Dynamic Lanes – Sweating the Asset
Whangaparaoa Road Trial
Transport Assessment
Presentation Outline

• Corridor overview
• What are Dynamic Lanes
• Assessment
• Assessment predictions (Operation and Safety)
• Implementation
• Review Comparisons
• Where to from here
Corridor Overview

- Whangaparaoa Peninsula - one road in, one road out (Whangaparaoa Road)
- 13,000 households
- Population 34,000 people
- Main bottleneck is the Hibiscus Coast Highway/Whangaparaoa Road/Millwater Parkway intersection
- Daily traffic (two way) through study section = 25,000 to 30,000 vehicles per day
- Tidal Peak hourly traffic volume = 1,750 vehicles per hour
What are Dynamic Lanes

Terry Definition – *Dynamic Lanes*, adaptive traffic system that provides increased road capacity to improve the movement of tidal traffic flow.
Assessment Considerations

- Capacity of the receiving environment – shifting bottlenecks
- Safety – motorists and vulnerable road users
- Sufficient evidence to support trial
Capacity Assessment – Check of Concept

- AM Peak – Capacity Assessment (westbound)
  - 3,000 vph (Whangaparaoa Road)
  - 200 vph (Red Beach Road)
  - 1,950 outbound capacity
  - 3,200 vph inbound capacity
PM Peak – Capacity Assessment (eastbound)
1,450 vph (Hibiscus Coast Highway)
300 vph (Millwater Parkway)
1,750 inbound capacity
2,100 outbound capacity
Benefits of corridor model

• Route assignment
• Better representation of Do Minimum constraints
• Travel time predictions through corridor (Whangaparaoa Road)
• Better understanding on signal phasing
  • Platooning (Hibiscus Coast Highway, Whangaparaoa Road)
• Wider economic benefits better understood
Predicted Assessment Outcomes

- **Traffic flow increase**
  - +200 vehicles per hour on Whangaparaoa Road eastbound
  - Shift from Red Beach Road to Whangaparaoa Road

- **Reduction in travel times**
  - Whangaparaoa Road (25% reduction, one minute +)
  - Red Beach Road – slight reduction 15 seconds

- **Improvement intersection performance**
  - Hibiscus Coast Highway/Whangaparaoa Road Intersection
SAFETY – “Potential” Issues

• Head-on collisions through the inadvertent use of the flush median
• Turning into and out of driveways and side roads (spurred on by delay)
• Pedestrians crossing the road (removal of flush median and pedestrian refuge)
• Cyclists – no space for overtaking in a single traffic lane (counter peak direction)
Implementation

• 24 January 2018 Trial started (12 months)
• Initially PM (eastbound) 4:00 to 6:00pm
• 26 February 2018 PM time extended (to 7:00pm)
• May 2018 Trial extended to AM (westbound) 6:00 to 9:00am
• Observations
• Reporting back to Board
Operational Assessment

• Flow undertook extensive observations of the project from the Auckland Traffic Operations Centre (ATOC)
• Recommendations made to further enhance corridor performance during trial
• Comparisons between pre implementation and post implementation travel speeds
• Review of Crash Data
Comparisons

• **Traffic Counts**
  - Whangaparaoa Road  +260 vehicles per hour PM Peak
  - Red Beach Road    - 240 vehicles per hour PM Peak

• **Phase Splits – only subtle changes observed**
  - 3% or less at Hibiscus Coast Highway/Whangaparaoa Road Intersection
  - 9% or less at Whangaparaoa Road/Red Beach Road Intersection

• **Improved operation of Hibiscus Coast Highway/Whangaparaoa Road intersection**
SAFETY – Crashes Recorded

- Fatal and Serious Crashes – None
- Minor or Non Injury (Crash Analysis System)
  - 3 rear end
  - 1 loss of control (drugs/alcohol suspected)
  - 1 hit parked car
  (3 occurred while dynamic lanes were operating)
- Unreported crashes
  - 1 lane change crash westbound
  - 1 rear end in slow moving queue
  - 1 loss of control
- Dynamic lanes not considered to be a significant factor. Annual crashes fits with previous crash history
Comparisons

- Corridor Travel Times (Courtesy of TEAM WIFI Sites)
- Three WIFI Sites
Comparisons

- AM Westbound – Red Beach Road to Hibiscus Coast Highway
- February 2018 to May 2018
Comparisons

- AM Westbound – Vipond Road to Red Beach Road
- February 2018 to May 2018
Comparisons

- PM Eastbound – Hibiscus Coast Highway to Red Beach Road
- January 2018 to May 2018
Comparisons

• Reliability (Westbound between Vipond Road and SH1 Silverdale I/C)
Where to from here

- Trial ticking the majority of boxes
- Auckland Transport reporting to NZ Transport Agency – Feb 2019
- Seeking approval for dynamic lanes to be treated as a formal road marking tool
- Seeking that dynamic lanes is incorporated into the Traffic Control Devices (TCD) Manual – Late 2019 (update)
- Other sites being investigated, as an extension to the trial
- Consideration of road space being used for T2, T3 and bus lanes, as examples.
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