



**CONSTRUCTING  
EXCELLENCE**  
IN NEW ZEALAND

Delivering individual, corporate  
and industry excellence  
in construction

# **Time, Money and Culture**

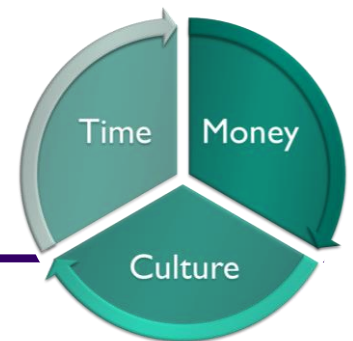
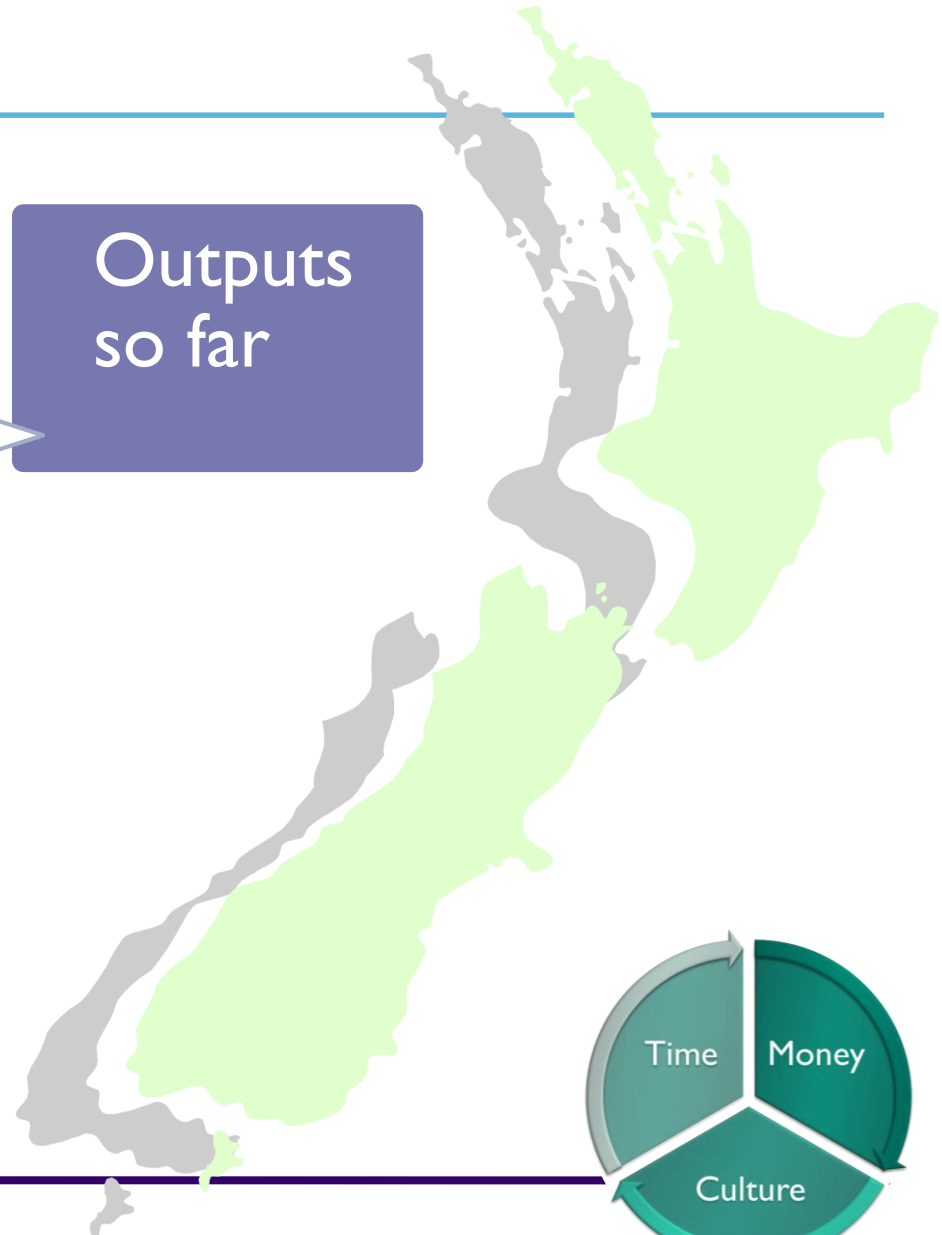
How Lean Construction is transforming  
New Zealand's Construction Industry

