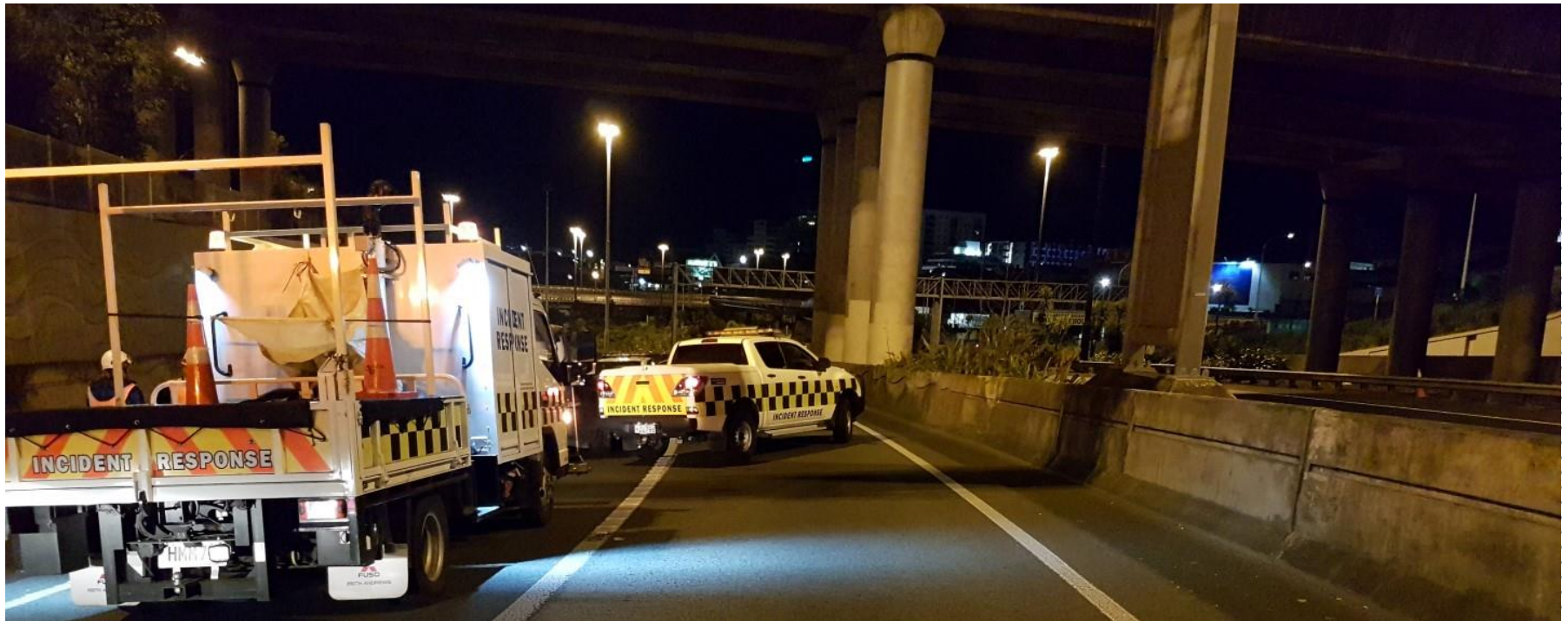

Suicide Resilience

On the Auckland Motorway Network

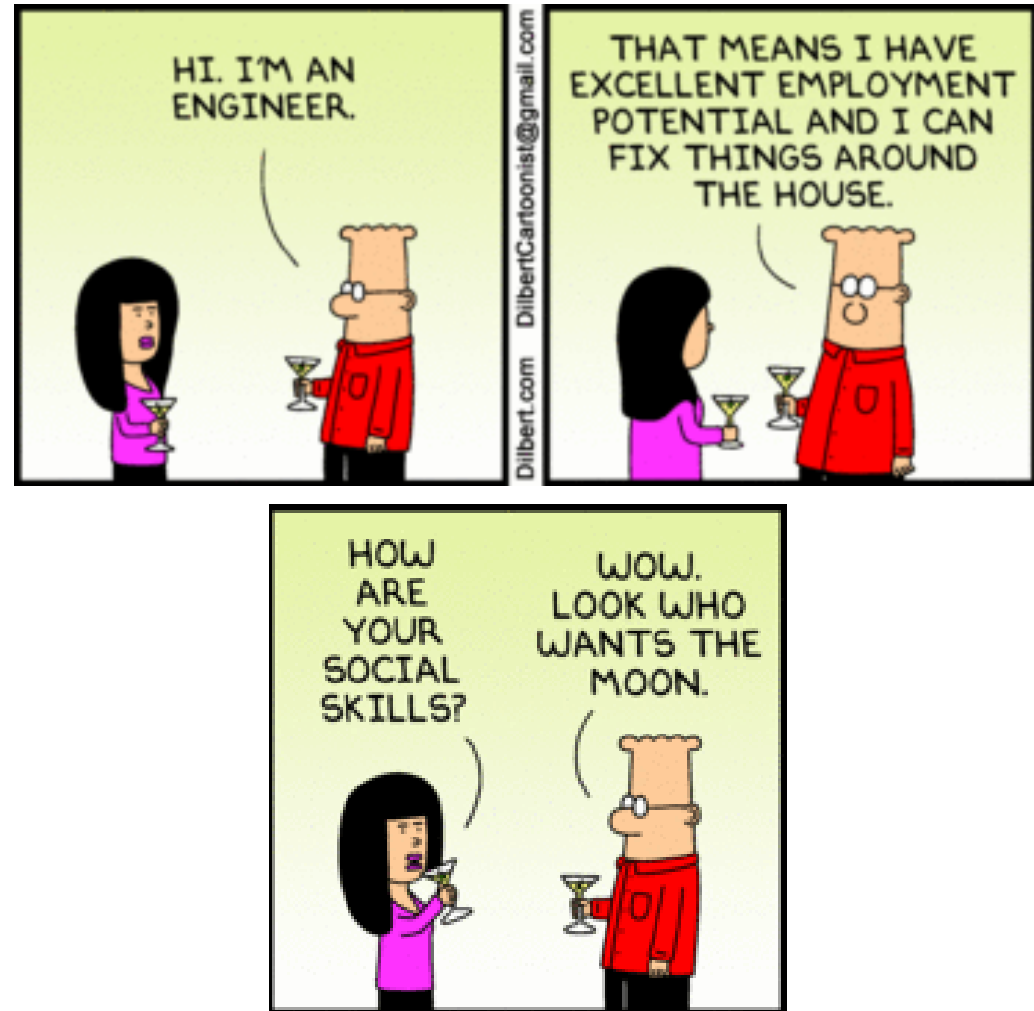


Sam Pasley – Traffic Safety Engineer

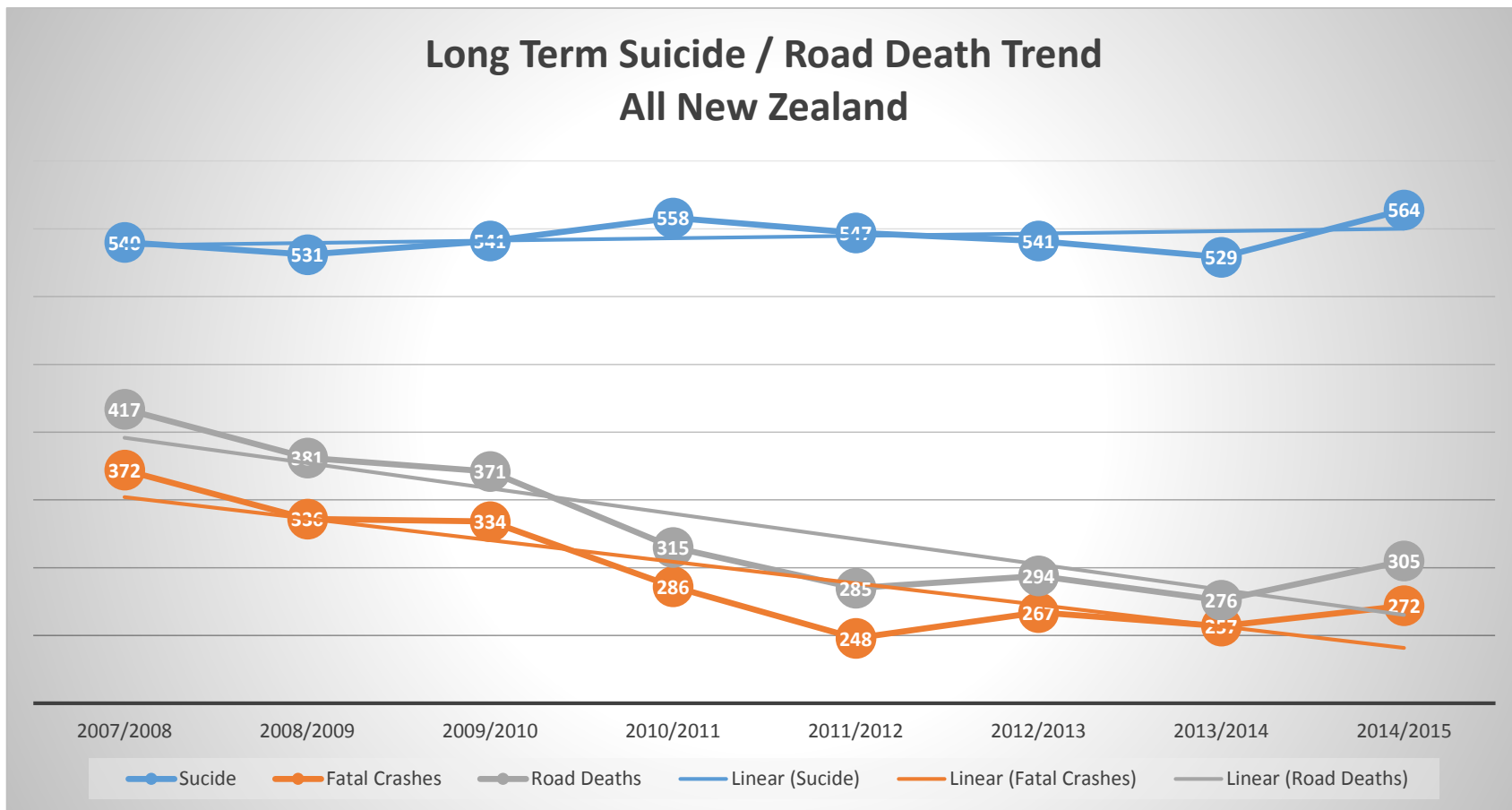
Before we start

Caveats

- Engineers not Psychologists
- Confronting topic that we have to deal with
- Focus on network impact
- Limited Information



Problem cont.



Problem cont.

- High number of underpasses (bridge over motorway) with no screens to prevent falls
- With motorway nearing capacity, any disruption causes significant delay
- Higher concentration of suicides near CBD and mental health units



How does it affect us

1. Human loss of life / injury to those involved, affect on families.
2. Secondary Crashes
3. Resulting motorway closure
 1. Closure of motorway Average:
 - AHB 20 minutes
 - 2 hours per death and
 - 1 hour per attempt
 2. Closure cause massive delays to customers
 3. Cost to NZ economy of these delays and reacting to it

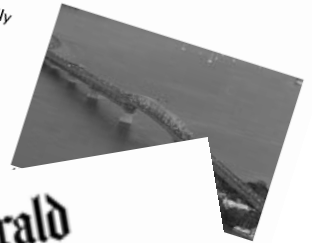
The New Zealand Herald

Two northbound Harbour Bridge lanes closed

11:34 AM Sunday Jan 22, 2017

Two northbound lanes of the Auckland Harbour Bridge are temporarily closed while police deal with an incident.
Motorists are advised to drive with caution and expect delays.
A police spokeswoman confirmed police were in attendance and thanked motorists for their patience.

- NZ Herald



The New Zealand Herald

Traffic gridlocked after man threatens to jump

4:00 PM Tuesday 2 June 2015

Traffic is gridlocked in West Auckland after a man threatened to jump from the Lincoln Road overbridge.

