Asset management data standard – game changer to create a more resilient transport network

Myles Lind, NZ Transport Agency

Transport Knowledge Conference 2019

Hey Siri . . .

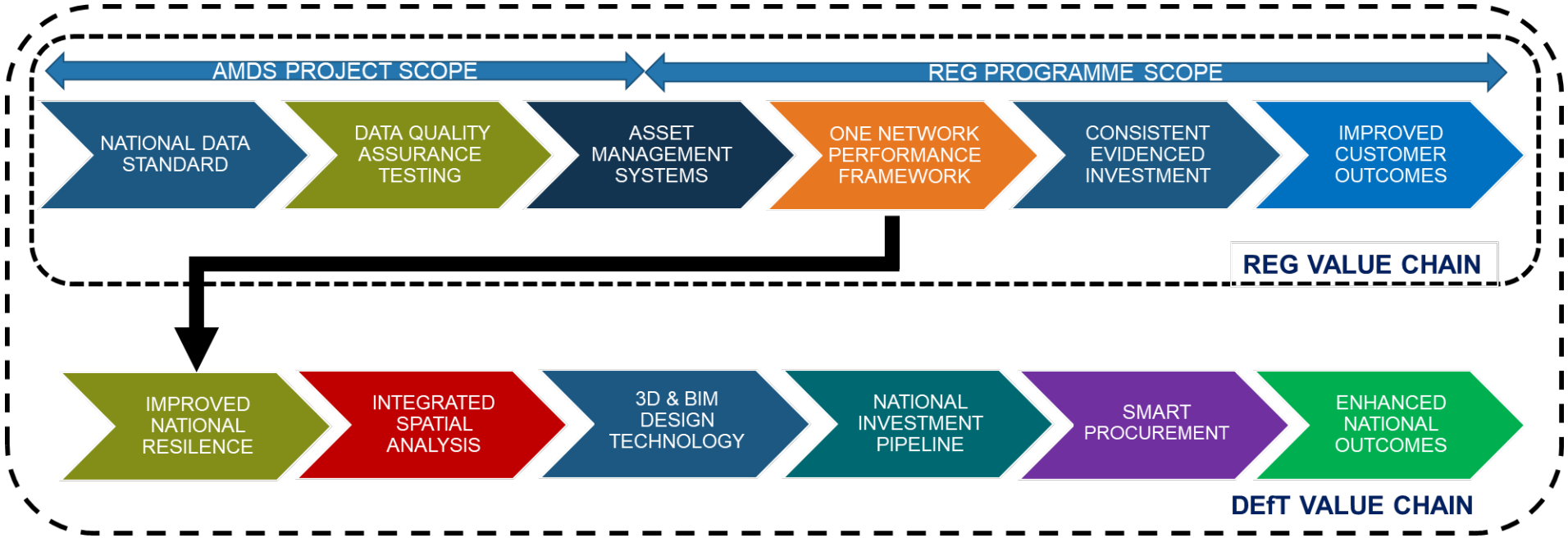
Resilience and Adaptation

Data and Analysis to Inform Good Decisions

Managing the risks from natural and human-made hazards.

Anticipating and adapting to emerging threats.

A Plan to Deliver Enhanced National Outcomes



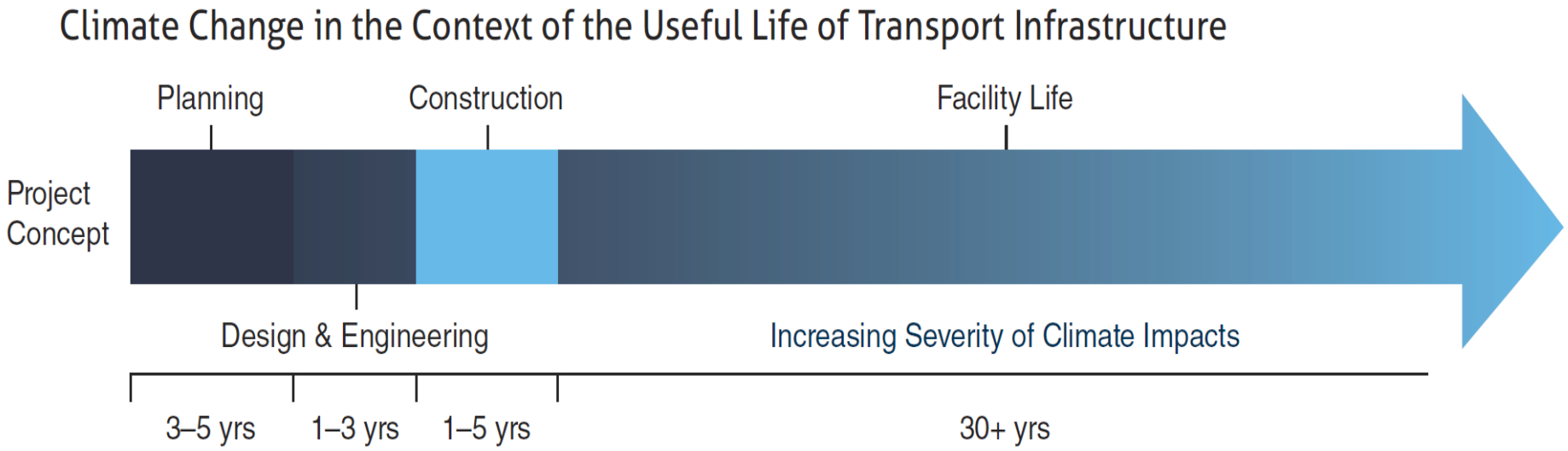
Drive to ensure we are gearing NZ's land transport assets for the best possible best future

