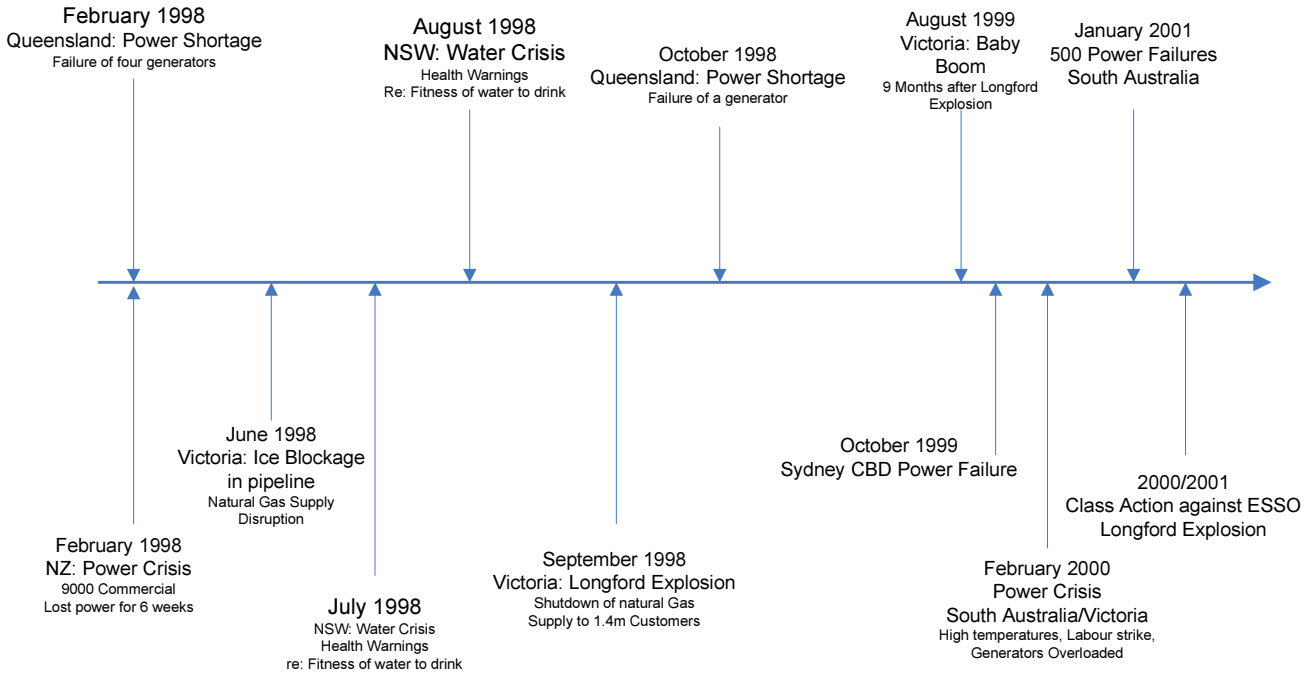
GDP Changes
Infrastructure affordability



WAUGH
ideas | analysis | solutions

Asset Management Begins

Major Infrastructure Failures in Australia and New Zealand, 1998-2001



WAUGH
ideas | analysis | solutions

Asset Management a journey

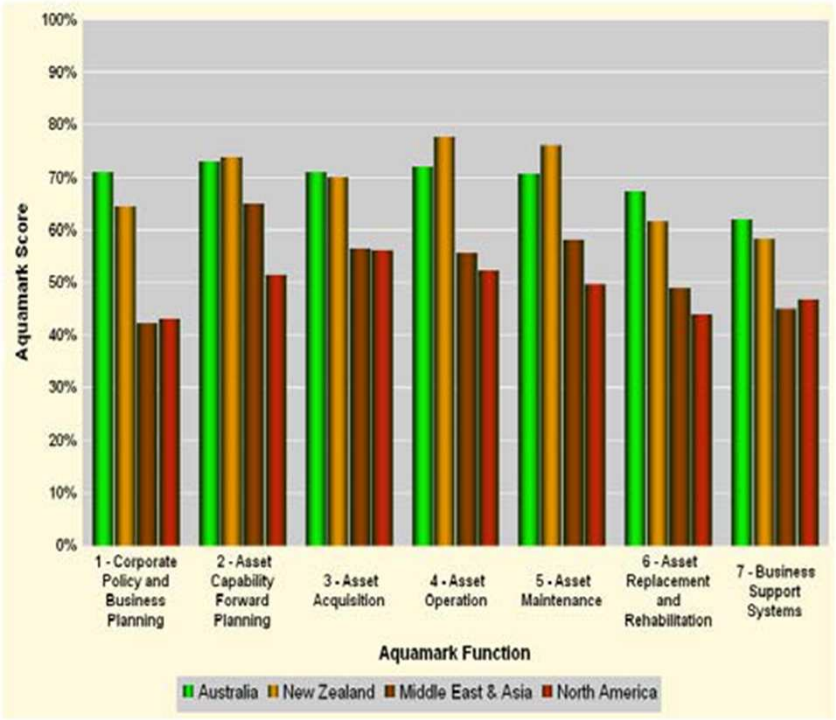
- 1998 – LTFS – 1st AMP, Renewals focus
- 2001 – First AMP revisions
- 2005 – LTCCP – 2nd AMP, New Capital
- 2008 – LTCCP – 3rd AMP
- Maintenance Optimization a work in progress

  AMP a 20 year plan, improving information each cycle

WAUGH
ideas | analysis | solutions

AM Practice and Scorecards

Source: Don Vincent, GHD Australia



Sector	Australia 2001	NZ 2004
National Roads	C	All Roads D-
State Roads	C-	Bridges C+
Local Roads	D	
Railways	D-	D-
Airports	B	C+
Ports	B	C+

WAUGH
ideas | analysis | solutions

New Zealand Observations

AM and Organizations

5 Stages of Grief

- Denial
- Anger
- Bargaining
- Depression
- Acceptance

5 Phases of Project Management

- Initial Enthusiasm
- Inevitable problems
- Search for blame
- Punish the innocent
- Praise and reward non-participants

WAUGH
ideas | analysis | solutions

Local Government Act 2002

- Requires 10 year financial plans that must be formally updated and audited every 3 yrs
- Requires 10 year plans supported by asset or activity management plans

WAUGH
ideas | analysis | solutions

Organizations and AM Planning

- 20% Embedded, resourced, good progress and results
- 60% Keeping up with requirements but still plenty of work to do
- 20% Compliance only – still in denial after 10 years