Police say they were first alerted to the man around 2.30pm.

They've managed to talk him down just in the last few minutes, and he's now in protective custody.
The North-Western motorway and surrounding roads are all open again, but traffic is still very heavy.

Why you should be concerned

Under-reporting to road engineers

New expressway / motorways being constructed and corresponding underpasses

Lower volume jurisdiction may have other issues.



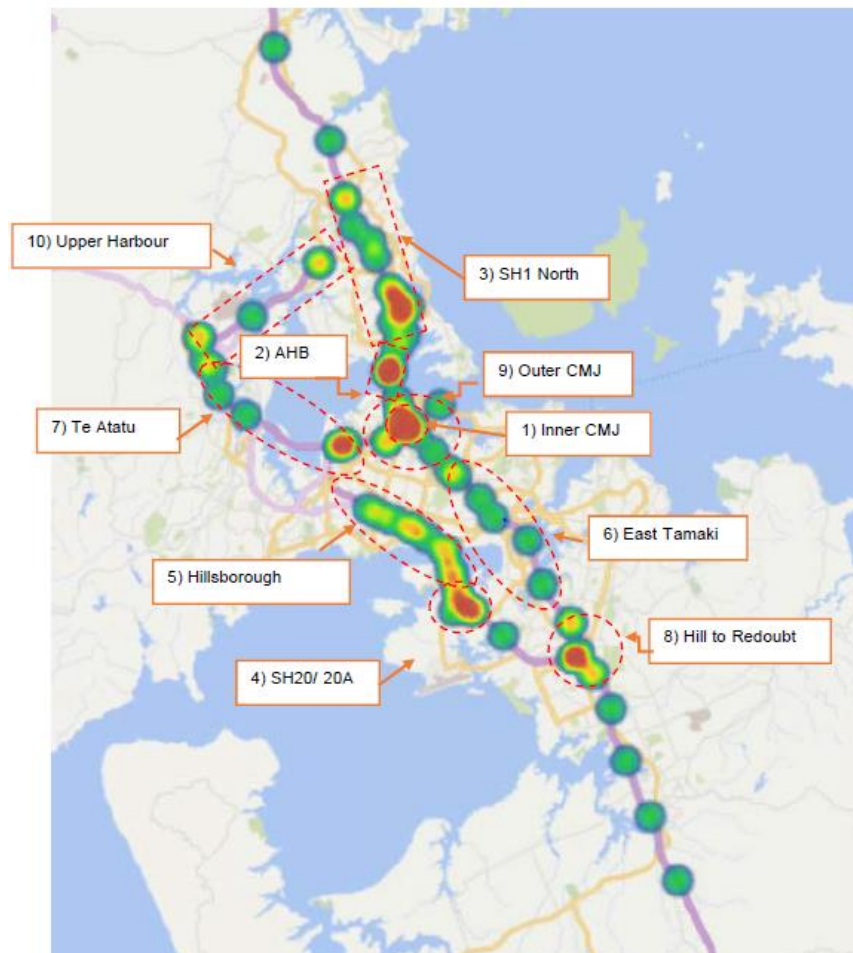
What did the Study do

Risk based approach to identify suicide resilience risk and where to prioritise works

