



# Maximising Delivery whilst Minimising Disruption

Lessons from TREC



# Network Operations – Why?



## Problem

- Delays on State Highways caused by many recovery worksites.
- Community frustration:
  - Unknown delay durations
  - Excessive delays
  - Inconsistent delays



## Goals

- Predict the delays expected on the network.
- Limit delays to acceptable levels.
- Make delays as consistent as possible to provide journey time reliability.
- Support communications with advanced notices of delays.



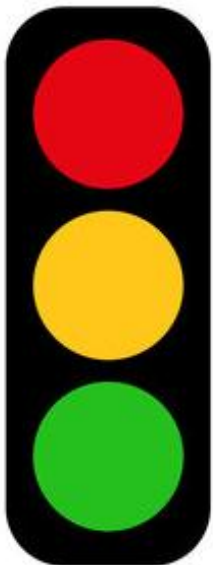
Excessive delays



Limit delays to acceptable levels

# What delays are acceptable?

Define acceptable delay thresholds for each State Highway with recovery work.

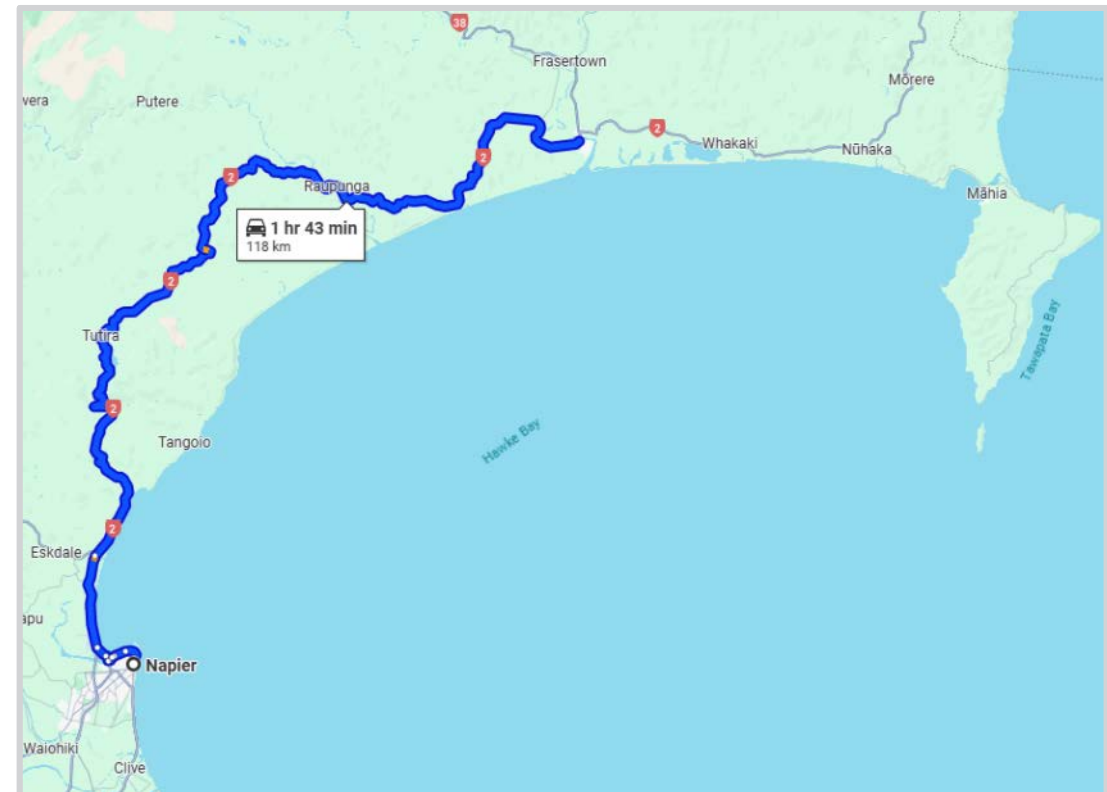


**Unacceptable**  
≥ 0.4 min delay/km

**Acceptable\***  
0.3 – 0.4 min delay/km

**Acceptable**  
< 0.3 min delay/km

SH2 – Napier to Wairoa
≥ 35 min
25 min – 35 min
< 25 min





Unknown delay durations



Understand the delay expected from each worksite



# Predicting Worksite Delays

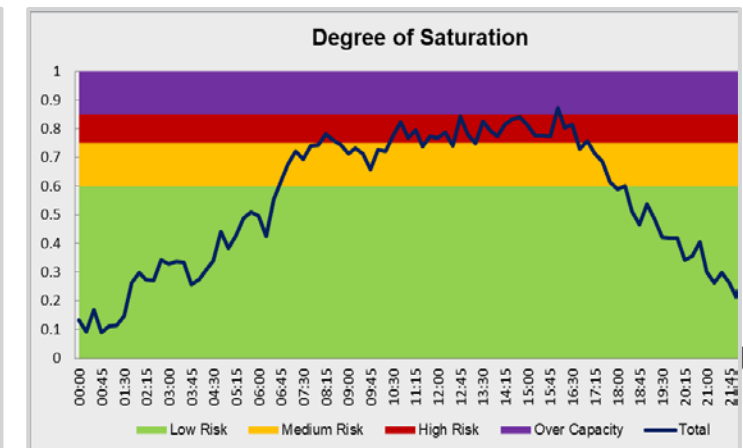
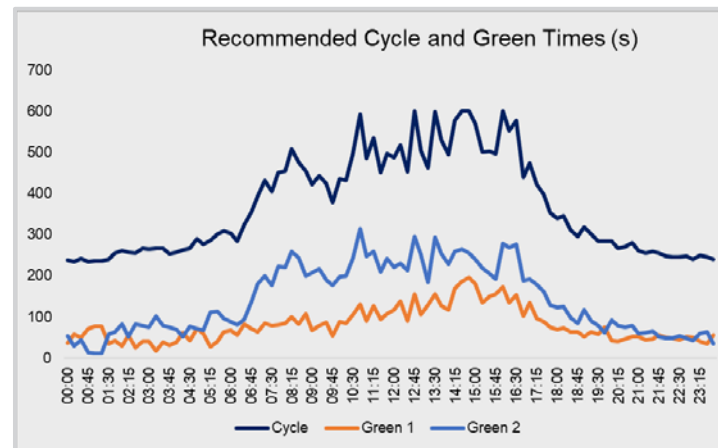
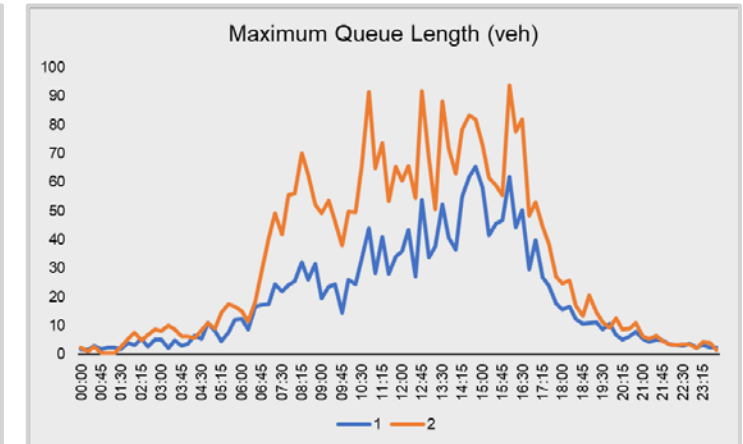
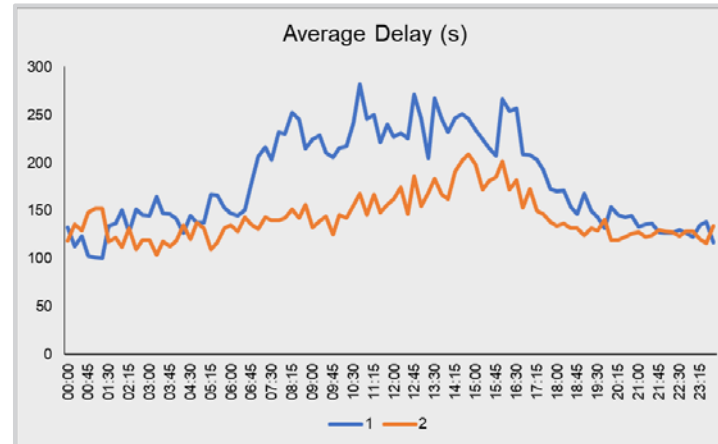
Calculated based on:

