Candia Road - Auckland

‘Before’ and ‘After’ Crash Study

Bruno Royce

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SUMMARY

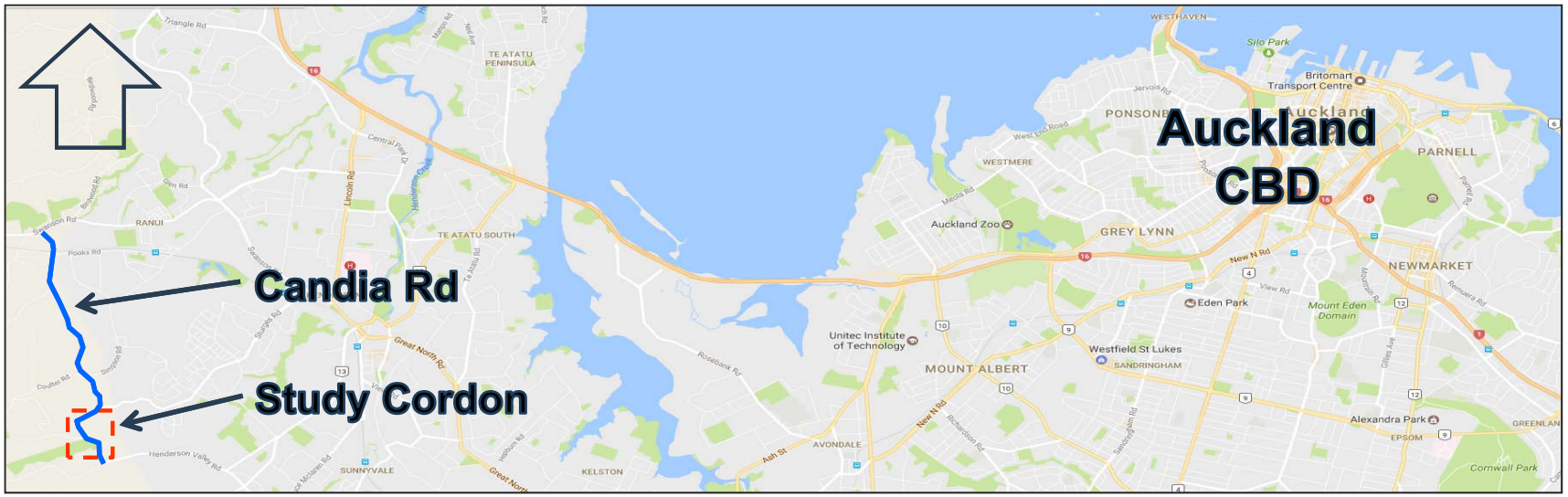
- **2009: TES studied crashes along Candia Road and identified a significant crash problem**
- **2010: Substantial crash remedial measures were installed along a section of the road**
- **2017: Crash statistics were studied ‘before’ & ‘after’ the works were implemented**
- **Substantial crash savings were achieved**

CONCLUSIONS

Substantial crash savings achieved by:

- **Review all Traffic Crash Reports and plot crashes precisely**
- **Review injury and non-injury crashes to establish crash patterns**
- **Focus works on the main issues**
- **Implement a large package of complementary works that focus on the main issues to get much greater crash savings**

Location



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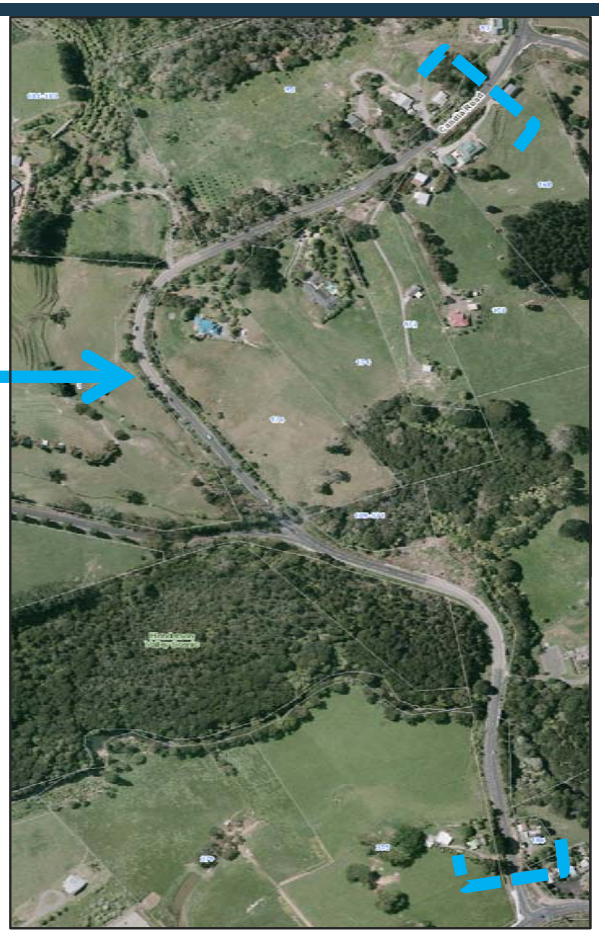

- **Rural Road**
- **1km length**
- **Traffic Volumes:**
  - **2,500 vpd (2010)**
  - **3,500 vpd (2016)**

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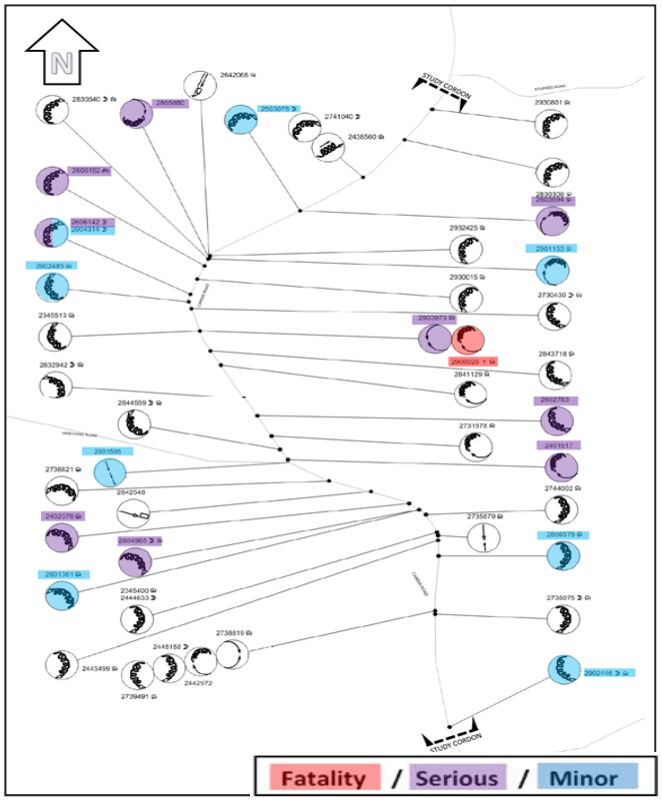
Crash History ‘Before’ (2003-2009)

