

Disruption due to lockdown during Covid-19: Cases and Effects

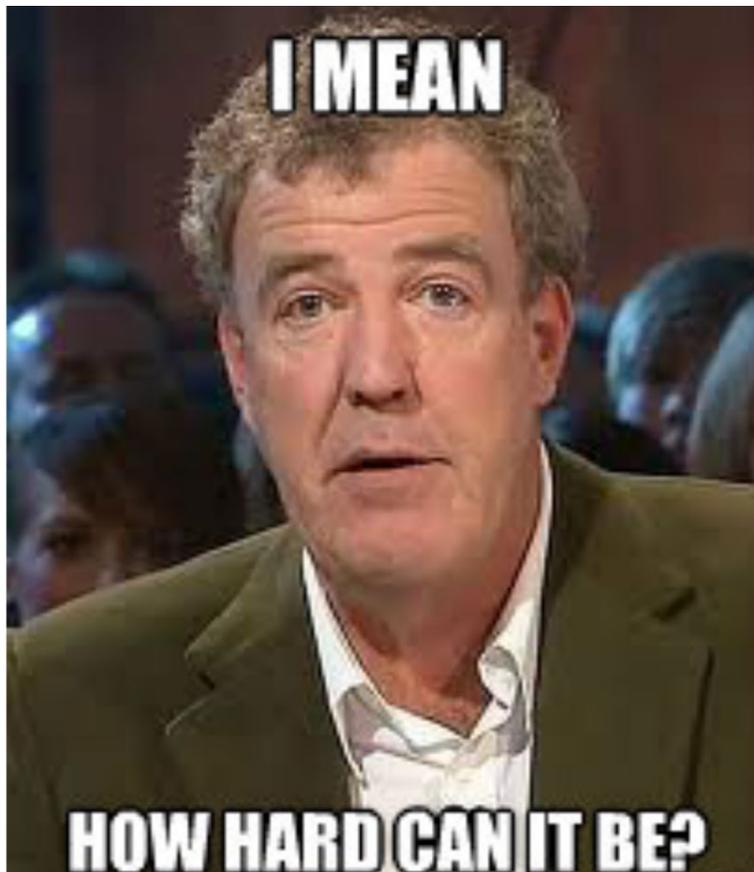
Chamika de Costa, Steven Hayman, Jane Fan
Waka Kotahi



What we do

Really simple

- We answer real world questions
- Put **data** where our mouth is



Only if it were that easy

- Results are needed yesterday
 - No liberty to test assumptions
 - Build a car and without testing it, pray to god it can start racing
- The data we need isn't fully there
- The data that's available isn't ready for consumption
- How do we share it
 - Easy visualisation
 - Sensitive data
- Real world consequences

Modelling WOF and COF Demand in a Pandemic

Steven Hayman, Waka Kotahi



The Context

How many WoF and CoF inspections will there be after lockdown?

- March 2020, the first Covid-19 lockdown started
 - Warrants of Fitness (WOFs) and Certificates of Fitness (COFs) are extended
 - The details for how this extension was to be implemented had not been finalised
- Waka Kotahi stepped into action
 - Extension schemes were proposed
 - Needed to know which one provided the most constant demand for inspections

The Question

What impacts would extending WOFs and COFs have on future demand?

- The impacts of each proposed extension scheme had to be modelled
 - How big would the gap in demand be next April 2021?
 - How much extra demand would there be in October 2020?
- These questions were answered and the extension scheme was finalised.
 - Monitoring continued