## Site Characteristics:

- Site length
- TTM methodology
- Time & date of works

## Corridor Characteristics:

- Traffic volumes
- Speed limits





Unknown delay durations



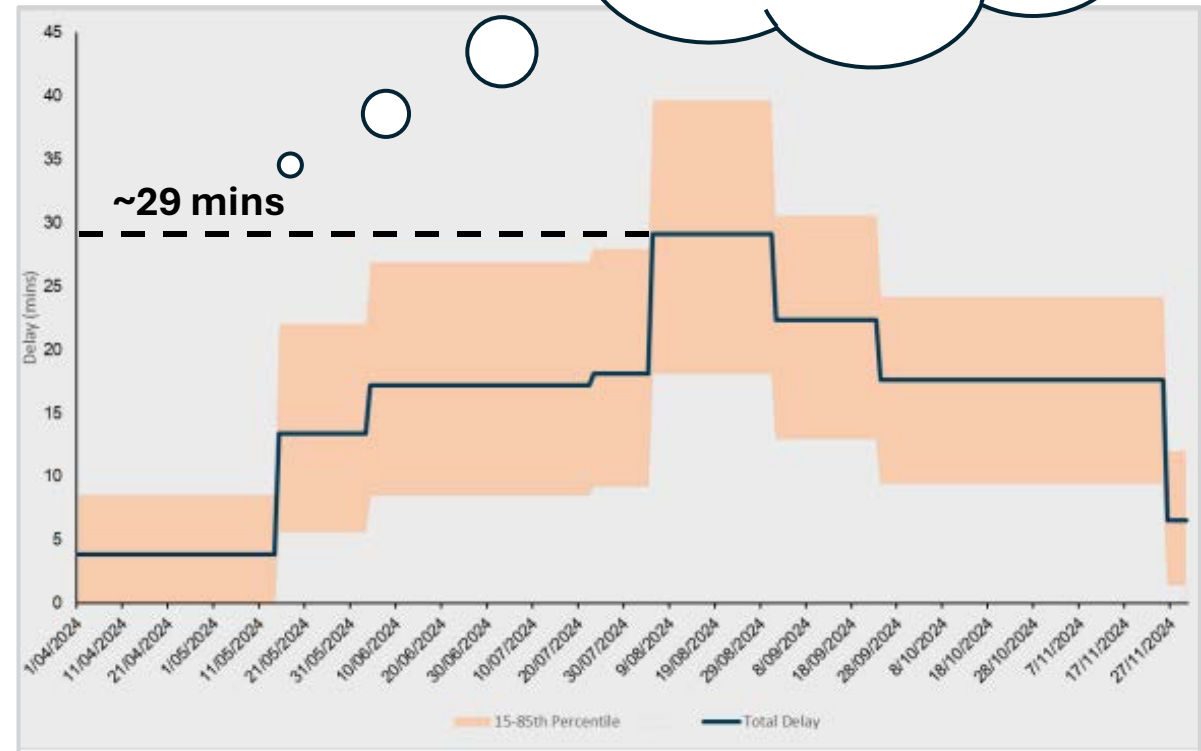
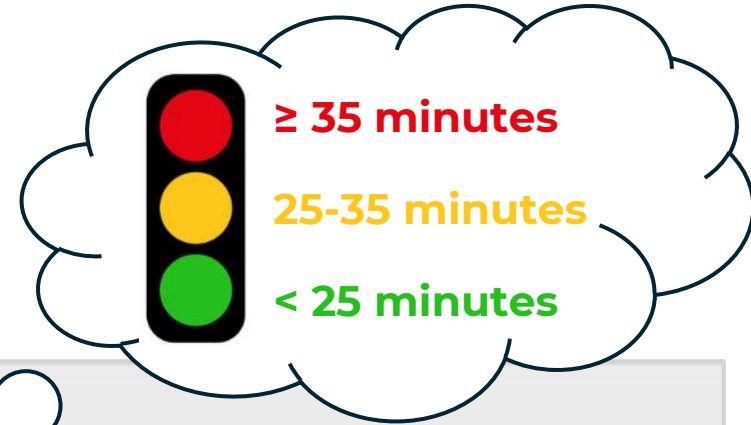
Understand the delay each corridor is expected to experience

