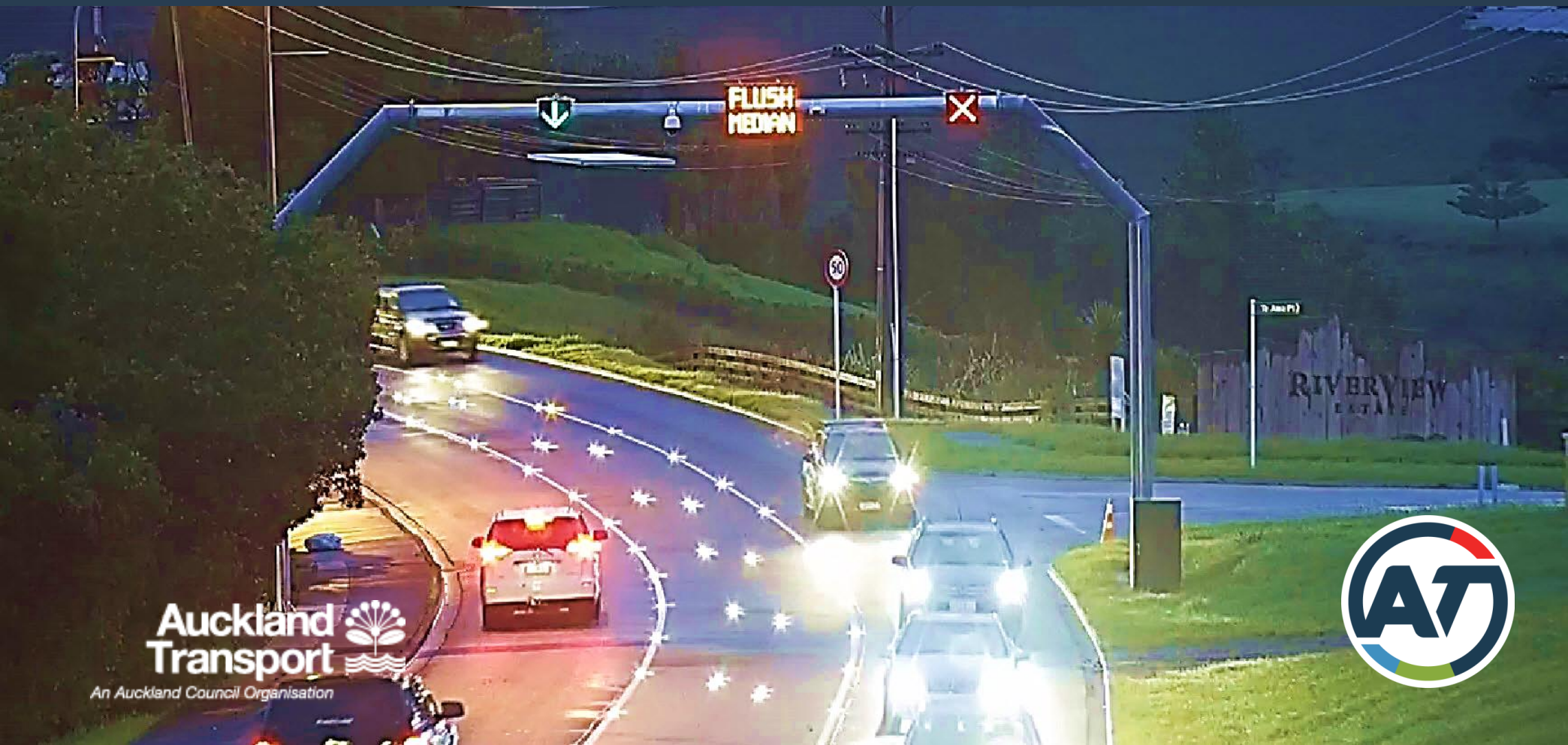


Whangaparaoa Road Dynamic Lanes Project



1. WHY even consider
2. WHAT, where and expectations
3. HOW introduced and performance
4. Now what

1. WHY even consider



Panmure Bridge, Auckland



Brightside Road, Washington DC



Auckland Harbour Bridge, Auckland



Johnston Street, Melbourne

Strategic Themes Alignment

Prioritise rapid, high frequency public transport

Transform and elevate customer focus and experience

Build network optimisation and resilience

Ensure a sustainable funding model

Develop creative, adaptive, innovative implementation

Improved level of service with benefits for improved journey time reliability and travel times for vehicles

Maximising the capacity and operation of the existing road corridor

Making the most of the existing network - avoiding or deferring the need for new infrastructure

Implementing new technology and traffic management systems to maximise the efficiency of the network

Project background

- Auckland a growing, vibrant city
- Increasing demand on travel on the road network
- Change is inevitable – improved network management and capacity creation to make best use of existing road space
- There is a network optimisation plan – constantly being developed

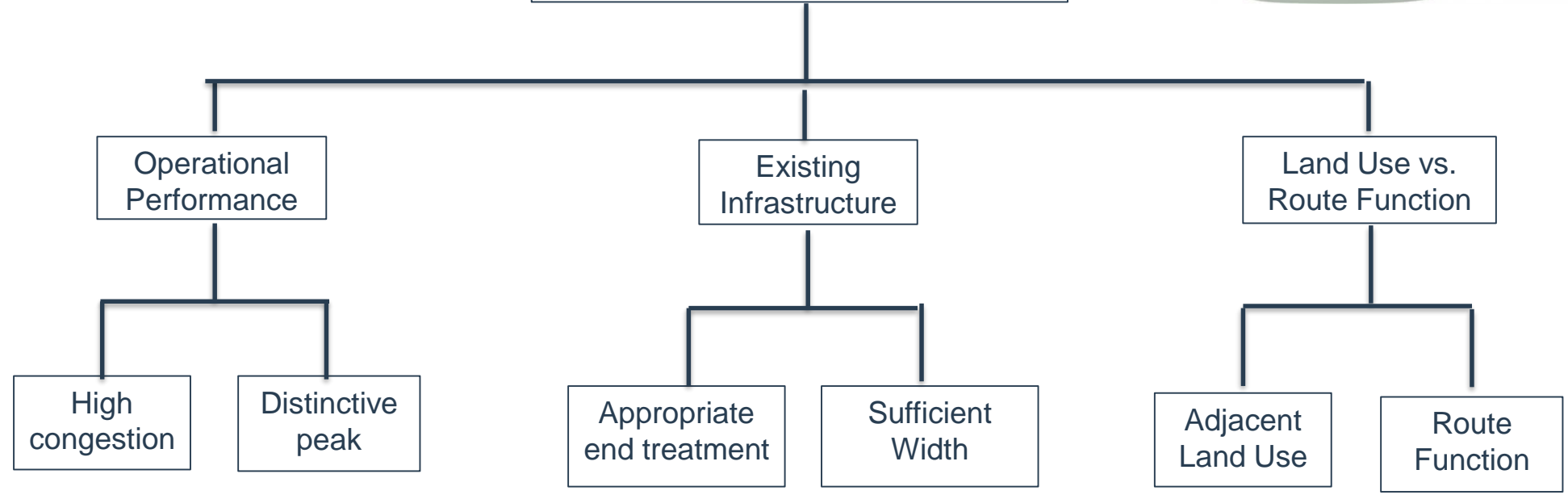
- Dynamic lane concept is an **innovative** travel demand solution
- Use of technology to redistribute the road space to increase the capacity of the road in a quick and clear way for drivers.
- 6:30am – 9am and 4pm – 6pm on weekdays

1. WHY even consider
- 2. WHAT, where and expectations**
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Selection Criteria



