



Quick Build Cycle Lane Protection

Lessons Learnt in Auckland

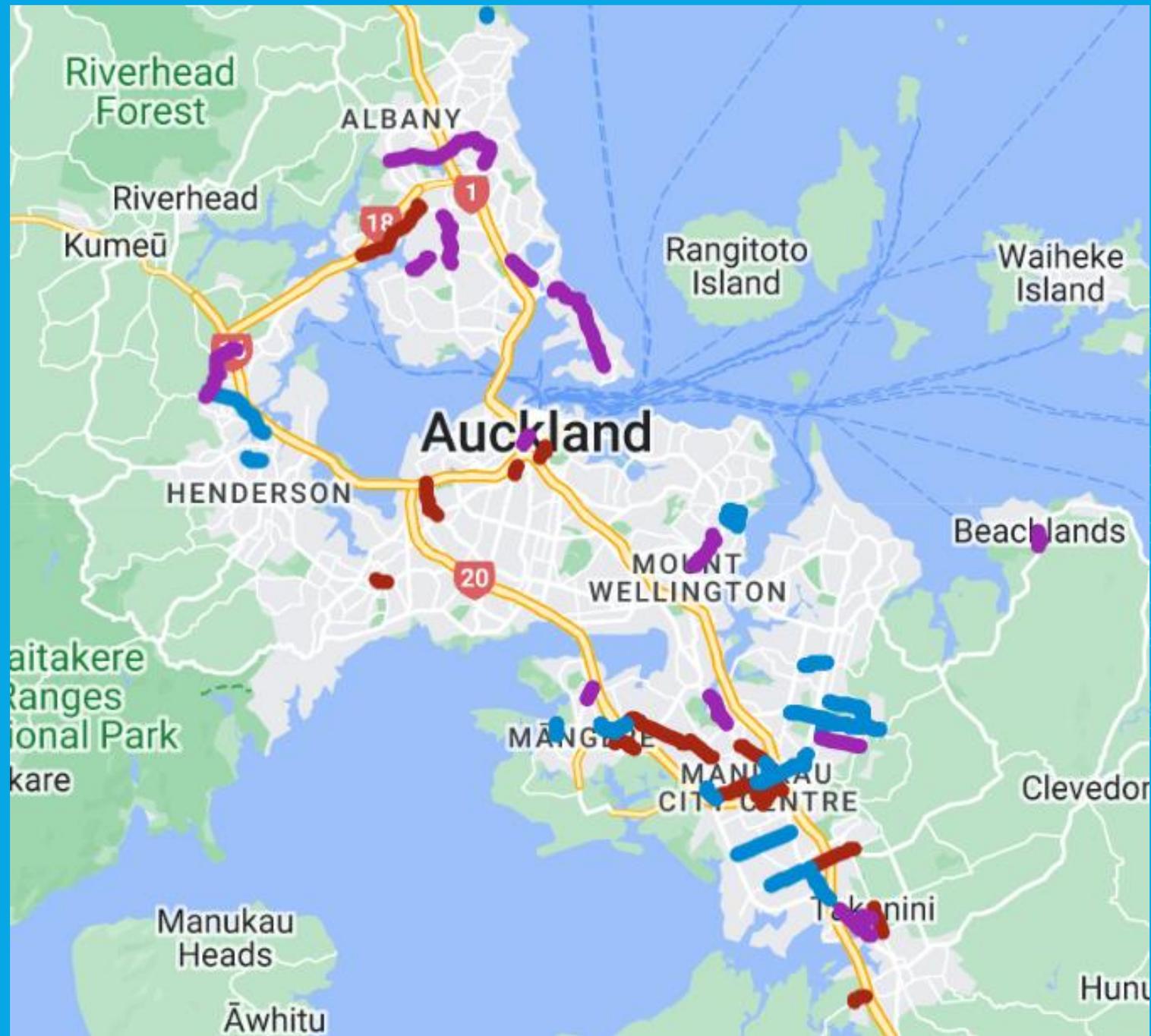


Mitra Prasad – Technical Lead Active Modes Integration
Auckland Transport



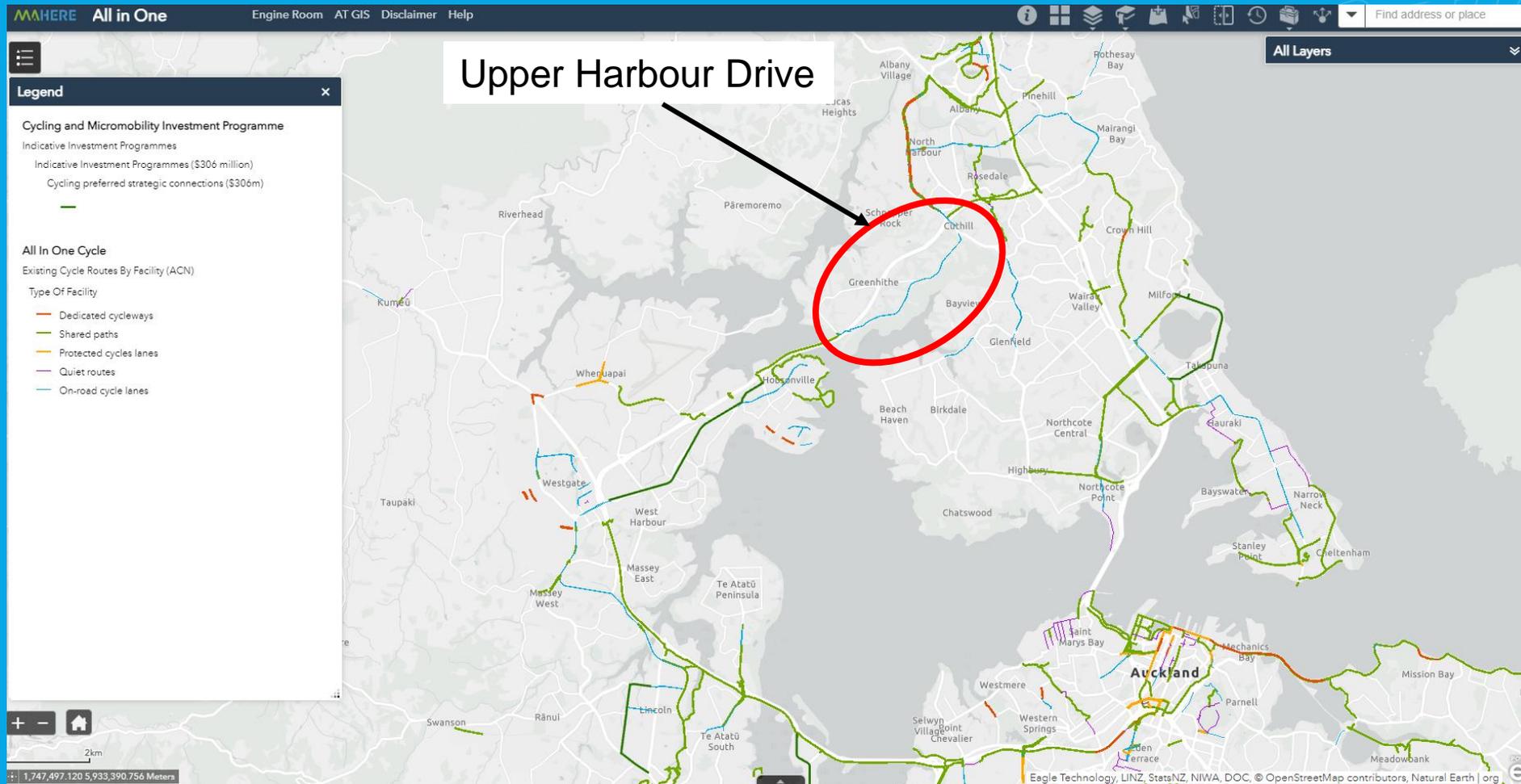
Pop Up Protection Program

- Installing concrete separators alongside existing painted cycle lanes.
- 60 routes, 70km total.
- To be delivered by end of June 2024, a 3 year timeframe compressed down from an original 10 year programme.
- Did not include upgrades to intersections, bus stops etc.
- Minimal reallocation of road space, which resulted in pushing the limits in terms of minimum widths
- Limited consultation (“inform”)



Upper Harbour Drive

First project on the pop up protection programme.