Amanda Warren, Industry Chair LCI NZ, Constructing Excellence NZ

Darron Monaghan, Business Systems Manager, Fletcher Construction

# Agenda

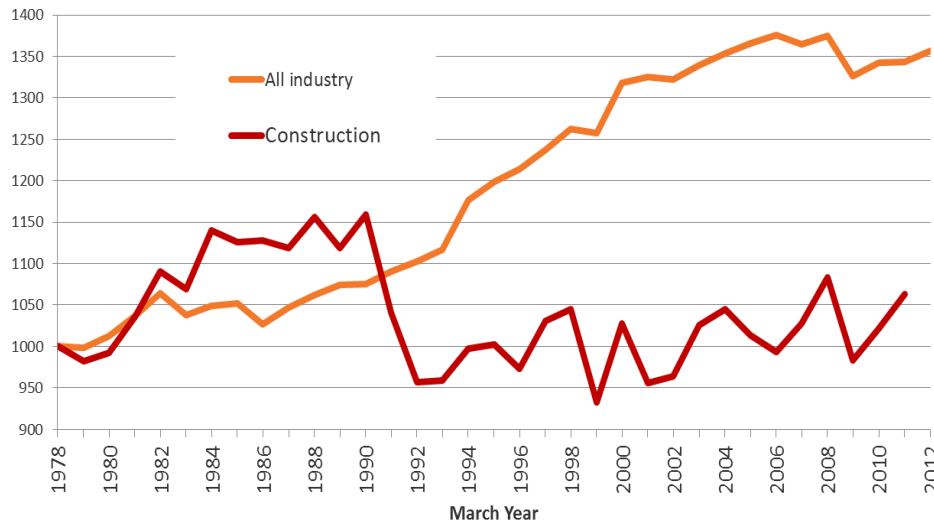
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# Construction productivity is lagging