Dynamic Lane Criteria

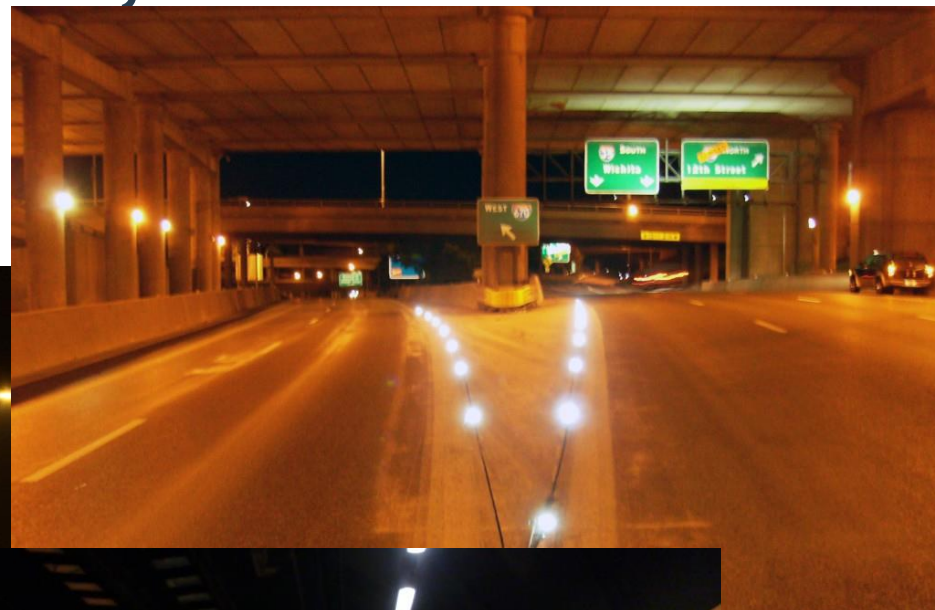


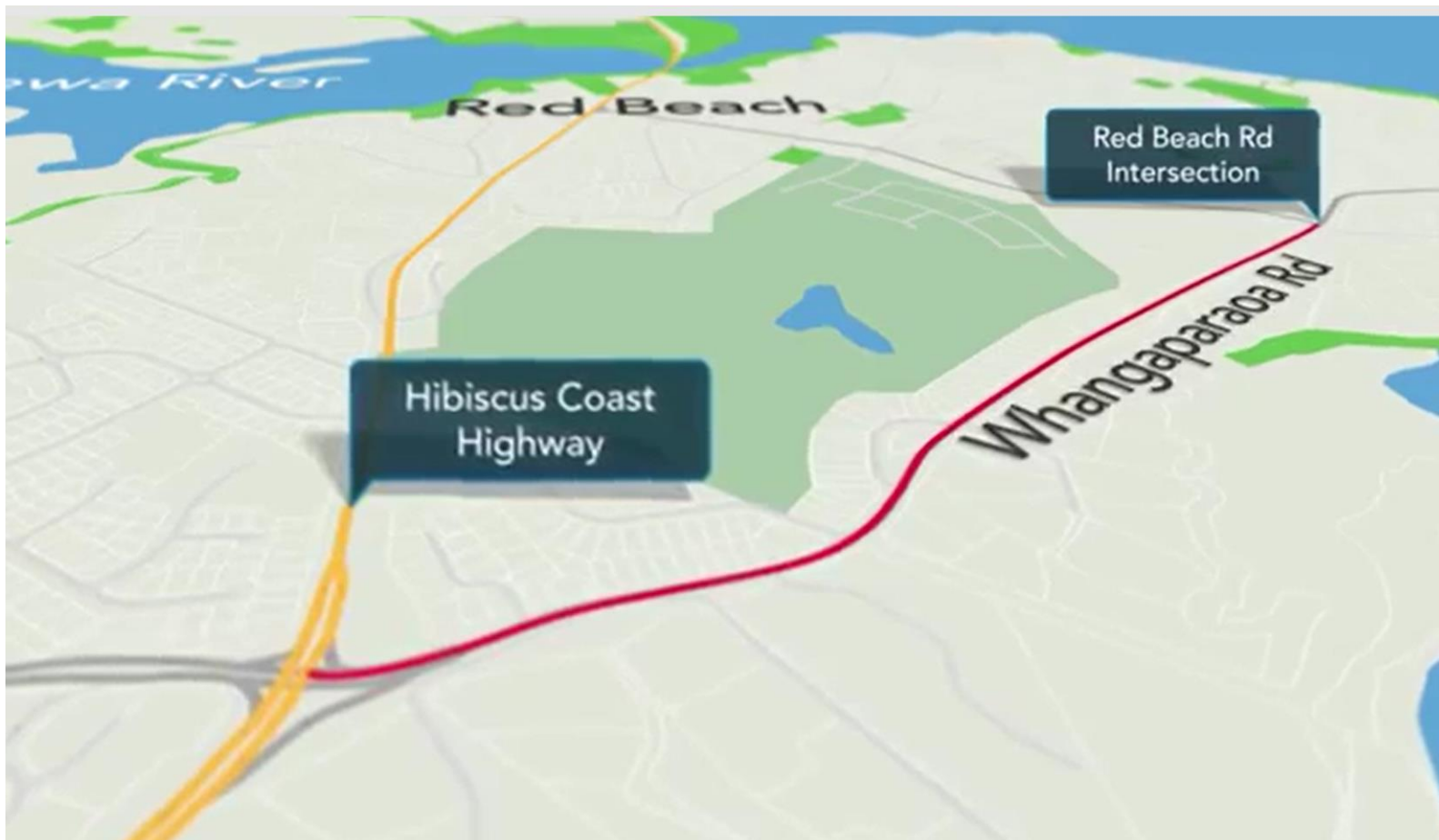
Project background

- Basic criteria:
 - Operational performance:
 - Congestion occurs
 - Tidal flows (*am 80/20, pm 35/65*)
 - Existing road infrastructure:
 - Appropriate end treatment
 - Adequate road width
 - Land use and functionality
 - Low level of activity along/across corridor
 - Corridor primarily functions as through route (*key arterial*)

| Road name | Criteria | | | | | | |
|--|-----------------|-------|---------------------------|-----------------------|-------------------|------------------------------------|--|
| | Congested | Tidal | Appropriate end treatment | Appropriate width | Adjacent land use | Route throughput function | |
| 1 Lake Road, Takapuna – between Esmonde Road and Bayswater Avenue | No (D-E) | No | Yes | No (with cycle lanes) | No (cul-de-sacs) | Yes - Minimal (traffic islands x2) | |
| 2 East Coast Road, between Greville Road and Oteha Valley Road | No (D) | Yes | Yes | Yes | Yes | Yes | |
| 3 Whangaparaoa Rd, between Hibiscus Coast Highway and Red Beach Road | Yes | Yes | | Yes | Yes | Yes | |
| 4 Blockhouse Bay Road, Avondale - between Wolverton / Tiverton Road and New North Road | Yes (F) | Yes | Yes | Yes | Yes | Yes (none) | |
| 5 Parnell Road, Parnell - between St. Stephans Avenue and Broadway | Yes (F) | Yes | No | No | No | No | |
| 6 Te Atatu Road, Te Atatu Peninsula | No (D) | Yes | No | Yes | No | No | |
| 7 Ash Street / Rata Street, Avondale | Yes (E) pm | Yes | Yes | No | Yes | Yes | |
| 8 Great North Road - motorway to Blockhouse Bay Road | Yes (F) am | Yes | | No | Yes | Yes | |
| 9 New North Road - Blockhouse Bay Road to St. Lukes Road | Yes (F) am | Yes | | No | No | Yes - Minimal (traffic islands x5) | |
| 10 Sandringham Road - New North Road to Balmoral Road | Yes (F) am | Yes | No | No | No | No | |
| 11 Great South Road - Manukau Road to Greenlane | Yes (E) am & pm | Yes | | Yes | Yes | Yes - Minimal (traffic islands x5) | |
| 12 Tamaki Drive - Ngapipi Road to Kitemoana Street | No (D) | Yes | | Yes | Yes | Yes - Signalised crossing | |
| 13 Swanson Road - Sturges Road to Larnoch Road | Yes (F) | No | Yes | Yes | Yes | Yes - Minimal (traffic islands x3) | |
| 14 Donovan Street - Blockhouse Bay Road to White Swan Road | Yes (F) | Yes | No | Yes | No | No | |
| 15 Kepa Road, Orakei - Patteson Avenue to Ngapipi Road | Yes (F) am | Yes | Yes | No | Yes | No - Zebra, traffic island x3 | |
| 16 Puhinui, Manukau - Lambie Drive to Great South Road | No (D) | Yes | Yes | Yes | Yes | No - 2 Zebra, 1 Signal | |
| 17 Redoubt Road, Manukau - Motorway off-ramp to Hollyford Drive (possible extension) | Yes (F) am | Yes | Yes | Yes | Yes | Yes (none) | |