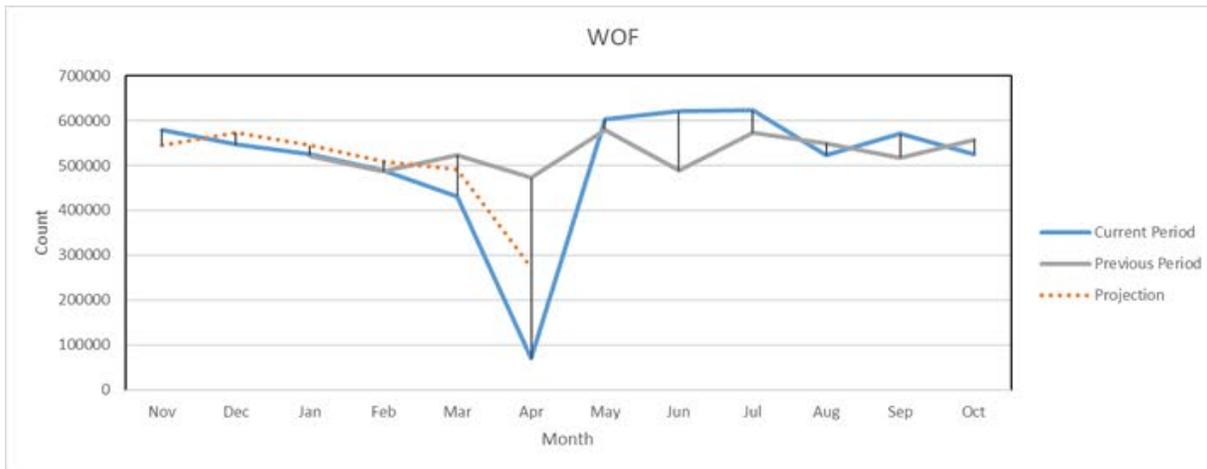
Complications

- The behaviour of the predictions for October and April were unstable
 - Small changes in assumptions caused dramatic changes in the predicted outcomes for October and April

The Outcomes

WOFs

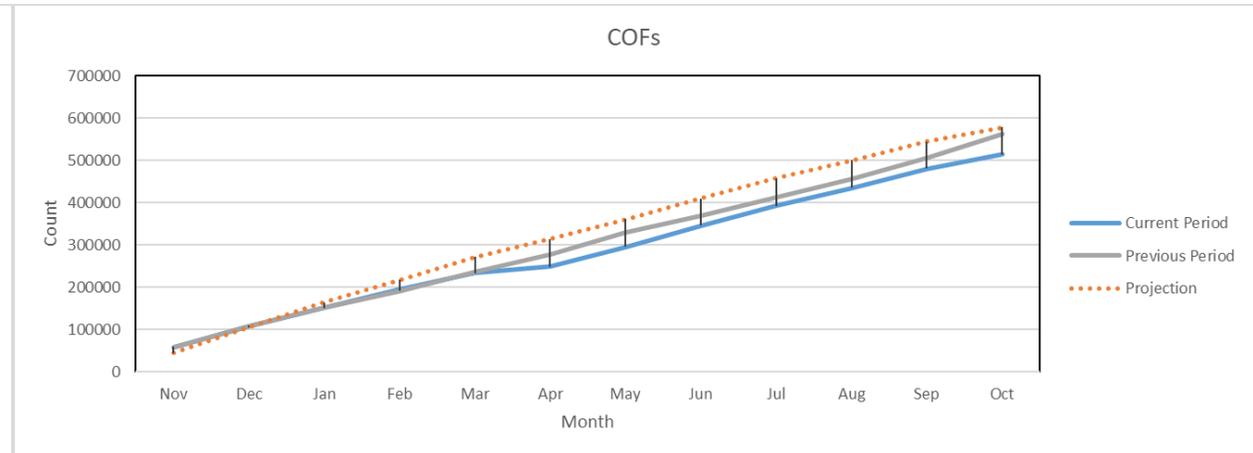
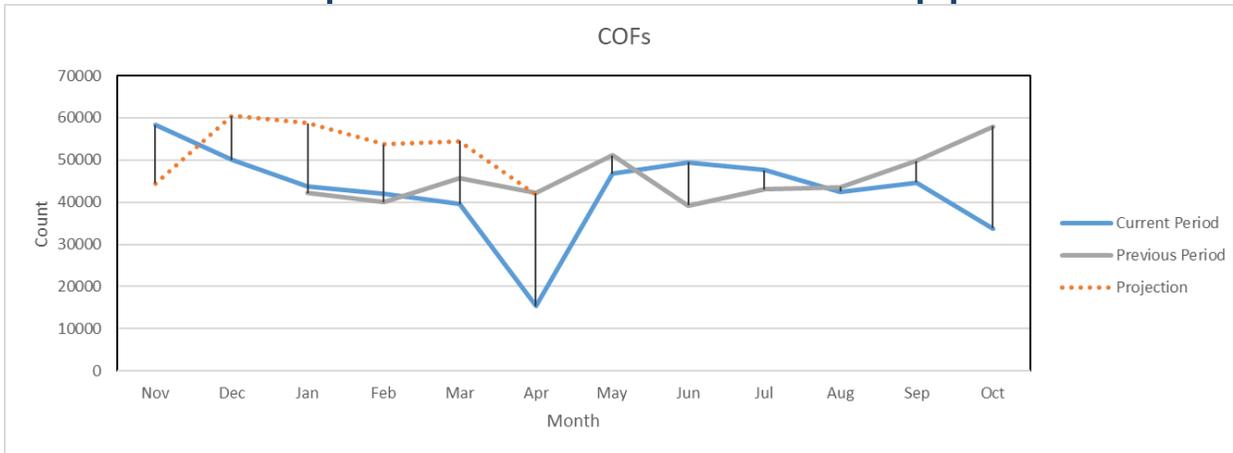
- Spike in demand in October never materialised.
 - People got their inspections done early.
- Dip in April next year still predicted.
 - Will likely be reduced from this year due to failed inspections being repeated



The Outcomes

COFs

- Spike in October never materialised – in fact a slight dip occurred
 - Not everyone got their inspections early
- October's slight dip likely to be repeated in April.
 - Damped version of what happened in October.



