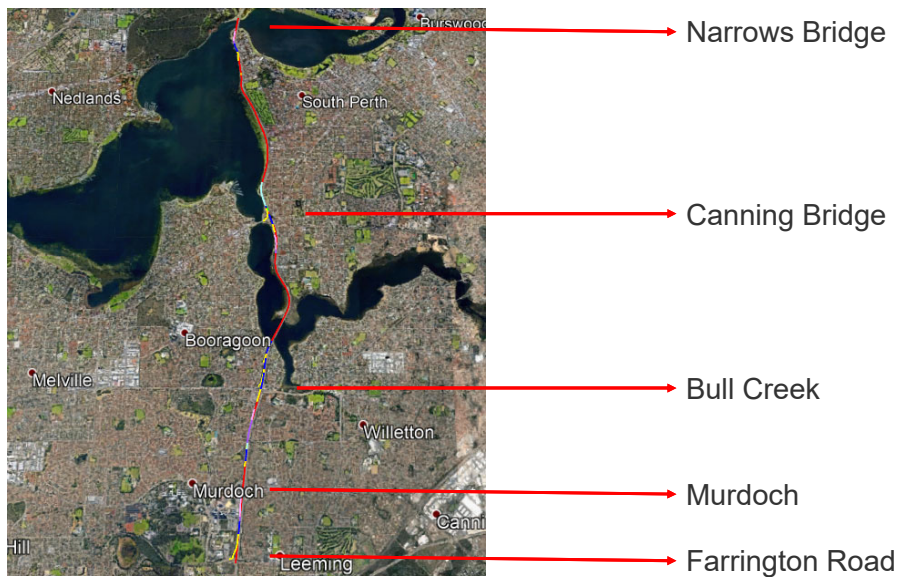


Progress Report – 11.2019 PSG Meeting

Shican Liu, B Wiwatanapataphee, YH Wu

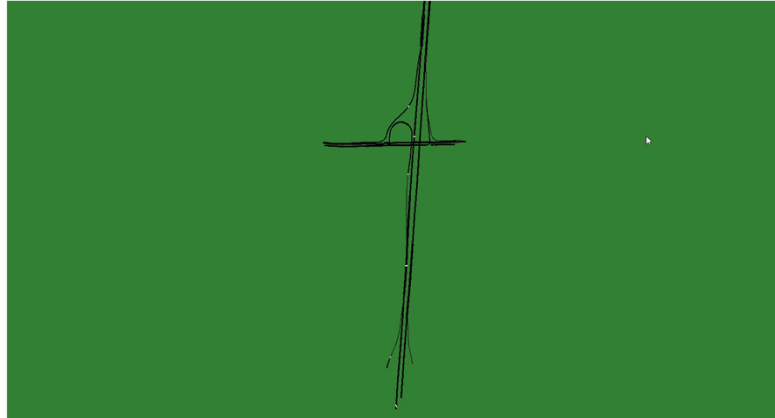
1. Computer Models for Kwinana Freeway Network
2. Simulation Module
3. Data Analysis

1. Computer Models for Kwinana Freeway Network



Snapshots

Kwinana Freeway from Farrington Road to Narrows Bridge

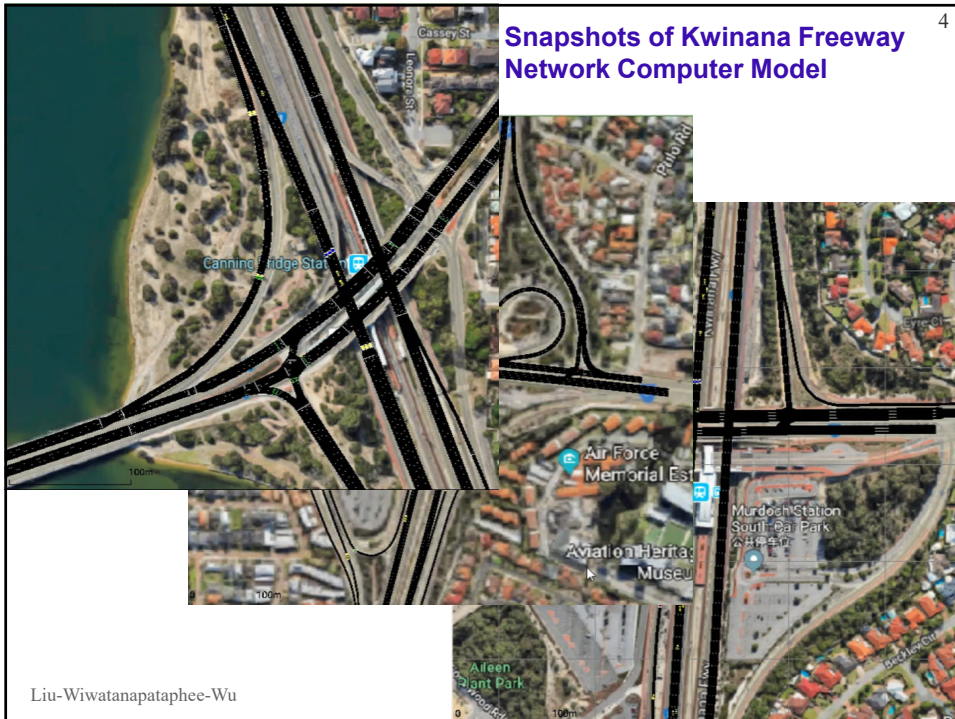


Total Length: 13,322 m.