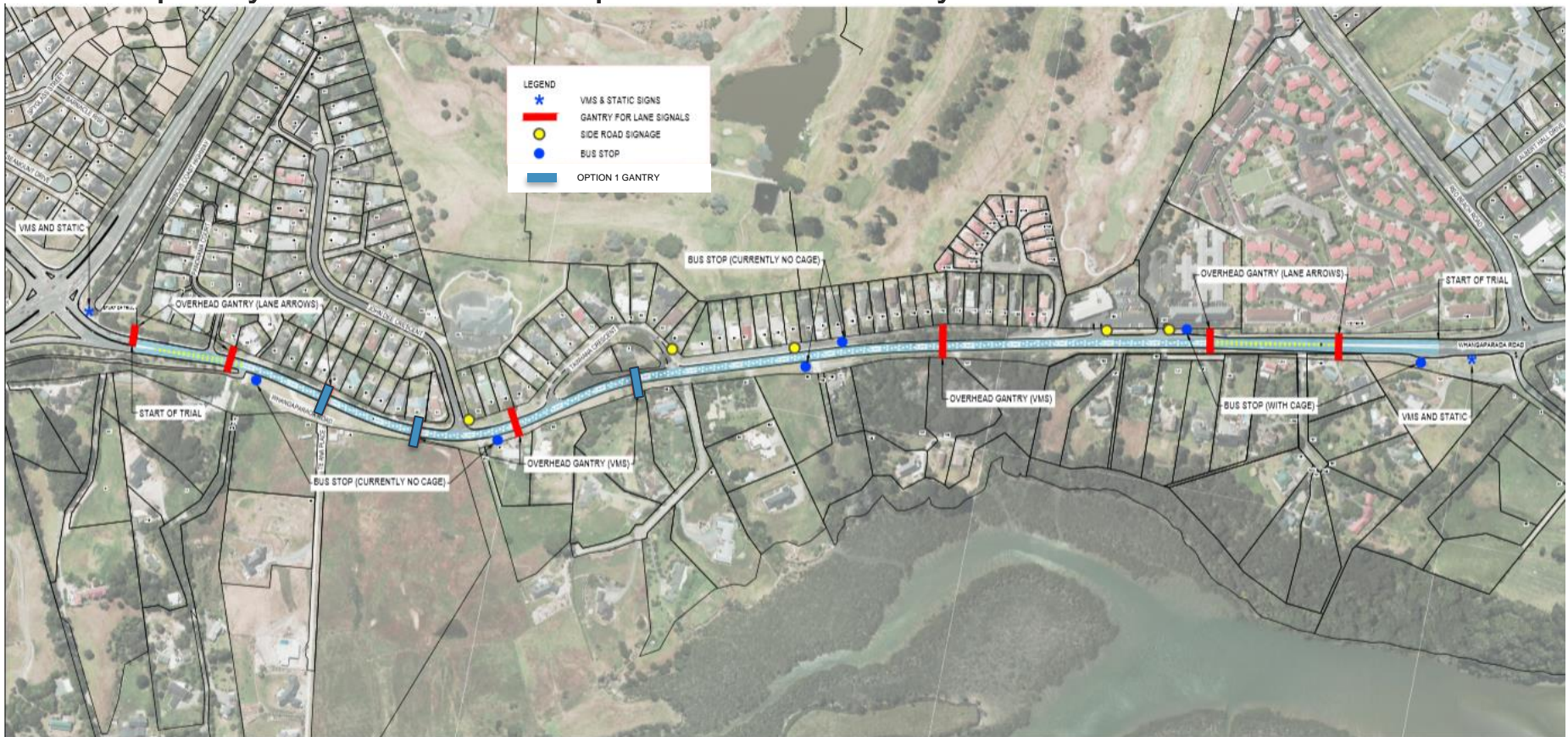
Lights, Camera, Action!





Project Design

Use of technology to redistribute the road space to increase the capacity of the road in a quick and clear way for drivers.



Project Design

Monday - Friday
6.30am to 9.00am

Morning peak



During morning peak traffic, the LED lights will turn the centre median strip into an additional traffic lane for peak traffic heading towards the Hibiscus Coast Highway.

Monday - Friday
4.00pm to 6.00pm

Afternoon peak



During afternoon peak traffic, the LED lights will switch again in the opposite order, turning the centre median strip into an additional traffic lane for peak traffic heading towards the Red Beach Road intersection.

Off peak



In non-peak traffic times, the median strip down the centre of the road remains unchanged. One lane of traffic will run in both directions and motorists may use the median to make turns as normal.