How Many Road Culverts Affected by Sea Level Change?

Climate Changes and Impacts on Land Transport

Climate Hazard	Potential Impact
Sea Level Rise, Storm Surge, and Flooding	• Damage to, or inaccessibility of, low-lying coastal infrastructures • Aggravated coastal flooding as storm surges build on a higher base and reach further inland
Strong Wind and Storms	• The structural integrity of long span bridges is vulnerable to strong winds as are auxiliary infrastructure such as signs and traffic signals. • Damage to overhead lines, power supply, signs, lighting features, and increased tree fall leading to the closure of roads. • Safety hazards for vehicles.
Increasing Precipitation Intensity	• Flooding of roads, railways, and tunnels causing traffic disruptions and road/rail closure. • Slope failures and landslides (road/rail). • Rock build up, erosion and scouring or washout of bridges or other works for waterway crossings. • Increased sediment loading of drainage works leading to increased maintenance requirements and costs.
Extreme Heat	• Settlement of infrastructure and road beds due to increased aridity or lower water table affecting the base stability. • Increased pavement deterioration, softening, and cracking, rutting, and bleeding. • Thermal expansion of bridge joints, rail deformation.
Increased Freeze Thaw Cycles	• Increased fatigue failure for most infrastructure, particularly roads.

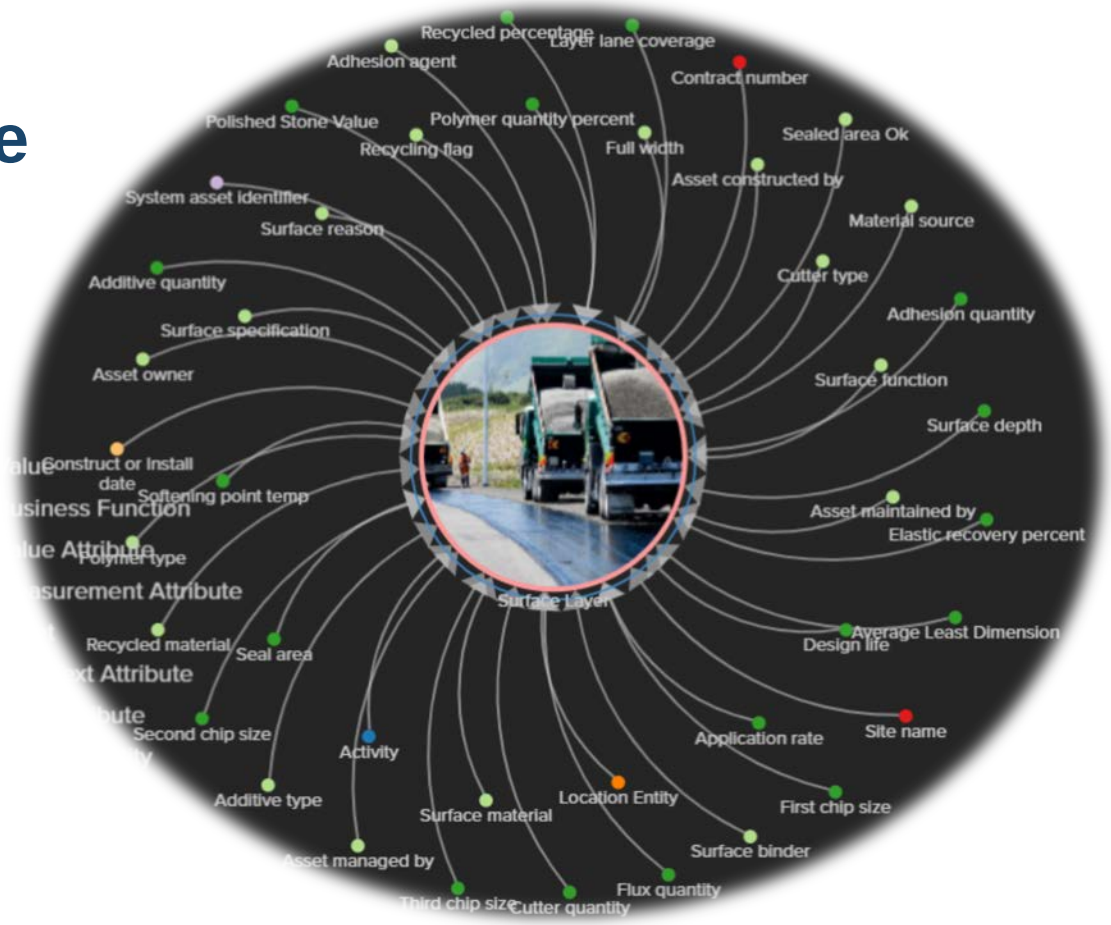
Analysis needed for all regions, consistently & timely