45

Reported Crashes Over 7 Years

- **1** fatality & **9** serious injury
- Predominantly **loss-of-control** crashes



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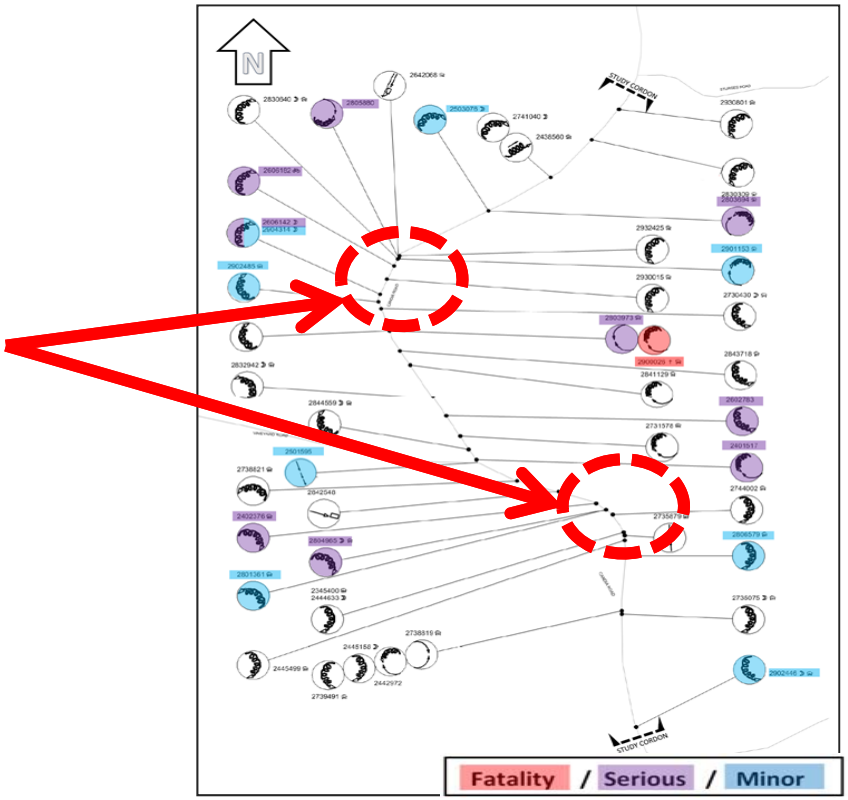
However…….

Detailed review of Traffic Crash Reports shows most crashes at 2 bends (in both directions)



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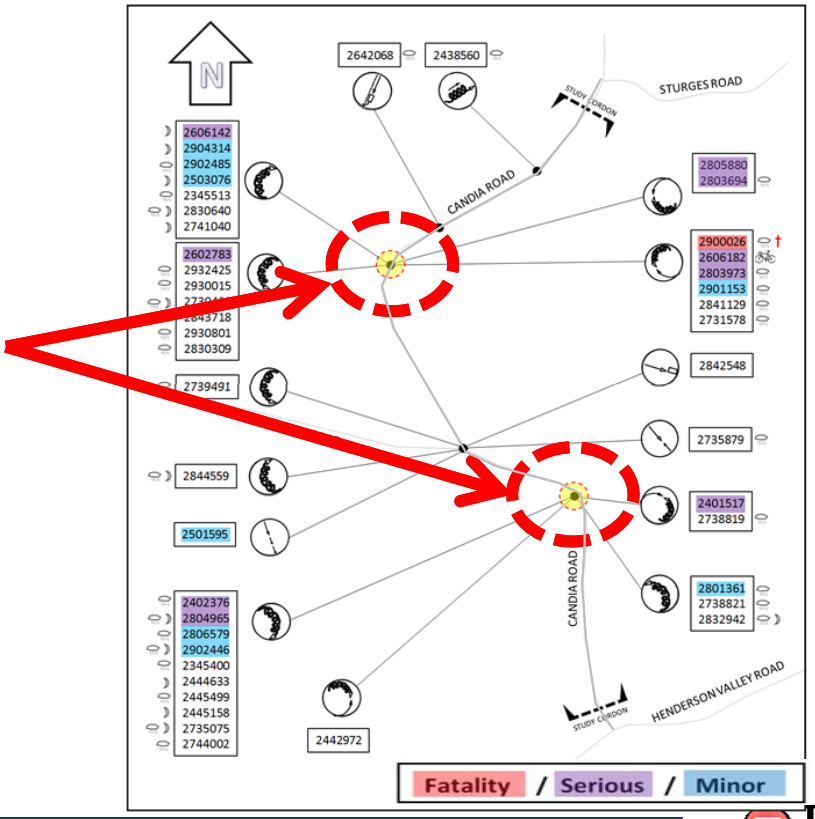
Replot….