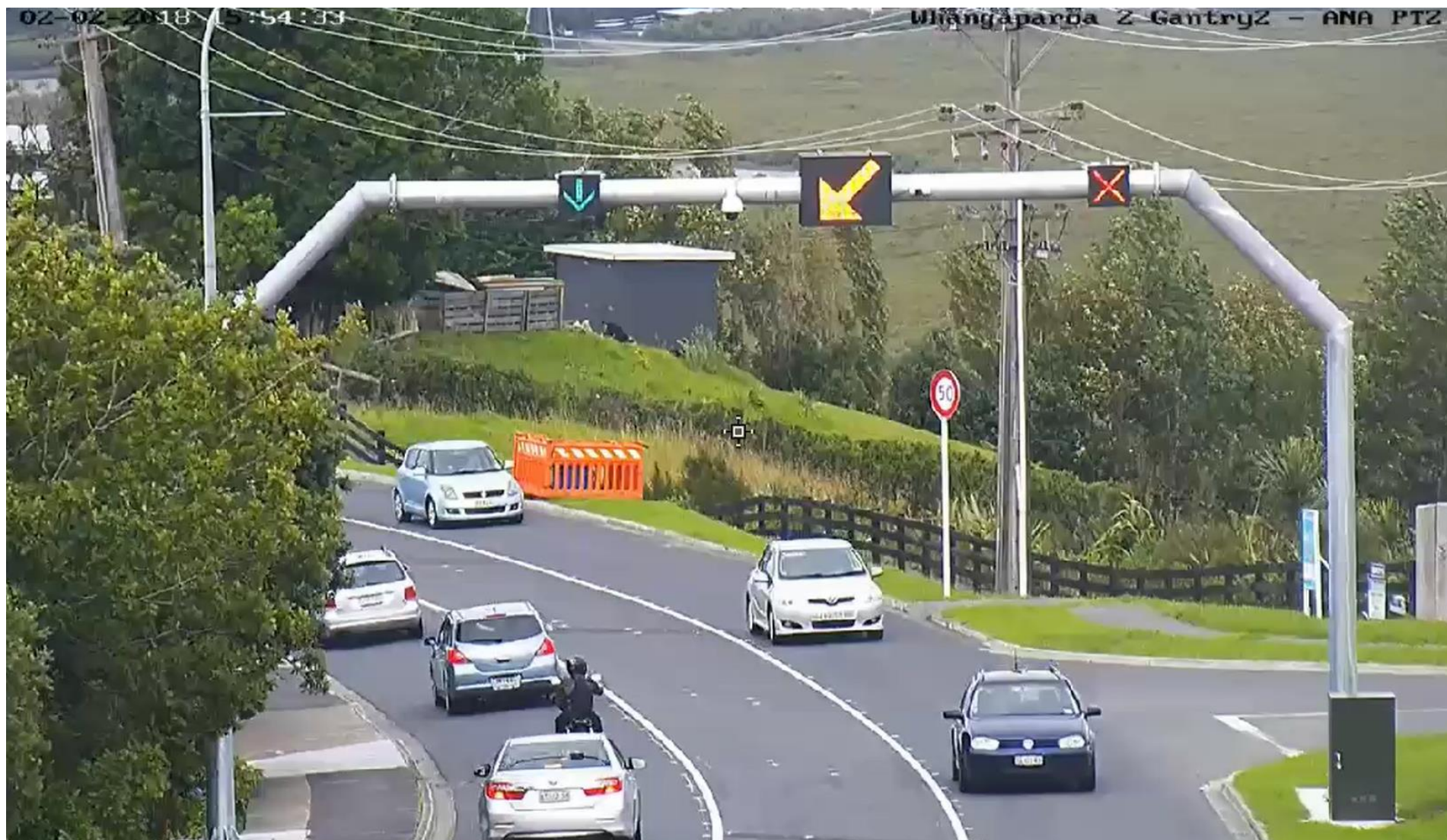


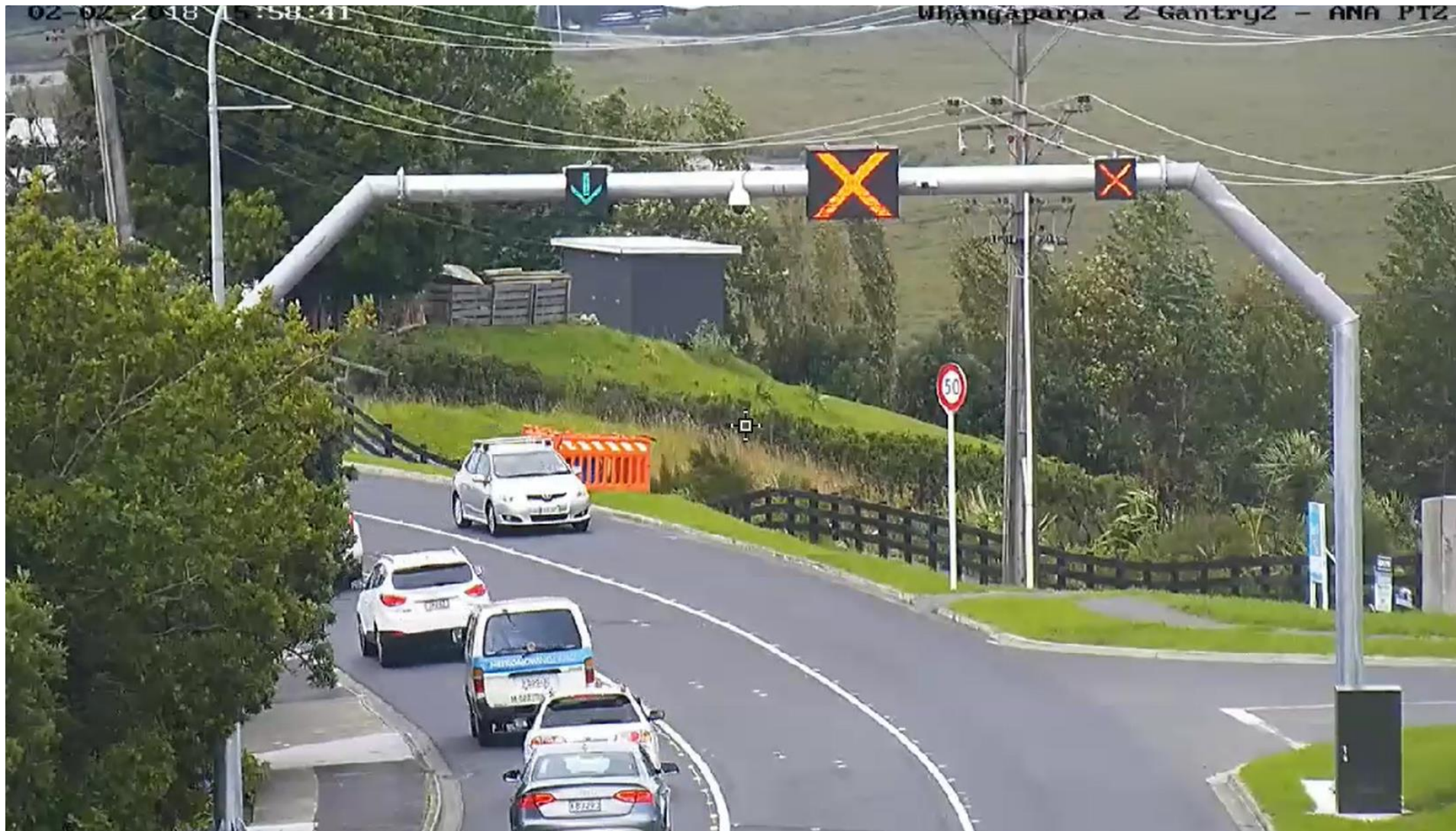
FLUSH
MEDIAN

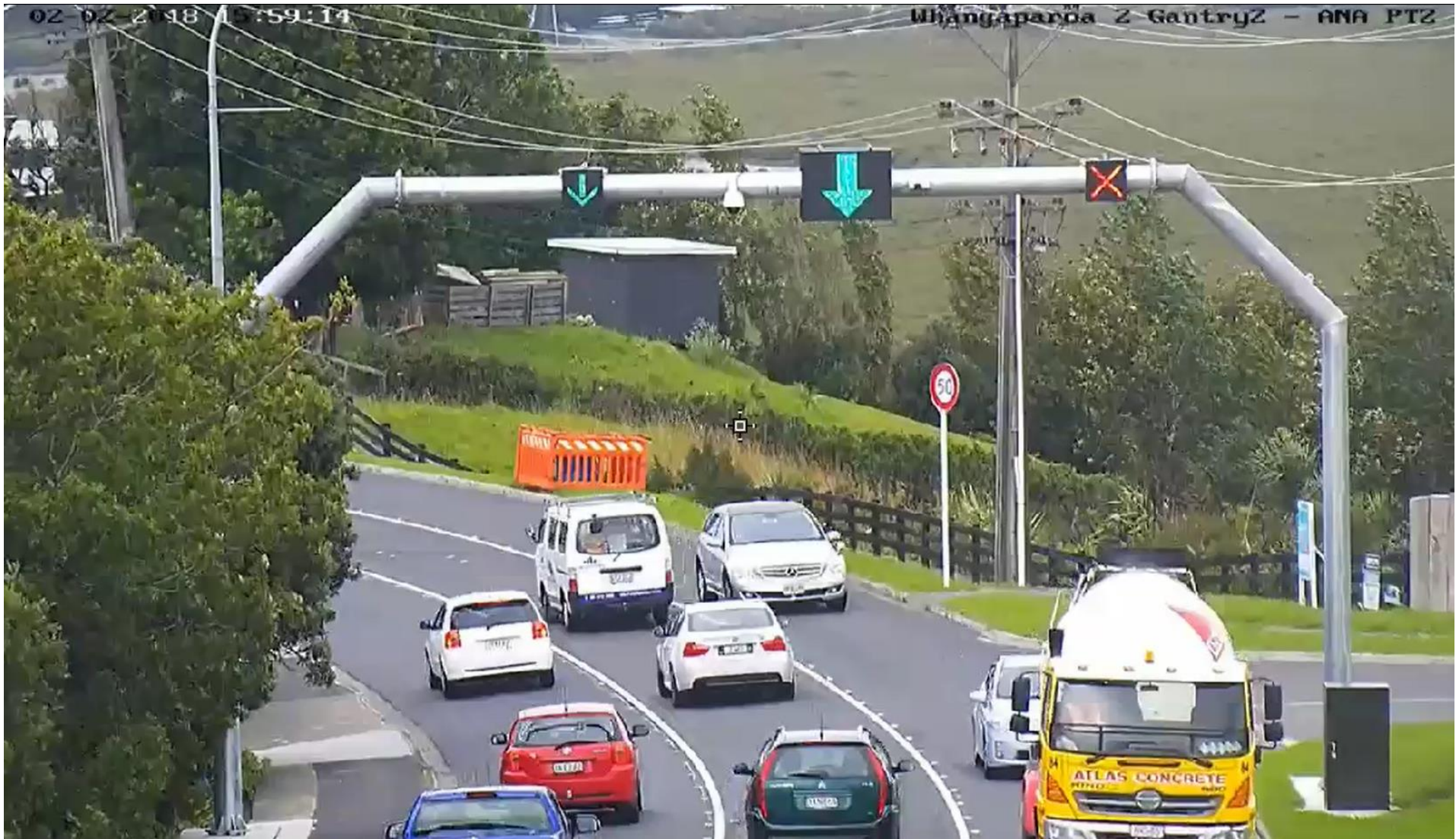
Safety

- KEY consideration and critical success factor
- Variable message signage at entries
- 8 gantries
- LED road studs
- 50km/h speed limit at outset
- CCTV coverage and analytics monitoring
- Driver perception assessment
- Right turn monitoring









Monitoring

| | | |
|--|--|---|
| Journey Experience | Travel time savings Traffic speed Public transport reliability Traffic volumes | GPS (Snitch and bus tracking) Feedback from PT operators Traffic counts |
| Customer Awareness and Perception | Awareness rate and Understanding Driver Behaviour Customer feedback User survey | Surveys and customer feedback |
| Safety | Reported incidents related to trial Fatal and Serious crash Interaction with pedestrian/cyclists | Contact with Police, ATOC monitoring, CCTV monitoring and analytics |
| Accessibility | Route choice changes Right turn movement impacts Queuing at intersections | CCTV monitoring and analytics |
| Technology | Failure rates Effectiveness of LEDs/ VMS | ATOC monitoring Observations and survey |

Expected Outcomes

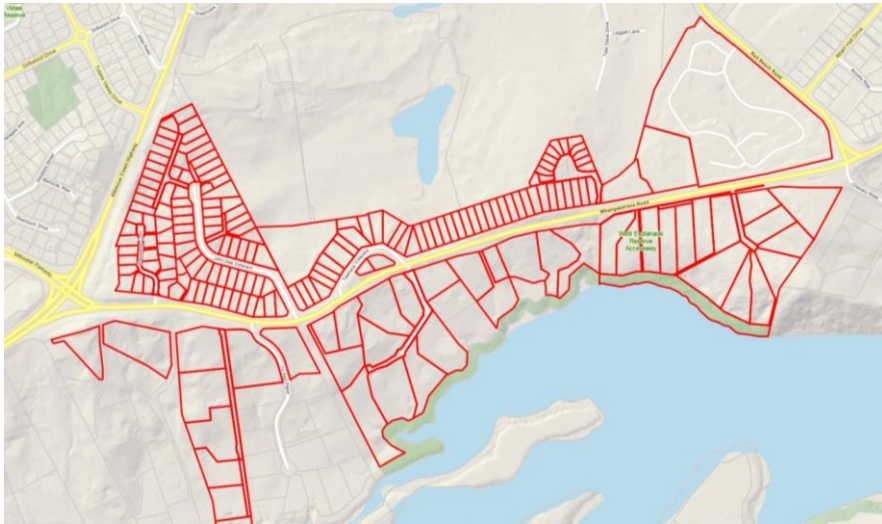
- Trial of concept (technology and behaviour) + Network Improvement
- Cost significantly less than major infrastructure improvements
- B/C of 3.9. Cost pays for itself in about 4 years
- **Efficient network operation**
 - Travel time savings during the peak
 - In particular, PM peak period
 - Improved conditions on Hibiscus Coast Highway during pm peak.
 - *Assumed* minimal change during the morning peak!
- **Safe network operation**
 - Similar or improved safety experience
 - Positive driver perception and behaviour

