



Vehicle versus Pole

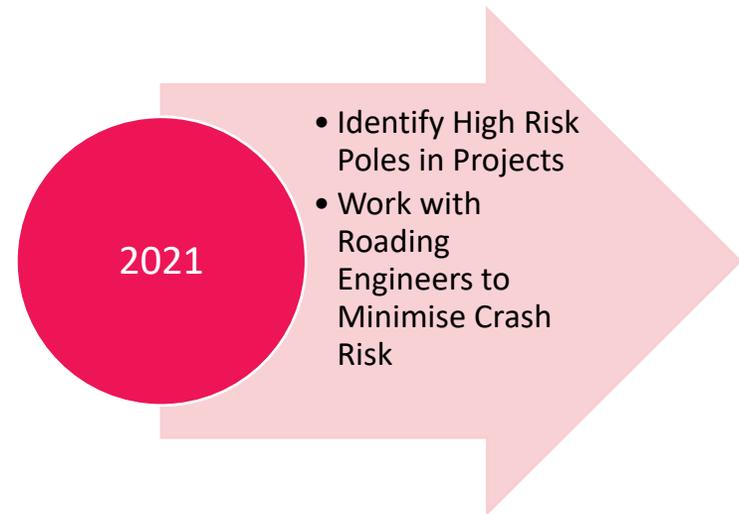
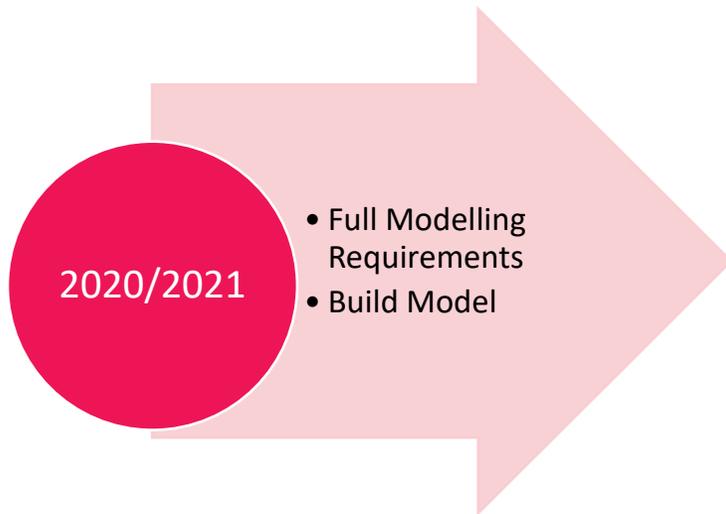
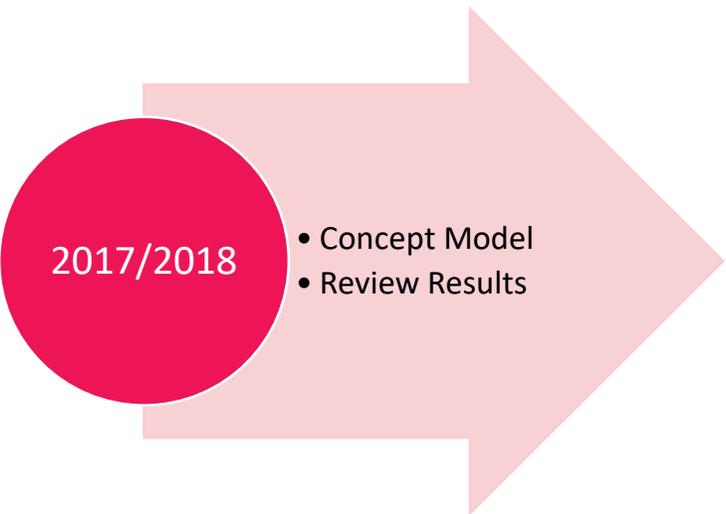
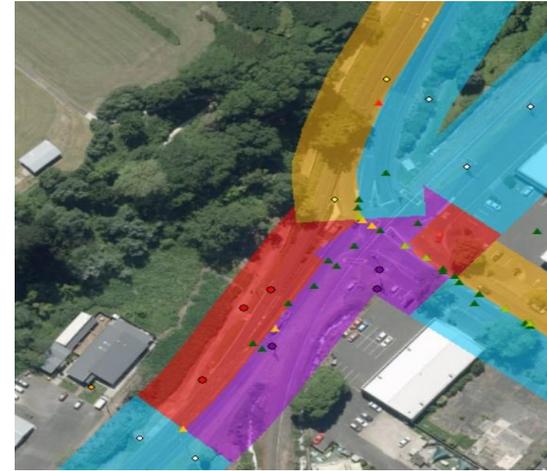
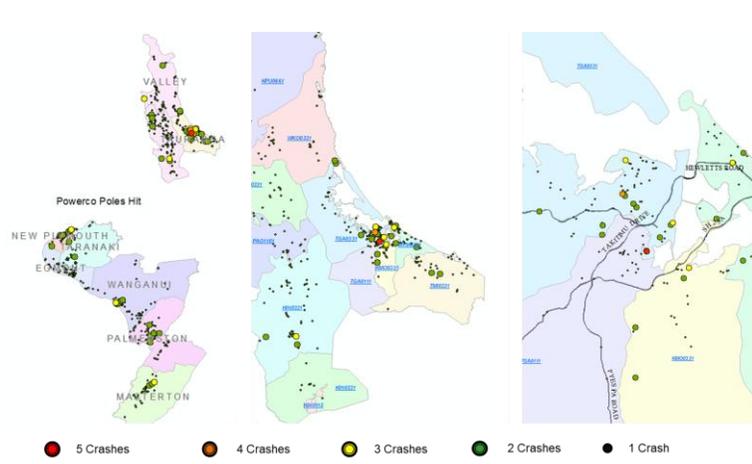