WAUGH
ideas | analysis | solutions

LTCCP Progress 2002 - 2008

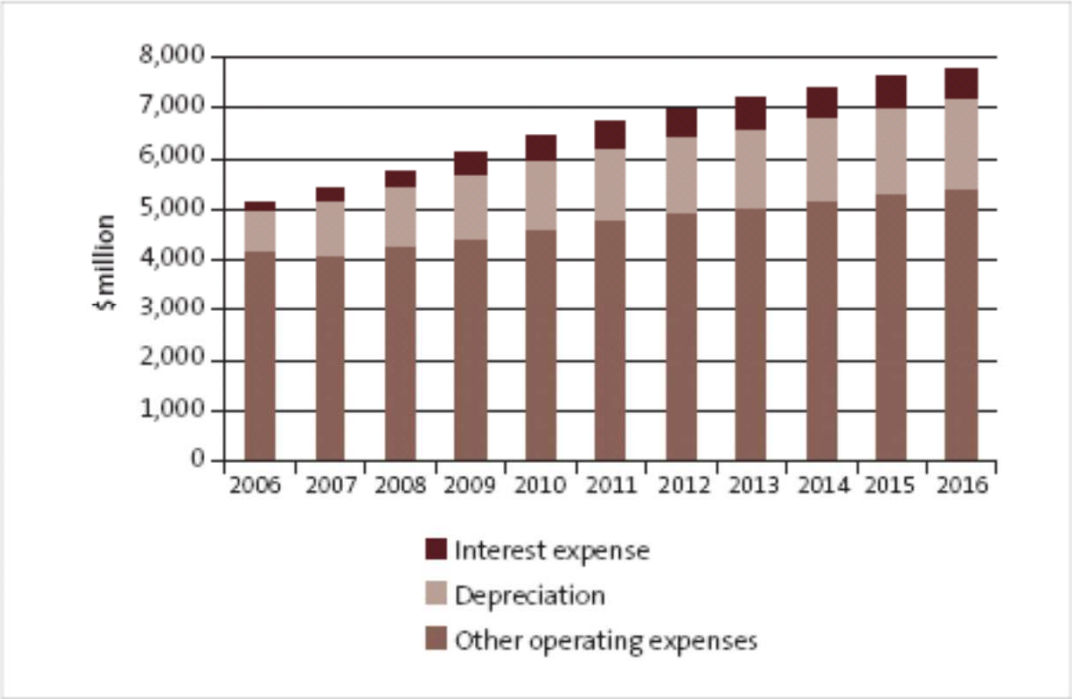
- The right debate: too much technical detail
- Still signs of 3 year budgeting
- Many AMP's not sufficiently robust
- Systems and process issues
- Resource shortages in planning
- Resource shortages in delivery (40 – 50% carryover's)

WAUGH
ideas | analysis | solutions

NZ Forecast Operating Expenditure

Figure 3

Forecast operating expenditure from 2006 to 2016



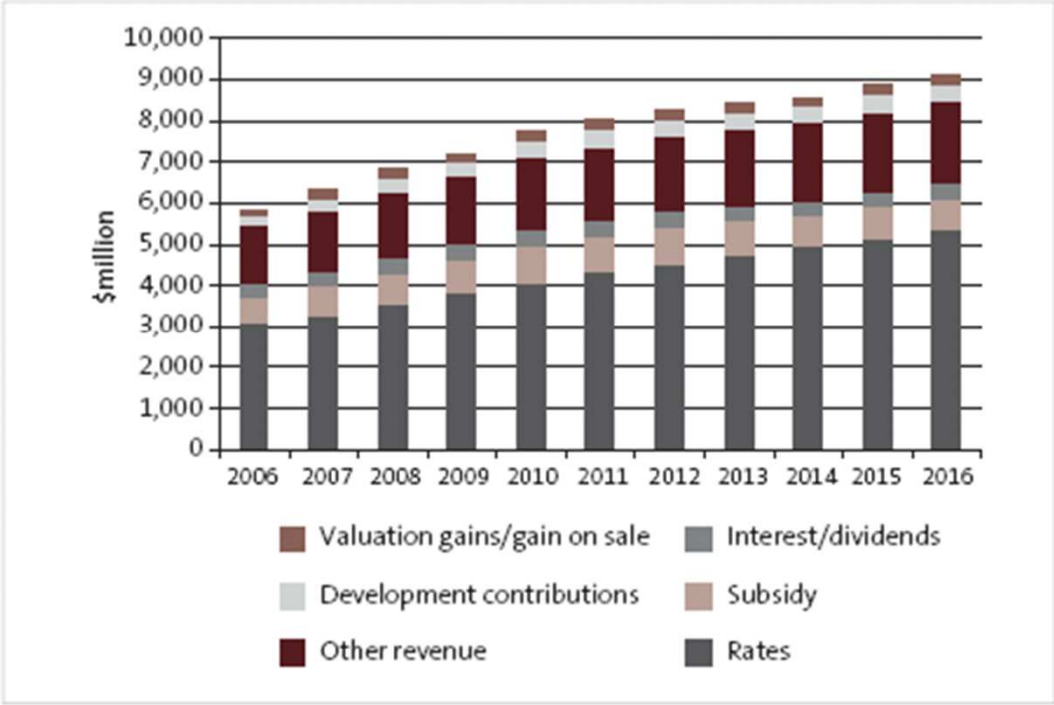
Note: The 2006 amount comes from 2005/06 annual plans.

WAUGH
ideas | analysis | solutions

NZ Forecast Operating Revenues

Figure 4

Forecast operating revenues from 2006 to 2016



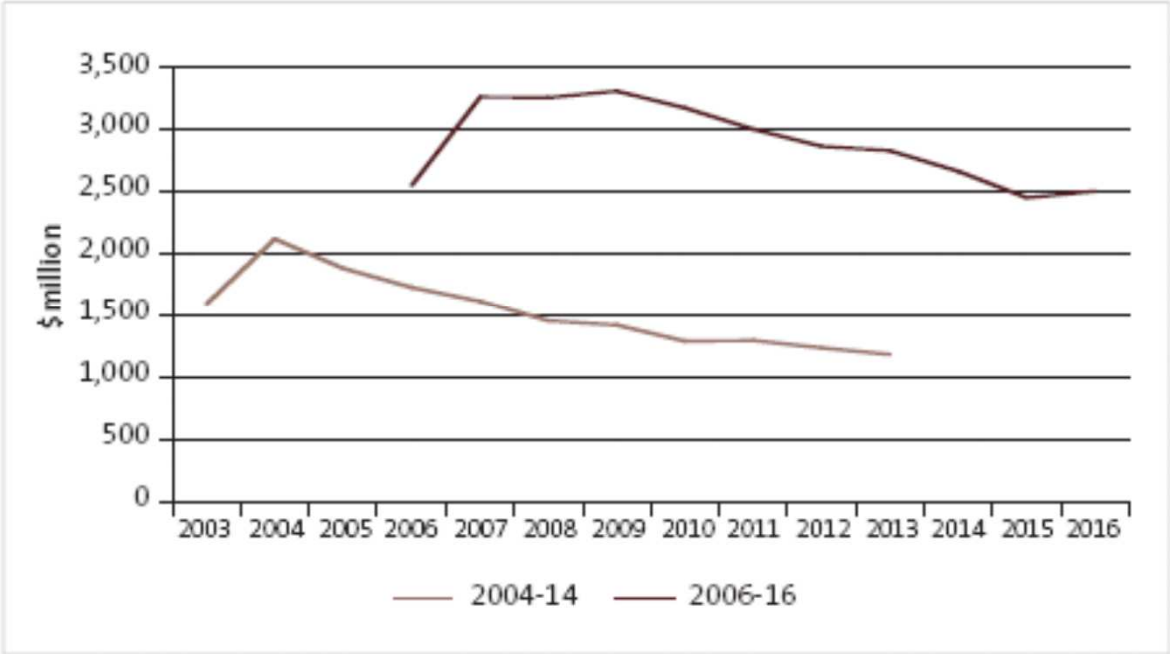
Note: User-pays charges are included as "other revenue". The 2006 amount comes from 2005/06 annual plans.