Re-plot CAS to highlight the main problem



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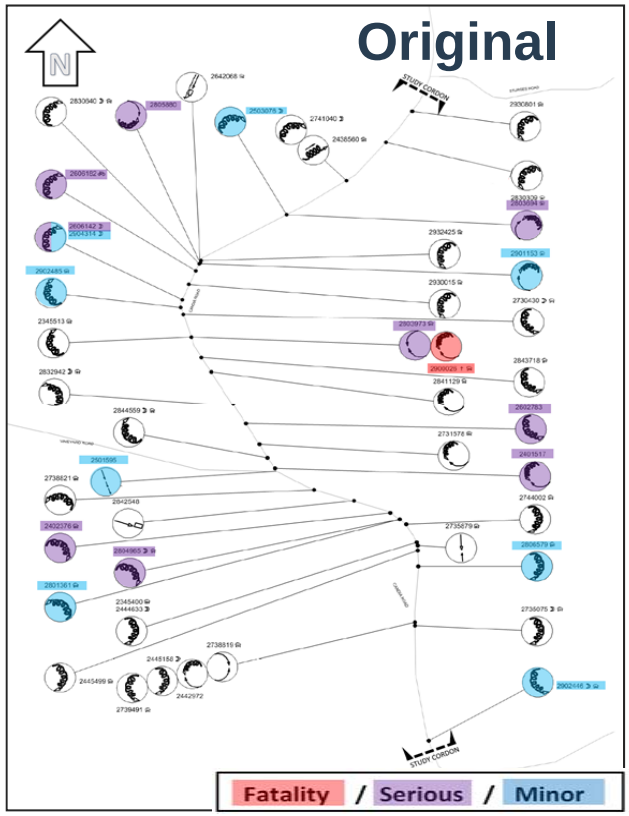
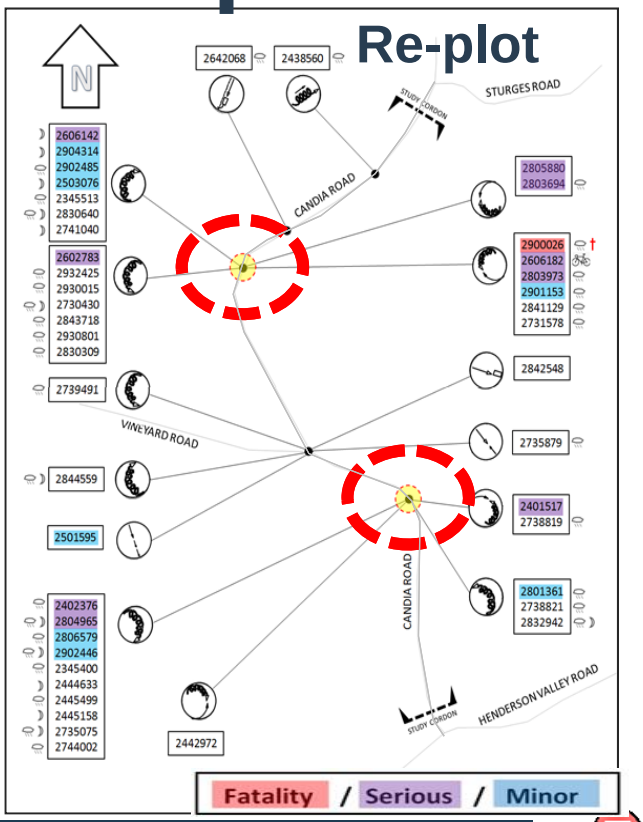
Crash Plot Comparison





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Issues & Solutions

‘Before’ works photos - photo montage with proposed road-marking superimposed

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Issues & Solutions

Photo Montage: ‘Before’ Photo’s with proposed road-marking & signs works superimposed