Three types of suicide studied,

1. Fall from height
2. Walk in front
3. Intentional Vehicle Crash

Likelihood and Consequence Categorized into zones

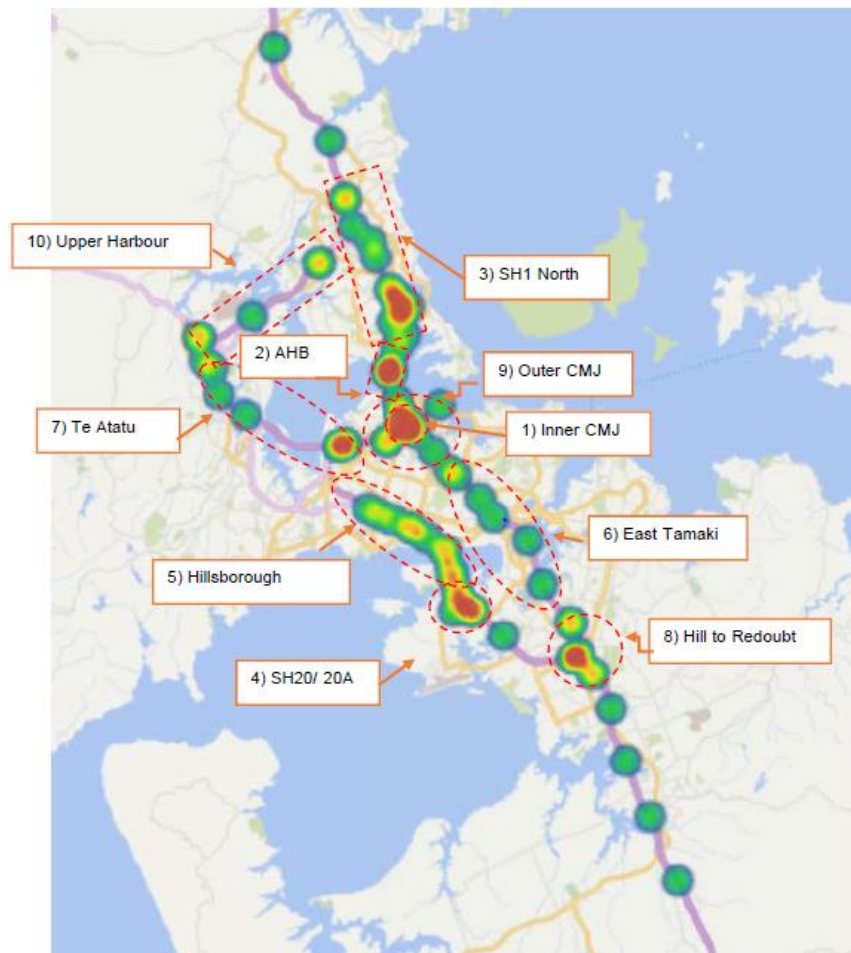


Likelihood

Likelihood identified using

- ATOC-S data
- Coroner reports
- Some CAS data

Likelihood categorised per bridge for falls



Consequence

AMA Cell Transmission model™ used to determine vehicle delay

Modelled different:

- Lane restrictions
- Locations
- Best to restrict lanes affected

1 hour					
Site	Location	Estimated Duration	No. of Lanes	Delay/veh (1 lane)	Delay/ veh (2 lanes)
1	SH1 southbound mainline under Hopetoun	60	2	3mins	Catastrophic
2	SH1 AHB NB	25	5	0.5min	6mins
3	SH1 southbound mainline section under Northcote Rd overbridge	60	3	0.1 min	12mins
4	SH20 to SH20A southbound connection	60	2	0.1min	Catastrophic
5	SH20 southbound mainline section before Neilson Off Ramp	60	3	0.1min	57mins
6	SH1 northbound mainline section before Highbrook Off Ramp under Bairds Rd	60	3	0.1min	48mins
7	SH16 eastbound mainline section under Lincoln road	60	2	0.1min	Catastrophic
8	SH1 southbound mainline section before Redoubt On Ramp	60	3	0.1min	13mins
9	SH1 southbound mainline section at St Marys Bay	60	5	0.1min	0.1min
10	SH18 westbound mainline section at Upper Harbour Bridge	60	2	7mins	Catastrophic
2 hours					
Site	Location	Estimated Duration	No. of Lanes	Delay/veh (1 lane)	Delay/ veh (2 lanes)
1	SH1 southbound mainline under Hopetoun	120	2	5mins	Catastrophic
2	SH1 AHB NB	25	5	0.5min	7mins
3	SH1 southbound mainline section under Northcote Rd overbridge	120	3	0.1min	26mins
4	SH20 to SH20A southbound connection	120	2	0.1min	Catastrophic
5	SH20 southbound mainline section before Neilson Off Ramp	120	3	0.1min	57mins
6	SH1 northbound mainline section before Highbrook Off Ramp under Bairds Rd	120	3	0.1min	72mins
7	SH16 eastbound mainline section under Lincoln road	120	2	0.1min	Catastrophic
8	SH1 southbound mainline section before Redoubt On Ramp	120	3	0.1min	15mins
9	SH1 southbound mainline section at St Marys Bay	120	5	0.1min	0.2min
10	SH18 westbound mainline section at Upper Harbour Bridge	120	2	8mins	Catastrophic