What is next?

- How has the extension period affected WOF and COF failure rates?
- How has COVID-19 changed the size of the vehicle fleet?

Covid-19 Regional Impact on Average Travel Time, traffic delay and Speeding

Jane Fan & WAKA KOTAHI



Tasks:

1. Monitoring traffic speed change for main cities
2. Understand traffic time delay at police checkpoints
3. Track speeding trend change

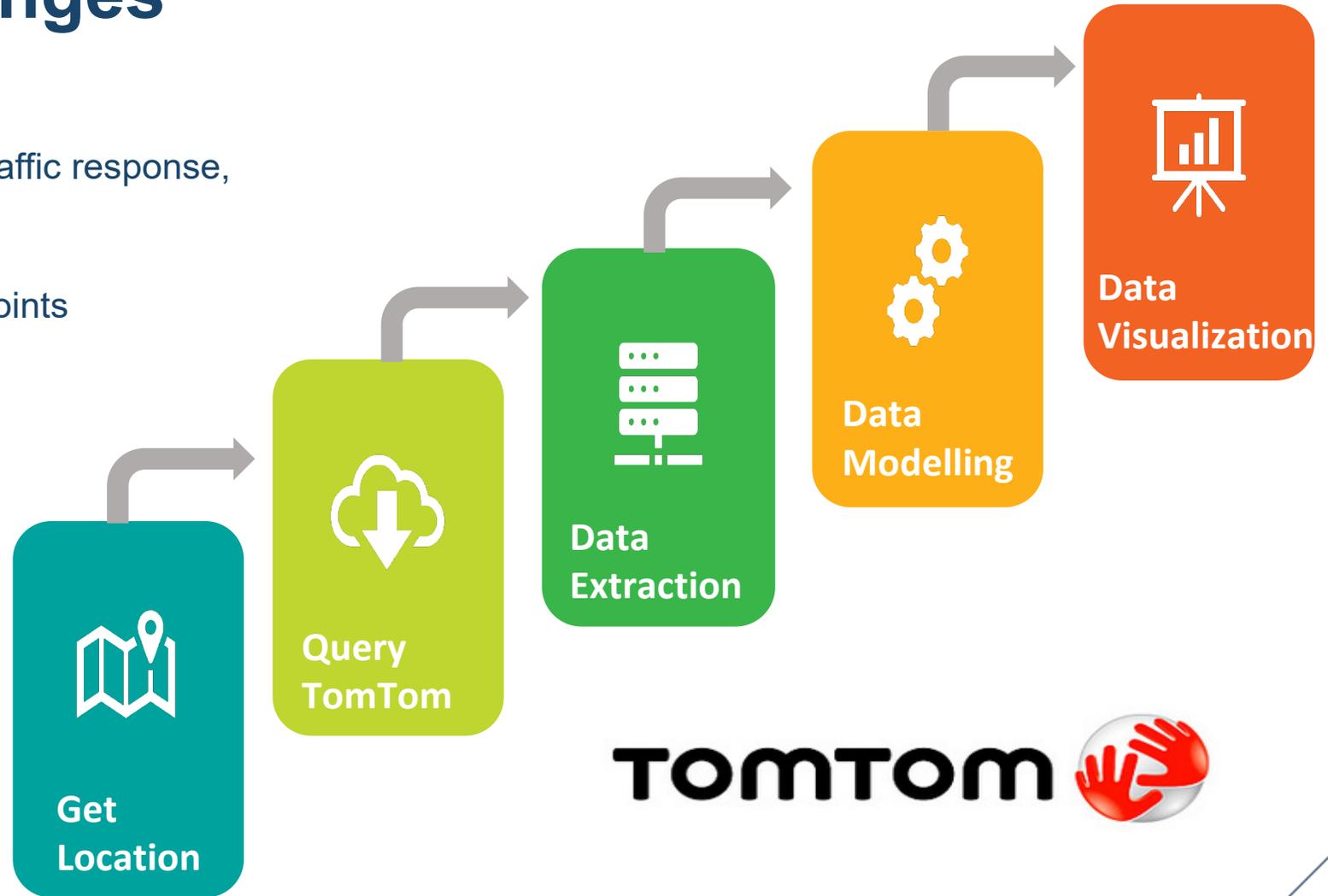
Problems and Challenges

Problems

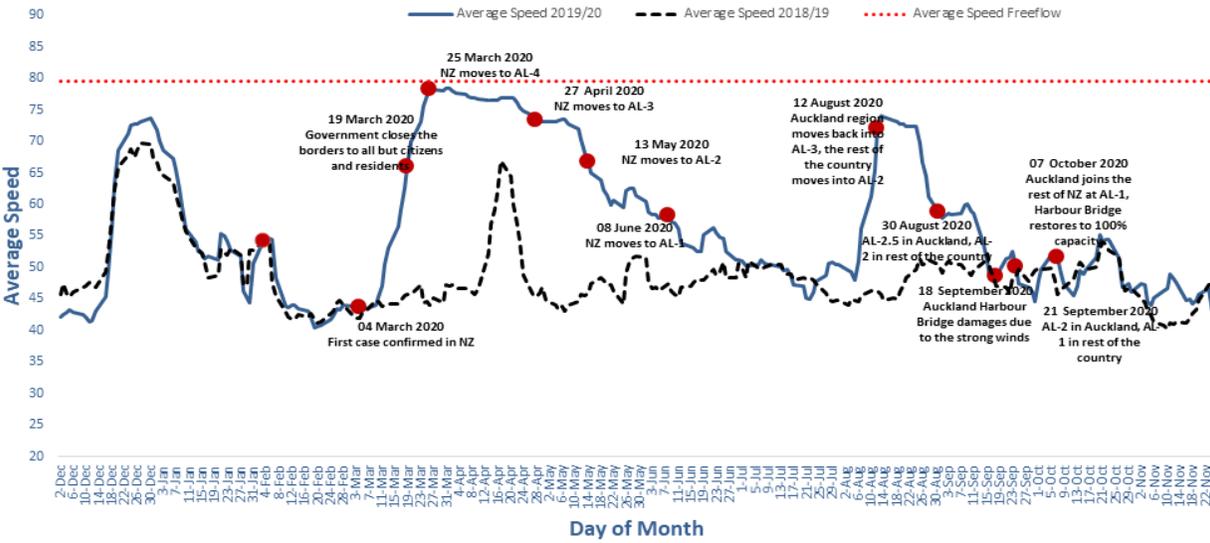
- Covid-19 has generated new patterns in traffic response, which reflects in :
 - regional average speed change
 - Notable traffic delay at police checkpoints
 - New speeding trend

Challenges

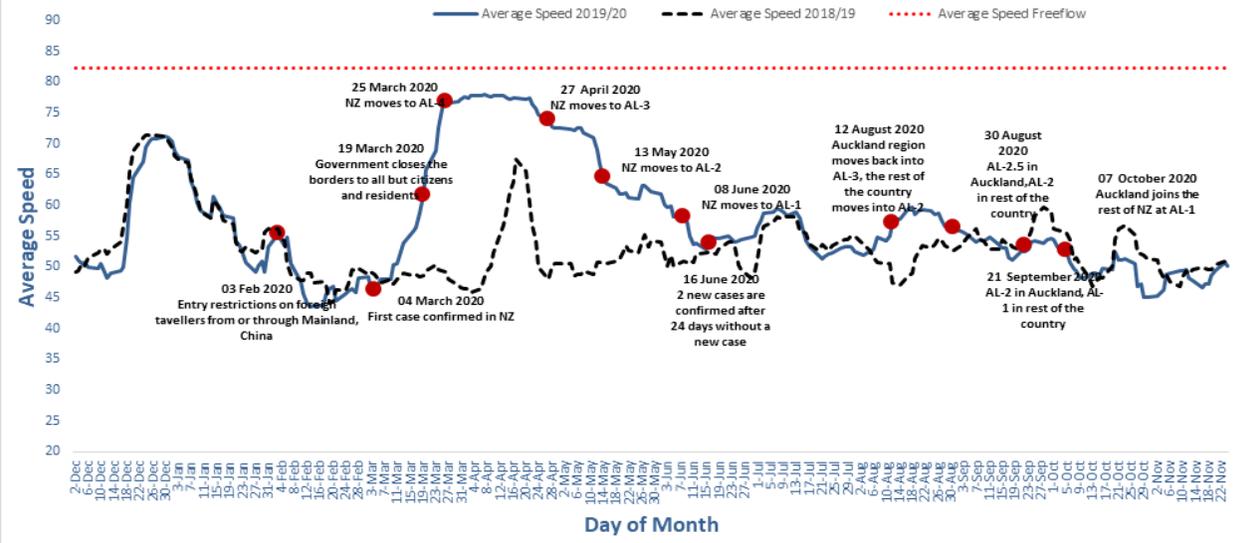
- No historical data
- Time Constrains
- Lack of Validation