Success factors

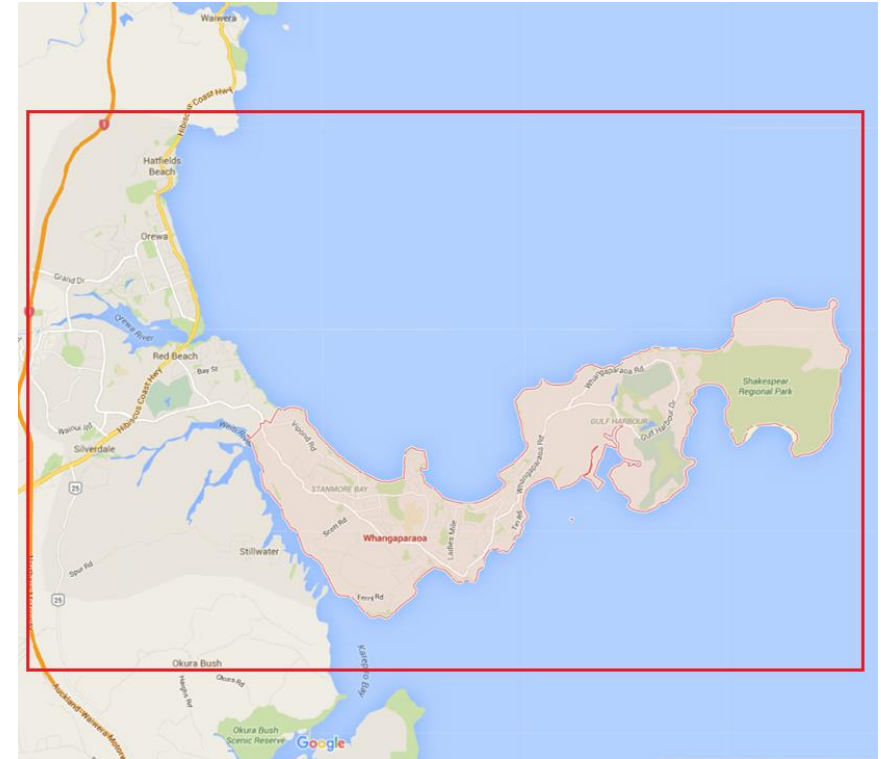
- **Safety** success: no change or improved safety experience
- **Journey time** improvements:
 - Average travel time: 1 ½ minute reduction in average travel time between ECR and Red Beach Road
 - Travel time reliability: within acceptable range (85th/median = <1.5)
- Similar improvements for PT
- Increased peak hour vehicular flows especially eastbound during the pm peak period (in excess of 150 vehicles/hour).
- **Driver perception** success – survey plus observation
- **Workable** for immediate residents

1. WHY even consider
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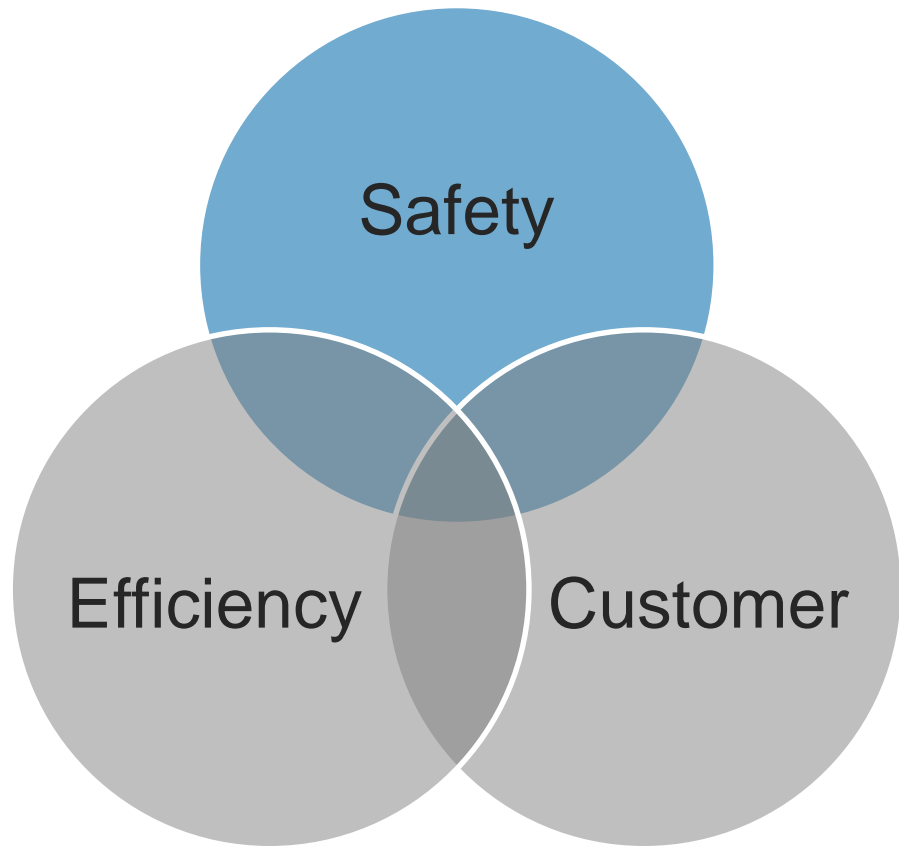
Engagement Area – Direct Stakeholders



Those impacted by trial and loss of flush median



Wider area - approximately 21,707 properties

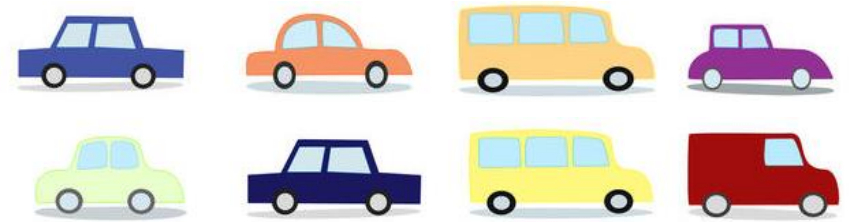
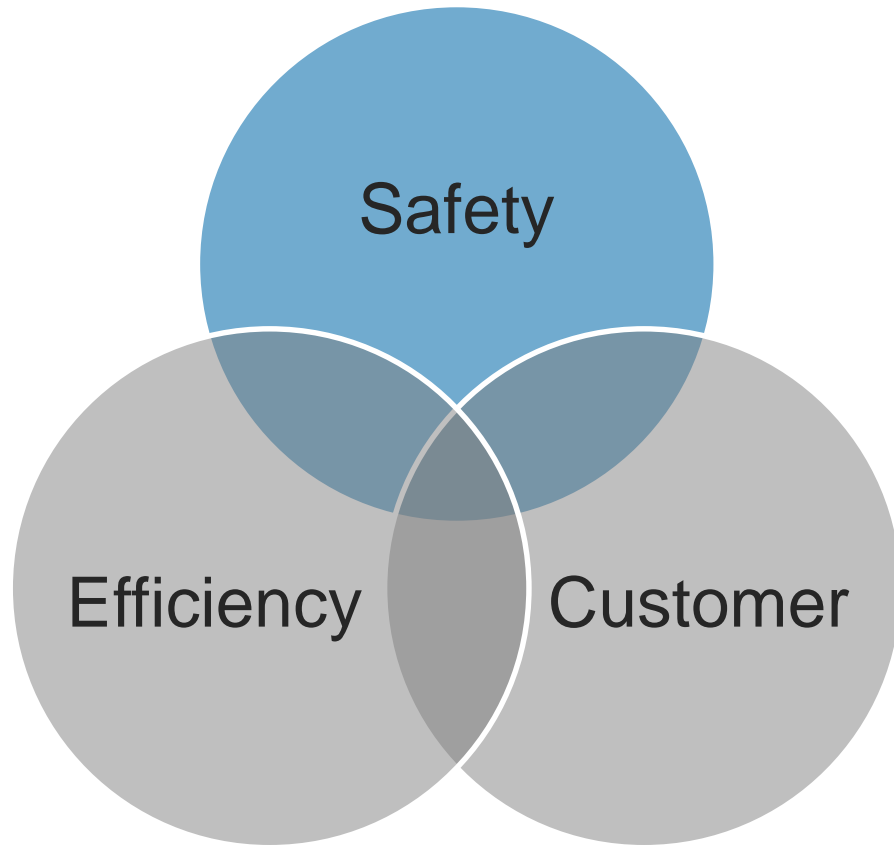