WAUGH
ideas | analysis | solutions

LTCCP Progress 2002 - 2008

Figure 13

Comparison of capital expenditure in the 2004-14 and 2006-16 LTCCPs



WAUGH
ideas | analysis | solutions

2008/09 Issues

- All the costs are on the table for next 10 yr
- Huge community debate (2 years) around affordability of services – commissions, hearings, Council elections
- Populist politicians still do their stuff
- BUT debate is informed by facts – communities can wrestle with trade-offs

WAUGH
ideas | analysis | solutions

NZ Results

Levels of Service Linkages

Wastewater						
	Community Outcomes	**How the Wastewater Activity Contributes**	**Measurement (Level of Service)**	**Measurement Procedure**	**Current Level of Service**	**Target Level of Service**
	High standards of public and environmental health	Protecting the communities from wastewater related health issues by providing community reticulated systems in agreed areas	Adoption of a Sanitary assessment for the district as required by the LGA, update every 12 years.	Resolution of Council	Adopted June 2006	Adopted and updated every 12 years
	Sustainable, sate and healthy infrastructure	Long term planning through Asset Management Plans will provide confidence of a sustainable infrastructure	Adoption of an approved Asset Management Plan	Resolution of Council	Adopted and updated every 3 years	Adopted and updated every 3 years
		Managing appropriately the discharges to air, water and land from the wastewater system ensures a healthy and safe infrastructure.	Discharges from treatment plants meet standards set by Environment Waikato	Wastewater testing carried out as per EW requirements	Full compliance with Resource Consent conditions in TA	Full compliance at both treatment plants
					Non-compliance for nitrogen and phosphorous in Cambridge	Full compliance at both treatment plants
			Number of Pump station overflow	Review Failure information sheets	Not currently measured	No more than x dry weather overflows from pump stations per year
					Not currently measured	No more than y overflows from pump stations per rainfall event
			Customer complaints of odour events	Quarterly audit of odour events (EW and INFRA)	9 complaints per annum	<= 5 odour events per year
	Efficient and effective utility services	Long term planning of maintenance, renewals and provision for growth will provide assurance for a sustainable and efficient utility service	Adoption of an approved Asset Management Plan	Resolution of Council	Not adopted	Adopted
		Satisfaction with Councils services/facilities reflects how effective the utility service is to the community	Percentage of satisfied residents with the overall performance of the wastewater systems	Annual NRB Survey	63% residents are satisfied with the services	70% satisfied residents
	Affordable services	Plan for future growth	A Development Contribution Policy has been adopted	Resolution of Council	Adopted	Adopted
		Monitor the Customer Satisfaction Level of the overall wastewater service provided to reticulated areas	Percentage of satisfied residents with the overall performance of the wastewater systems	Annual NRB Survey	63% residents are satisfied with the services	70% satisfied residents
	High standards of infrastructure	Ensure appropriate response times to the public requests for service are maintained and the wastewater system that directly affects the use of the system is operating correctly.	Percentage of satisfied residents with the overall performance of the wastewater systems	Annual NRB Survey	63% residents are satisfied with the services	70% satisfied residents

WAUGH
ideas | analysis | solutions

MCC Roads – 20 year expenditure

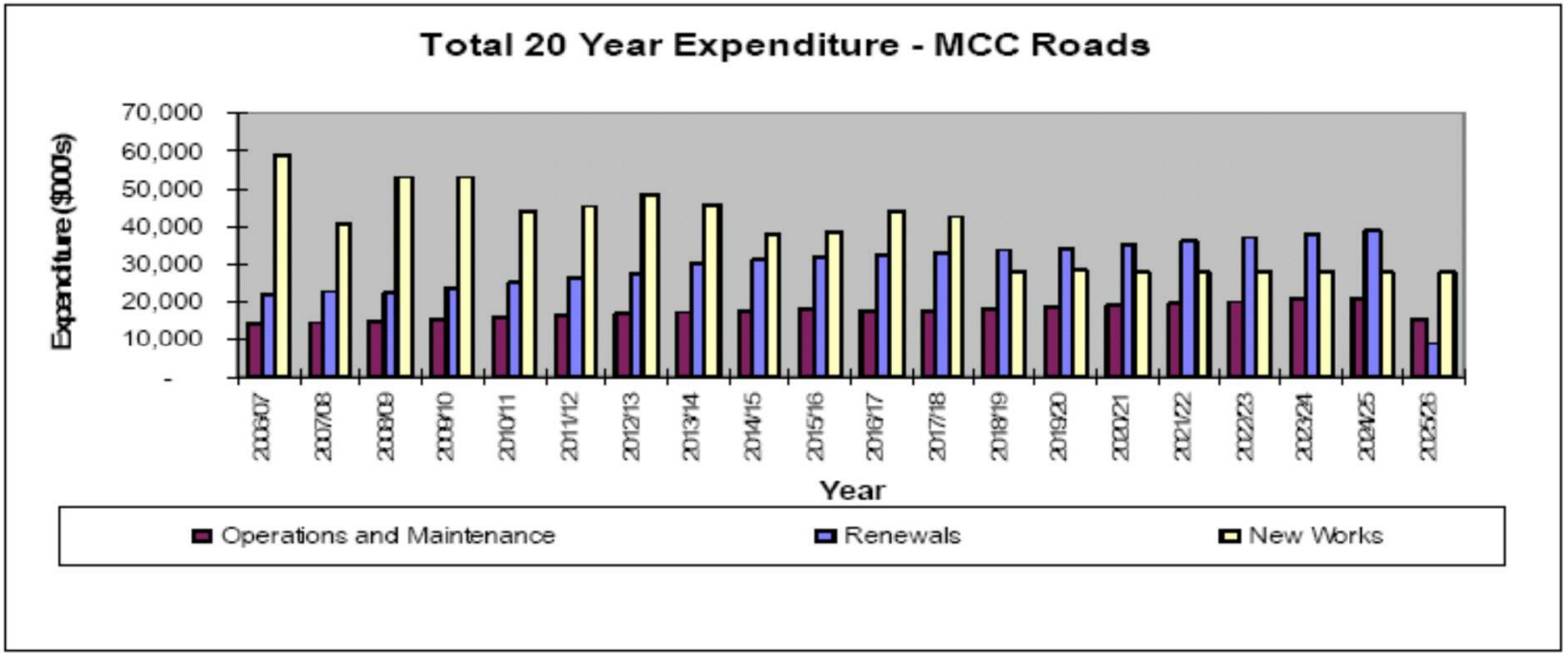
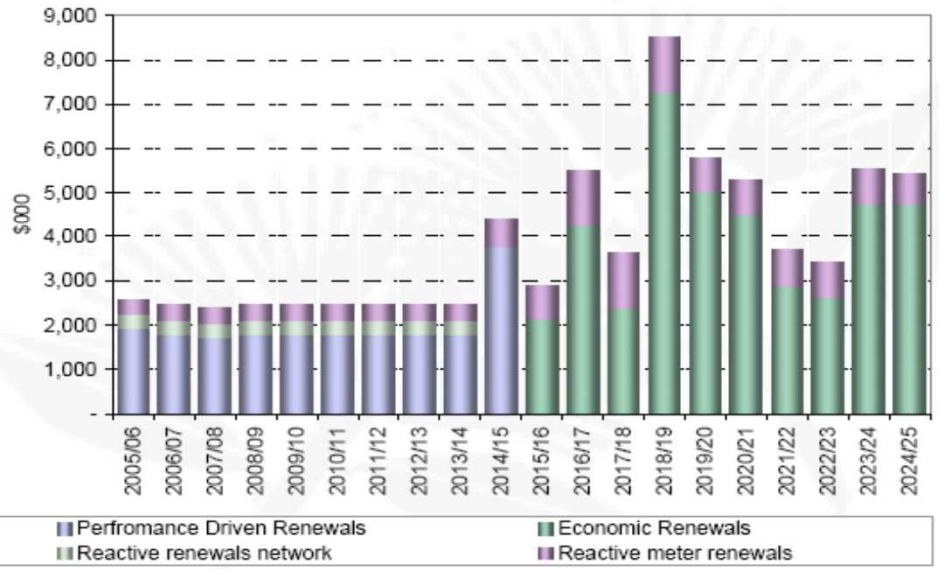


