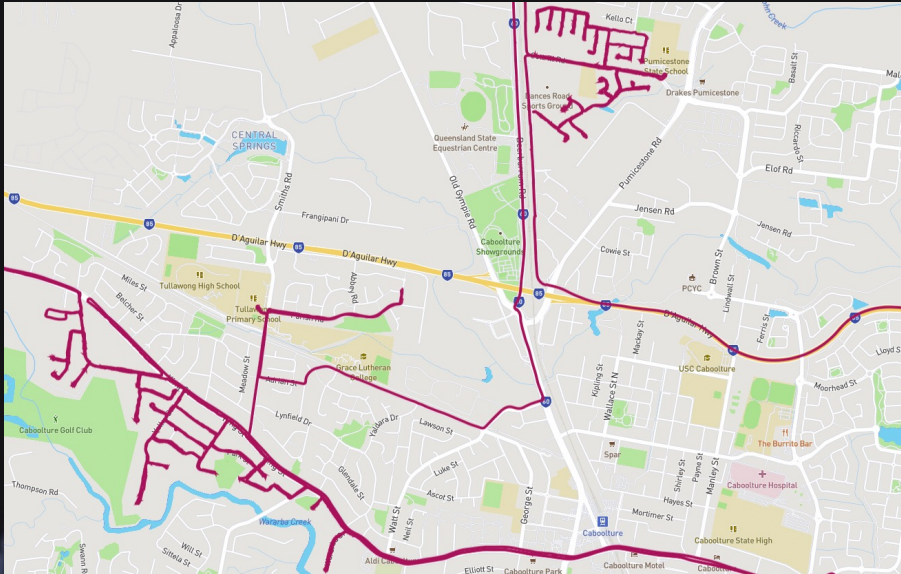


Retina Visions

The Problem



Road Assessment



Time wasted inspecting individual defects



Manual data entry

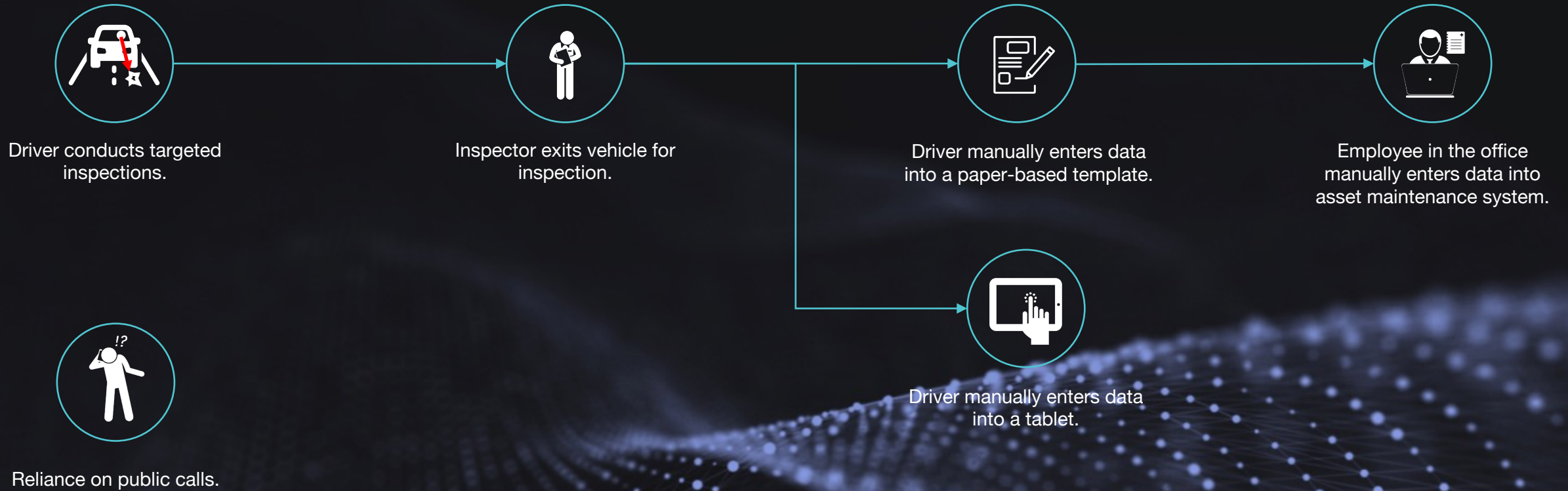


Low frequency / inspection coverage across network



Public complaints due to low coverage

Current Solution



Retina Visions' Solution



Camera is used to conduct road assessment every time the vehicle is driven.