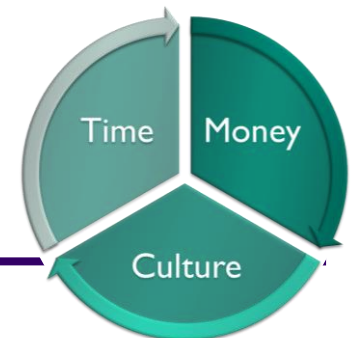
Current  
State

Construction and total economy MFP



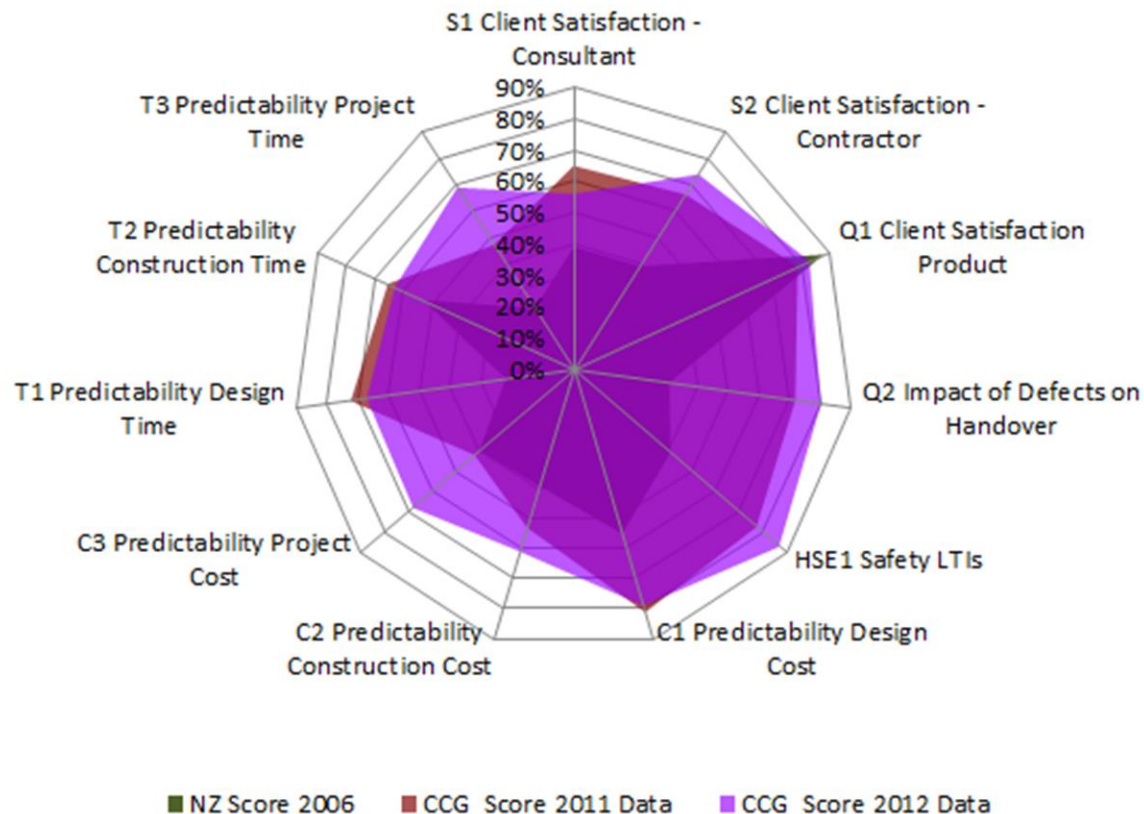
- ▶ \$200k Average turnover for NZ construction company
- ▶ Low technology uptake
- ▶ Culture of single project 'lowest cost tendering'