Figure K: 20 Year Financial Forecast

WAUGH
ideas | analysis | solutions

Renewal Forecasts - NSCC

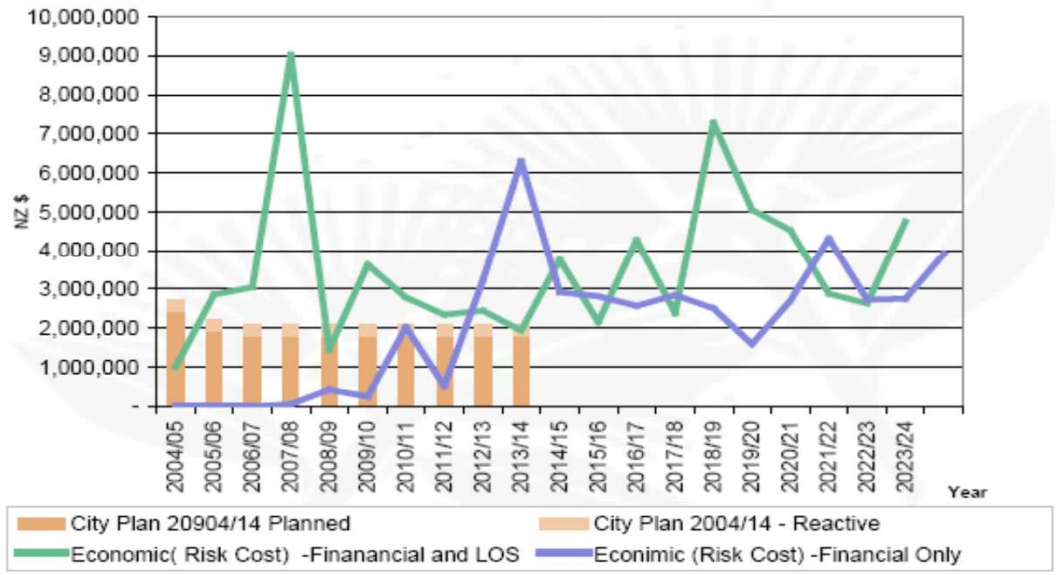
Figure 6.3 Water Supply Renewal Forecast



WAUGH
ideas | analysis | solutions

Economic renewals

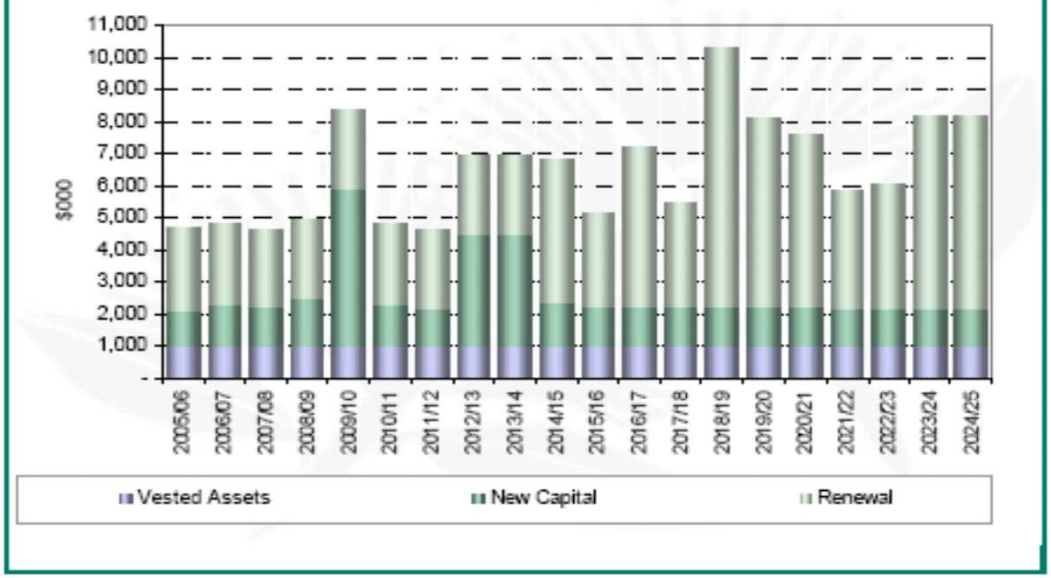
Figure 6.4 Modelled Economic Renewals 2004/23 vs City Plan 2004/14 Budgets