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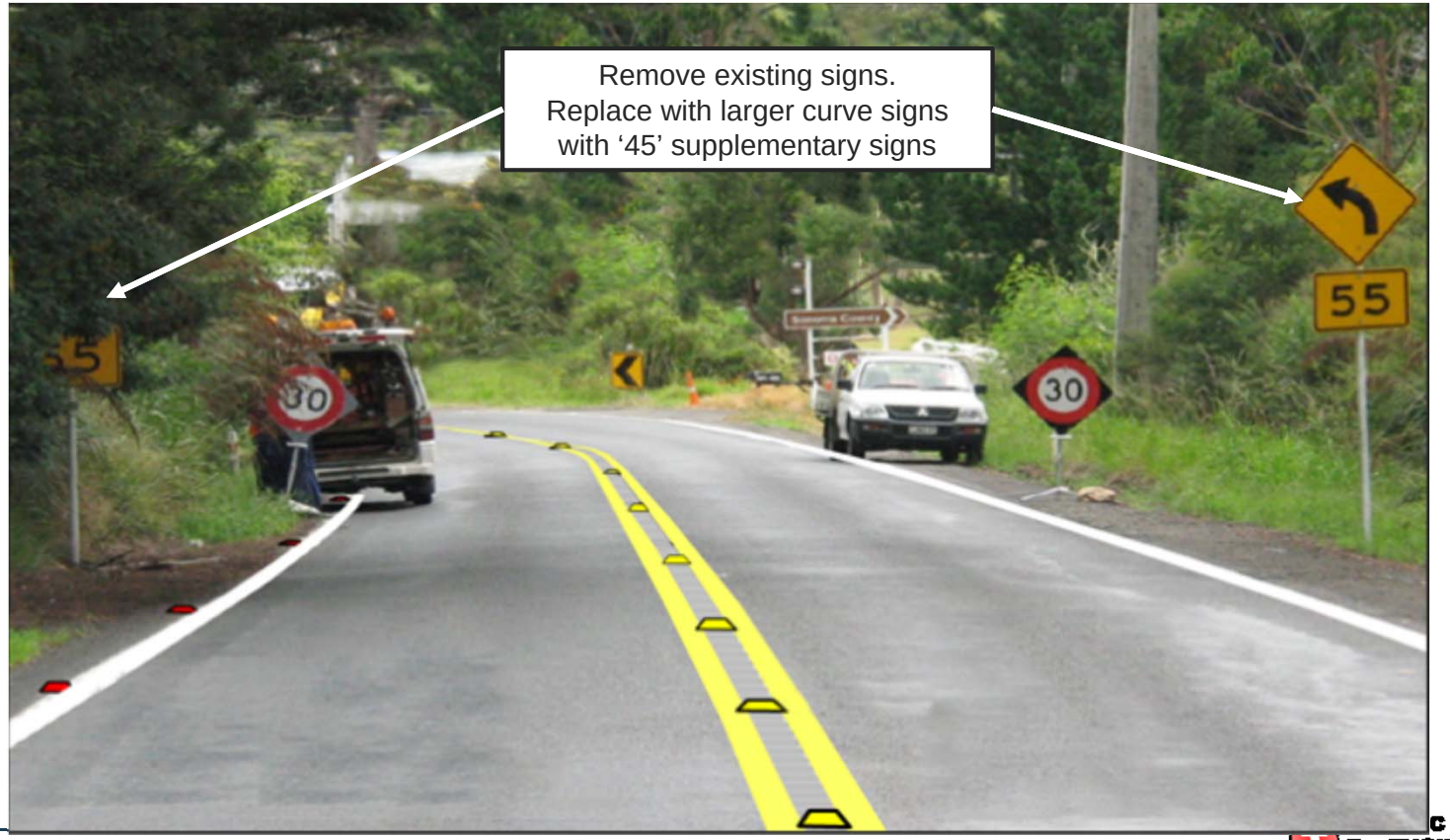
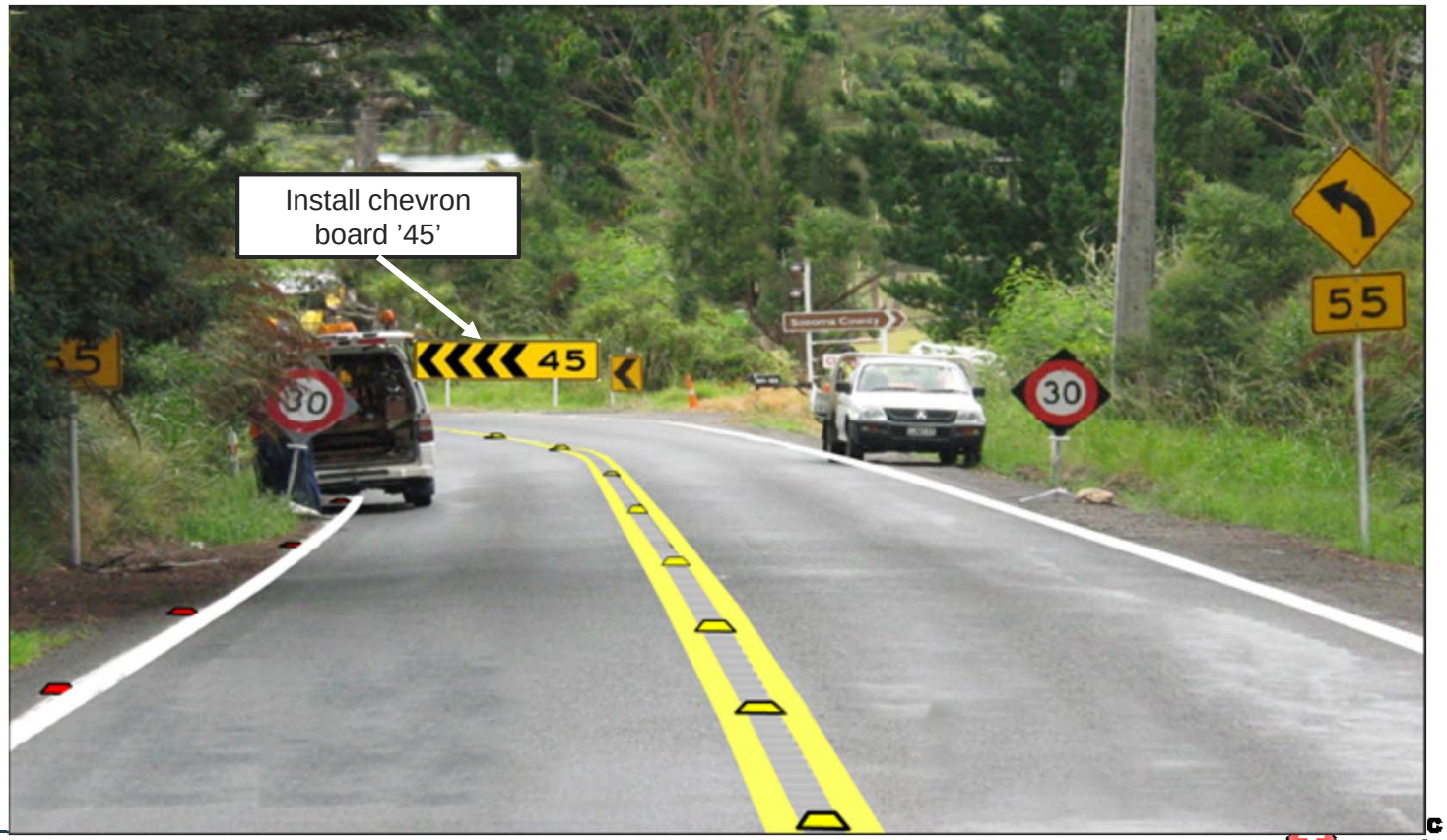


Issues & Solutions



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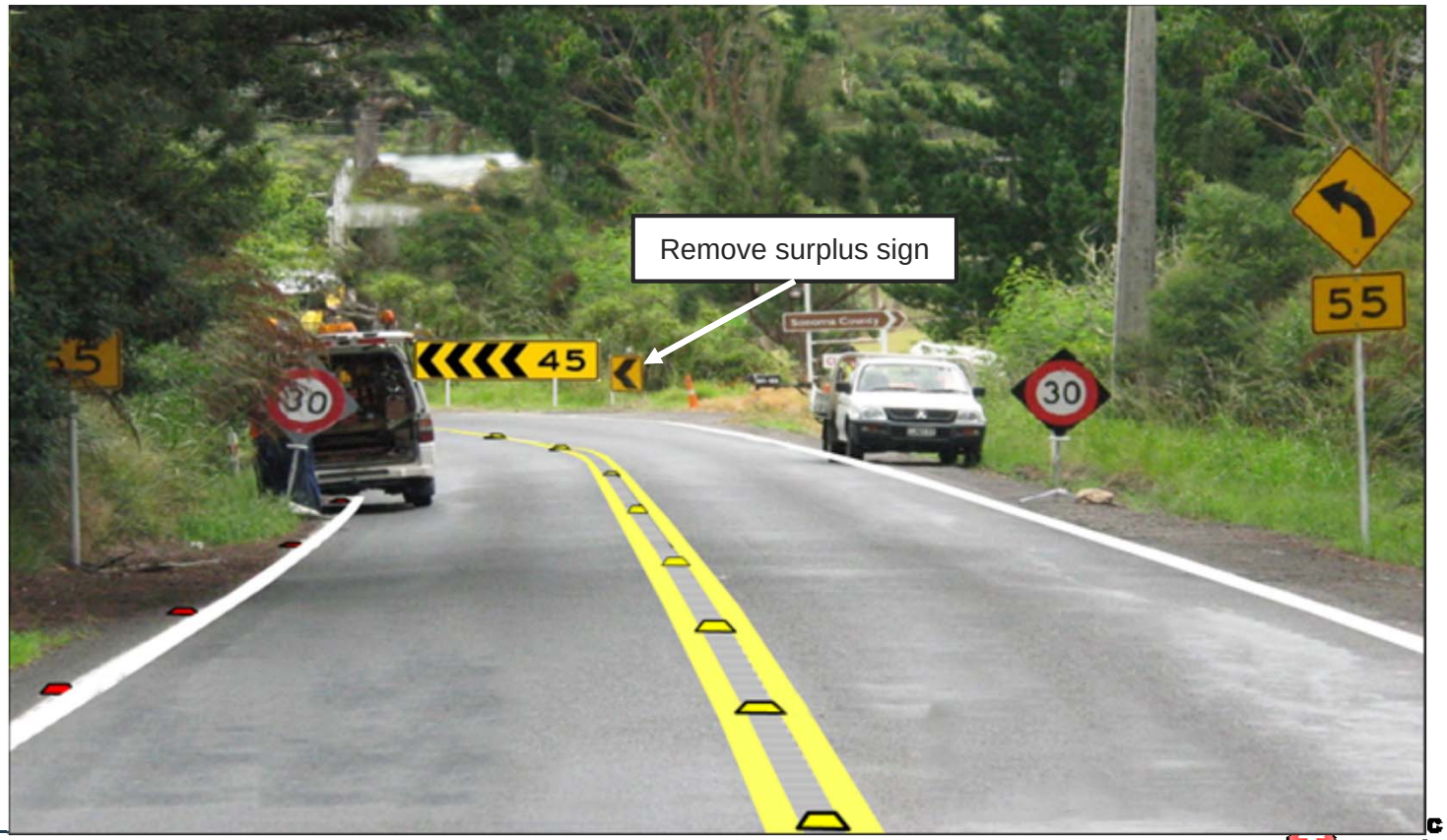