Overhead Pole Renewals

POLE REPLACEMENTS

- Replacing 5,000+ poles
- 70% of replacements roadside
- Pole replacements designed for 50 years +
- Opportunity to identify high risk poles and crash sites to design rebuilds for safer roads and network reliability





Concept Project

AIM: IDENTIFY POLES THAT HAVE A POTENTIAL FOR VEHICLE V
POLE



Identified High Risk Poles

Using Powerco and Waka Kotahi
Data (loss of control crashes
only)

Positive Results

1. Identified poles hit multiple times
2. Identified over double the amount of pole strikes
3. Identified poles of interest



Powerco solution: a location technology approach

What Powerco poles are at risk of a **vehicle v pole** collision?

What is the frequency of different crash **severities** at each pole?

What **factors** are related to vehicle v pole crashes?

What is the **risk of the road** in relation to vehicle v pole crashes?

What **side of the road** has the greatest risk of vehicle v pole crashes?

Data sources

Waka Kotahi crash data. Data dates back from 1982 till today. Important attributes:

Crash Severity (Fatal, Serious, Minor and Non-injury).

Date and time.

GPS Location (final position of the car).

Weather conditions.

Vehicle Direction (North, South, East or West).

Speed limit of the road.

Object Struck.

Waka Kotahi road maps were used instead of Powerco road maps for the following attributes:

Traffic flow

Slope

Curve

Pole data and locations could be accessed in the Powerco data base.

Pole Type

Location

Asset Owner

Ministry for the Environment

Average annual rainfall

Outcomes

1. Multiple vehicle strikes
2. All vehicle strikes
3. Potential vehicle strikes
4. Roadside risk
5. Repeatable
6. Form working groups with all stakeholders



Vehicle v pole at a glance

Injury	Count
Fatalities (Powerco)	189
Serious Injury	905
Minor Injury	2,050

Crash type	Count
All Crashes	159,884
Lost control crashes	24,694
Crashes involving poles	8,640

Poles	Count
Total poles	334,856
Powerco pole fleet	267,000
Poles hit once	7,168
Poles hit more than once	1,472
Powerco poles hit once	4,803
Powerco poles High Risk	825

Number of crashes within 20m	Pole count
1	7,168
2	1,051
3	254
4	76
5	53
6	21
> 7	17