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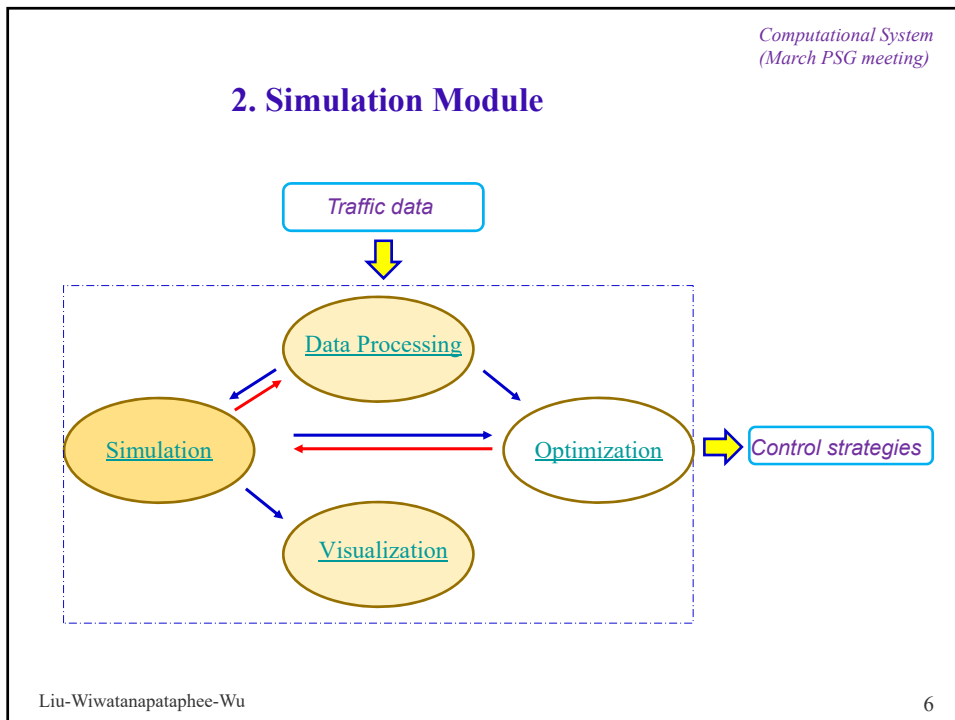
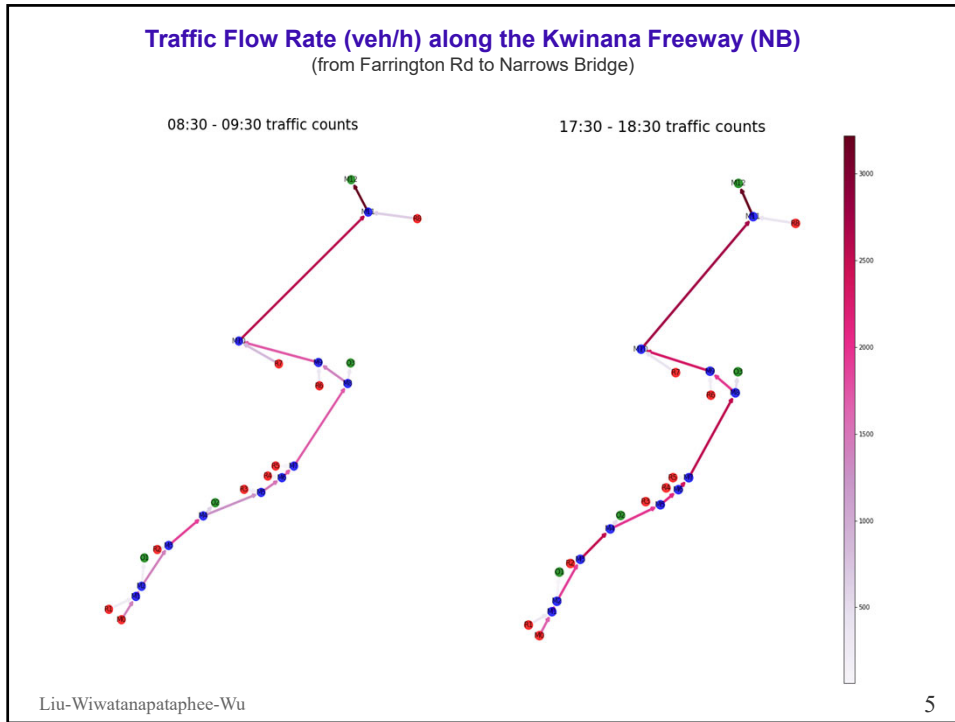
3