Upper Harbour Drive

- Carries around 6000-7000 VPD.
- Former State Highway and is often used as alternative route to Upper Harbour Highway (SH18).
- 70km/h speed limit, around 80km/h 85th percentile speed.
- Approximately 4km long between Albany Highway and Tauhinu Road.
- Important link for cycling between North Shore and West Auckland.
- Previously had existing painted cycle lanes with 0.5-0.6m wide buffer. The plan was generally to place separators within existing painted buffer.
- Installation of separators began in March 2022.

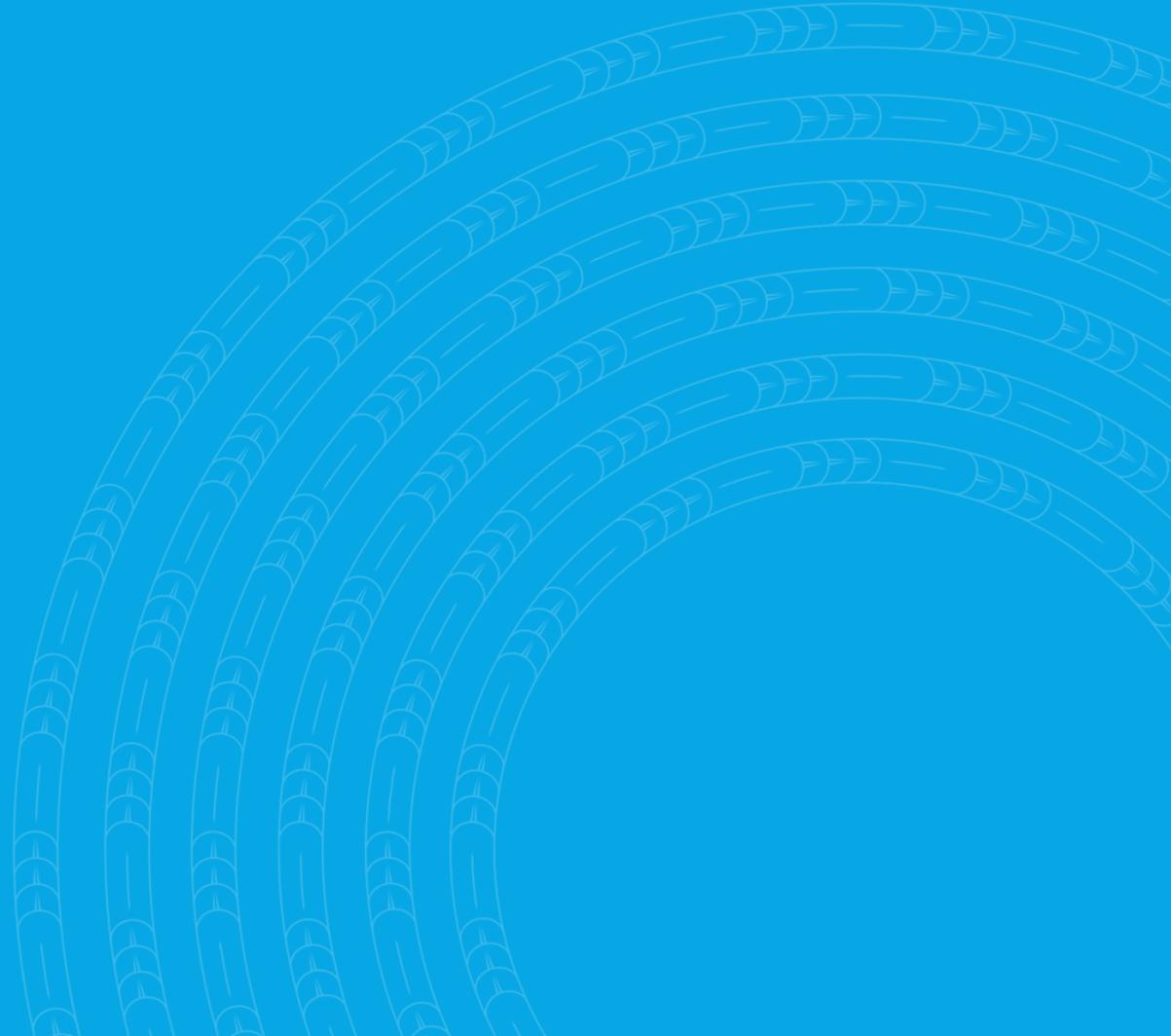


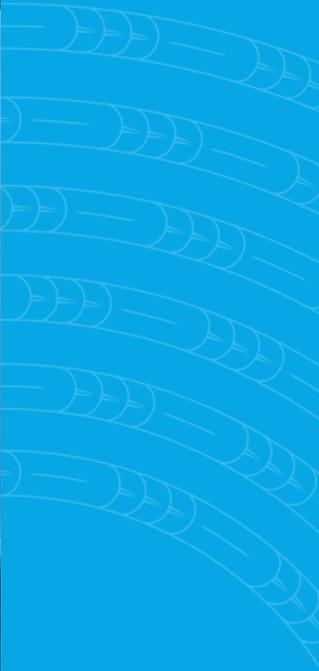




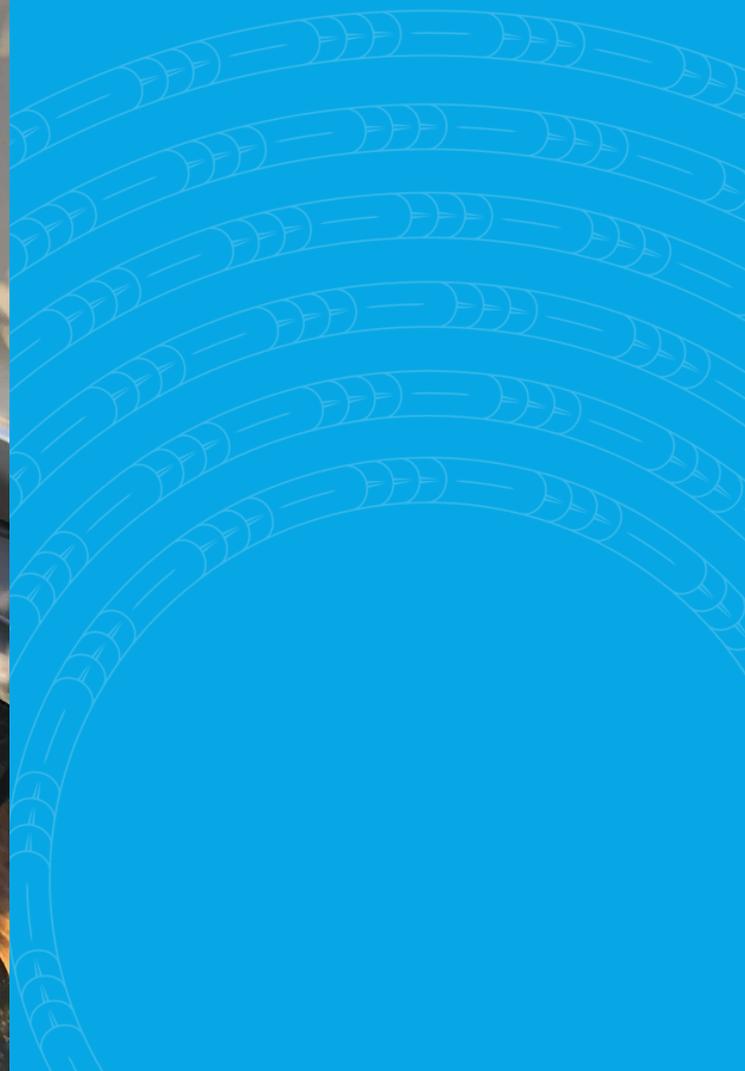
Upper Harbour Drive

- Things started out smoothly...









