

An aerial photograph of a road cutting through a dense, green forest. The road is a light grey color and curves through the trees. The text 'DESIGNING SMARTER ROADS FOR A RESILIENT TOMORROW' is overlaid in large, white, bold, sans-serif capital letters across the center of the image.

# DESIGNING SMARTER ROADS FOR A RESILIENT TOMORROW







How can we  
restore what was  
lost and design for  
what is coming?

# Overcoming the Unknowns to Start the Recovery



## Business Case

- Divide the region into different corridors based on the road's importance
  - Traffic volume
  - Resilience needs



## Level of Service and Design Hub

- Guideline document detailing different fault types, road corridor priority and why, technical standards and assurance required
- Specialised team of experts seconded to project instead of complex optioneering



## Marlborough Roads Future Access Study

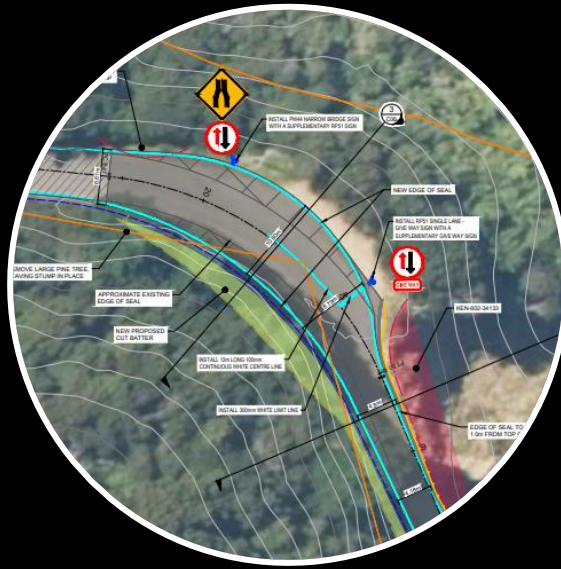
- Pulled the business case and LoS together
- Outlined strategic options for each road corridor to anticipate future risk

# Design in Action



## ROAD RETREATS > RETAINING WALL

- Cost efficiency
- Tighter timeline
- Improved resilience
- Environmental sensitivity
- Design Flexibility



## GEOMETRIC LED DESIGN AND STANDARDISED TEMPLATES

- Reducing road width/ single lane sections
- Context-specific geometry
- Efficiency at scale
- Flexibility for Adaption



## STORMWATER MANAGEMENT

- Natural flow path integration
- Sediment capture and scour protection
- Fish passage and environmental considerations



## TECHNOLOGY INTEGRATION

- GIS and LiDAR Mapping
- Digital Optioneering
- Remote collaboration tools
- Enhanced futureproofing



# INNOVATION UNDER CONSTRAINT CAN DELIVER

- \* **TRANSPARENT FAULT TRIAGE**
  - MINOR
  - SIMPLE
  - COMPLEX
  
- \* **TRANSPARENCY FOR STAKEHOLDERS**
  - SMART GOVERNANCE AND TRUST
  
- \* **ZONAL RESOURCE CONSENTS**



# RESILIENCE DELIVERED



- 1. Flexibility
  - Tested and Performed in the June/ July 2025 Storm Event
- 2. Function > Form
  - Designing for change
  - Under budget and ahead of schedule
- 3. Technology
  - Leveraging GIS, LiDAR and digital design tools

THANK YOU