Car v pole crash factors

Weather	Count	Percent
Fine	6478	74%
Heavy rain	453	5%
Light rain	1680	19%
Mist or Fog	140	2%
Null	43	0%
Snow	8	0%

Posted speed	Count	Percent
10	1	0%
20	2	0%
30	34	0%
40	1	0%
50	4497	51%
60	70	1%
70	554	6%
80	433	5%
90	8	0%
100	3202	36%

Road seal	Count	Percent
End of seal	1	0%
Null	1	0%
Sealed	8709	99%
Unsealed	91	1%

Intersection	Count	Percent
No	6261	71%
Yes	2541	29%

Road curvature	Count	Percent
Curved	3890	44%
Null	3	0%
Straight	4909	56%

Road gradient	Count	Percent
Flat	7311	83%
Hill Road	1388	16%
Null	103	1%

Natural light	Count	Percent
Bright sun	1906	22%
Dark	4397	50%
Overcast	2093	24%
Twilight	401	5%
Unknown	5	0%



Powerco Network

2017 VEHICLE v POLE – OMS FAULT DATA

2017 VEHICLE v POLE _ Update AFTER MODELLING

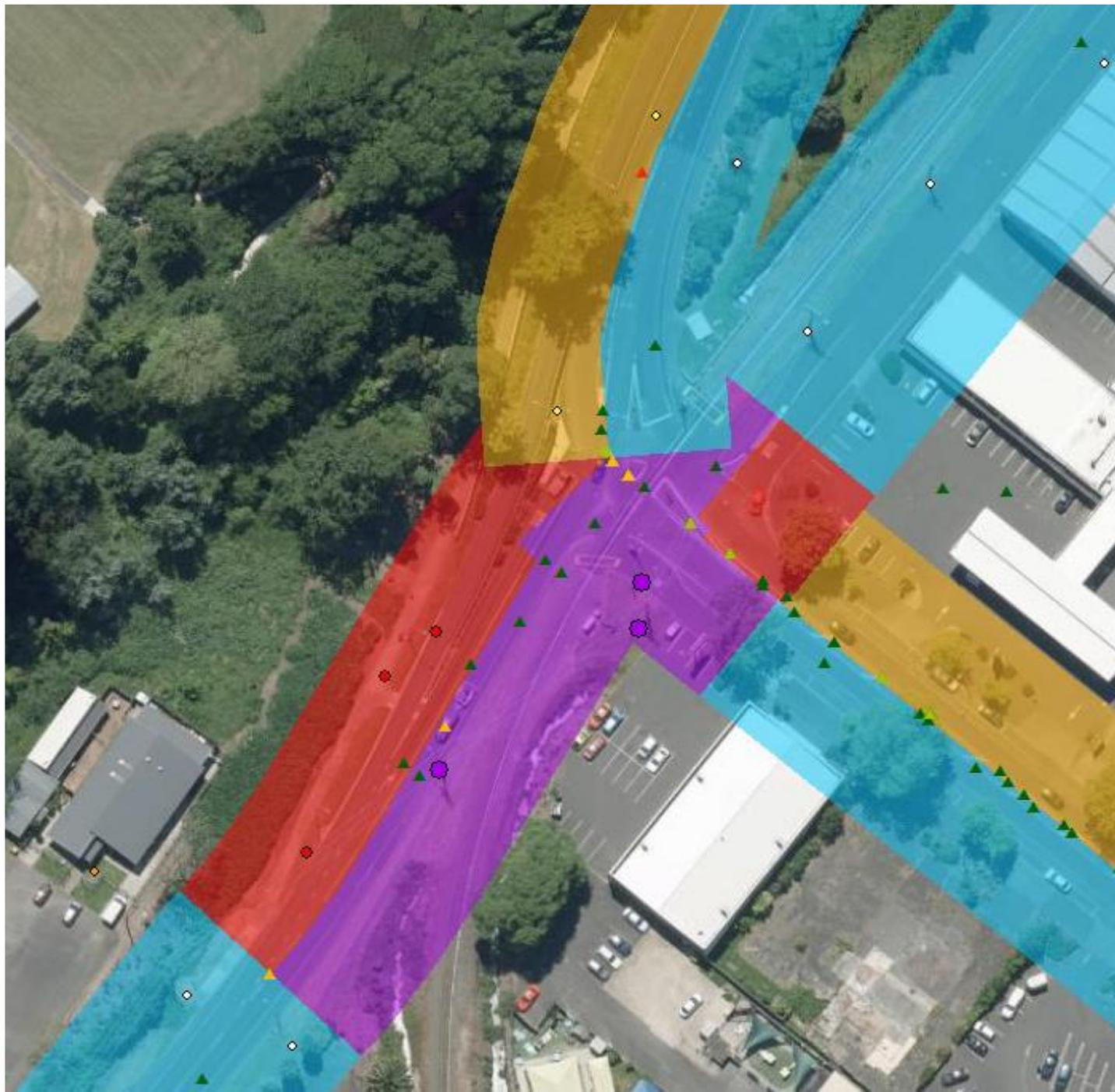


- Number of Reported Incidents - 96
- Number of Poles replaced – 57
- SAIDI - 10.68 minutes
- SAIFI - 0.099