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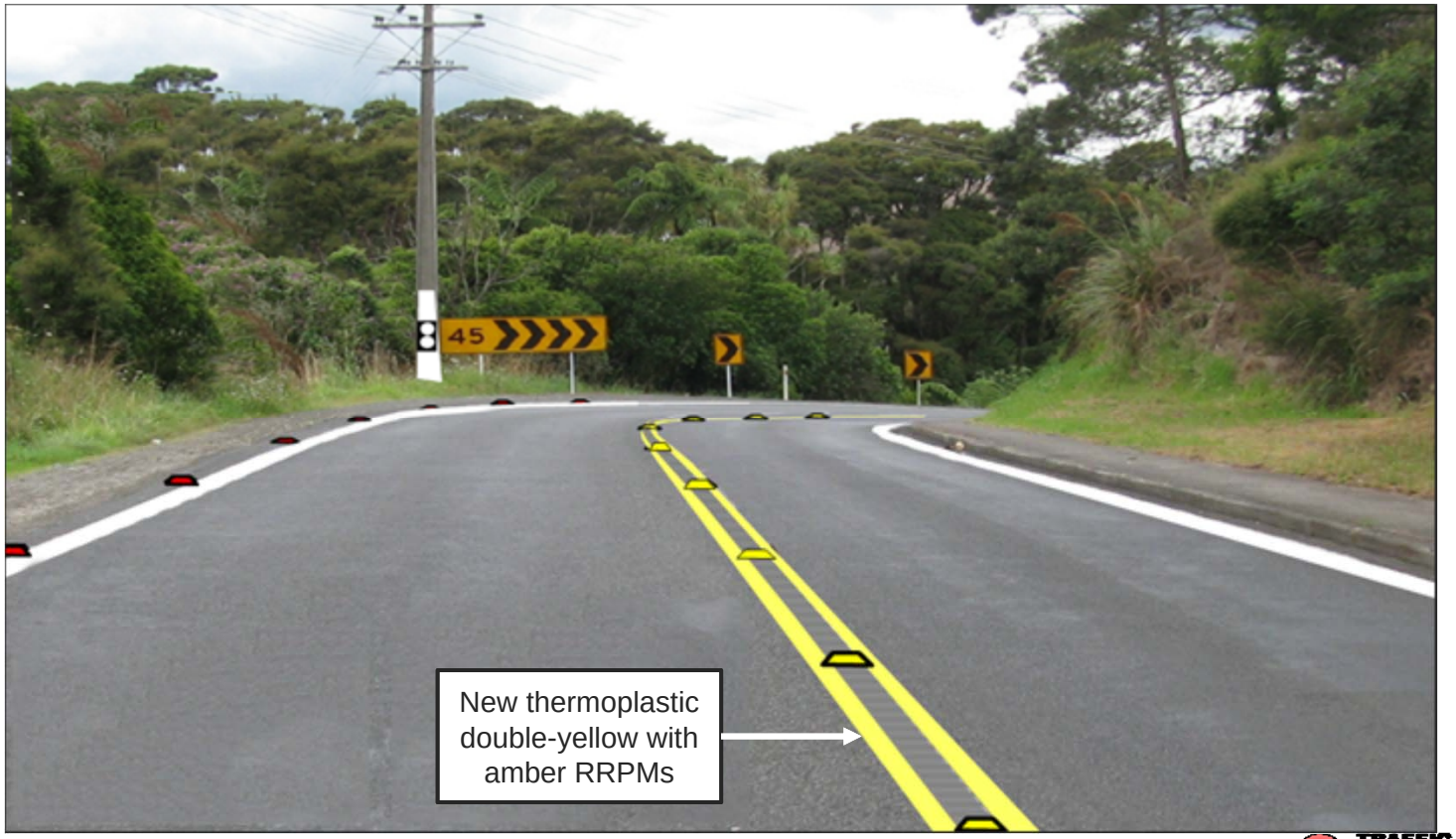