Direction 1 Delay (6pm)

Findings

Prioritise treatment based on:

- Network Area
- Type of Suicide Attempt

Rank	Site	Description	Method	Score	Level
1	2	AHB	Jump	25	Extreme
2	1	Inner CMJ	Jump	24	Extreme
3	1	Inner CMJ	running	19	High
4	2	AHB	running	18	High
5	3	Northcote	Jump	15	High
5	6	East Tamaki	Jump	15	High
7	5	SH20 Hillsborough	Jump	12	Moderate
8	10	Upper Harbour	Jump	9	Moderate
9	1	Inner CMJ	Vehicles	8	Moderate
9	7	Te Atatu	Jump	8	Moderate
11	3	Northcote	Vehicles	7	Moderate
11	4	SH20/20A	Jump	7	Moderate
11	6	East Tamaki	running	7	Moderate
11	8	Hill to Redoubt	Jump	7	Moderate
15	9	Outer CMJ	Jump	7	Moderate
16	10	Upper Harbour	Vehicles	6	Moderate
17	3	Northcote	running	5	Low
17	7	Te Atatu	Vehicles	5	Low
19	2	AHB	Vehicles	4	Low
20	5	SH20 Hillsborough	Vehicles	3	Low
20	5	SH20 Hillsborough	running	3	Low
20	9	Outer CMJ	running	3	Low
23	7	Te Atatu	running	2	Low
23	10	Upper Harbour	running	2	Low
25	4	SH20/20A	running	1	Low
25	4	SH20/20A	Vehicles	1	Low
25	6	East Tamaki	Vehicles	1	Low
25	8	Hill to Redoubt	running	1	Low
25	8	Hill to Redoubt	Vehicles	1	Low
25	9	Outer CMJ	Vehicles	1	Low

Treatment Strategies

1. Restricting Access

- Retrofit Screens
- Bridge Manual update for when screens required
- Require all bridges to be designed for screens (not just dead load but actual screens even if not built)

2. Help Seeking

- Phones / Signs

3. Third Party Intervention

- Video Analytics, e.g. AHB

4. Incident Response

- Restricting lanes affected
- Speed of reopening

Treatment Strategies

1. Restricting Access

Screens are designed on early



Treatment Strategies

1. Restricting Access

Screens are retrofitted



Treatment Strategies

Treatment Strategies (Engineering)

1. Restricting Access

- Retrofit Screens
- Bridge Manual update for when screens required
- Require all bridges to be designed for screens (not just dead load but actual screens even if not built)

2. Help Seeking

- Phones / Signs

3. Third Party Intervention

- Video Analytics, e.g. AHB

4. Incident Response

- Restricting lanes affected
- Speed of reopening

Treatment Strategies

2. Help Seeking

Provides opportunity for suicide attempter to seek help by :

- Dedicated phone line and / or
- Signs



Treatment Strategies

Treatment Strategies (Engineering)

1. Restricting Access

- Retrofit Screens
- Bridge Manual update for when screens required
- Require all bridges to be designed for screens (not just dead load but actual screens even if not built)

2. Help Seeking

- Phones / Signs

3. Third Party Intervention

- Video Analytics, e.g. AHB

4. Incident Response

- Restricting lanes affected
- Speed of reopening

Treatment Strategies

3. Third Party Intervention

This Includes:

- Staff training on recognising signs.
- Video Analytics
- Other Systems



Treatment Strategies

Treatment Strategies (Engineering)

1. Restricting Access

- Retrofit Screens
- Bridge Manual update for when screens required
- Require all bridges to be designed for screens (not just dead load but actual screens even if not built)