Ian Page, BRANZ

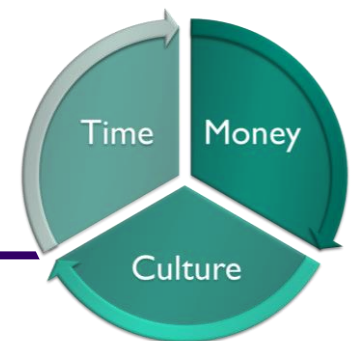


# Performance is getting better?

Current  
State

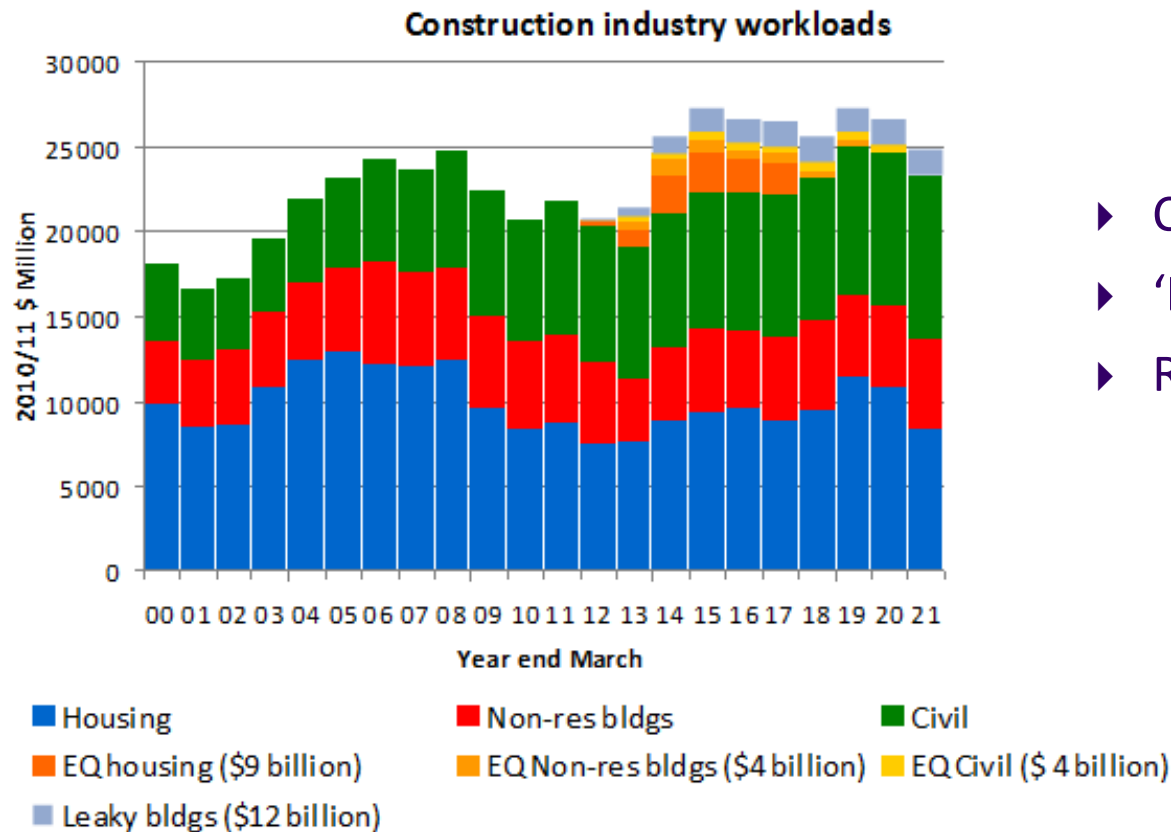


- ▶ 2006 – Boom
- ▶ 2011 – Bust
- ▶ 2012 – Start of Boom



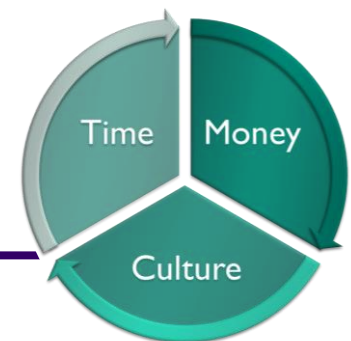
# The Wall of Work is coming here!

Current  
State



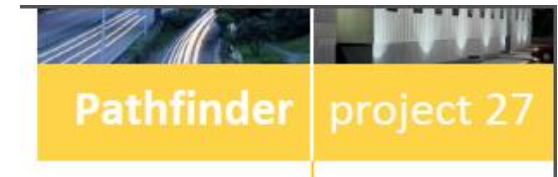
- ▶ Christchurch Rebuild
- ▶ 'Leaky Buildings'
- ▶ RONs

Ian Page, BRANZ



# Industry Activities

Response

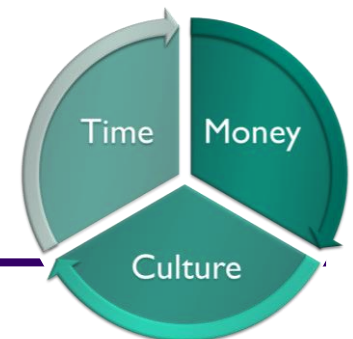


New Zealand BIM Handbook

## Auckland's Procurement Forum

PROACTIVE ENGAGEMENT OF AUCKLAND'S BUILDING AND CONSTRUCTION INDUSTRY

- ▶ Culture
- ▶ Technologies
- ▶ Relationships
  - ▶ Procurement
  - ▶ Knowledge Sharing
  - ▶ Innovation

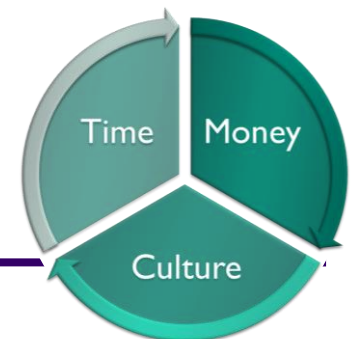


# Lean Construction

Response



- ▶ Last Planner™
- ▶ Waste Busting
- ▶ 5S
- ▶ STOP
- ▶ Yellow & Green Belts (PDCA)
- ▶ Target Value Design (TVD)