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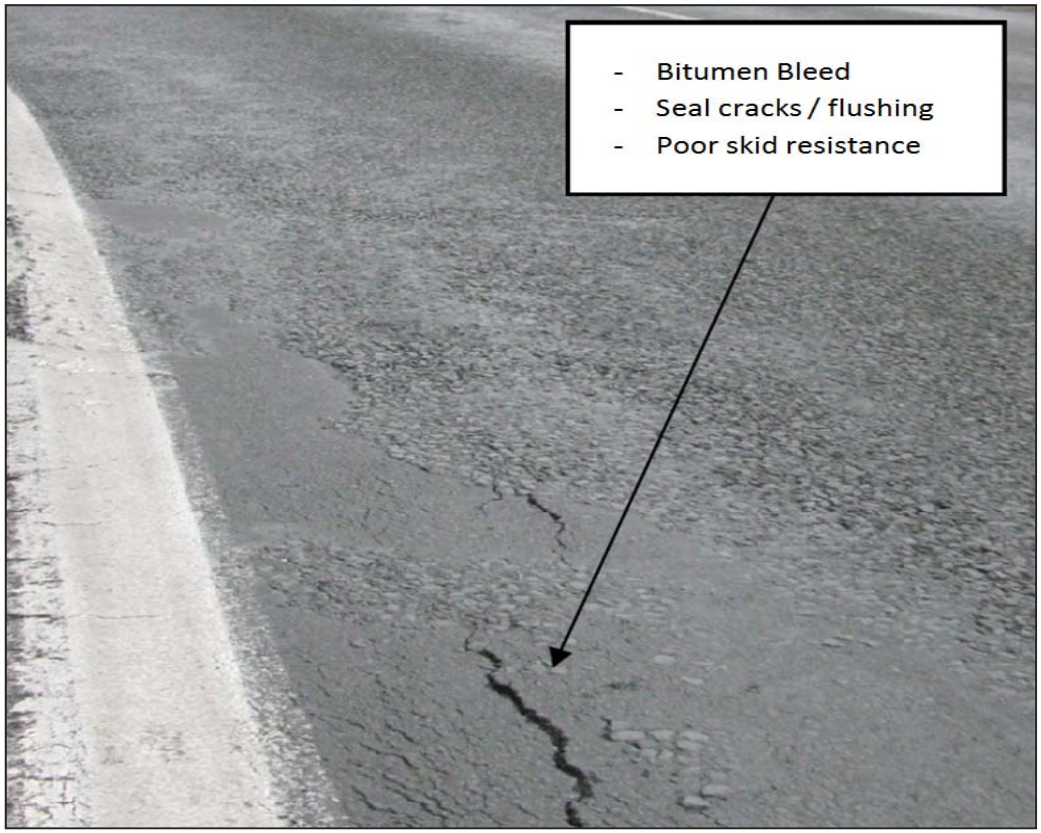
Issues & Solutions



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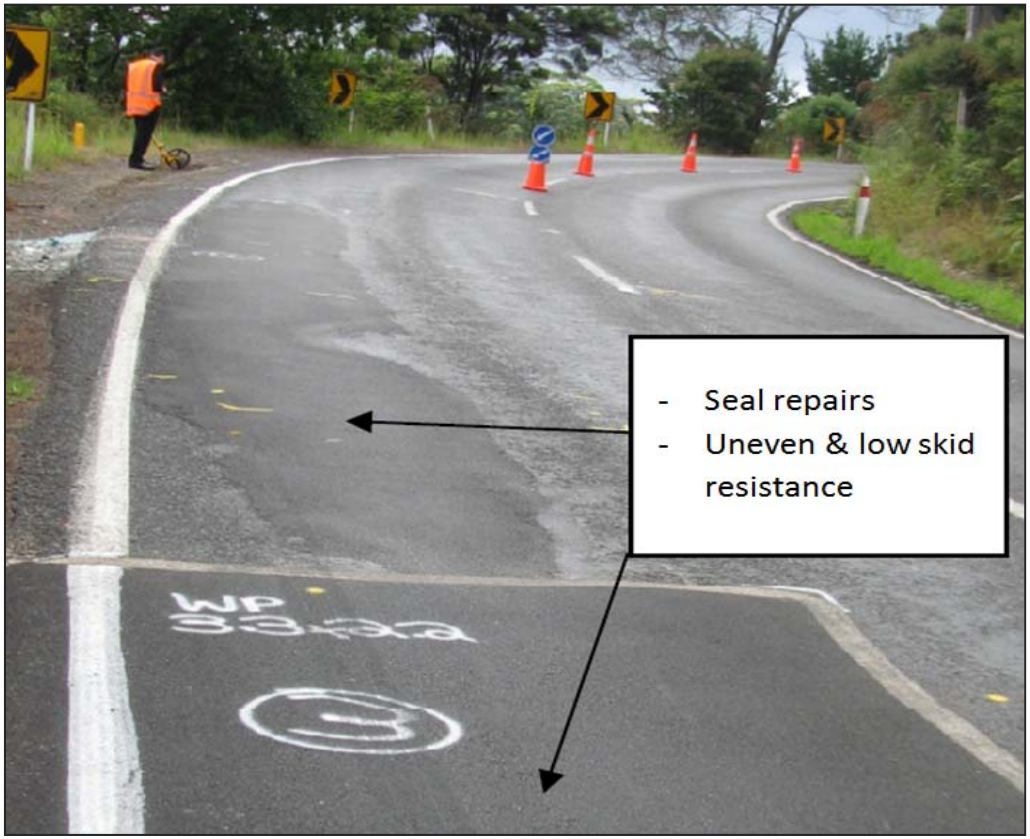
Issues & Solutions



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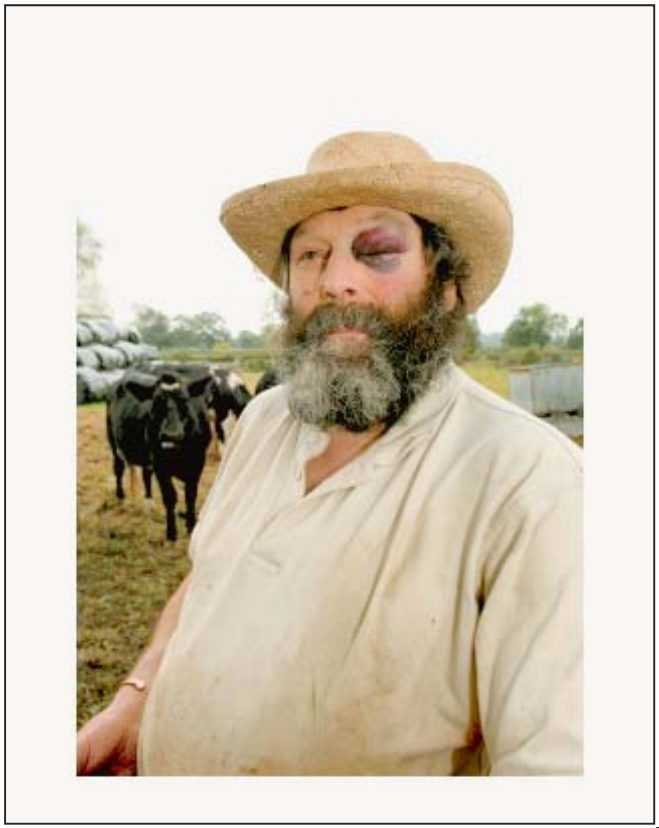
Issues & Solutions