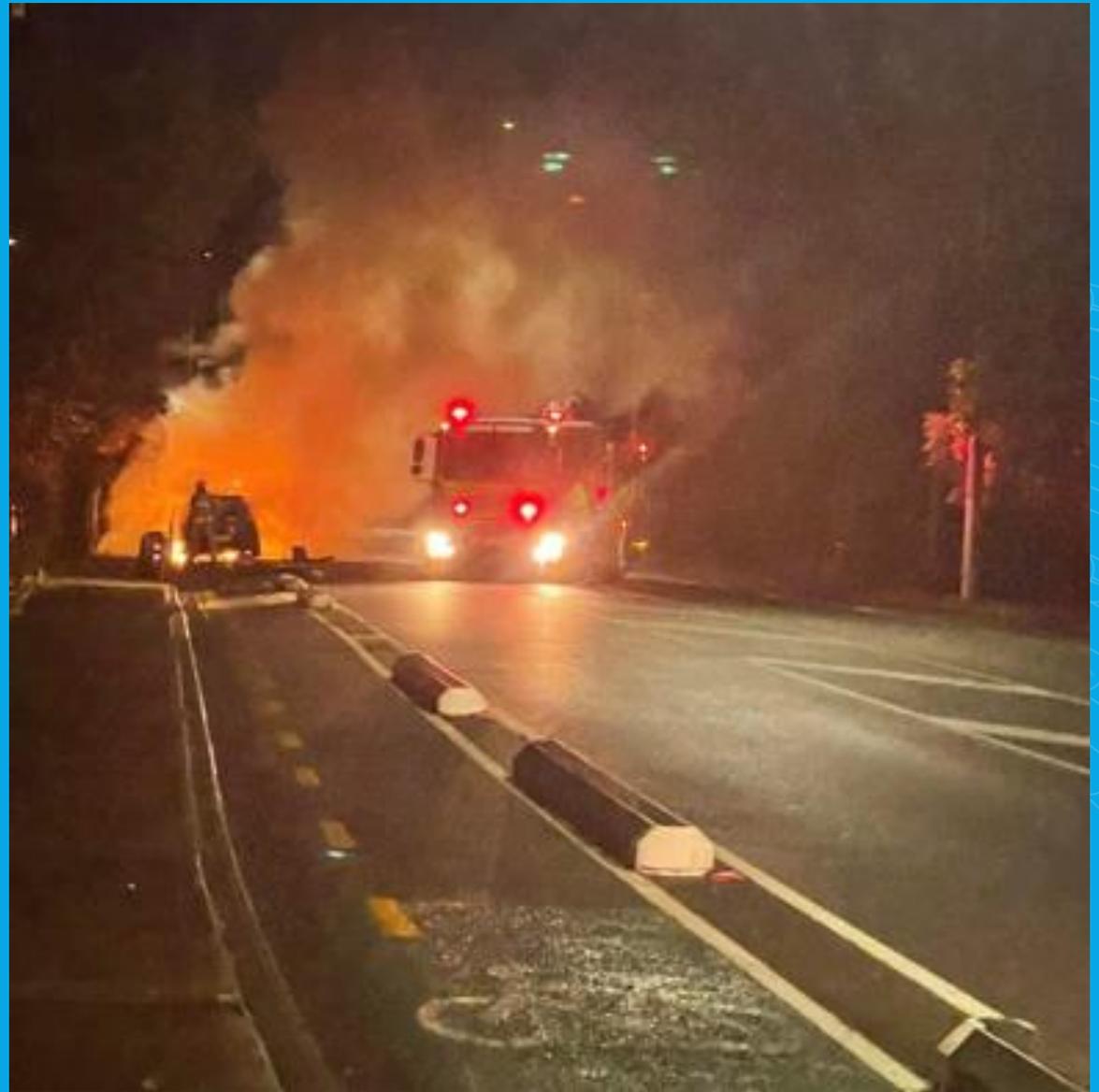












Auckland community furious as drivers hit new cycle lane protectors ▶

Todd Niall · 22:04, Jul 21 2022

Cycleway barriers draw mixed response from Aucklanders

By Jane Nixon, Digital Reporter
Fri, Aug 5 · Source: 1News

Simon Wilson: A splendid cycleway and a horror crash - road safety, again

Police and injured cyclist have grim safety warnings over Auckland Transport cycling project



By [Bernard Orsman](#)

22 Jun, 2022 07:23 PM ⌚ 6 mins to read

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By [Simon Wilson](#)

28 Jun, 2022 05:00 AM ⌚ 7 mins to read

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Craig Lord for Auckland Mayor

13 h · 🌐

"We want safe, clear, usable cycle lanes and we demand you create them now!"

Nek Minnut...