Footage is automatically uploaded to servers where automated processing is conducted.



Output data is automatically sent to asset maintenance system or data lake via an API.

Vehicle Setup

- Single, Google Pixel camera
- Adhesive mount to windscreen
- Device automatically starts to record when the vehicle is turned on
- Device automatically stop recording when the vehicle is turned off
- No driver interaction



Proven Benefits

179%

More defects fixed.

1/4

Time required to
capture defects.

30%

Reduction in public
phone complaints.

x2

Defects captured.

x8

Efficiency improvement in
footpath assessment.


Example: Moreton Bay Regional Council

- Service commenced in 2018 with 1 camera conducting road assessment
- Integration with asset management system developed
- In 2019, 14 cameras fit to half of garbage fleet + 1 footpath camera
- In 2020, 28 cameras fit to garbage fleet + 1 council vehicle + 1 footpath camera
- Daily network assessment utilising council's garbage fleet, feeding defect data automatically, in real-time to their asset management system
- Entire network is updated on a weekly basis

Other Customers

- QLD Department of Transport and Main Roads
- Gold Coast City Council
- Brisbane City Council
- Auckland City Council
- Scenic Rim Regional Council
- Transurban
- Cassowary Coast Regional Council
- Citywide / City of Melbourne
- More...

Portal



AssetsDefectsFleetUploadAdmin

michaelRetina Visions

Period

Asset type

Defect type

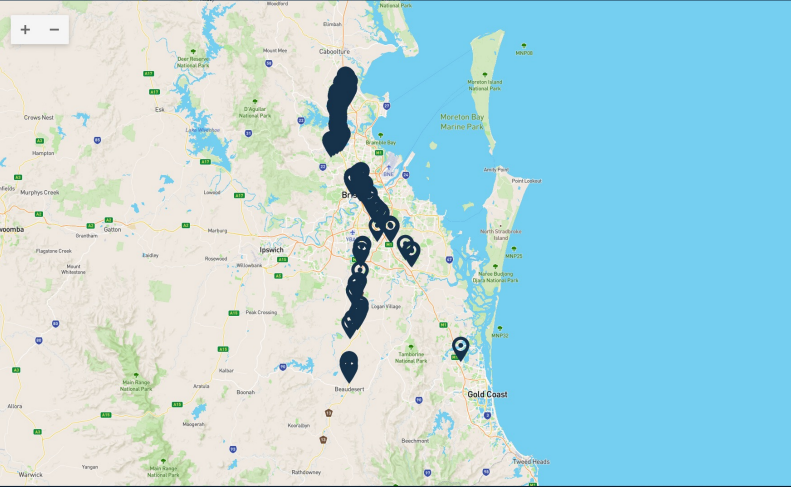
Severity


Detection type

Reload

Reset View

Export






Crocodile Cracking

Severity: 3

Asset: Roadway

22/07/2021 1:42 PM




Crocodile Cracking

Severity: 4

Asset: Roadway

22/07/2021 1:42 PM




Crocodile Cracking

Severity: 5

Asset: Roadway

22/07/2021 1:41 PM




Crocodile Cracking

Severity: 6

Asset: Roadway

22/07/2021 1:41 PM




Crocodile Cracking

Severity: 3

Asset: Roadway

22/07/2021 1:41 PM




Cracking

Severity: 4

Asset: Roadway

22/07/2021 1:41 PM



Crocodile Cracking

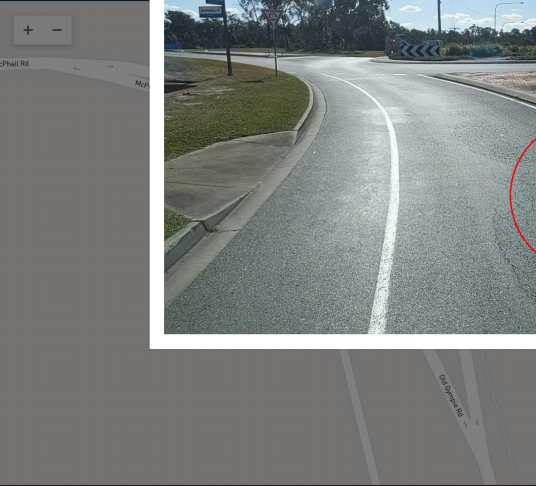
Severity: 5

Asset: Roadway

22/07/2021 1:41 PM

Items Count: 1804

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AssetsDefectsFleetUploadAdmin