2. Help Seeking

- Phones / Signs

3. Third Party Intervention

- Video Analytics, e.g. AHB

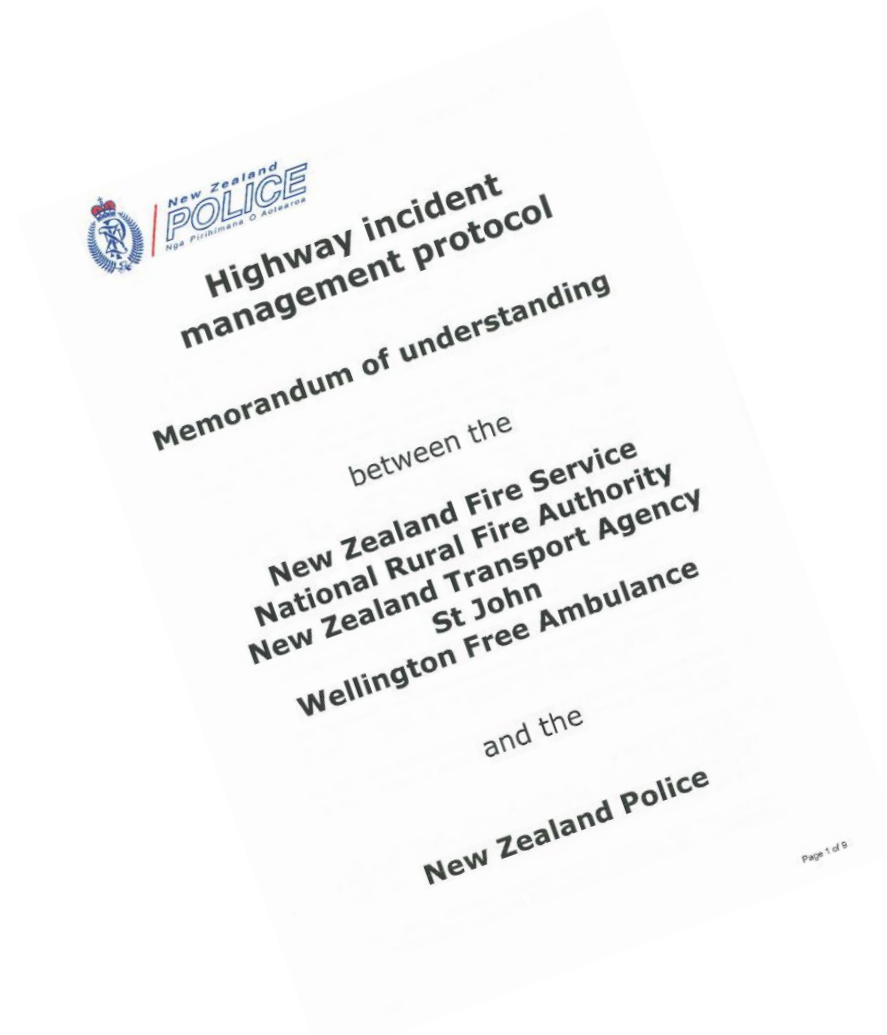
4. Incident Response

- Restricting lanes affected
- Speed of reopening

Treatment Strategies

4. Incident Response

- Improved procedures
 - Minimise Lanes shut
 - Increase speed of reopening





Key messages

1. Bigger issue than we knew
2. Screens are most effective
3. At least include the design of screens for new underpasses (even if not built)
4. Consideration during planning



Acknowledgements

Auckland Traffic Operations Centre – Smales Farm

Ministry of Justice – Coroner Reports

Ministry of Health – DHB suicide breakdown

AMA Network Performance – Cell Transmission Model

Contact:

Sam.pasley@ama.nzta.govt.nz

Call for support

Where to get help:

- **Lifeline**: 0800 543 354 (available 24/7)
- **Suicide Crisis Helpline**: 0508 828 865 (0508 TAUTOKO) (available 24/7)
- **Youthline**: 0800 376 633
- **Kidsline**: 0800 543 754 (available 24/7)
- **Whatsup**: 0800 942 8787 (1pm to 11pm)
- **Depression helpline**: 0800 111 757 (available 24/7)
- **Rainbow Youth**: (09) 376 4155
- **Samaritans** 0800 726 666

• If it is an emergency and you feel like you or someone else is at risk, call 111