Consult with locals to get first-hand knowledge of issues



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Installed Works – ‘After’ Photo

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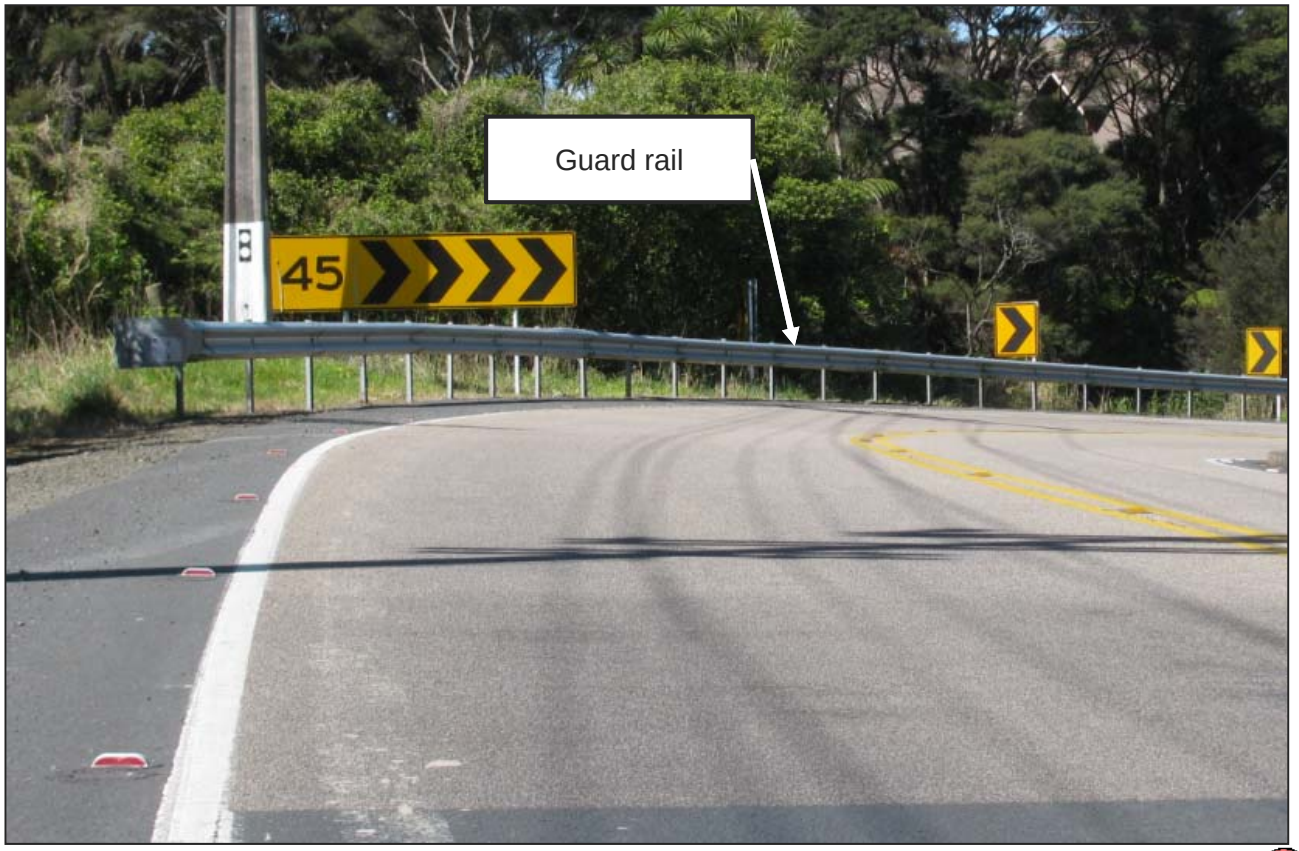

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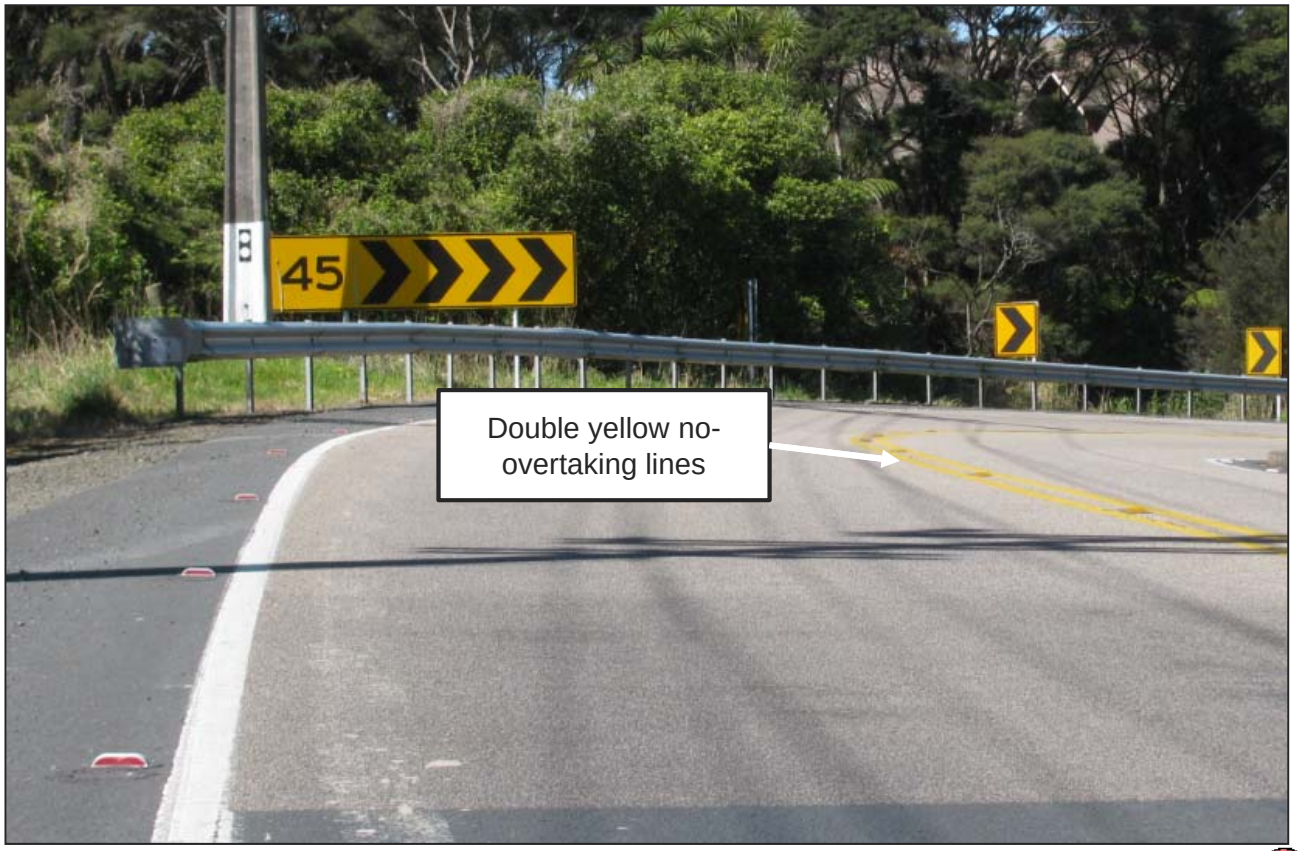