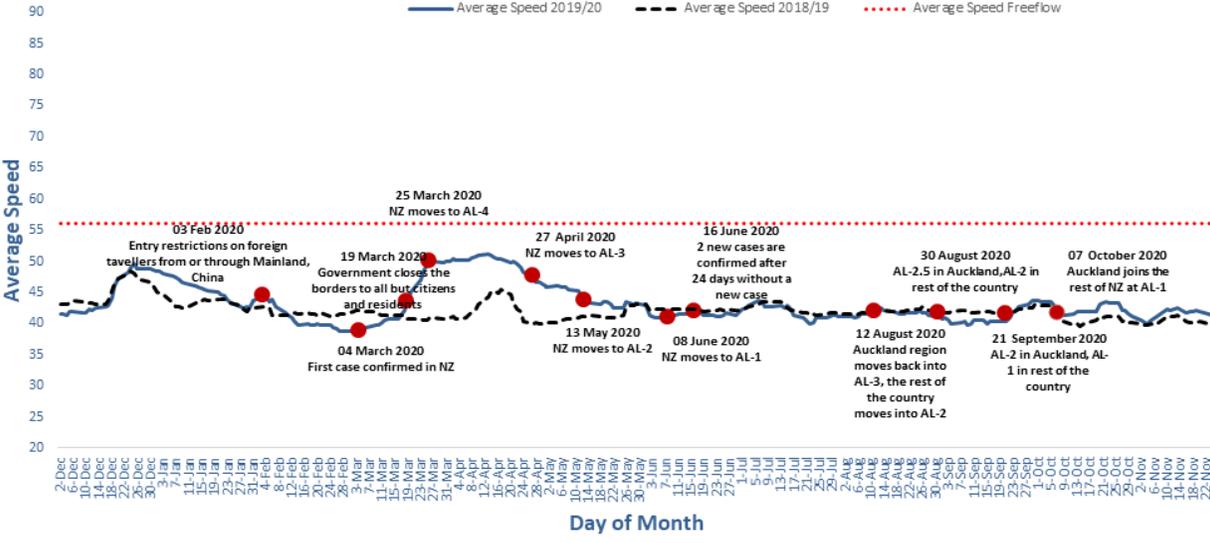
Average Speed-Auckland



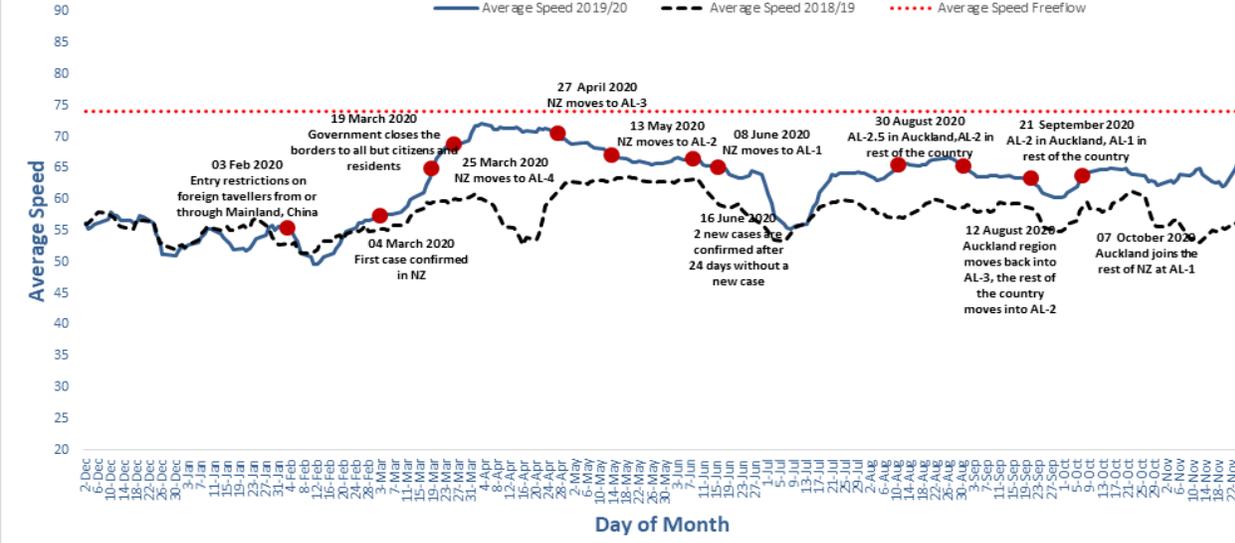
Average Speed-Wellington



Average Speed-Christchurch



Average Speed-Queenstown



Traffic Time Delay at police checkpoints

Time	Black Swamp Rd S2N		Black Swamp Rd N2S		Bombay(Southbound Traffic) S2N		Bombay(Southbound Traffic)N2S					
	Typical	12/08/2020	Delay(min)	Typical	12/08/2020	Delay(min)	Typical	12/08/2020	Delay(min)	Typical	12/08/2020	Delay(min)
5:00	1.6	1.4	0.0	0.1	0.0	0.0	1.2	1.3	0.1	1.6	1.6	0.0
6:00	1.6	1.4	0.0	0.0	0.0	0.0	1.7	1.7	0.0	1.7	1.8	0.0
7:00	2.8	3.7	0.9	2.6	3.9	1.3	1.7	1.6	0.0	1.9	1.9	0.0
8:00	3.1	3.0	0.0	0.9	2.9	2.0	1.9	1.6	0.0	1.9	1.7	0.0
9:00	3.1	2.1	0.0	0.8	0.6	0.0	1.9	1.8	0.0	1.8	1.8	0.0