# Last Planner

Outputs  
so far



- ▶ Widely adopted
- ▶ 100% Success in delivery to TIME
- ▶ Significant Culture Change

*Last Planner has made a huge impact.*

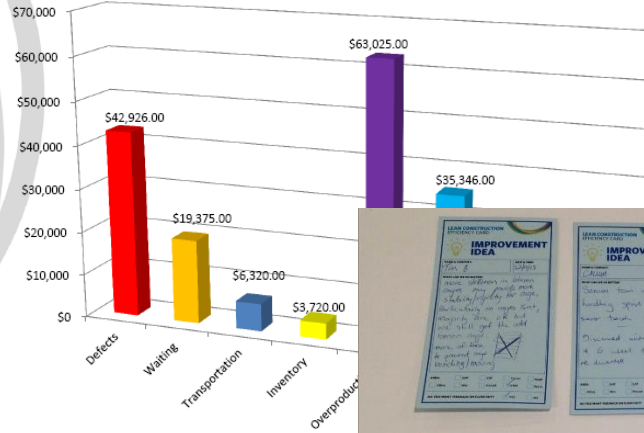
*We managed to pull back the six weeks and finish on programme. A huge achievement!*



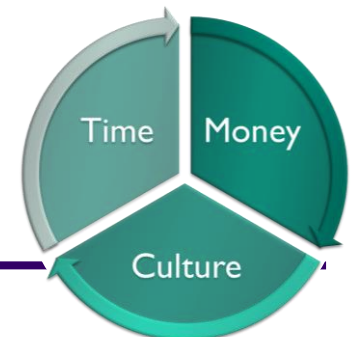
# Waste Busting – Blue Cards

Outputs  
so far

## 7 Types of Waste Cost



- ▶ \$\$\$\$M saved
- ▶ Everyone engaged
- ▶ Rewards and Recognition

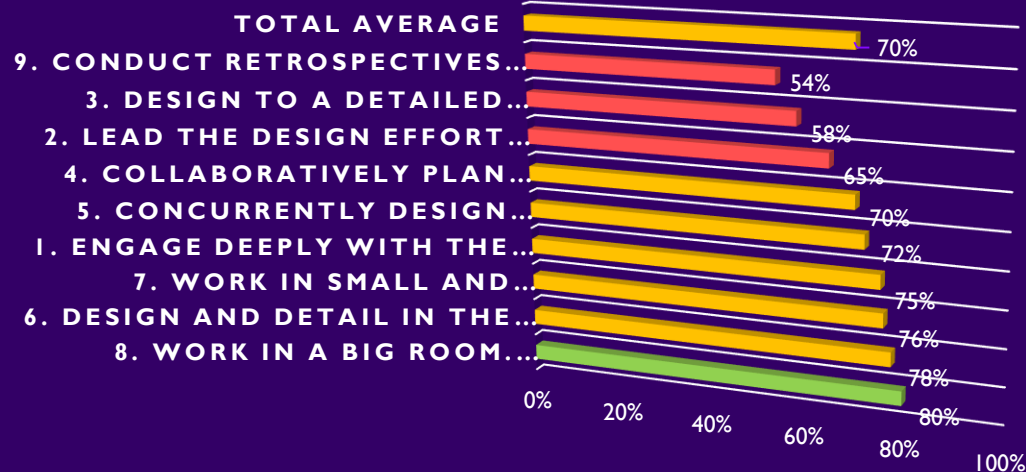


# Target Value Design

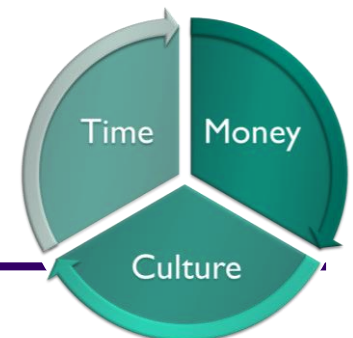


Outputs  
so far

## PROJECT SELF ASSESSMENT - TARGET VALUE DESIGN BEHAVIOURS (56 DESIGNERS)



- ▶ Nine Principles
- ▶ Self Assessment
- ▶ Next Steps
  - ▶ Measure more projects
  - ▶ Set Benchmarks
  - ▶ Use PDCA to improve