WAUGH
ideas | analysis | solutions

Total Capital Expenditure

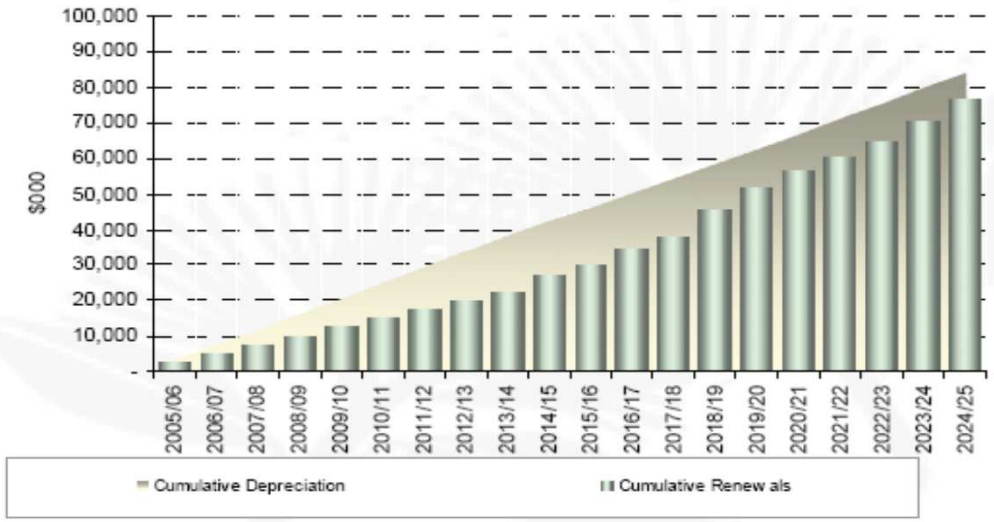
Figure 7.8 WS Total Capital Expenditure Forecast



WAUGH
ideas | analysis | solutions

Renewals vs. Depreciation

Figure 7.11 WS Cumulative Renewals and DISP



WAUGH
ideas | analysis | solutions

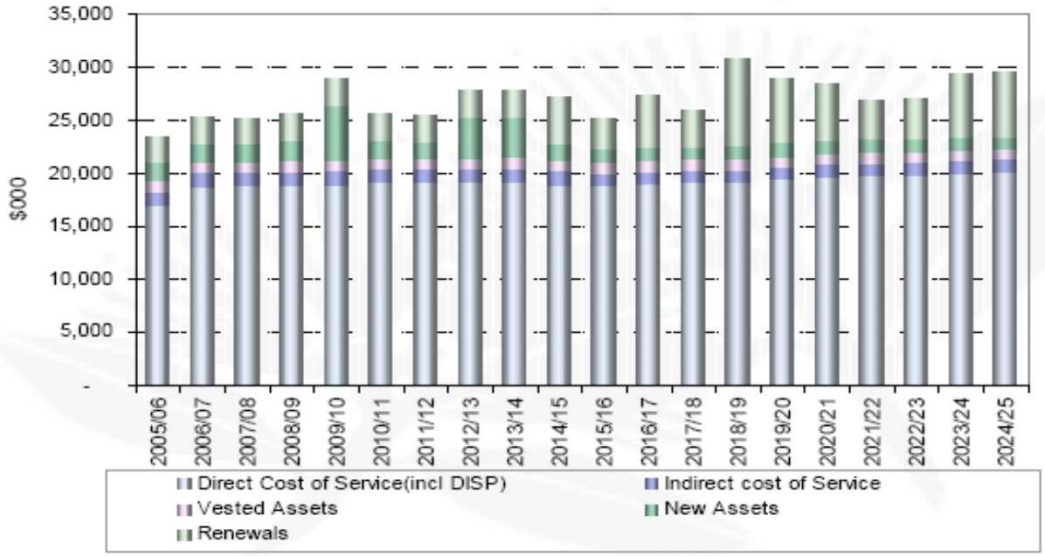
Depreciation Calculations

Table 7.6 Fair Value of WS Assets as of 30 June 2004					
Asset Class	Quantity	Unit	Optimised Replacement cost $ 000	Depreciated Replacement Cost $ 000	Annual Depreciation $000
Pipes	1,276.	km	142,155	101,562	1,633
Valves	13,012	no	20,803	13,648	383
Fire Hydrants	6,918	no	7,774	4,764	140
Pump Stations	10	no	1,794	1,507	53
Reservoirs	3	no	4,353	795	44
Other Facilities	37	no	680	420	16
Service Connections	73,251	no	21,023	15,866	199
Water Meters	73,367	no	21,764	13,222	856
		Total	220,346	151,784	3,324