michaelRetina Visions

Period

Asset type

Defect type

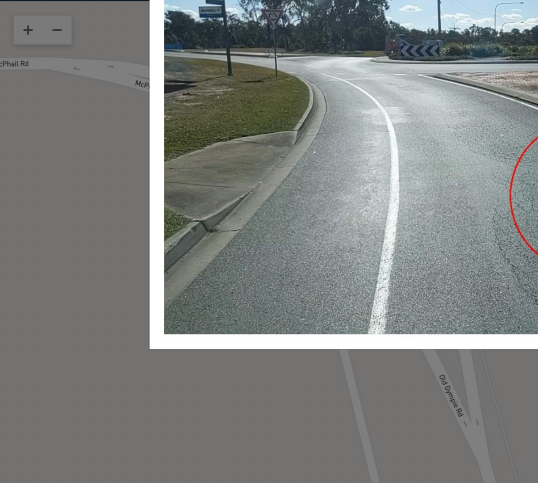
Severity


Detection type

Reload

Reset View

Export






Cracking

Severity: 4

Asset: Roadway

22/07/2021 1:41 PM




Crocodile Cracking

Severity: 5

Asset: Roadway

22/07/2021 1:41 PM




Crocodile Cracking

Severity: 6

Asset: Roadway

22/07/2021 1:41 PM




Crocodile Cracking

Severity: 3

Asset: Roadway

22/07/2021 1:41 PM




Crocodile Cracking

Severity: 4

Asset: Roadway