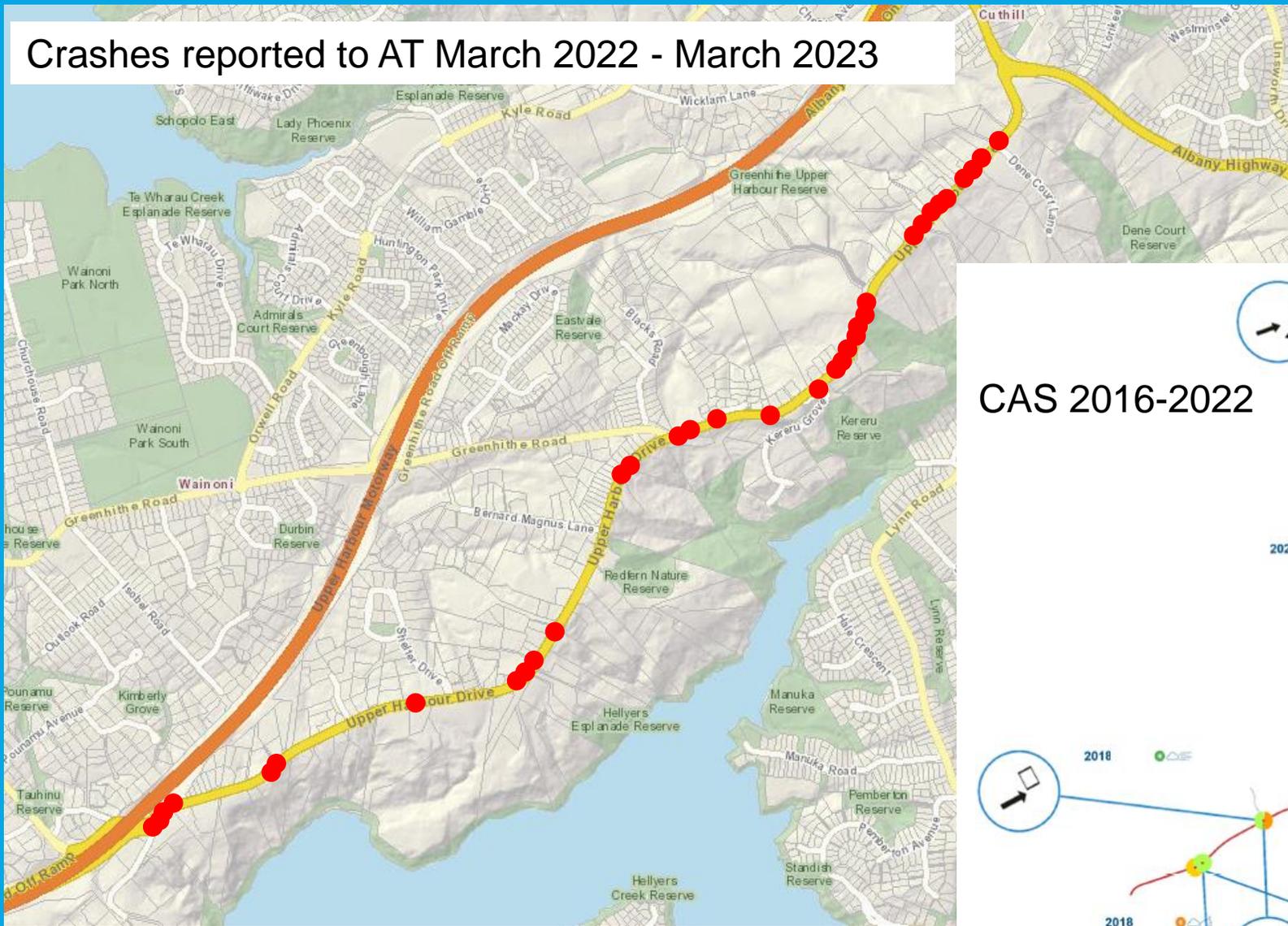


Upper Harbour Drive Accidents

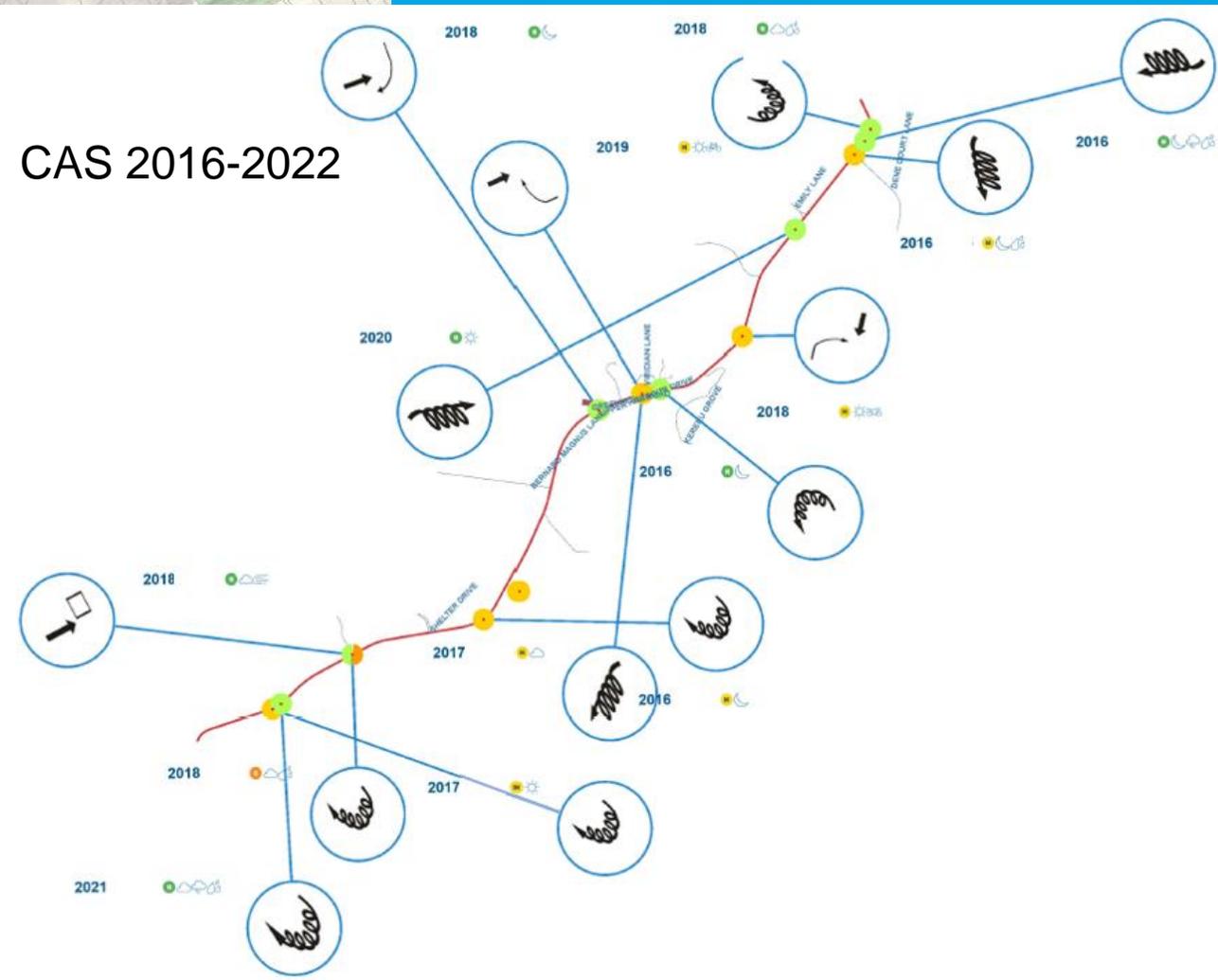
- 34 accidents reported in total, including 3 of which involved cyclists hitting separators, all of which resulted in minor to serious injuries.
- Happened somewhat sporadically, on sections with both flush median and no flush median.
- Where collisions happen at speed, this results in damage, particularly wheel rims and tyres. Where damage occurs, appears to be vehicles colliding with front end of separator.
- Some vehicles have mounted over separators (160-180mm high) causing damage to underside.
- Some collisions have been reported getting in and out of driveways (low speed) and tyre marks on separators suggest this was occurring more often than reported.