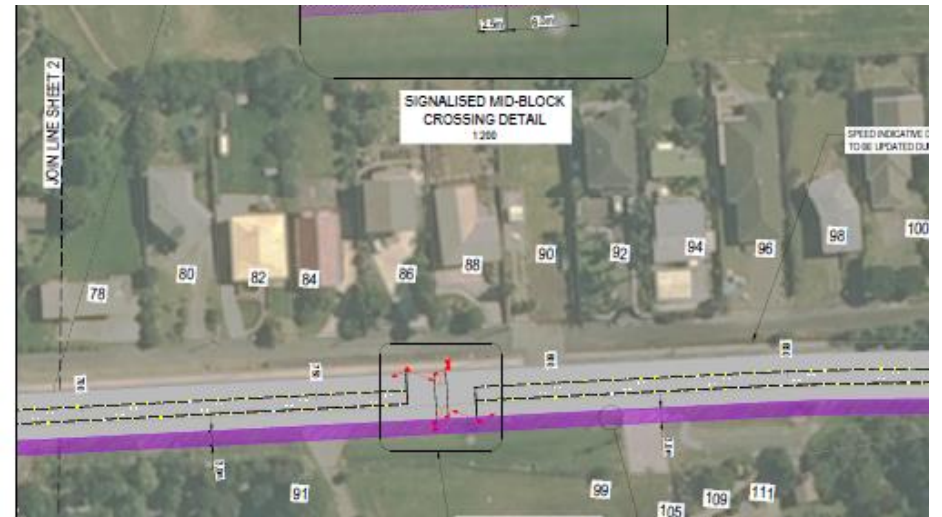
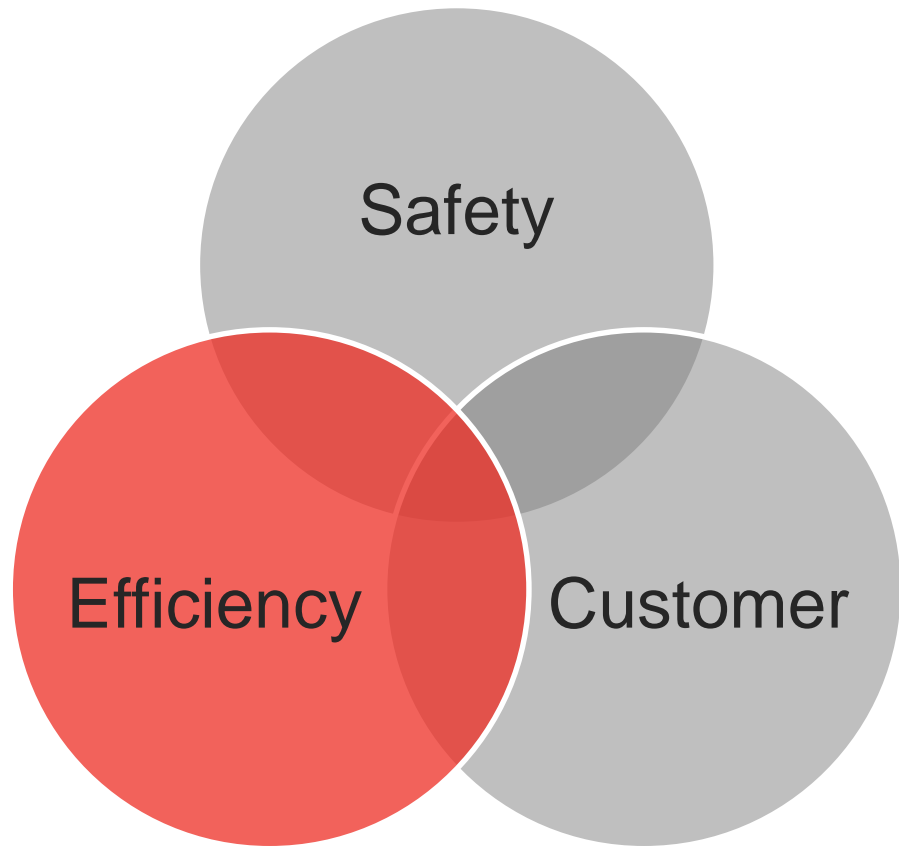
off the record

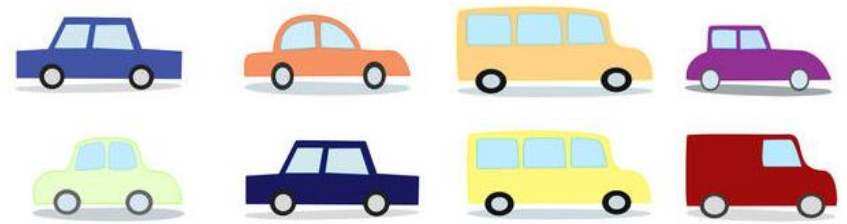
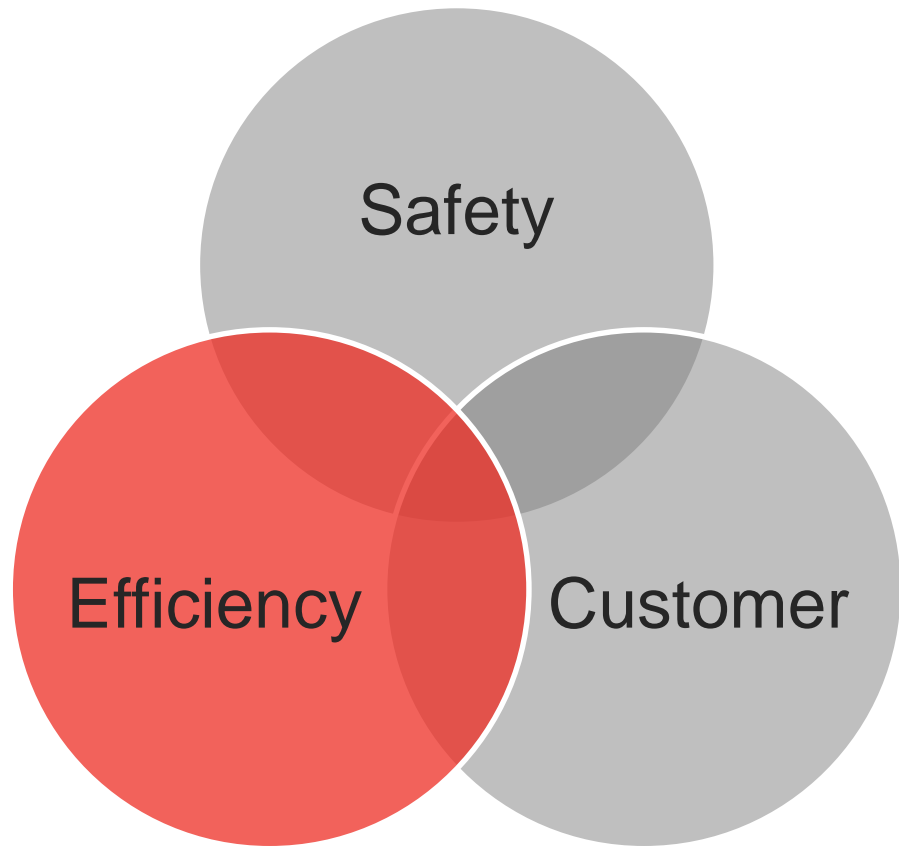


One Red Beach resident turned to the famous Pink Panther when looking for ideas as to how her kid will cross Whangaparaoa Road once the Dynamic Lanes start operating posting these pictures online.