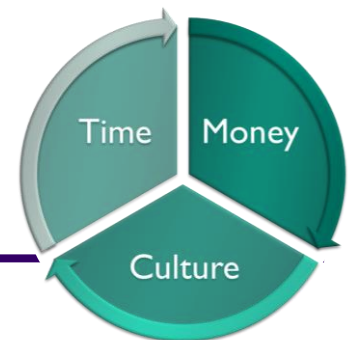
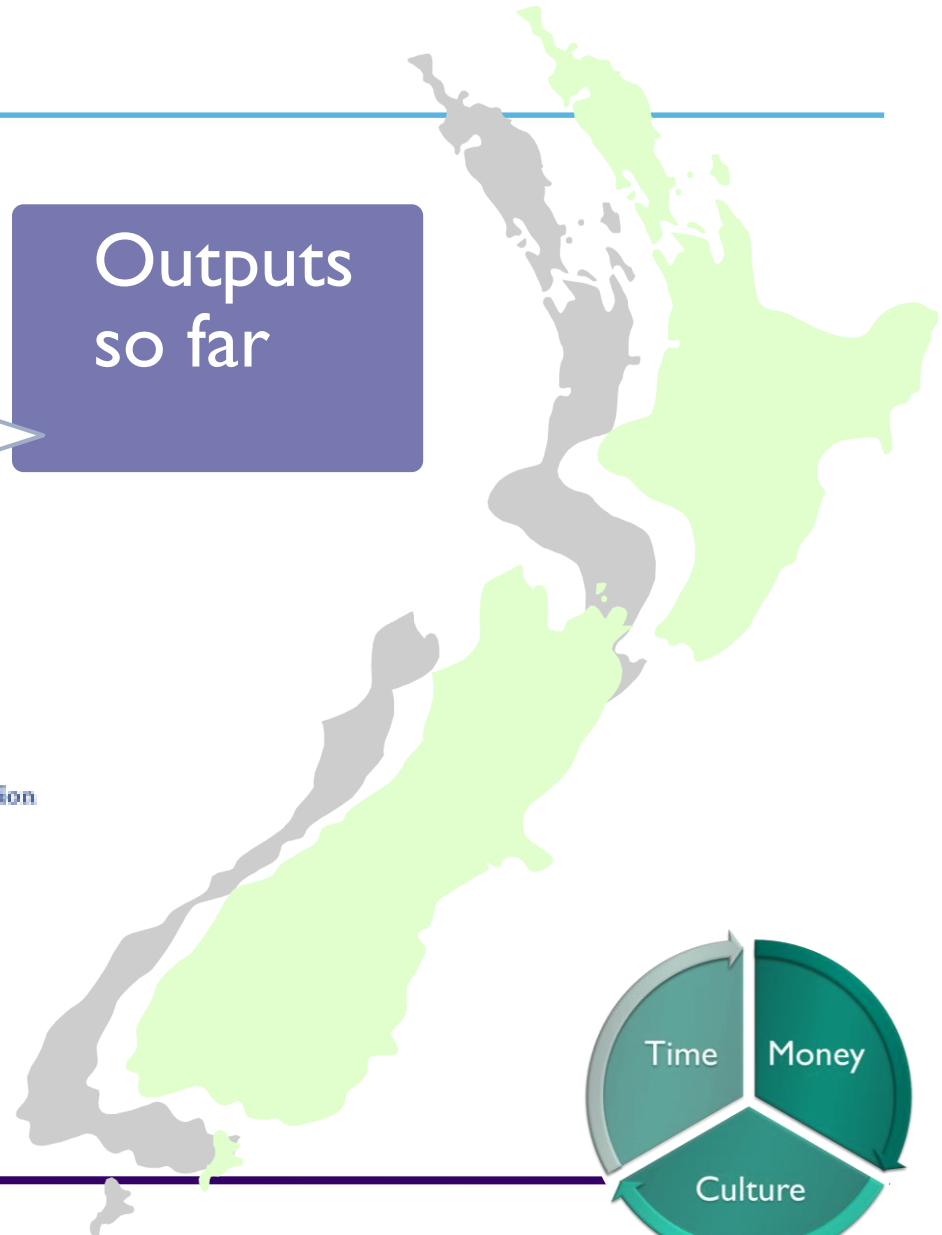