Crashes reported to AT March 2022 - March 2023

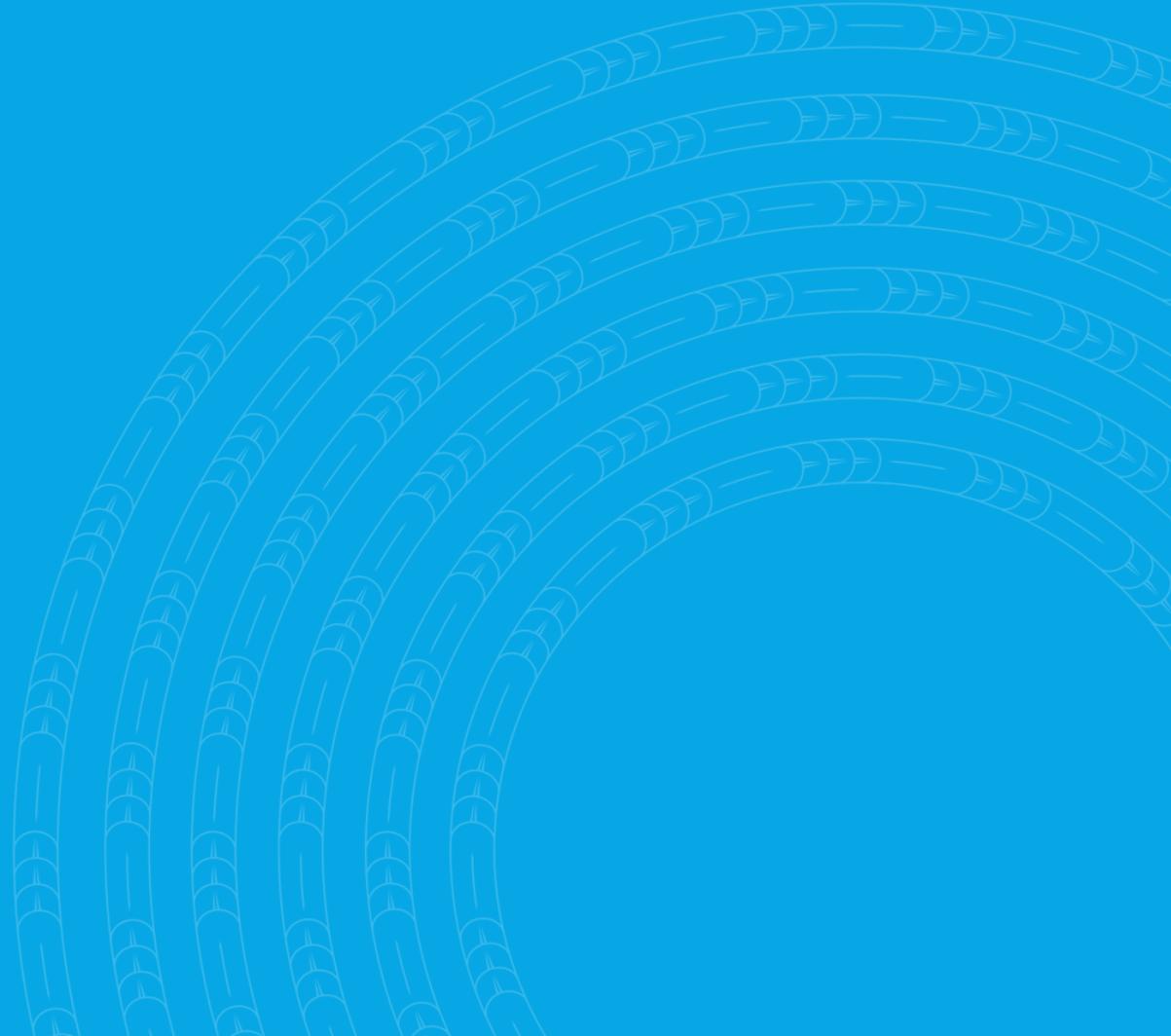


CAS 2016-2022



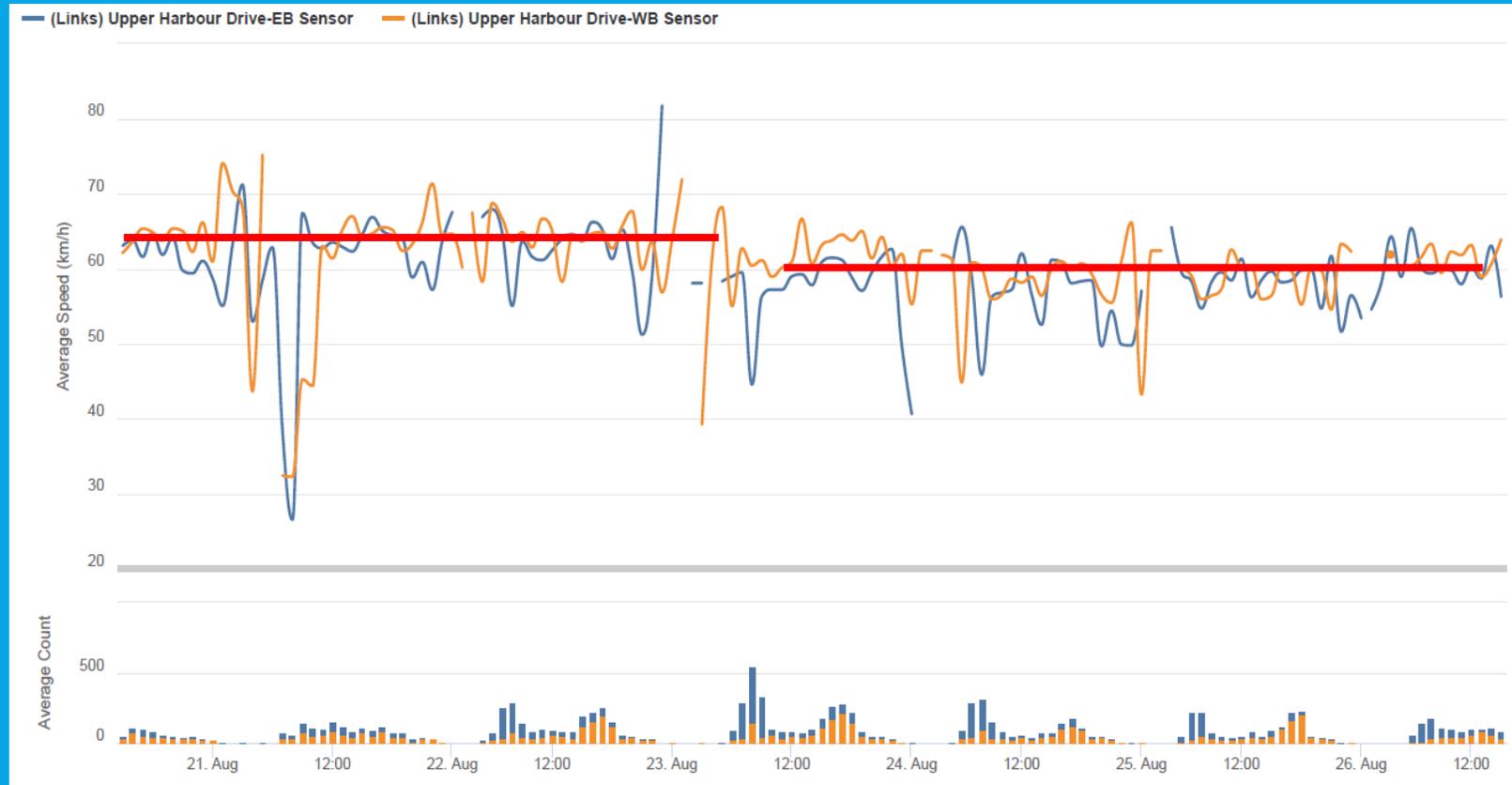
Upper Harbour Drive

- What went wrong?