WAUGH
ideas | analysis | solutions

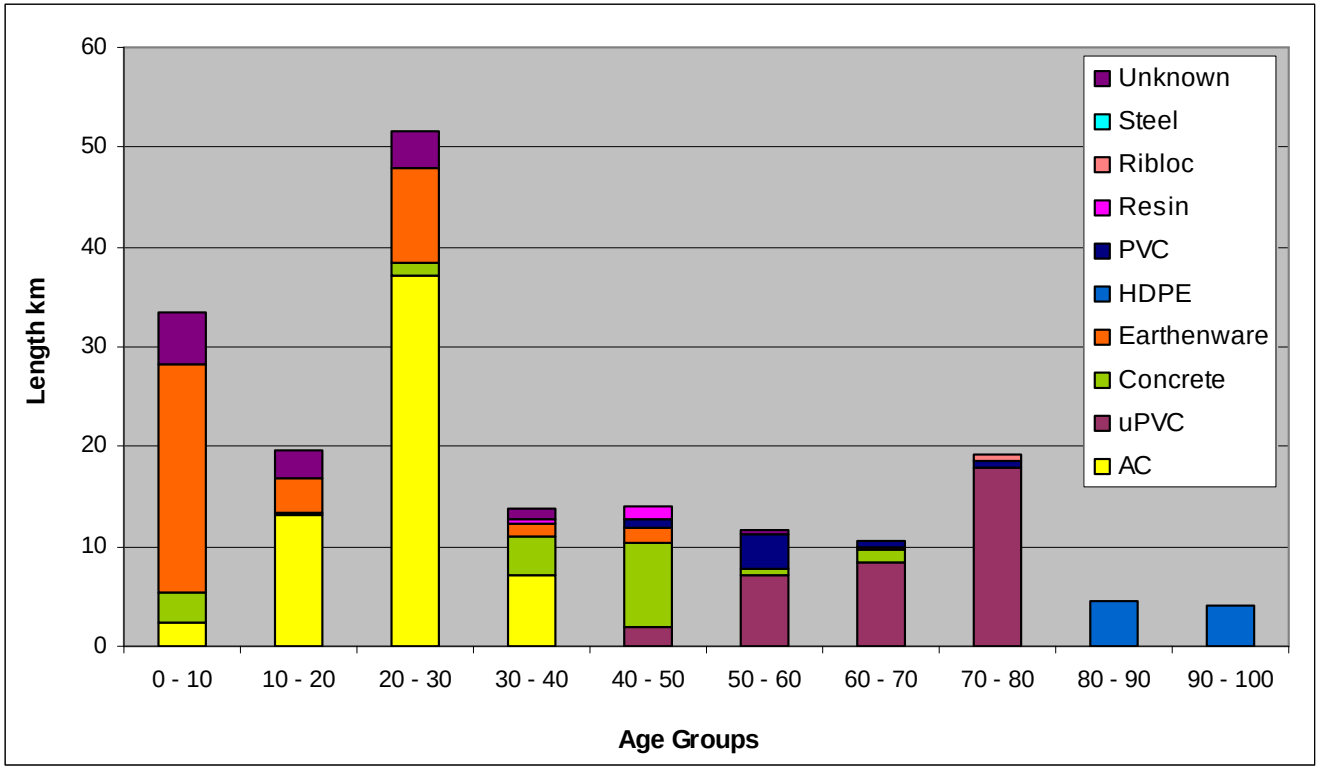
Expenditure Forecasts

Figure 7.1 WS Expenditure Forecast



WAUGH
ideas | analysis | solutions

Remaining useful life, pipe length and material type



WAUGH
ideas | analysis | solutions

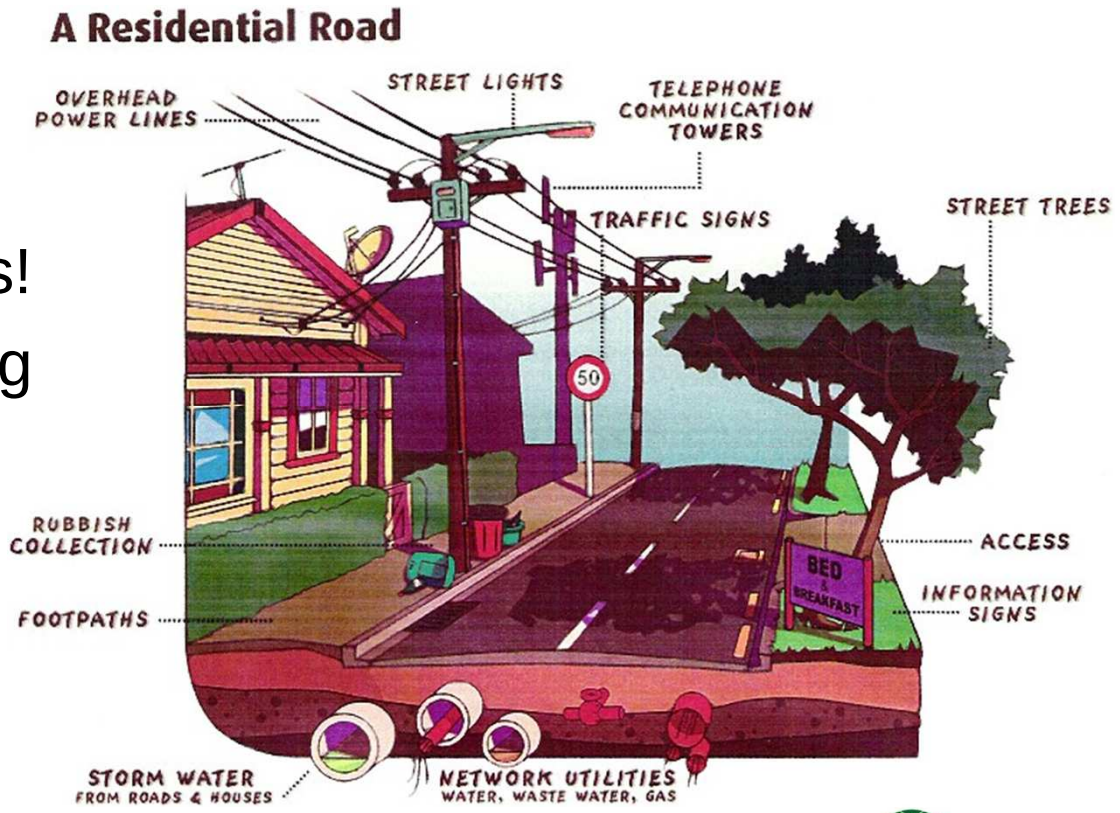
An Integrated Approach

Consider

Infrastructure

Interdependencies!

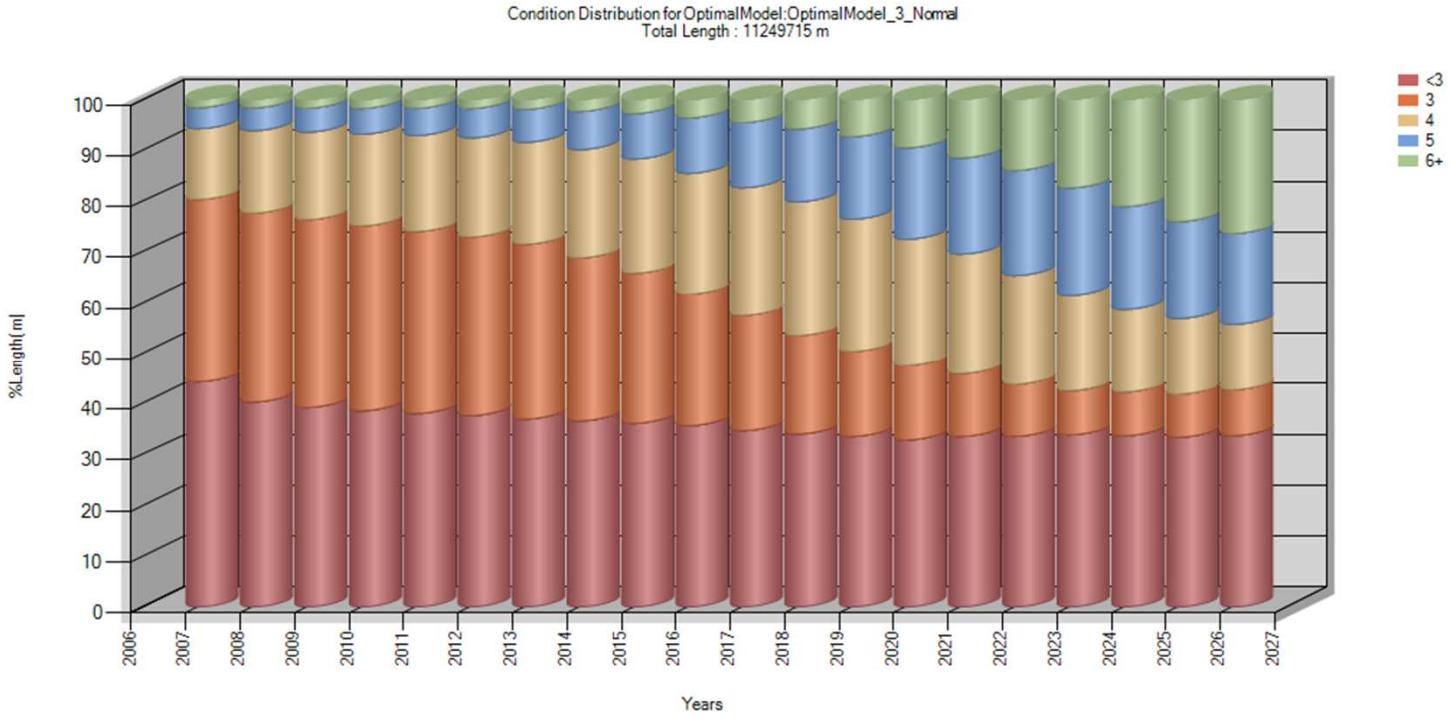
- Still not handling this well
  - Contract Separation
  - Integrated Planning