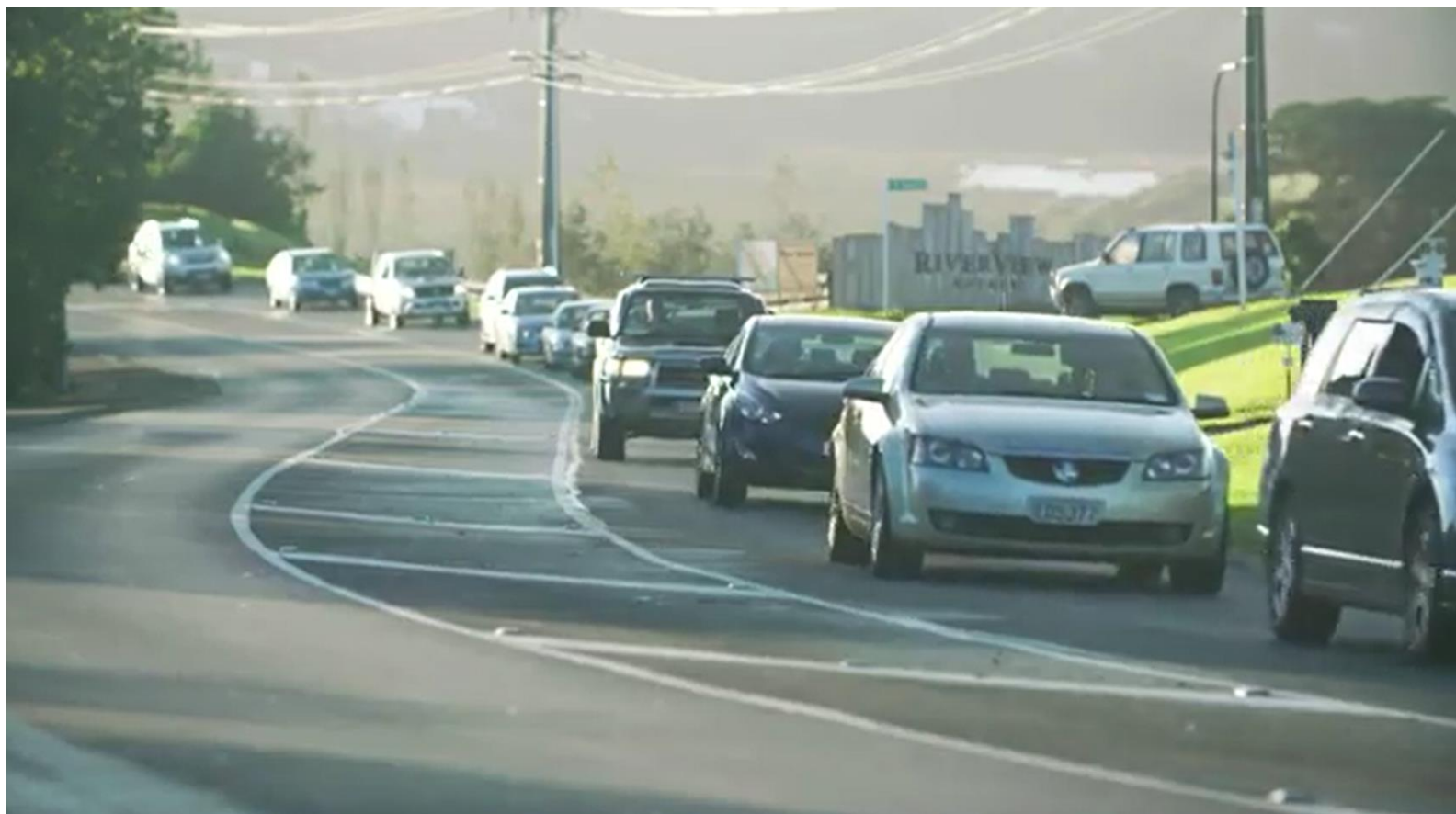




















WHANGAPARAOA RD DYNAMIC LANE PM PEAK – MAY 2018 REPORT



- Higher frequency of westbound traffic than previous months making right turns more difficult
- Hibiscus Coast Highway signals still creates gaps in the eastbound traffic facilitating right turns

CENTRAL LANE USE

- Good compliance of central lane use controls with limited changes from previous months
- **0-1** instance of wrong lane use per week
- Misuses are minor occurrences and lane use is corrected quickly

CYCLISTS

- Very low volume of cyclists observed (at most 2 per day)
- Most cyclists use the footpath
- Those using the route are overtaken safely and cyclists appear confident

PEDESTRIANS

- **68.5 seconds** is the average delay for pedestrians crossing Whangaparaoa Road
- Low frequency of pedestrians crossings (approx. 3 per day)
- Regular gaps for pedestrians to cross continue to be observed but are not as long as previous months due to increased westbound traffic
- Most pedestrians are observed crossing from bus stops

VOLUMES

- **1900** vehicles per hour
- **300** more compared to May last year

FEEDBACK

- Queues at the Hibiscus Coast Highway right turn after 7pm are minimal
- Monitoring is continuing

OVERALL: Acceptable results and support

PM TRAVEL TIME SAVINGS

- **2 to 6 mins** travel savings per vehicle compared to this time last year, from East Coast Road to Red Beach Road
- **176 hours** saved per day during the PM peak period
- Significantly improved travel time reliability

CRASHES

- **0** reported crashes occurred

RIGHT TURN MANOEUVRES

- **30.0 seconds** is the average right turn time from side access onto Whangaparaoa Road. This is considered acceptable for an arterial road
- **11.7 seconds** is the average right turn time from Whangaparaoa Road. This is considered good for an arterial road.

WHANGAPARAOA RD DYNAMIC LANE AM PEAK – MAY 2018 REPORT



CENTRAL LANE USE

- Good compliance in the AM peak with central lane use controls
- **0-1** instance of wrong lane use per week
- **14:1** ratio of drivers taking the free left turn over the controlled left turn
- The free left turn at Hibiscus Coast is still favoured causing some queuing in the left lane during the peak

CYCLISTS

- Very low volume of cyclists observed (at most 2 per day)
- Cyclists are using the road but appear to be confident riders
- Those using the route are overtaken safely with aid of the central dynamic lane

PEDESTRIANS

- **65.1 seconds** is the average delay for pedestrians crossing Whangaparaoa Road
- Low frequency of pedestrians during the AM peak
- Most pedestrians are observed crossing to bus stops
- Dominance of left lane creates fewer crossing gaps

VOLUMES

- **1900** vehicles per hour
- **250** more compared to May last year

FEEDBACK

- Minimal to no queues at Reach Beach intersection
- Dynamic Lane is appearing to make a significant difference to congestion from users perspective
- Monitoring is continuing

OVERALL: Acceptable results and good support

AM TRAVEL TIME SAVINGS

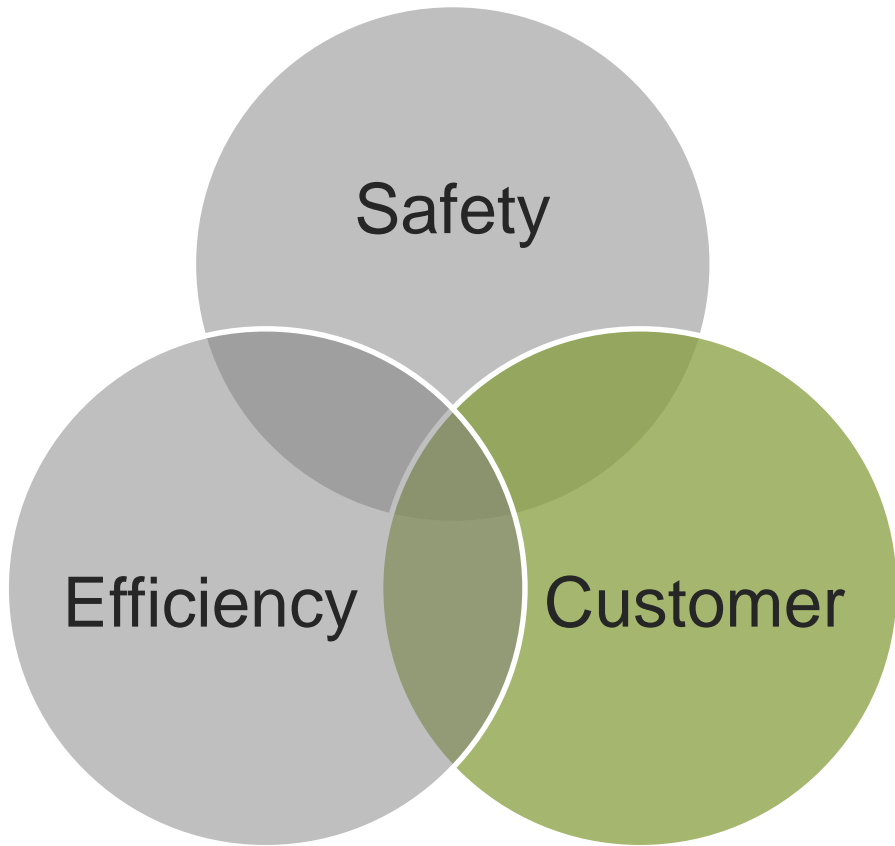
- **2 ½ to 7 mins** travel savings per vehicle compared to this time last year, from Vipond Road to East Coast Road
- **158 hours** saved per day during the AM peak period
- Significantly improved travel time reliability

CRASHES

- **1** crash was observed. The crash was a result of a lane change from the DL to the left lane. This could have occurred on any multilane section of road and is not considered a direct result of the DL

RIGHT TURN MANOEUVRES

- **15.3 seconds** is the average right turning time onto Whangaparaoa Road from side access. This is considered acceptable for an arterial road
- **7.3 seconds** is the average right turn time from Whangaparaoa Road. This is considered good for an arterial road.
- Fewer rights turns observed compared to the previous month and the PM peak



Rodney Times

stuff
Neighbourly
www.neighbourly.co.nz

Tuesday, January 23, 2018 YOUR PLACE, YOUR PAPER

Will it work?