Upper Harbour Drive Vehicle Speeds

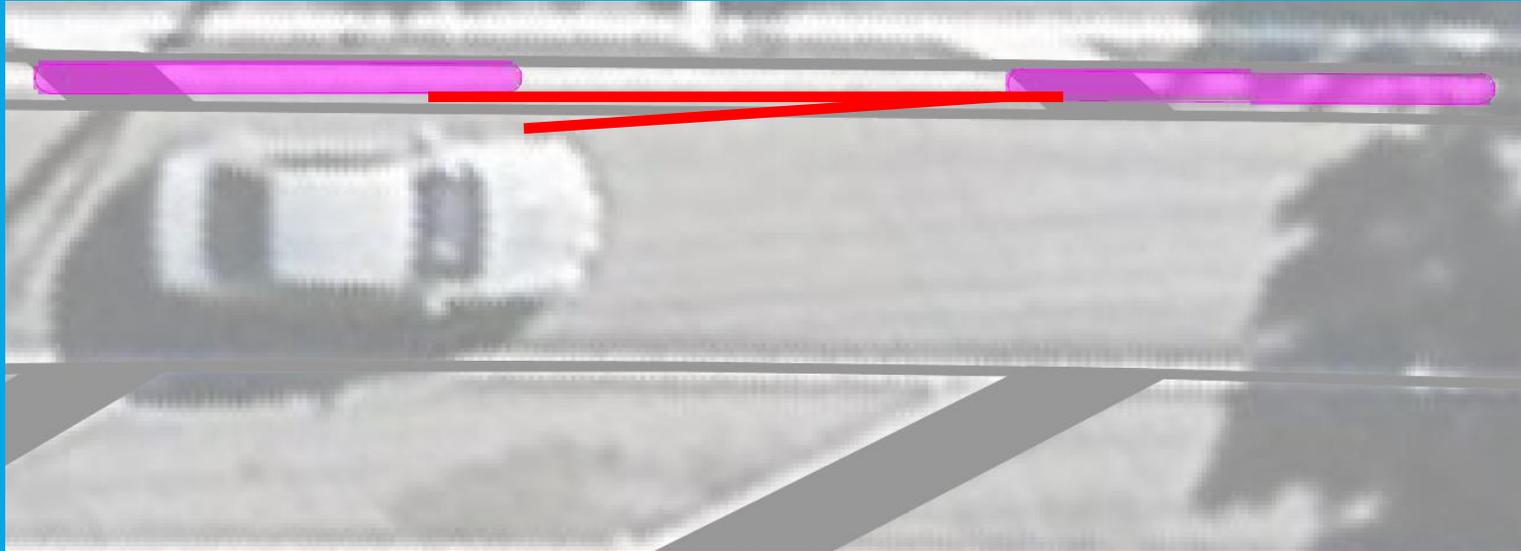
- Vehicle Speeds were much higher in Upper Harbour Dr than other locations separators have been used.
- Reducing speeds using temporary speed limit and traffic management made noticeable difference to frequency and severity of crashes.

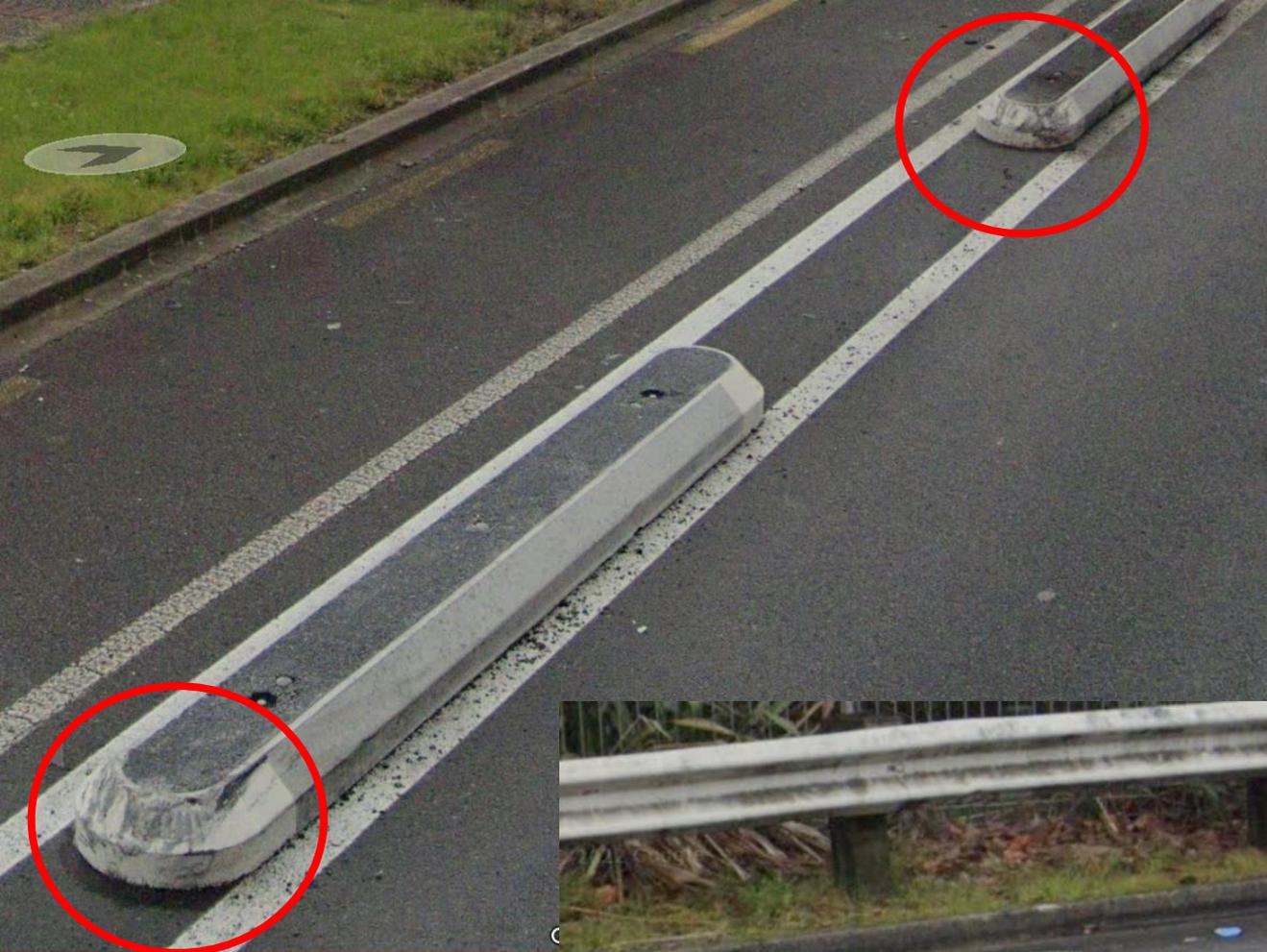


Upper Harbour Drive Gaps Between Separators

- Does the spacing of separators allow greater chance of drifting into end of separator?
- Driveways still cause gaps.