Snapshots of Kwinana Freeway Network Computer Model

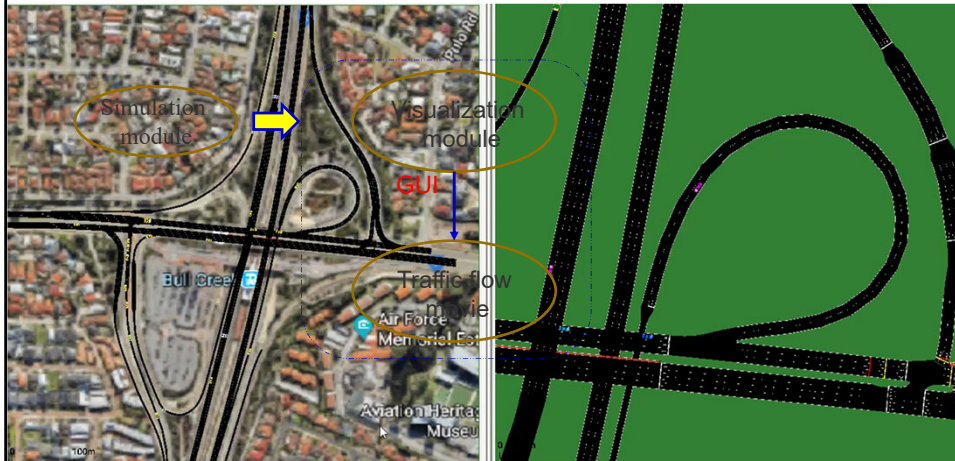


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Simulation Video

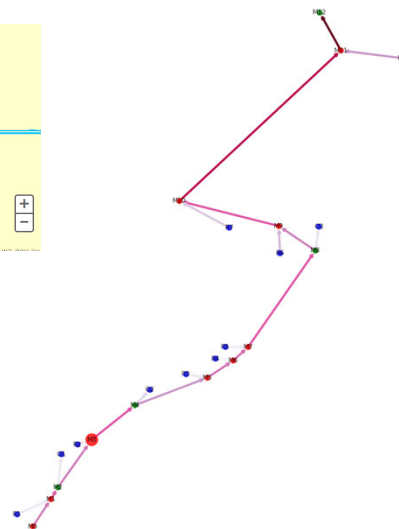
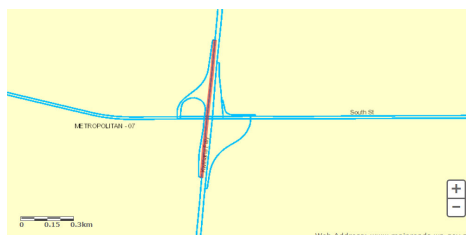


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Simulation Results

(Kwinana Fwy between South Street On and South Street Off)

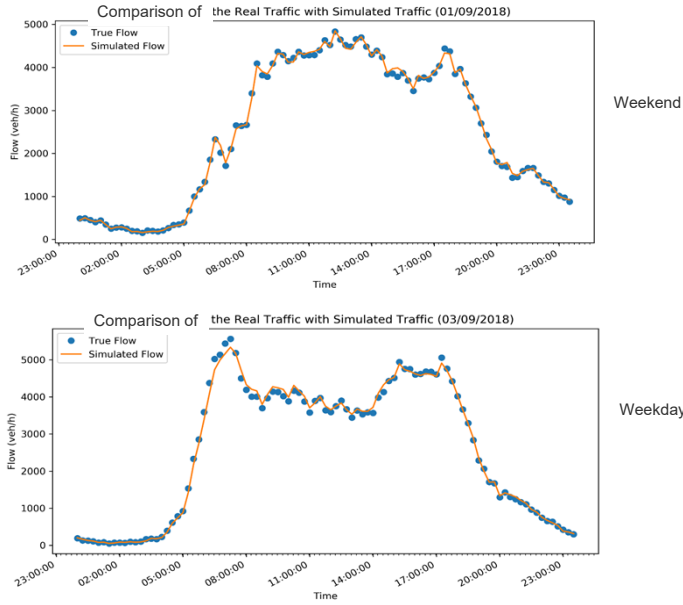


- **Detector #:** M3
- **Detector Type:** In the Middle
- **Num. of Lanes:** 4
- **Simulation Time:** 0:00 - 23:59