# In Conclusion...

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**Lean  
Construction  
Institute**  
Transforming Design and Construction



# **Lean Construction in Practice**

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**Darron Monaghan**

# What we did at WCA

- Training for Supervisors and Engineers.
- Lean Leadership Group
- Simple reporting system
- Developed Collateral
- Drove it daily
- Immediate feedback & recognition

A 'LEAN CONSTRUCTION EFFICIENCY CARD' titled 'WASTE RECORD'. The card has a header with a rainbow logo and the text 'LEAN CONSTRUCTION EFFICIENCY CARD'. Below the header is a large section for 'DESCRIBE THE WASTE:'. To the left of this section are two smaller boxes: 'NAME & COMPANY:' and 'DATE & TIME:'. At the bottom of the card, there are several checkboxes for 'AREA:' (NAT, SAT, Tunnel, South, Office, Wiri, Precast, GNRI, North), 'WCA', 'Subcontractor/Supplier:', and 'DO YOU WANT FEEDBACK ON CLOSE OUT?' (YES, NO).





# Site Waste Inspection (5S)

- Regular inspections.
- Any site walk a focus on waste and stock control.
- A photograph would then be sent to supervisors and engineers in the area.
- Being measured kept them on their toes.
- It became quite competitive

Waste Minimisation Ins.

Area/ Section Inspected: \_\_\_\_\_  
 Inspected by: \_\_\_\_\_  
 Date: 11 February 2014  
 Comments: \_\_\_\_\_

*Garage on the wheel.*

Item no.	Description	Comments	Photo	Close out
1	Unused plant	Are these machines required as they haven't moved in three days		Off hired, starting work on Ramp 2 South of abutment beginning of March. <i>Off hired:</i> Date: 14/2/12 Signature: <i>HE</i>
2	Unused plant	Discs not being used for a month.		Off hired, awaiting transport off site. <i>Tom Keates to collect</i> Date: _____ Signature: _____
3	Unused plant	Pallets to be returned to get credit.		Callum to speak to Mark Evans. Date: _____ Signature: _____
4	Unused plant	Toilet to be off hired Compressor to be returned to MacDow.		Dan Olin to organise <i>Compressor</i> <i>MacDow</i> Date: _____ Signature: _____



# Supervisor Training

- Once per week
- 1 hour over lunch
- Select a pertinent policy or procedure
- Up skill or refresh knowledge



# Success stories

## Waterview Alliance :

- SAT programme – 2 months behind to 2 days early
- Identified \$2M+ of improvements in 1 year
- Average 42 work hours per week
- 86% improvement in safety results



## M2PP Alliance :

- Identified \$1.2M+ of improvements in 3 months

## Last Planner :

- Dowse to Petone
- Eastport
- VPT
- MHX



# Cultural benefits

- Open
- Engaged
- Committed
- Challenged
- Focused
- Work/life balance
- Valued
- Respected
- Happier
- Professional
- Safer
- Self reflection



# Hurdles & Roadblocks

- We don't build cars
- We already do that
- The other guy needs it, not me
- We don't need it
- We're doing well, why change?
- It won't work here
- We're different



# Hurdles & Roadblocks

- Level of leadership commitment required
- It seems 'too simple'
- Reward and recognition
- Can be hard to measure definitively
- Breaking the elephant down
  - **Where to start?**



# Next Steps

- Develop a company wide strategy
- Continue training
- Spread the lessons learnt