Spacing	Angle (degs)
0.5	30.0
1	16.7
2	8.5
3	5.7
4	4.3
5	3.4





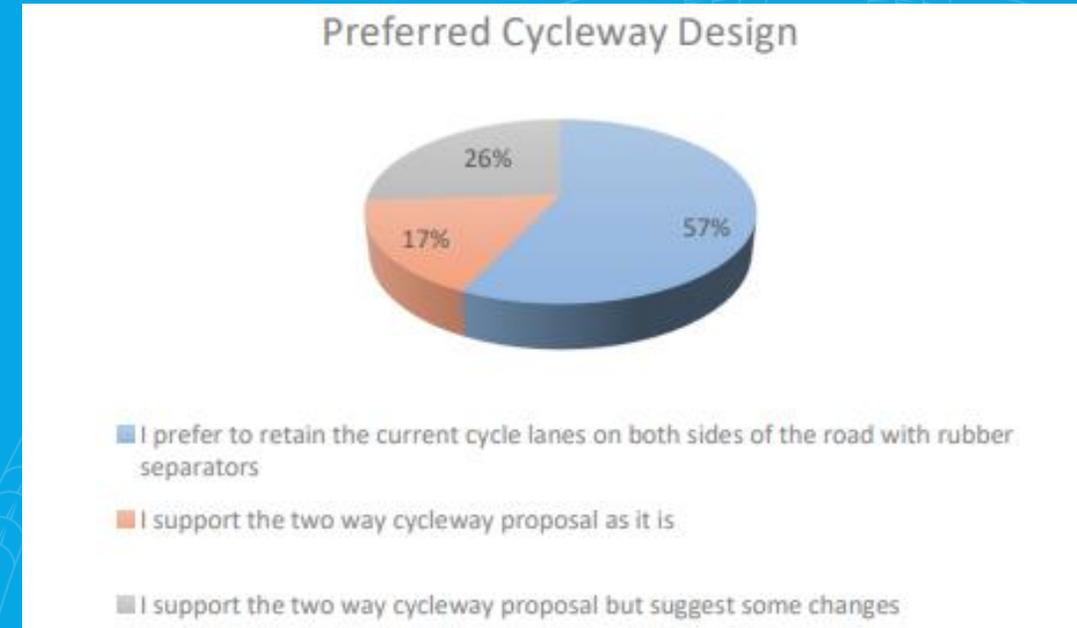
Upper Harbour Drive

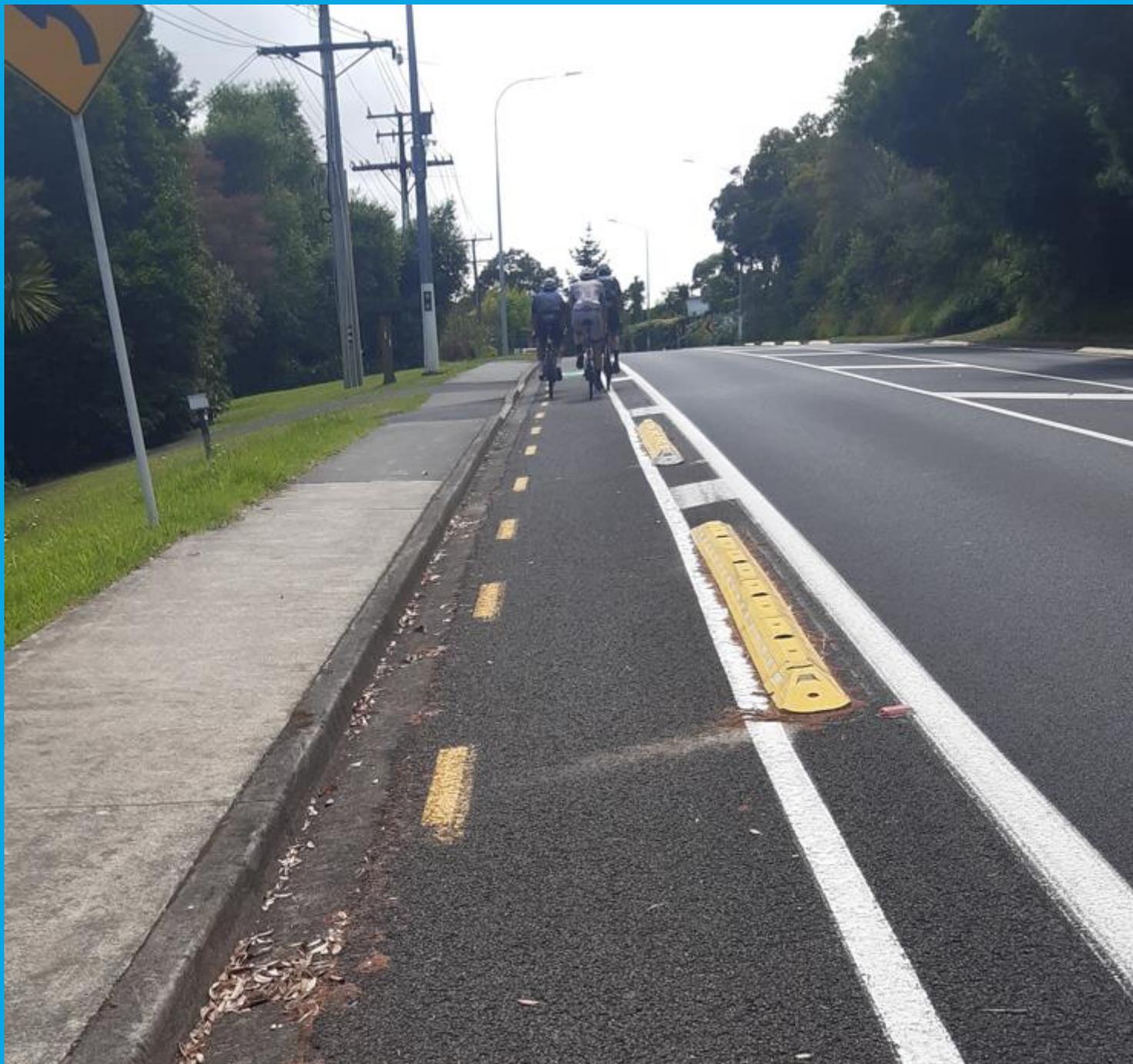
- Despite the reduction in frequency and severity of accidents, some were still occurring
- A decision was made to replace the concrete separators with rubber separators while further engagement with the public took place around a longer term solution.



Upper Harbour Drive Changes

- Despite the push back from the community, AT held firm on insisting some form of protection alongside the cycle lanes was required.
- Independent safety audits confirmed the need to preserve separation in some form.
- After consultation with the community on a proposal to change to a bidirectional cycleway, a decision was made to switch out the concrete separators for rubber separators.
- No accidents were reported between vehicles and the rubber separators, despite tyre marks visible on many separators. Two accidents were reported of cyclists hitting the separators and coming off their bikes resulting in minor to serious injuries.





Pop Up Protection Program

Of the original 70 km across 60 routes, 10km have been delivered across 9 routes.

Challenges:

- Funding originally secured but removed after FY 22/23.
- Change of priorities and focus for Auckland Transport.
- Local Boards often split on support projects in their area.
- Challenges with initial roll out of the project on Upper Harbour Drive.