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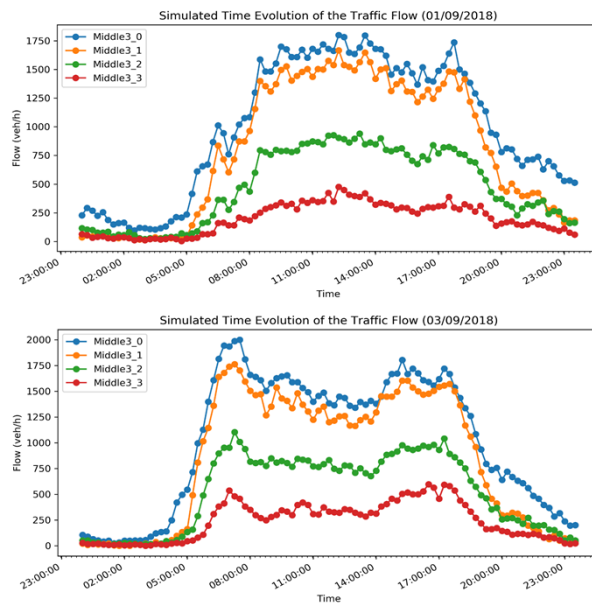
Comparison of Simulation Results with Traffic Data



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Simulated Traffic Flow Rates on Different Freeway Lanes

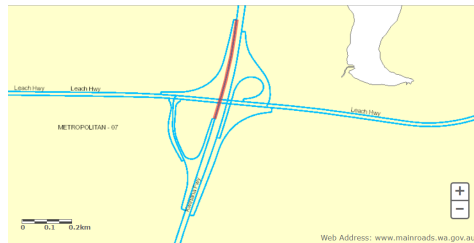


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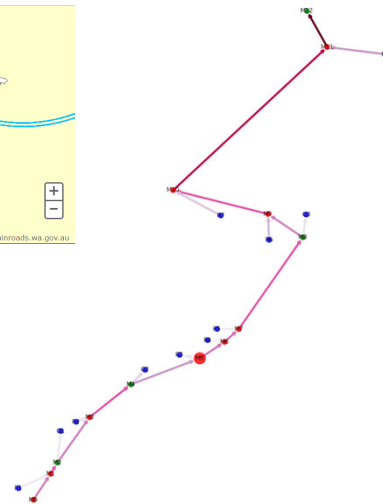
10

Simulation Results

(Kwinana Fwy between Leach Hwy West Bound On and East Bound On)



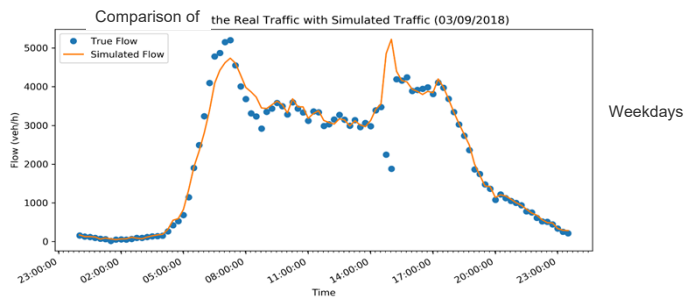
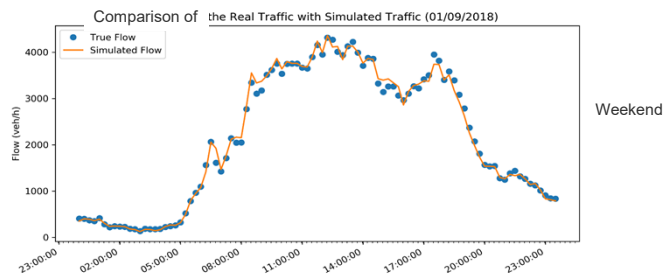
- *Detector #:* M5
- *Detector Type:* In the Middle
- *Num. of Lanes:* 3
- *Simulation Time:* 0:00 To: 23:59



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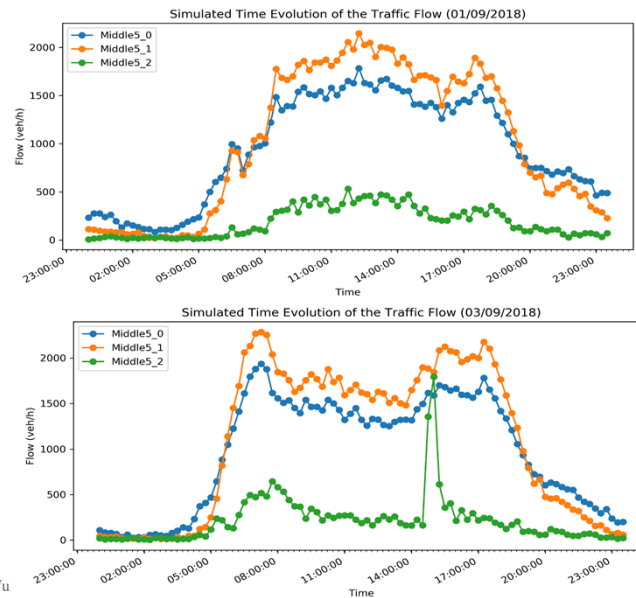
Comparison of Simulation Results with Traffic Data