22/07/2021 1:41 PM




Crocodile Cracking

Severity: 5

Asset: Roadway

22/07/2021 1:41 PM



Crocodile Cracking


Severity: 6

Asset: Roadway

22/07/2021 1:41 PM

Items Count: 1804

Defect Details



Asset Type

Roadway

Defect Type

Crocodile Cracking

Severity

5

Detection Type

New

Passed

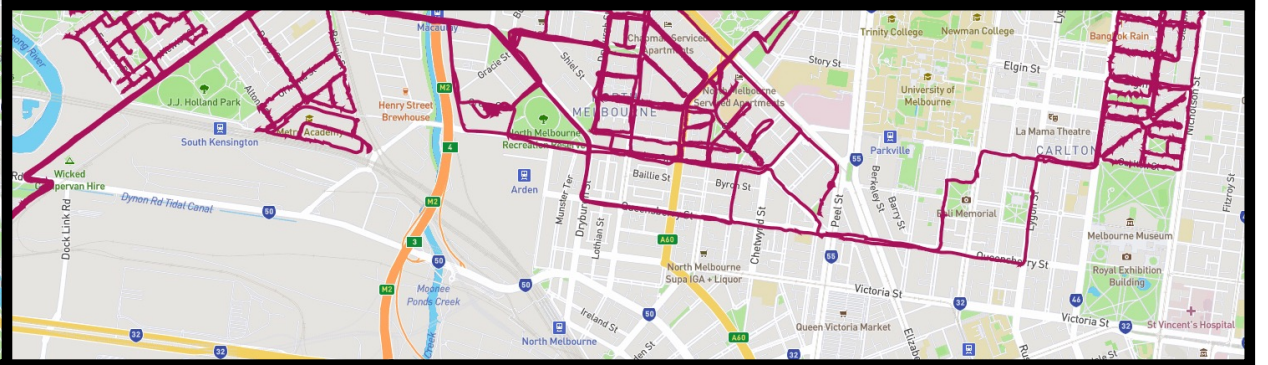
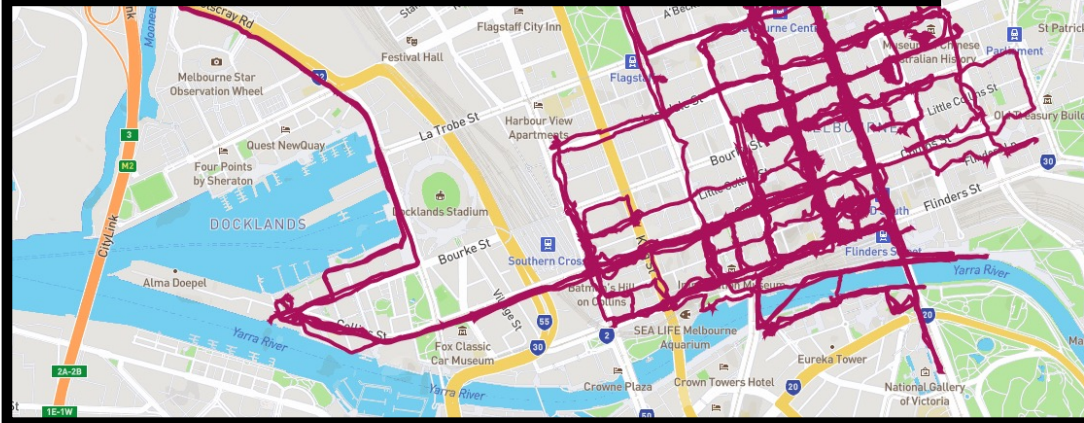
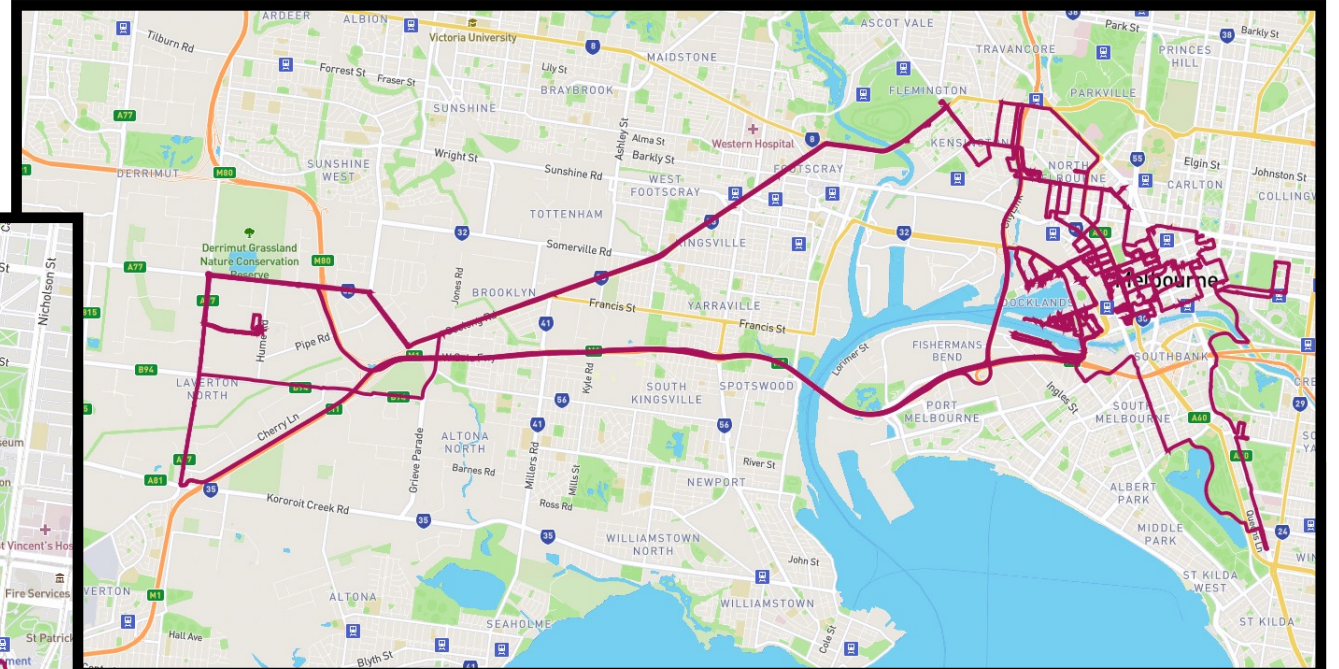
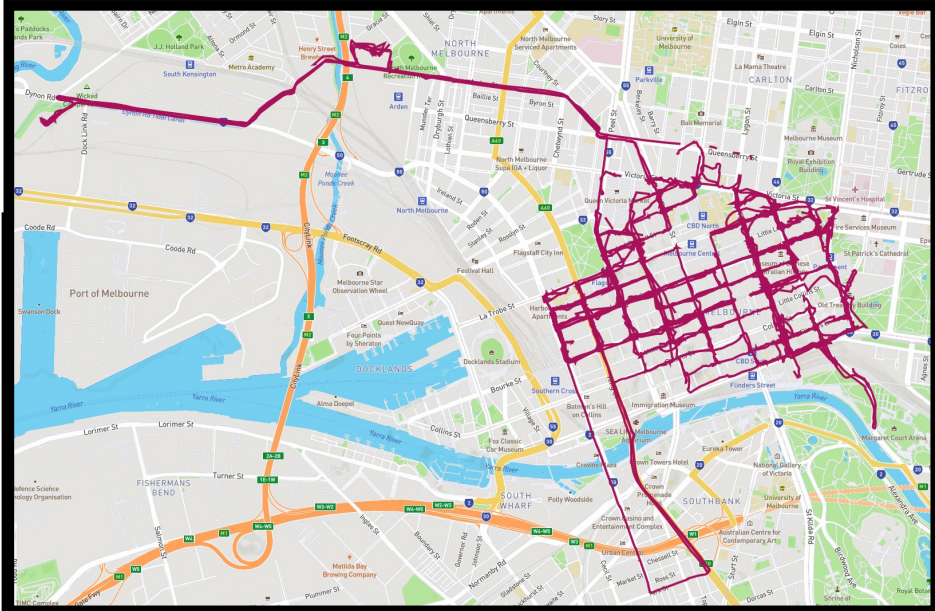
1 Times