10:00	2.5	2.0	0.0	1.5	0.6	0.0	1.7	1.9	0.1	1.8	1.8	0.0
11:00	2.1	4.4	2.3	0.8	3.0	2.2	1.7	2.0	0.3	1.8	2.2	0.4
12:00	3.0	1.4	0.0	1.4	0.0	0.0	1.7	2.1	0.3	1.8	1.8	0.0
13:00	2.5	9.1	6.5	1.1	0.0	0.0	1.6	2.3	0.6	1.7	1.8	0.1
14:00	3.1	28.8	25.7	0.5	0.0	0.0	1.7	3.7	2.0	1.8	2.1	0.3
15:00	2.9	21.5	18.7	0.6	0.0	0.0	1.8	4.5	2.7	1.9	1.9	0.0
16:00	2.6	10.2	7.5	0.2	0.0	0.0	1.7	5.1	3.4	2.0	2.4	0.4
17:00	1.9	1.4	0.0	1.1	0.0	0.0	1.8	1.1	0.0	1.9	1.6	0.0
18:00	2.0	1.4	0.0	0.7	0.0	0.0	1.7	1.1	0.0	1.8	1.6	0.0
19:00	2.1	1.4	0.0	0.4	0.0	0.0	1.5	1.1	0.0	1.7	1.6	0.0
20:00	2.1	1.4	0.0	0.5	0.0	0.0	1.8	1.1	0.0	1.7	1.6	0.0
21:00	1.9	1.4	0.0	0.3	0.0	0.0	1.5	1.1	0.0	1.7	1.6	0.0
22:00	2.0	1.4	0.0	0.4	0.0	0.0	1.4	1.1	0.0	1.7	1.6	0.0