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Simulated Traffic Flow Rates on Different Freeway Lanes



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Computational System
(March PSG meeting)

3. DATA Analysis

Kwinana Fwy NWB between Manning Rd On & Canning Hwy On

- Time series of traffic speed and flow
- Diagrams of traffic flow
- Time series of rainfall
- Proportion of incidents in each NPI link
- Effects of rainfall / incidents on traffic flow
- Effects of incidents on traffic flow diagrams

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data analysis

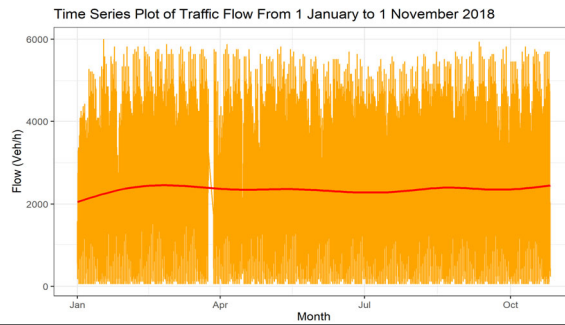
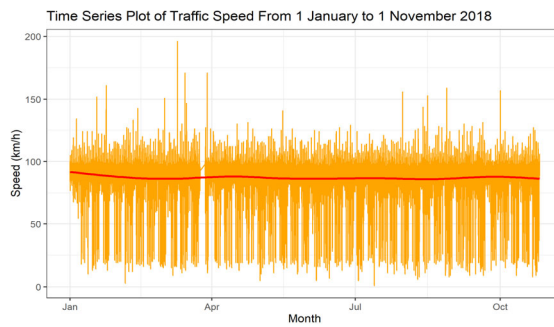
Kwinana Fwy NWB between Manning Rd On & Canning Hwy On



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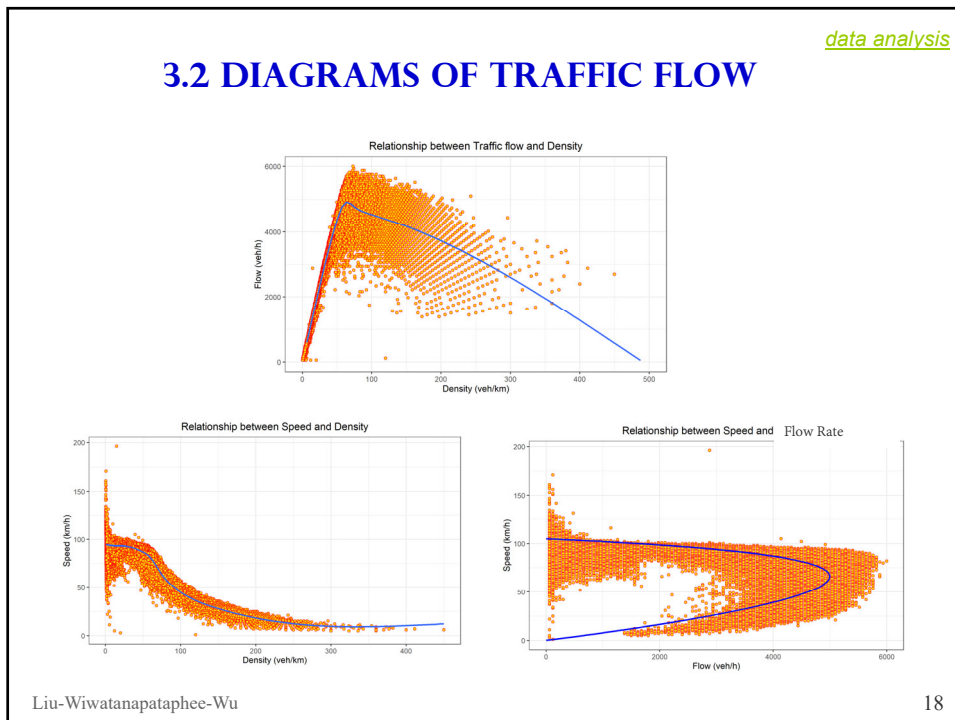
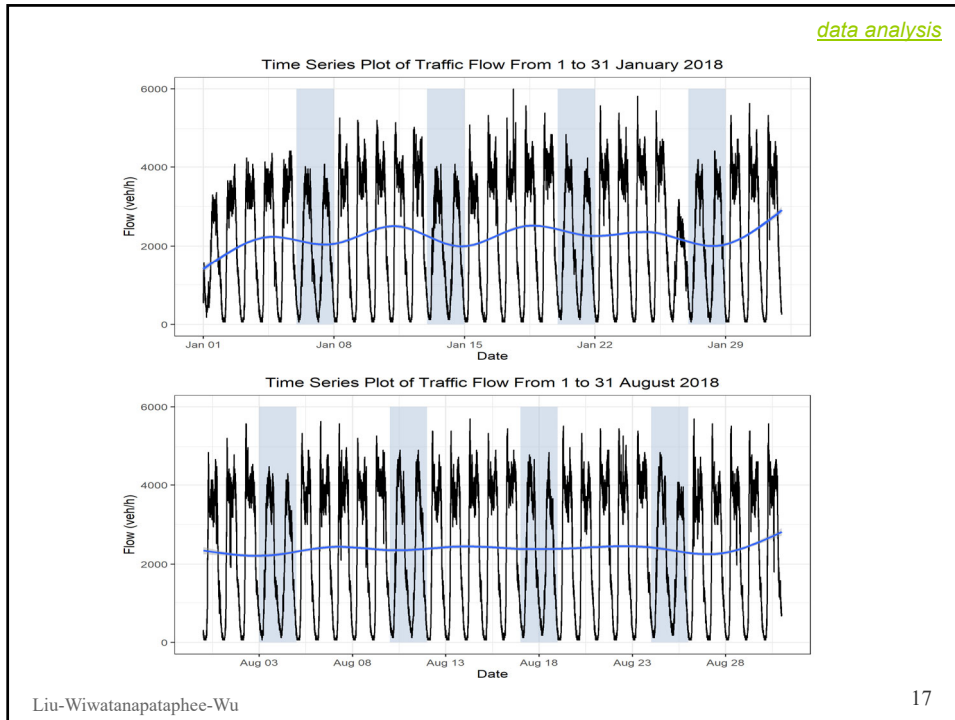
15