- Estimated Cost - \$500k +
- Total number of vehicle v pole - Unknown
- Social Cost - \$23,669,400 (Ministry of Transport 2021)
- Total number vehicle v pole - 162
- Fatalities – 4 (3 on Powerco poles)
- Serious harm – 26 (22 on Powerco poles)



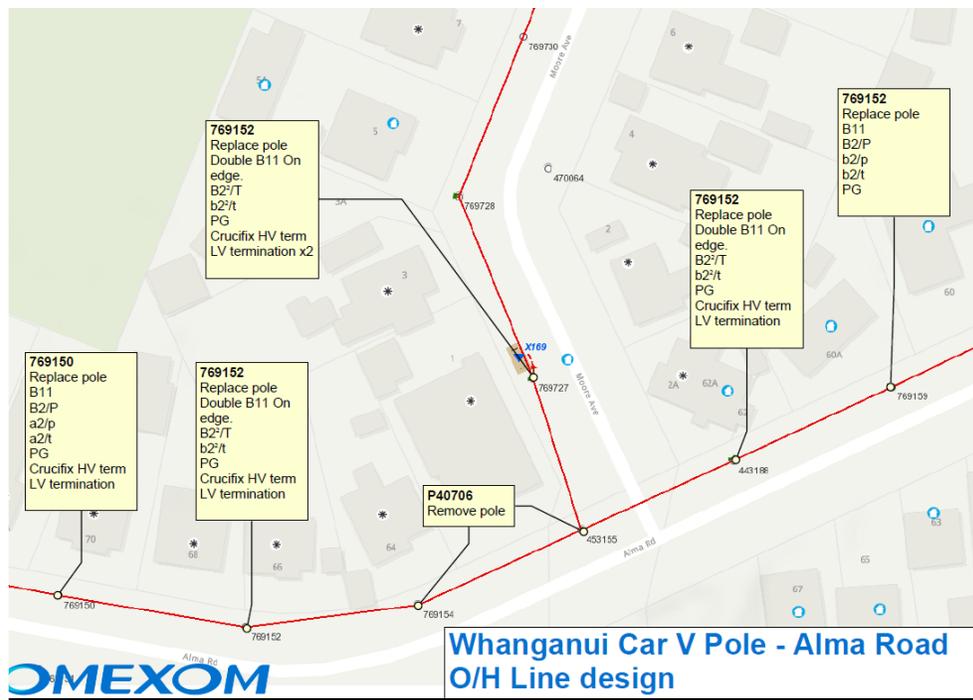
Number of crashes	Number of vehicle v Pole
71	4

Pole hit June 2024 and replaced



Current Powerco Progress

- Working with NZTA Safety Upgrade State Highway 3 New Plymouth to Egmont Village
- 10 projects issued specifically to remove the pole hazard
- Pole hazards are designed out within current reconstruction projects
- 150 sites have had the pole hazard removed or the risk reduced
- 45 Councils across the Powerco foot print have been contacted with regards to reducing the risk with vehicle v pole, with positive responses
- Roading Engineering Consultants employed to further investigate high risk pole locations



Questions or Comments