Stenek and Skromne (2011).

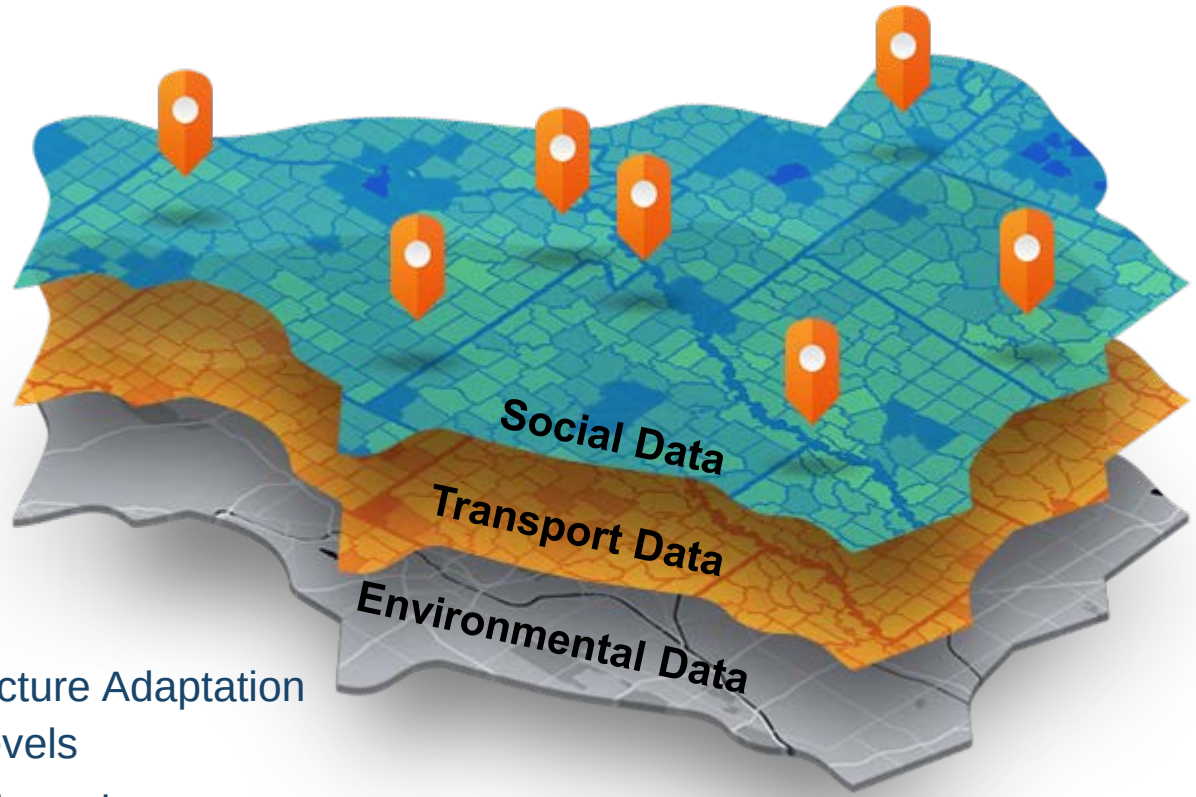
National data language

- Common language
- Ontological model
- Developed in partnership
  - SMEs
  - Sector partners
  - NTSC
- Location referencing update
  - LINZ



Wellbeing Insights

Integrated Resilience Analysis



- Layering clean, complete data sets
- Leverage multiple data sets
  - Environment
  - Community
  - Infrastructure
- Community Response and Infrastructure Adaptation
  - Sea levels vs house and road levels
- National procurement for locally delivered outcomes
  - Drainage upgrades, bridge replacements
- Greater insight, improved understanding, smarter investment → better community outcomes

Thank you

amds@nzta.govt.nz

WAKA KOTAHI NZ TRANSPORT AGENCY

New Zealand Government