# Predicting Corridor Delays

Aggregate delay of all the worksites on a corridor.

Compare medium-term corridor forecasts to acceptable delay thresholds.

Name	Length	TTM Type	Current Speed	Temp Speed	Start Date	End Date
Devils Elbow Slips Recovery	1680	Stop Go	100	30	15/05/2024	1/09/2024
Waikaou Hill North	640	Stop Go	100	30	4/06/2024	1/09/2024
Devils Elbow Slips Recovery	1120	Stop Go	100	30	1/09/2024	30/03/2025
White Pines Bush Slip	668	Stop Go	100	30	26/03/2024	23/07/2024
White Pines Bush North	825.6	Stop Go	100	30	23/07/2024	24/09/2024
Tangoio Falls Reserve	1968.8	Stop Go	100	30	1/09/2024	23/12/2024





Excessive delays



Inconsistent delays



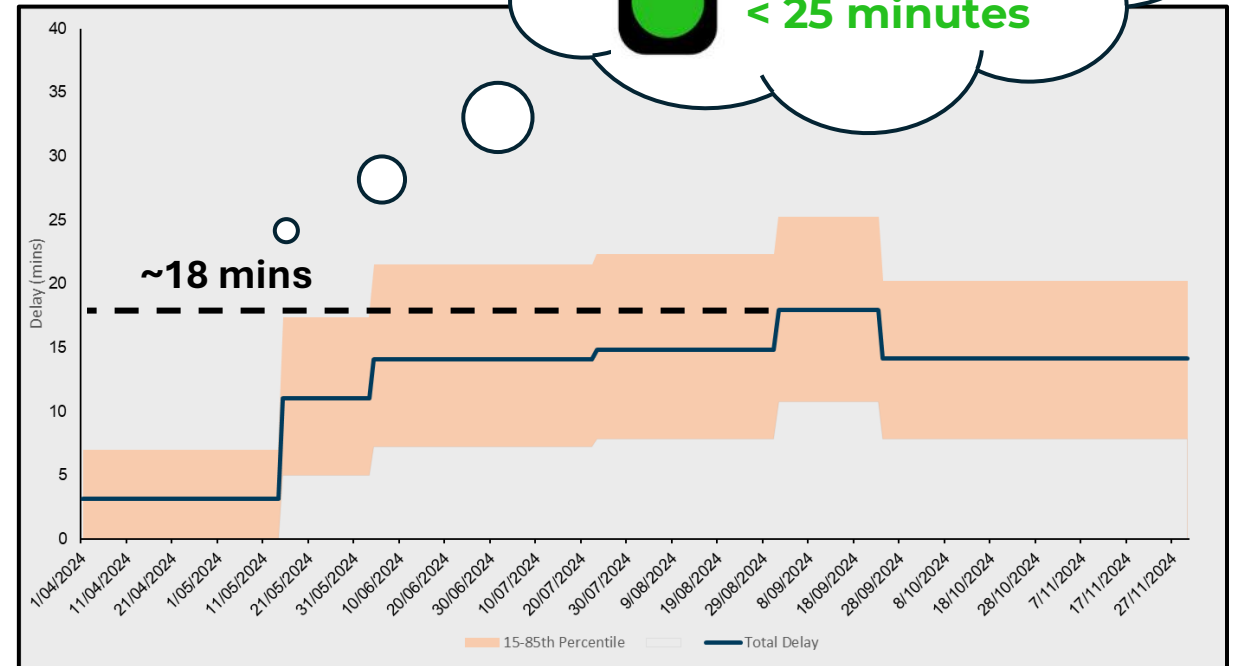
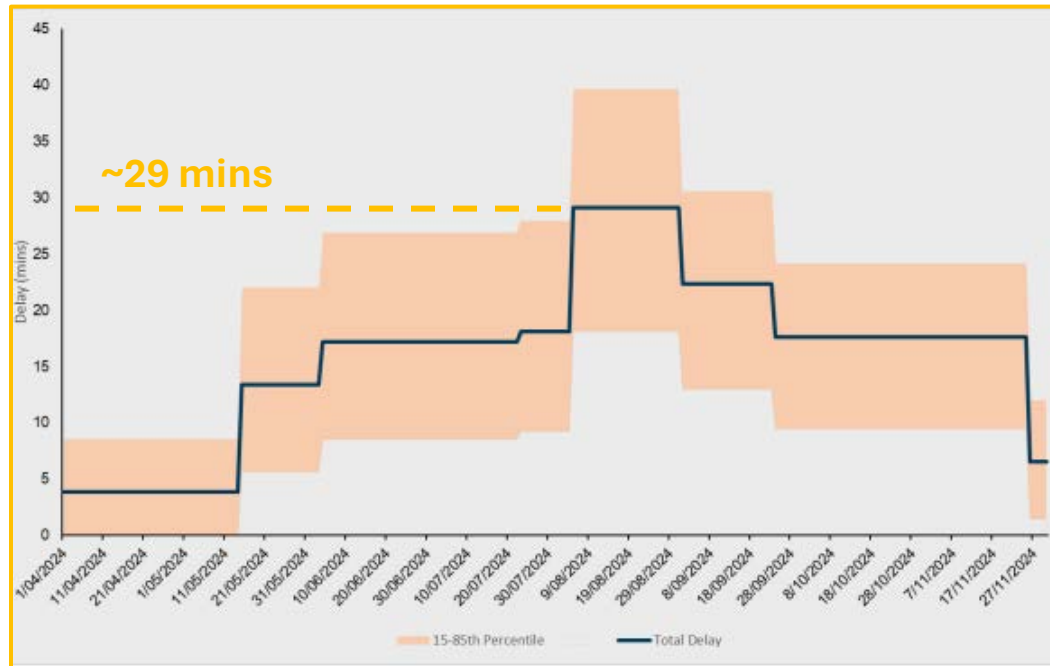
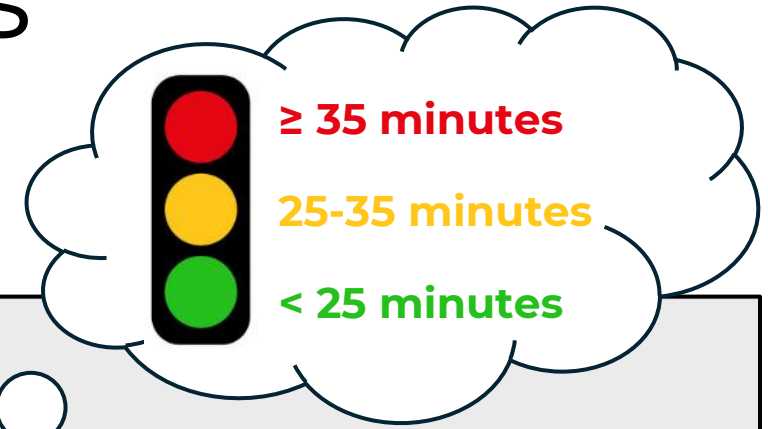
Limit delays to acceptable levels