WAUGH
ideas | analysis | solutions

Condition Distribution Model

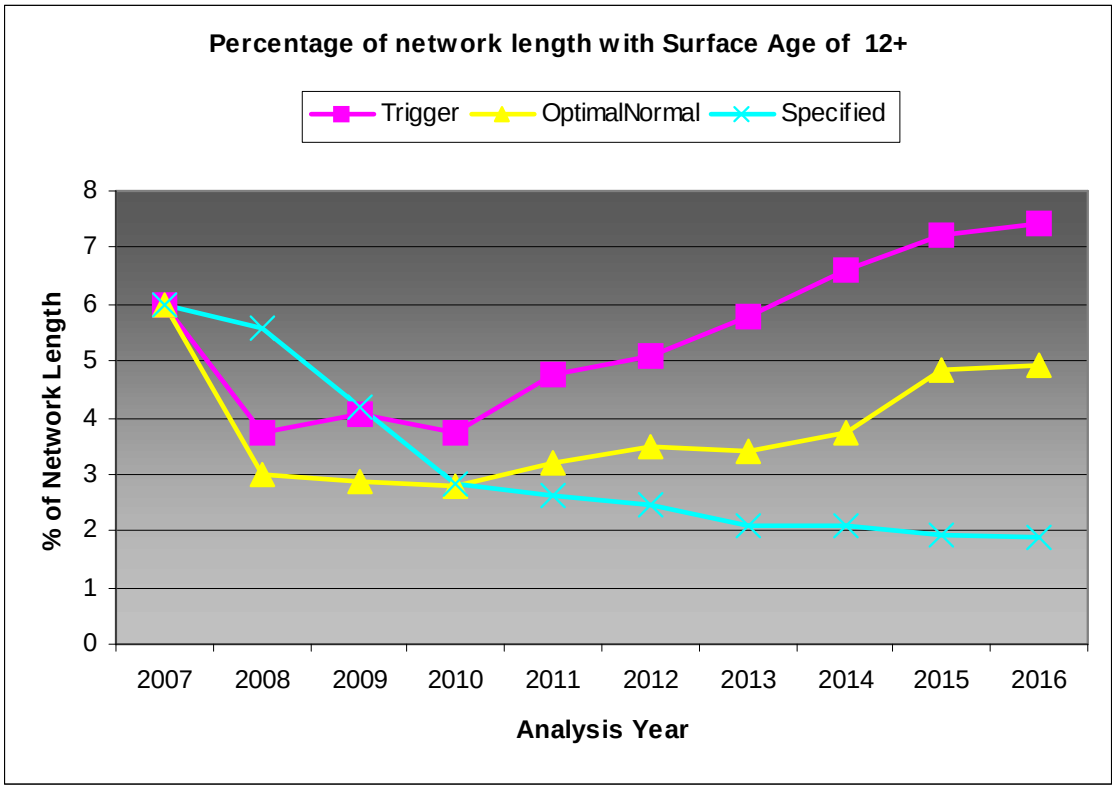
Source: Theuns Henning IDS Ltd, dTIMS



WAUGH
ideas | analysis | solutions

Surface Age Model

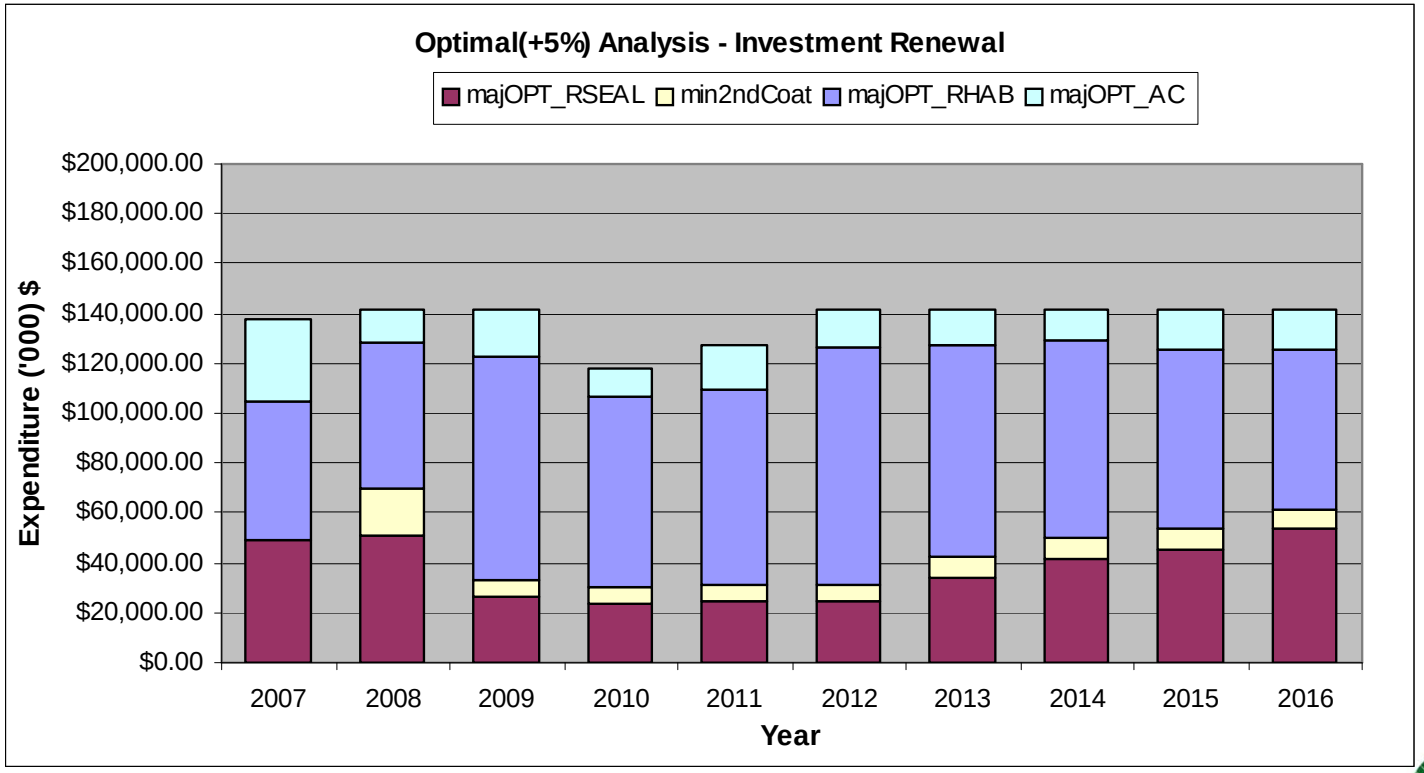
Source: Theuns Henning IDS Ltd, dTIMS



WAUGH
ideas | analysis | solutions

Renewal Investment Analysis

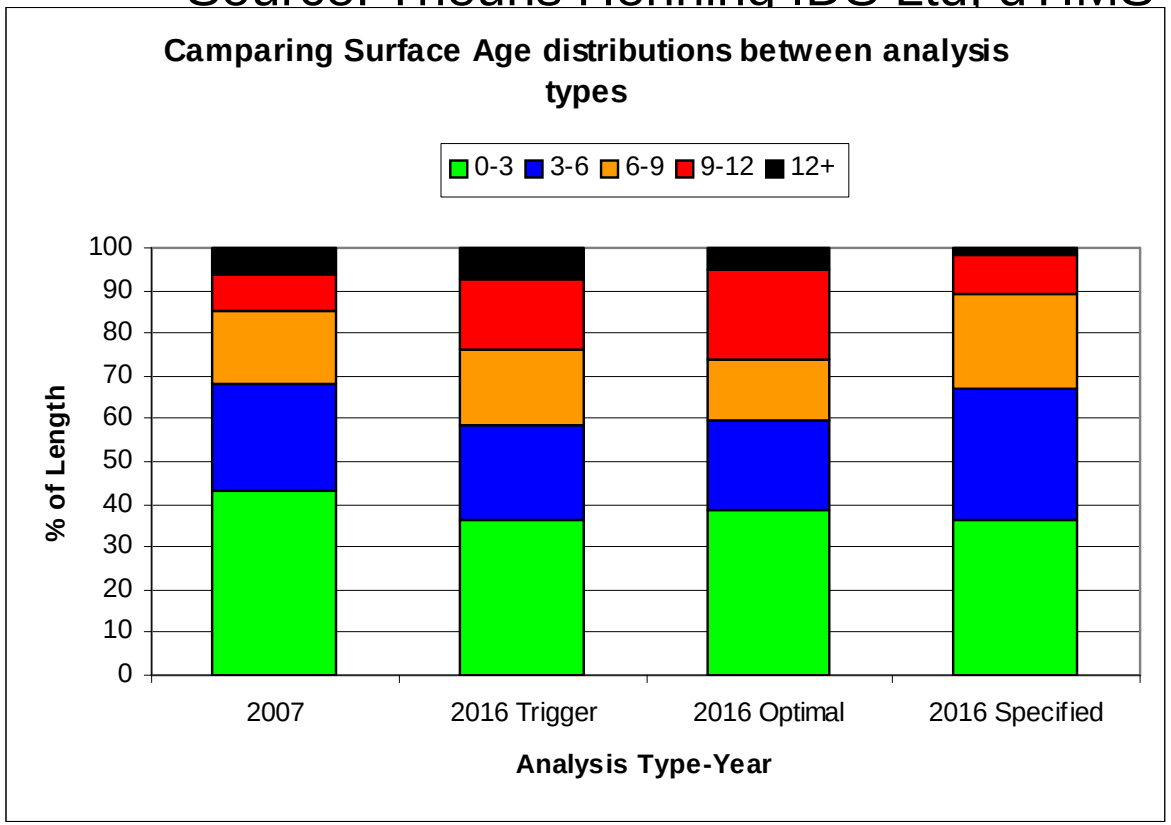
Source: Theuns Henning IDS Ltd, dTIMS



WAUGH
ideas | analysis | solutions

Surface Age Distributions

Source: Theuns Henning IDS Ltd, dTIMS



WAUGH
ideas | analysis | solutions

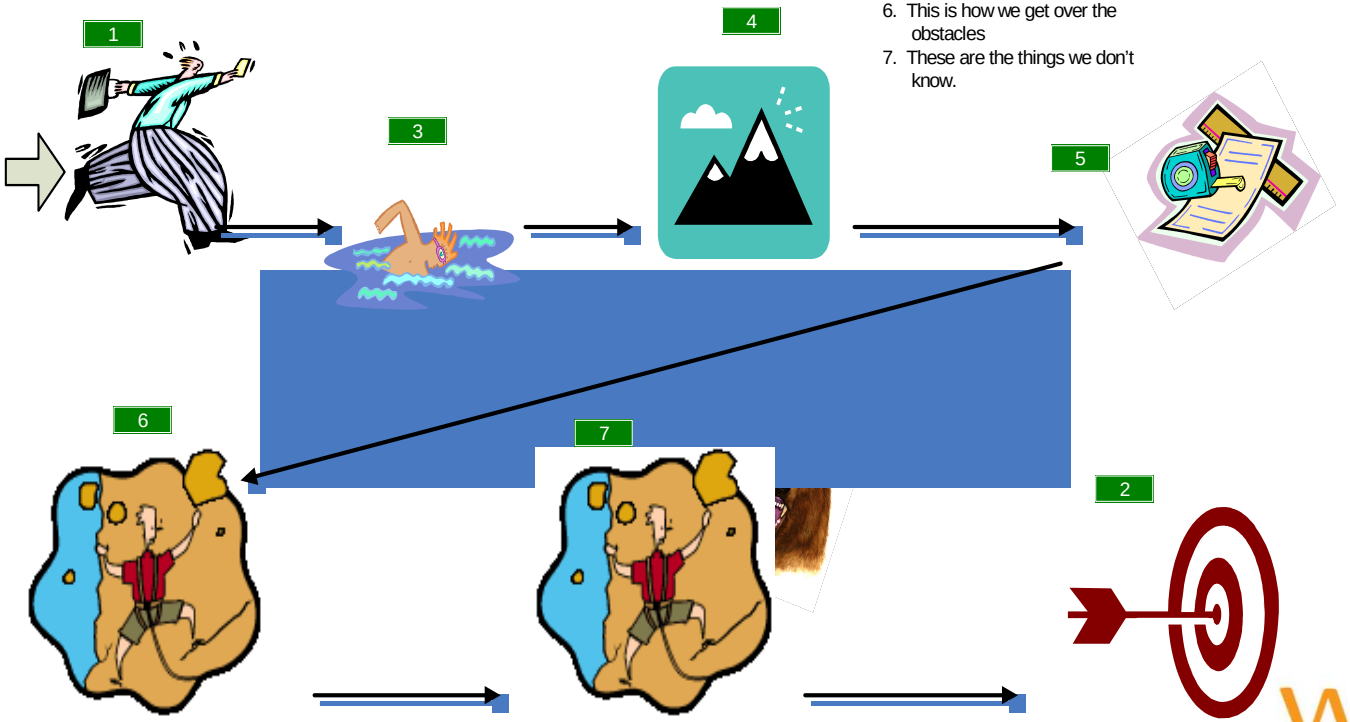
John Howard, JRA Challenge – AMP on 7 Slides

1. What are the drivers?
2. What is the target?
3. What are various ways to get there?
4. What are the obstacles, issues?
5. How do we measure progress?
6. How do we get over the obstacles?
7. What don't we know?

WAUGH
ideas | analysis | solutions

7 Key Points for AMPs

Key Points for
7 Slide AMP's



KEY POINTS:

1. These are the things that drive us
2. This is the target we are going for
3. These are the various ways of getting there
4. These are the obstacles/hills/ challenges/issues
5. This is how we measure our progress
6. This is how we get over the obstacles
7. These are the things we don't know.

WAUGH
ideas | analysis | solutions

Thank you

WAUGH
ideas | analysis | solutions