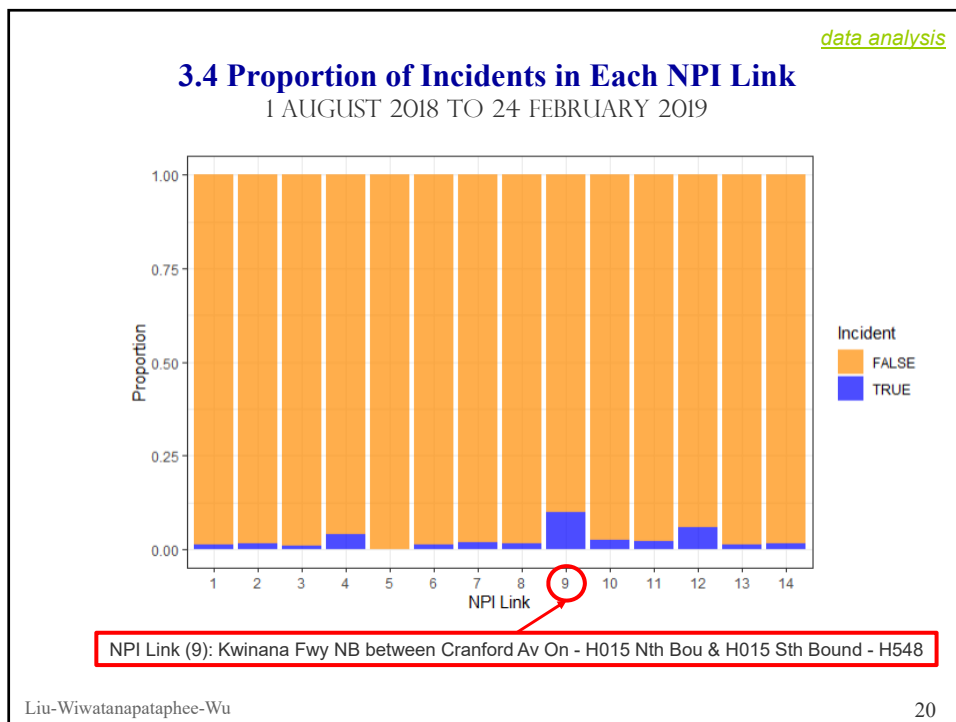
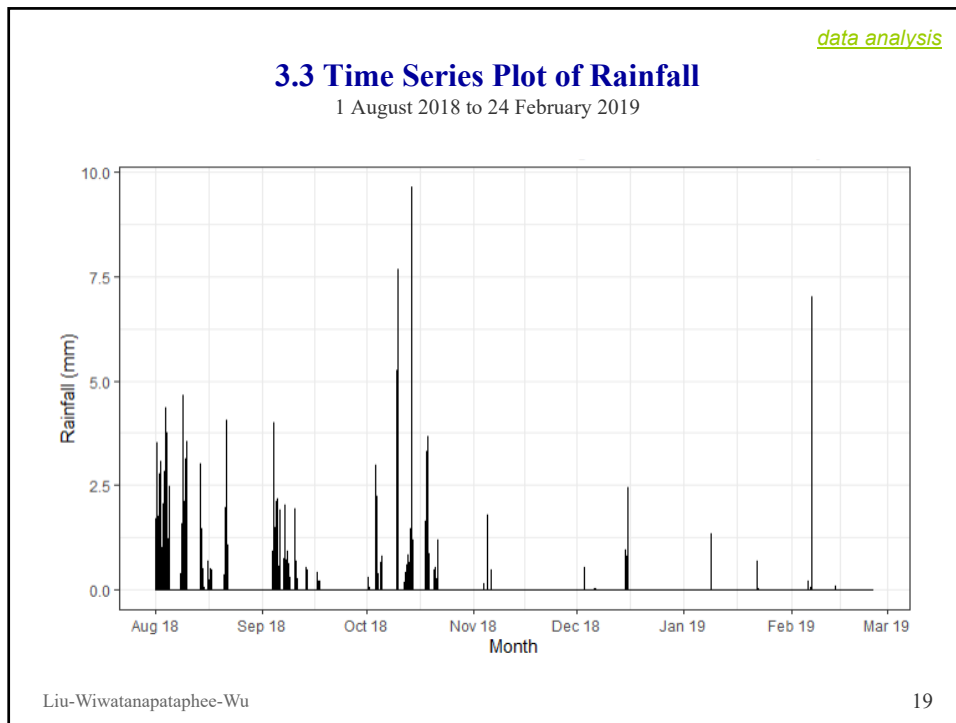
3.1 Time series of traffic speed and flow