Make delays as consistent as possible

# Predicting Corridor Delays

**Scenario Testing** - adjust site start dates to reduce and smooth delays on a corridor.





Unknown delay durations



Support communications with advanced notice of delays



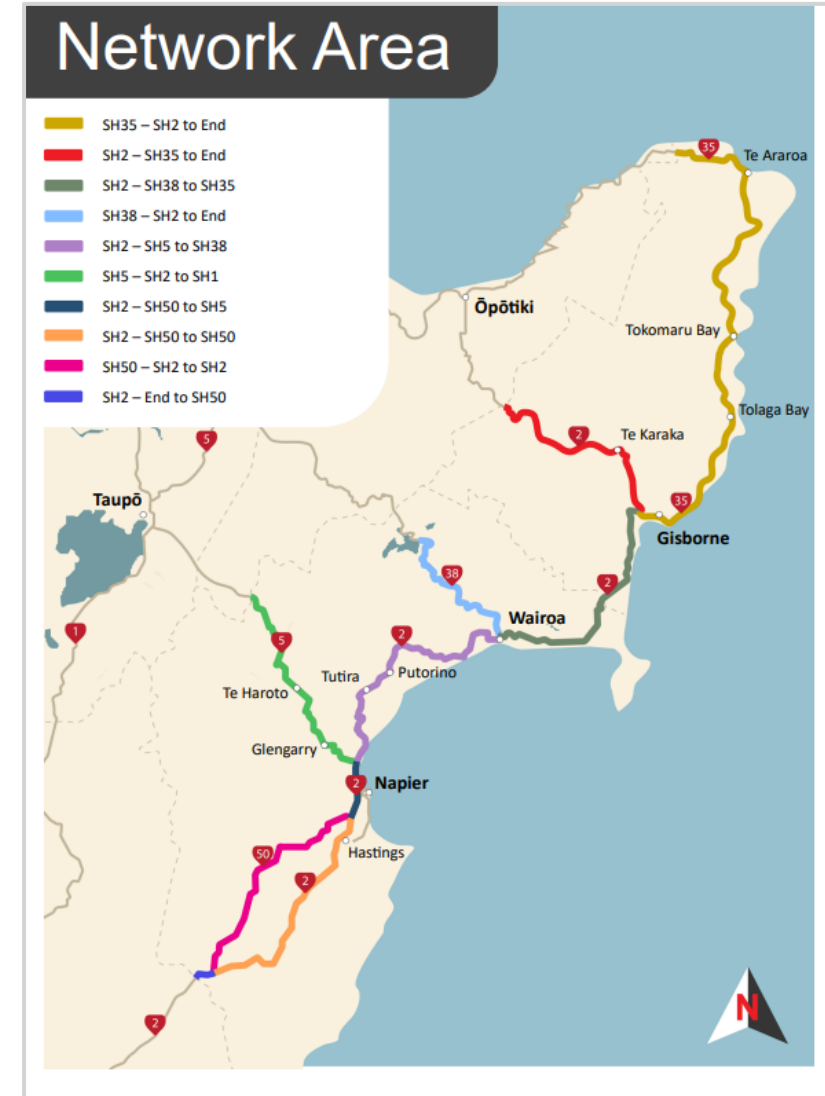
# Broadcasting Delays

Support communications with advanced notice of upcoming delays to:

- Communications & Engagement teams
- NZTA Waka Kotahi Journey Planner (via WTOC)