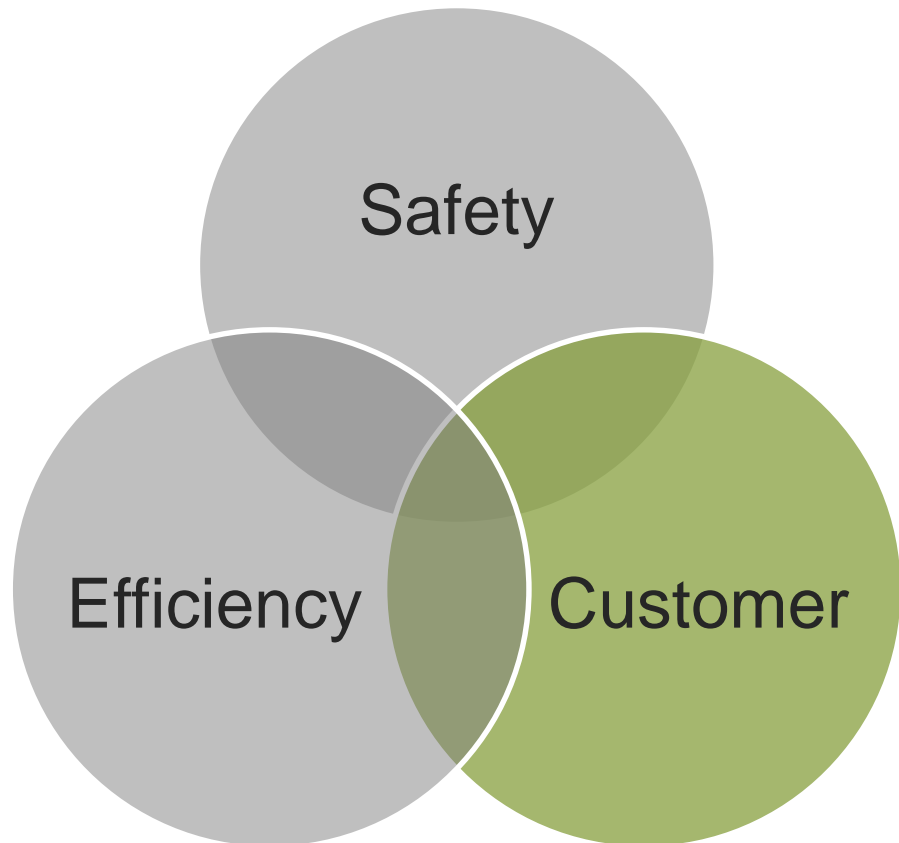
↓ FLUSH MEDIAN ×

The long-awaited Dynamic Lanes trial starts on Whangaparaoa Rd tomorrow. Auckland Transport believe it will improve traffic flow from the outset. Read More P9.

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Rodney Times

Tuesday, January 30, 2018 YOUR PLACE. YOUR PAPER

stuff
Neighbourly
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Being Wicked

Hibiscus Coast-raised actress Heather Matarazzo has secured her dream role as the 'Wicked Witch of the West' Elizabeth in The Wizard of Oz Broadway show-off Wicked. See P4 for the story.
BY: DINA BRITTON/SHOWBIZ
CHRISTOPHER

Lane trial hailed a great success

JAY BOREHAM

The dynamic lane trial to quell congestion on Whangaparua Peninsula has been labelled a 'great success' by Auckland Transport.

The transformation of the lush motorway to a second lane saw traffic flowing smoothly for the 4pm to 7pm peak traffic period operation.

"The scheme worked effectively without incident and has resulted in improved travel times and reduced queues on Hibiscus Coast Highway," AT's

Mark Hannan said.

The success of the first night's trial was reflected by commuters pleased with their easy trip home along the normally clogged stretch of road.

Dominic Duncan of Gulf Harbour, said he found motorway traffic a 'bit odd' on his commute home from Albany, but once he reached Silverdale there was no queue up the hill to the Hibiscus Coast Highway to reach the peninsula turn off at 5.49pm.

"I haven't seen that at rush hour for many years. It was awe some."

"It was awesome. A 20 minute crawl to Red Beach reduced to a couple of minutes."
Dominic Duncan via Neighbourly

"A twenty minute crawl to Red Beach reduced to a couple of minutes."

Commuter Joanne Pickering said it "was fantastic" being able to drive straight through because of the system.

Motorists Jessie Vee and Christie Marie both said it was much easier for their trips, with Vee pleased she was able to drive at the speed limit.

Hannan said while driver behaviour was generally excellent, some minor incidents were observed with right turning vehicles.

One of these incidents was witnessed Berno Casale of Manly who raised concerns about the system.

"The second car in line was too impatient to wait, and pulled in front of the turning vehicle in to

two lanes of oncoming traffic. Someone will be seriously hurt," he said.

Victoria Hawkins said trying to pull into North Haven hospital sat 15pm, from the single lane, was a "complete nightmare".

When the system was switched off at 8pm and reverted to a single vehicle flow onto the peninsula quickly changed to a continuous line of slow moving traffic, Hannan said.

The option of extending the trial time beyond 8pm was very much on the Auckland Transport table, Hannan said.

Being a bus commuter I have noticed the difference of having the dynamic lanes on at night. The lanes are a huge success!

*I am a bus commuter and drive to park and ride and i am committed to investigating better ways to travel to and from work. This initiative has had a significant change to the congestion along the road. I await the morning trial. **Well done AT for looking at alternatives. keep up the great work.***

Now that the lane control system is in place, my journey homeward is almost unimpeded as soon as I have passed through the Silverdale traffic, which means I arrive home in a better mood, calmer, and with a sense of having left the troubles and stresses of my day behind me at the motorway off-ramp.



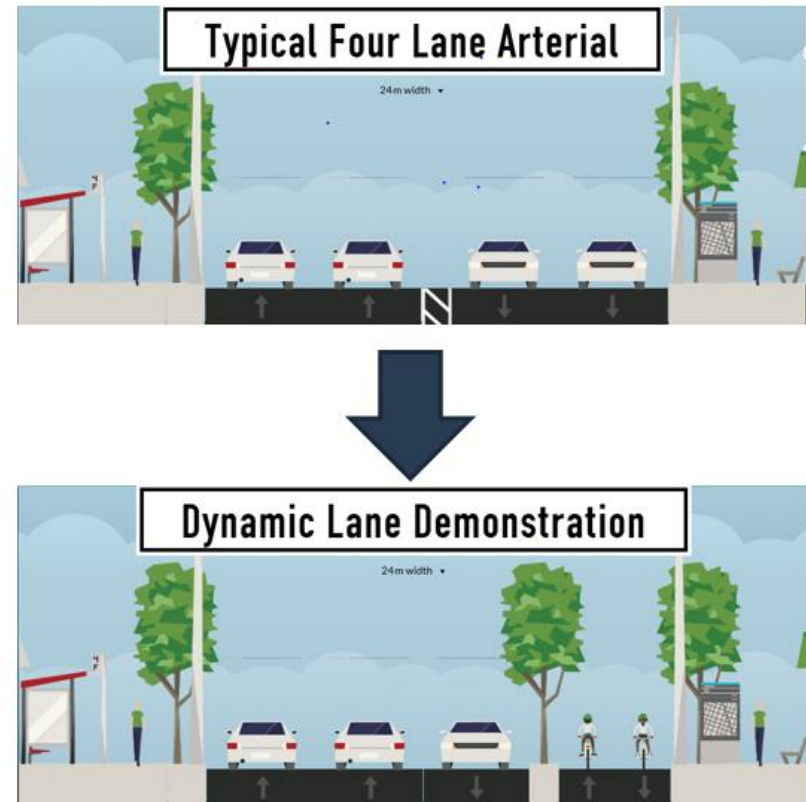
CCTV camera tracking a driver using the median strip and wrong way drivers



1. WHY even consider
2. WHAT, where and expectations
3. HOW introduced and performance
4. **Now what**

Future opportunities

- Complete trial
- Complete as project
- Additional projects
- Possible advancements



Application to rural roads

- Operational performance:
 - Congestion + Tidal
- Existing road infrastructure:
 - Appropriate ends + Width
- Land use and functionality
 - Primarily through route + Limited activity across