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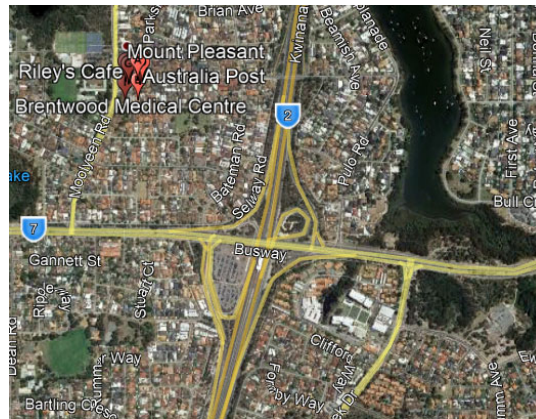
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3.5 Effects of Rainfall/Incidents on Traffic Flow

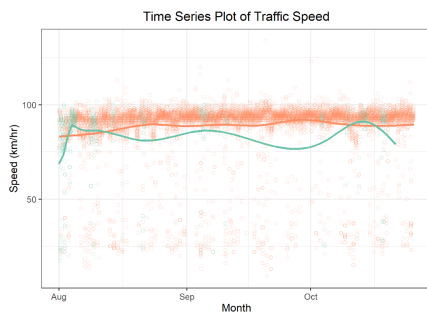
NPI Link (9): Kwinana Fwy NB between Cranford Av On - H015
Nth Bou & H015 Sth Bound - H548



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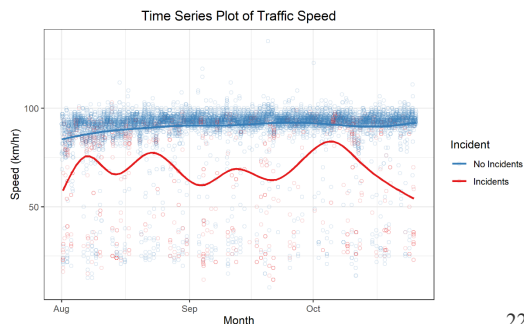
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Effects of Rainfall/Incidents on Traffic Speed