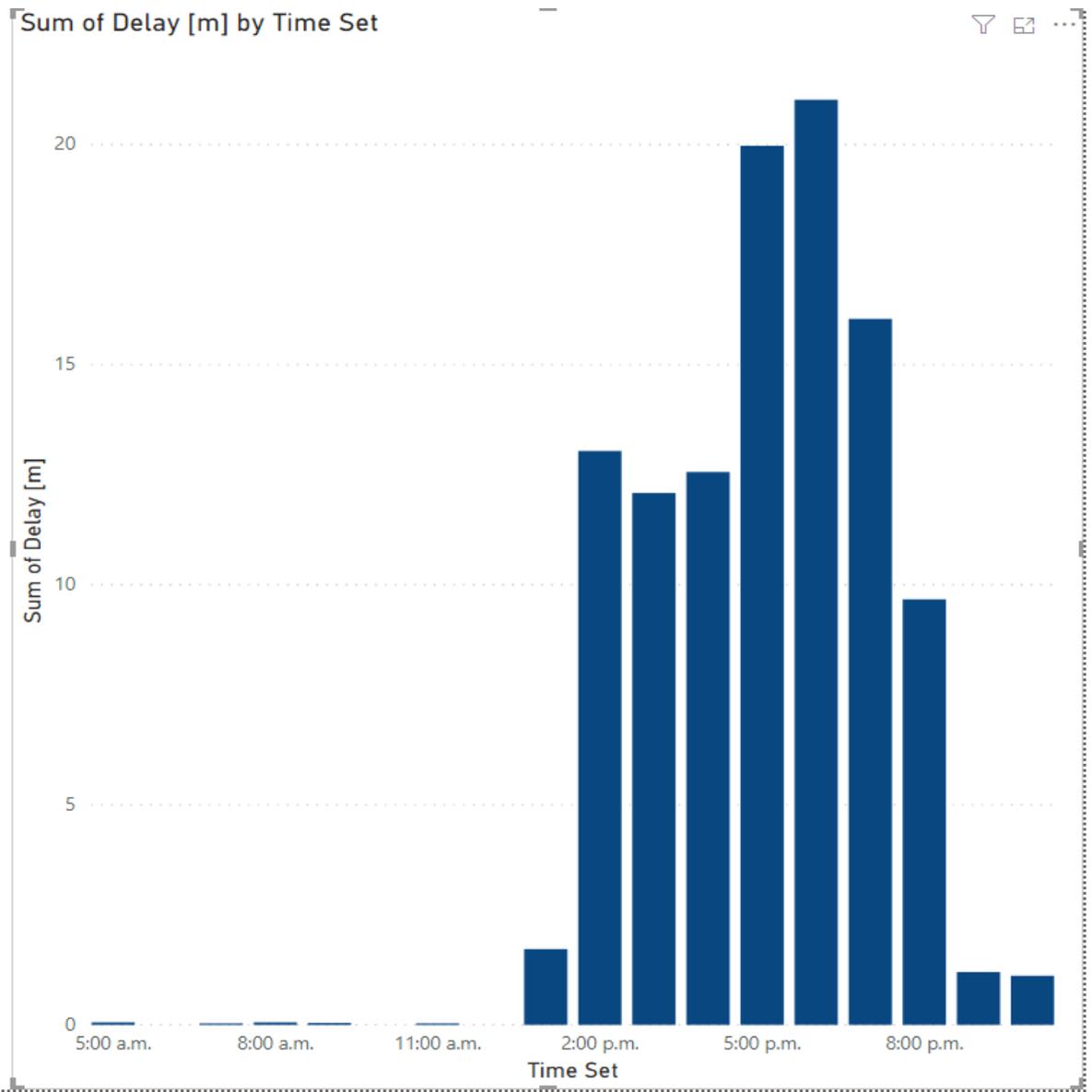
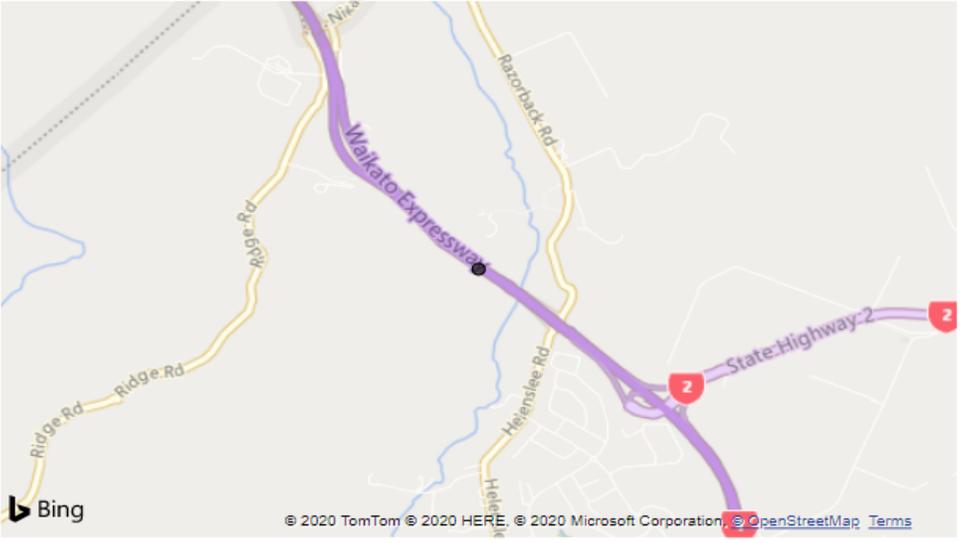