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Installed Works – ‘After’ Photo

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Installed Works – ‘After’ Photo

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Installed Works – ‘After’ Photo

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‘Before’ and ‘After’ Aerials

‘Before’

‘After’

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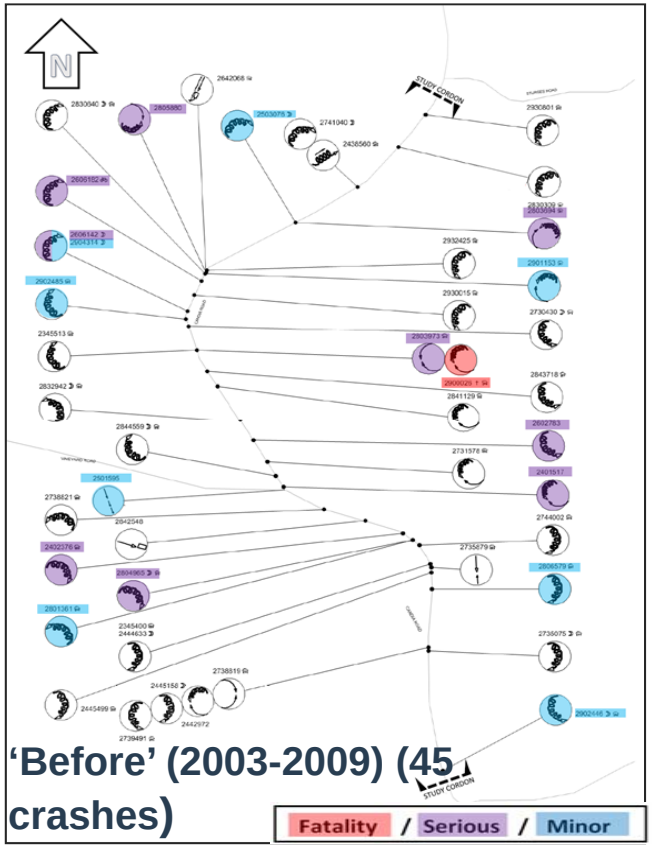
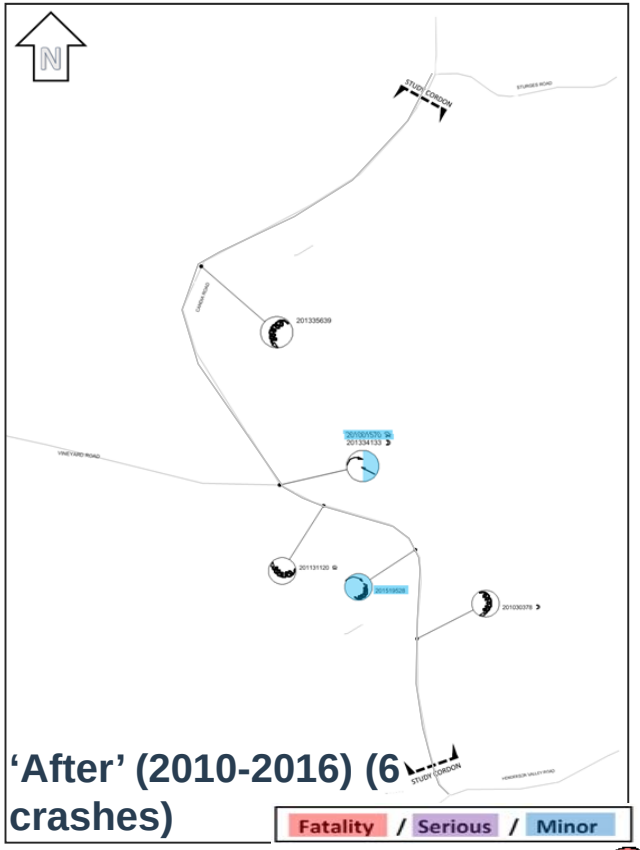
Results: Crash Data – 7 Years – 'Before' & 'After'



'Before' (2003-2009) (45 crashes)



'After' (2010-2016) (6 crashes)

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Results

87%

Crash Reduction

- Result 99.9% chi-squared significant
- Traffic volumes increased by around 40% over this period
- No evidence of crash migration on nearby roads

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83%

Crash Reduction

Includes ‘control group’ crash trend decreasing (22%)

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1.4

Death/Serious Injury Crashes Saved / year

$24 million

Present Value Life-time Crash Cost Savings

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BCR =19

Present Value Life-time Crash Cost Savings

Construction Cost circa $1million

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Conclusions

1) **Review all Traffic Crash Reports and plot crashes precisely**

Conclusions

2) Review injury and non-injury crashes to establish crash patterns

Conclusions

3) Focus remedial works on the main issues, while applying ‘Safe Systems’ approach to remainder of route.

Conclusions

4) Implement a large package of complementary works that focus on the main issues to get much greater crash savings

Thank you.

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