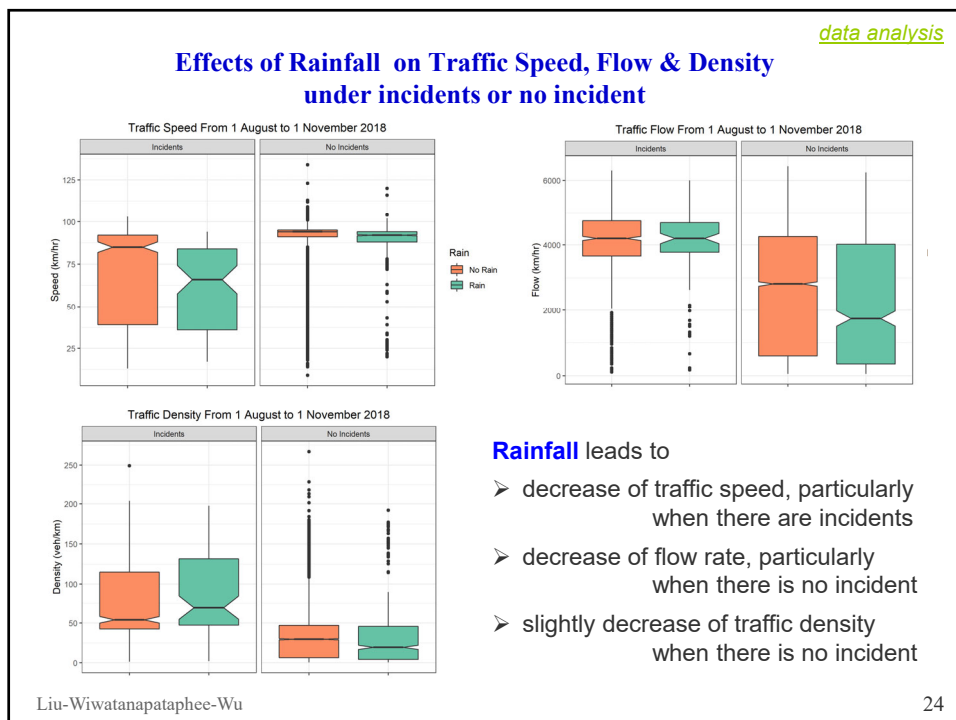
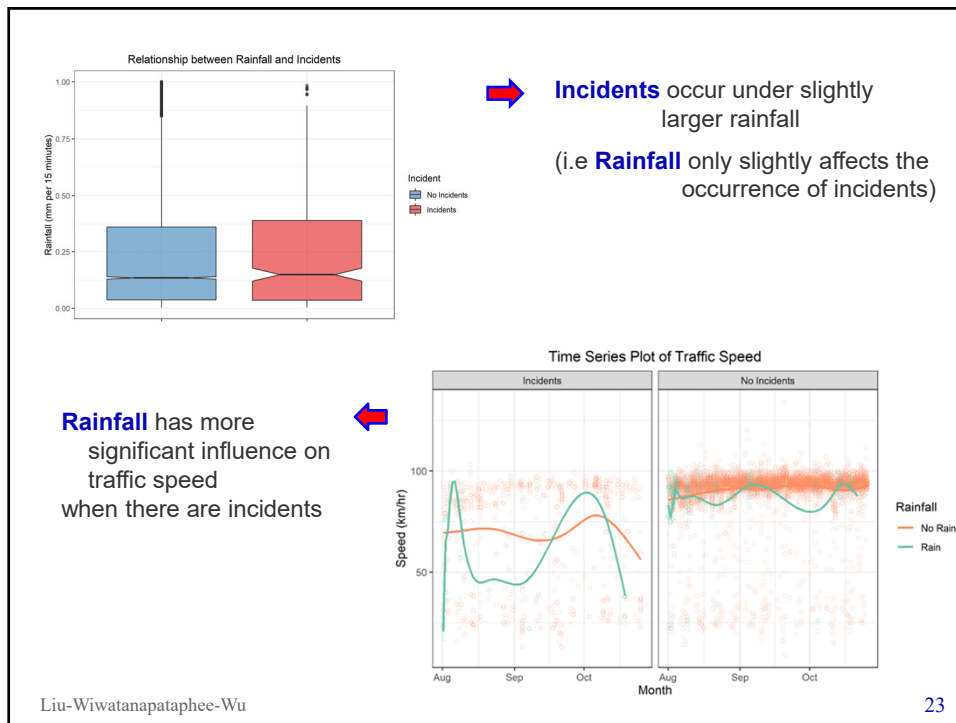
➔ Rainfall leads to decrease of traffic speed

Incidents lead to decrease of traffic speed

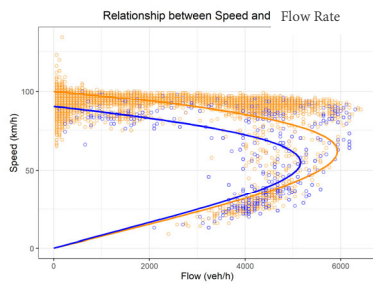
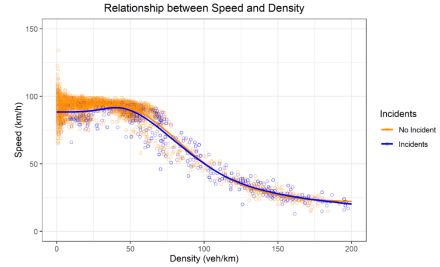
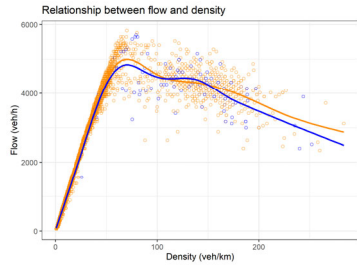


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3.6 Effect of Incidents on Traffic Flow Diagrams (NPI LINK 9)



Incidents lead to

- decrease of road capacity (flow) & traffic speed
- decrease of flow for any fixed speed (indicating lower density – more caution)

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THANK YOU

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