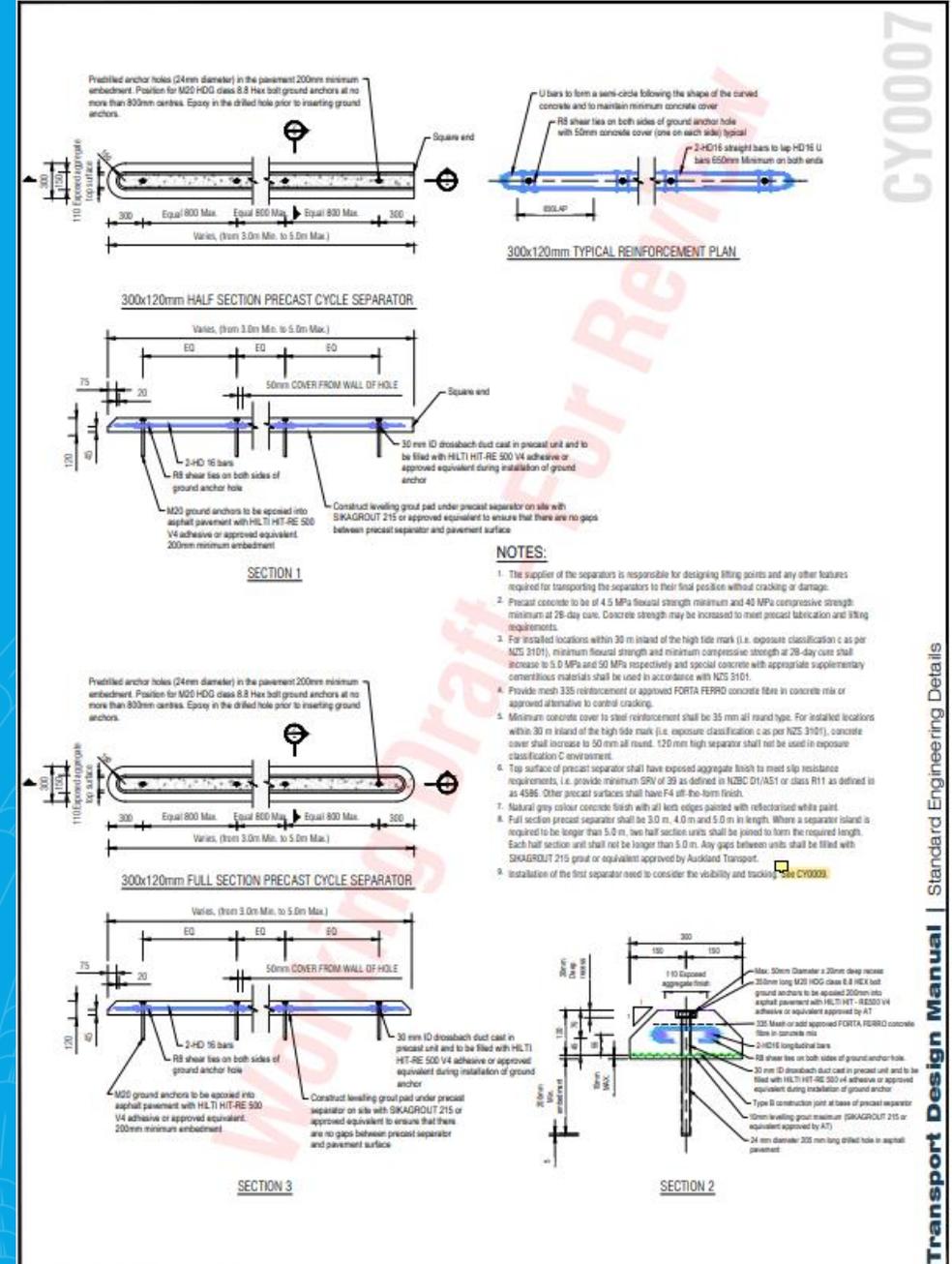
Challenges - Separator Height

- Separators placed on grout levelling base means separator is between 160mm and 180mm proud of carriageway surface.
- AC Waste Services advise 140mm is maximum height rubbish trucks can mount.
- Epoxy fixing has been used on other sites to reduce heights.



New 120mm High Separator

- 120mm high when using epoxy base.
- Allows for some wiggle room for construction tolerances or road curvature.
- Has been strength tested to ensure appropriateness for mounting and durability.
- Front end is more chamfered, minimising impact if hit front on.



Review 1

DATE: December 15, 2023

TDM TECHNICAL STANDARDS

Cycle separator details (300mm Wide and 120mm High)

Document in Review

Document No: **CY0007**

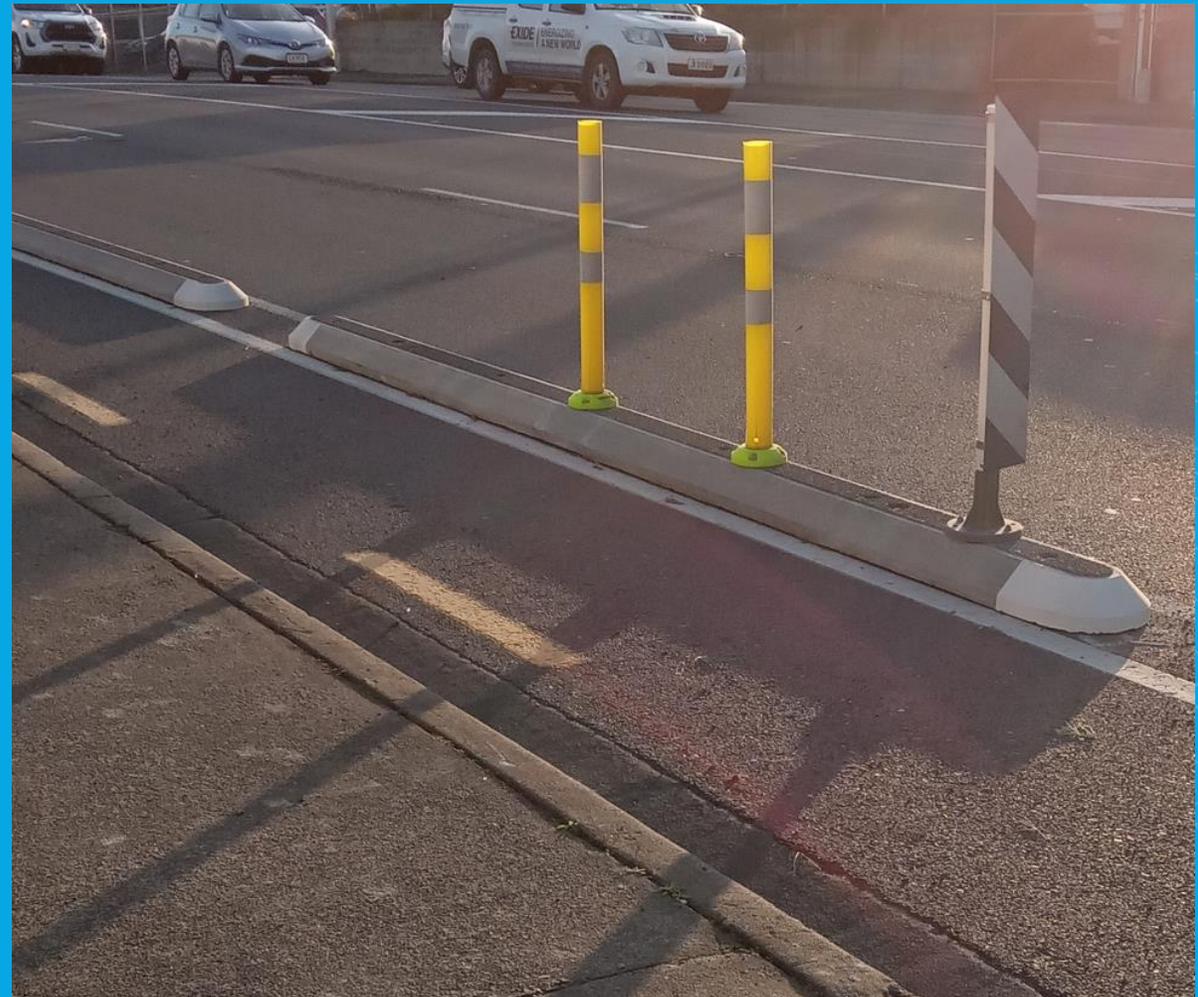
Version: **C**

150mm on grout base



120mm fixed with epoxy





Challenges – Impact on Police Enforcement Operations

- Now difficult to turn around to stop speeding vehicle In opposite direction, can lose sight of vehicle
- When turning around near separators, difficult to see where separators are over bonnet
- Limited places to covertly undertake enforcement
- No where for vehicle to pull over and issue infringement
- Insufficient space to layout checkpoints
- No emergency stopping area - see photo



More Lessons Learnt

- Minimum buffer widths – 0.6m for 300mm separator (300mm buffer).
- Highlighting start of the separators – RRPMs, reflective paint on front ends, Bridge Marker Posts, edgeline, continuity lines.
- Construction methodology – ensure visual aids are installed at the same time as separators are installed and plenty of advanced warning is provided.
- Consultation – despite length of time taken it is best to undertake consultation as if it were a normal project.





Noel Burnside Drive



Cavendish Drive





Thank You