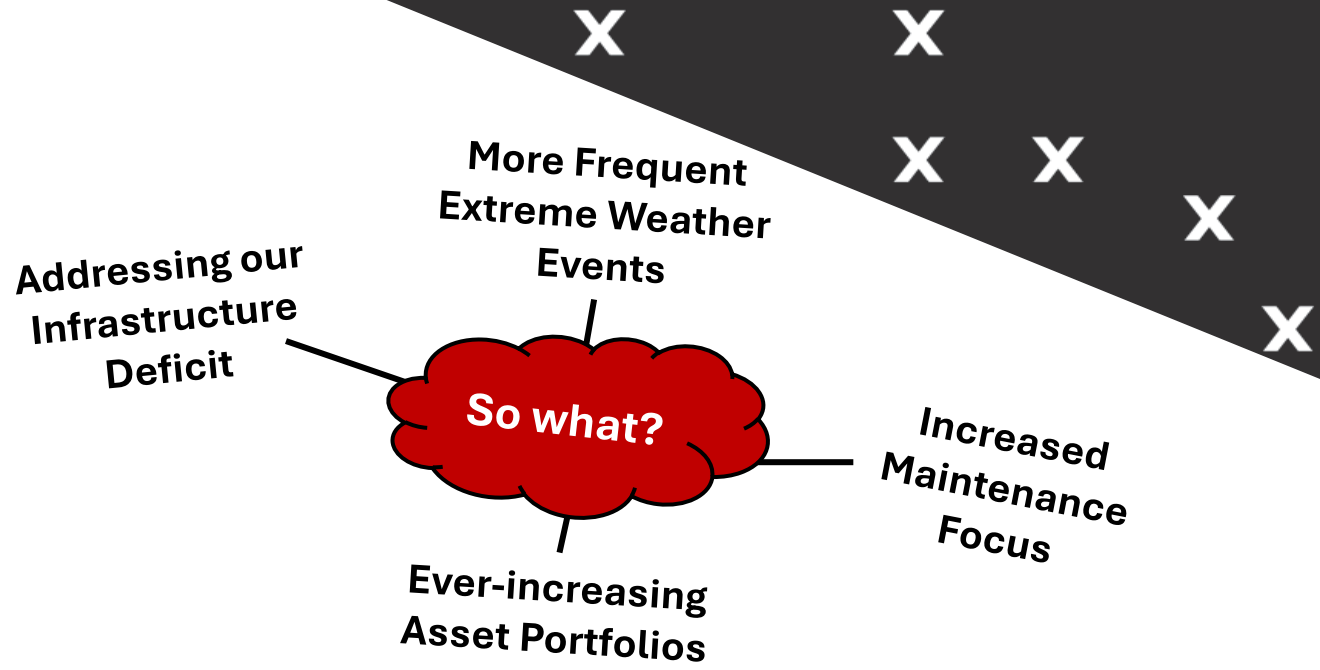
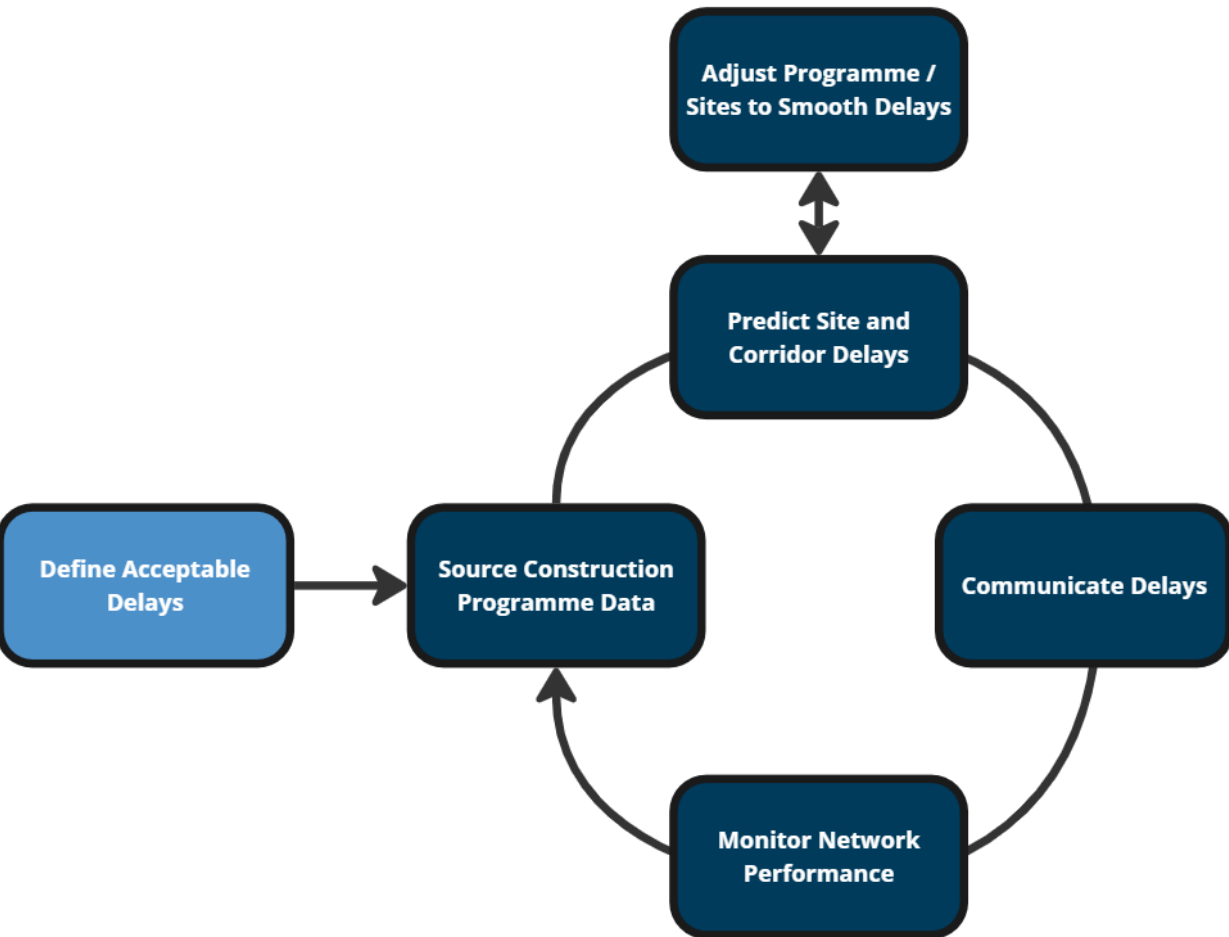
Monitor delays and compare them to predicted delays.