Route

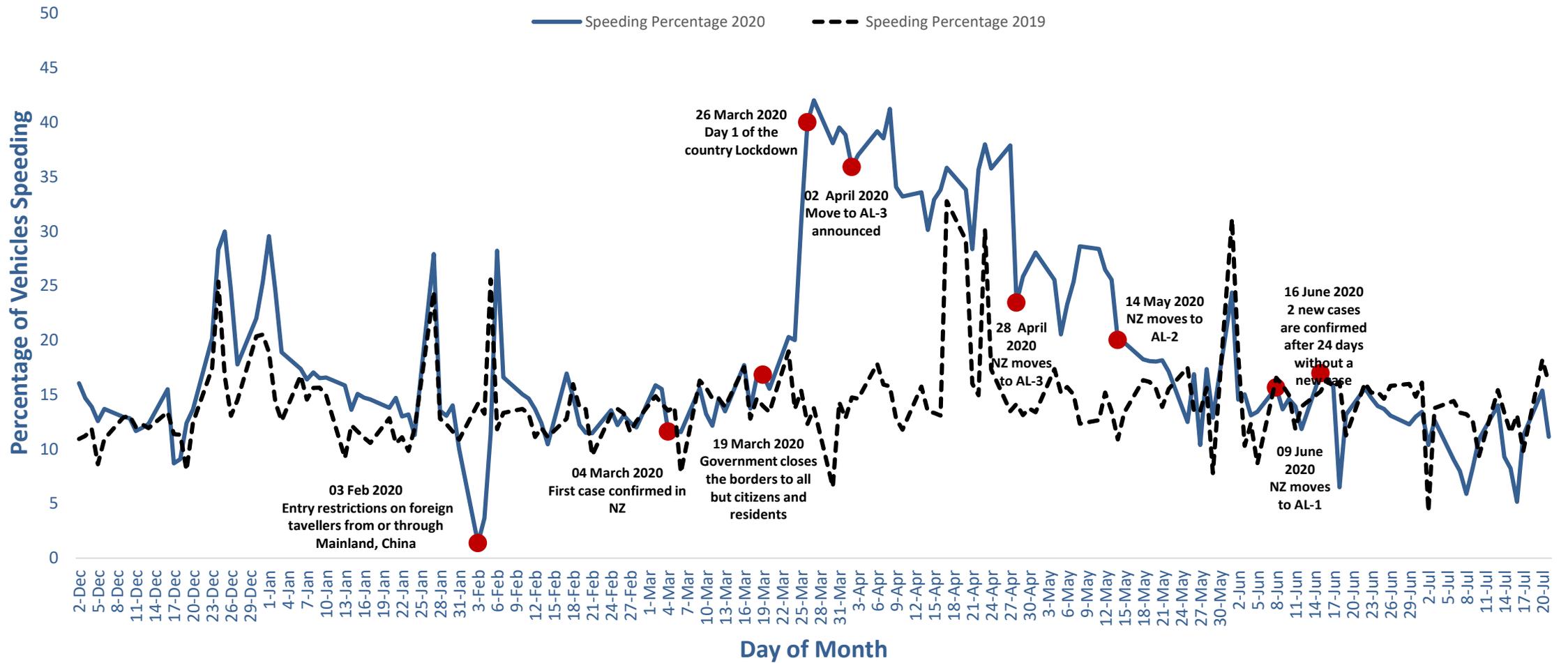
- CP10-N
- CP11-N
- CP11-S
- CP12-N
- CP12-S
- CP13-N
- CP13-S
- CP14-N
- CP14-S
- CP15-N
- CP15-S
- CP16-N
- CP16-S
- CP17-N
- CP17-S
- CP18-N
- CP18-S
- CP19-N
- CP19-S

Date_2020

- Saturday, 1 August 2020
- Sunday, 2 August 2020
- Monday, 3 August 2020
- Tuesday, 4 August 2020
- Wednesday, 5 August 2020
- Thursday, 6 August 2020
- Friday, 7 August 2020
- Saturday, 8 August 2020
- Sunday, 9 August 2020
- Monday, 10 August 2020
- Tuesday, 11 August 2020
- Wednesday, 12 August 2020
- Thursday, 13 August 2020
- Friday, 14 August 2020
- Saturday, 15 August 2020
- Sunday, 16 August 2020
- Monday, 17 August 2020
- Tuesday, 18 August 2020
- Wednesday, 19 August 2020



Speeding Trends-Albany to Auckland CBD



Takeaways

- Key people
- Improve access to **digestible** data
- Simplify the message – through the inaccuracies and the variability of the data. There is always a key message that we can extract
- Communication is key.
 - Manage expectations
 - Explaining the results
- There is always “one more thing” you can do
 - Find out exactly the evidence that is needed to aid the decision maker.
 - Judgement call where the additional effort required **doesn't contribute much more towards the decision.**