Corridor Name	Predicted Delay*
<b>SH35 - Gisborne to Regional Boundary</b>	
SH35 - Te Araroa to Regional Boundary	1
SH35 - Tokomaru Bay to Te Araroa	7
SH35 - Tolaga Bay to Tokomaru Bay	4
SH35 - Gisborne to Tolaga Bay	2
<b>SH2 - Gisborne to Regional Boundary</b>	
SH2 - Te Karaka to Regional Boundary	6
SH2 - Gisborne to Te Karaka	2
<b>SH2 - Wairoa to Gisborne</b>	3
<b>SH38 - Wairoa to Regional Boundary</b>	N/A
<b>SH2 - SH5 to Wairoa</b>	
SH2 - Putorino to Wairoa	14
SH2 - Tutira to Putorino	N/A
SH2 - SH5 to Tutira	10
<b>SH5 - SH2 to Regional Boundary</b>	
SH5 - Te Haroto to Regional Boundary	6
SH5 - Glengarry to Te Haroto	7
SH5 - SH2 to Glengarry	3
<b>SH2 - Napier to SH5</b>	4
<b>SH2 - SH50 to Napier</b>	5
<b>SH50 - SH2 to Napier</b>	10
<b>SH2 - Regional Boundary to SH50</b>	N/A



# Becoming BAU

Network operations are **iterative**:



- ✔ Predict, limit, and smooth delays on our transport networks.
- ✔ Support communications with stakeholders and communities.
- ✔ Maximise delivery whilst minimising disruption.

Come and have a chat with us!



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