Last Update

22/07/2021 1:41 PM

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Coverage



Defect Examples (Severity 5 – Monitor)

Defect Details



Asset Type
Signage

Defect Type
Deformed

Severity
5

Detection Type
New

Passed
1 Times

Last Update
04/04/2022 9:52 AM

Defect Details



Asset Type
Roadway

Defect Type
Vegetation

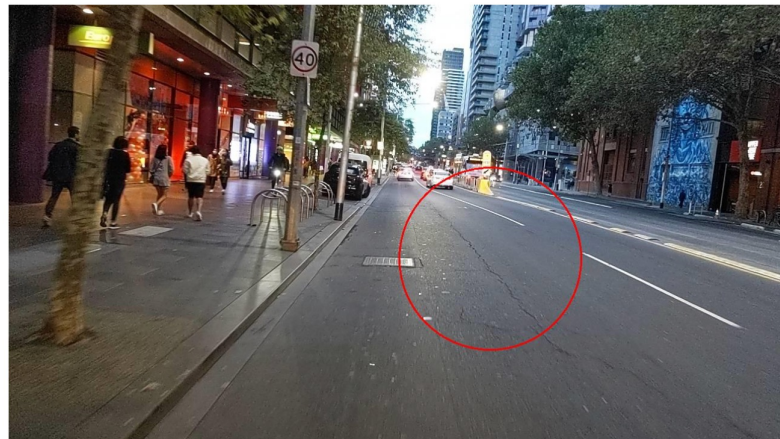
Severity
5

Detection Type
New

Passed
1 Times

Last Update
22/04/2022 10:01 AM

Defect Details



Asset Type
Roadway

Defect Type
Cracking

Severity
5

Detection Type
Passed

Passed
2 Times

Last Update
02/04/2022 6:14 PM

Defect Details



Asset Type
Roadway

Defect Type
Vegetation

Severity
5

Detection Type
New

Passed
1 Times

Last Update
31/03/2022 7:20 AM

Defect Examples (High Severity)

Defect Details



Asset Type
Roadway

Defect Type
Cracking


Severity
8

Detection Type
Updated

Passed
2 Times

Last Update
04/04/2022 9:14 AM

Defect Details



Asset Type
Footpath

Defect Type
Pothole

Severity
8

Detection Type
New

Passed
1 Times

Last Update
28/05/2022 11:08 AM

Defect Details



Asset Type
Roadway

Defect Type
Crocodile Cracking

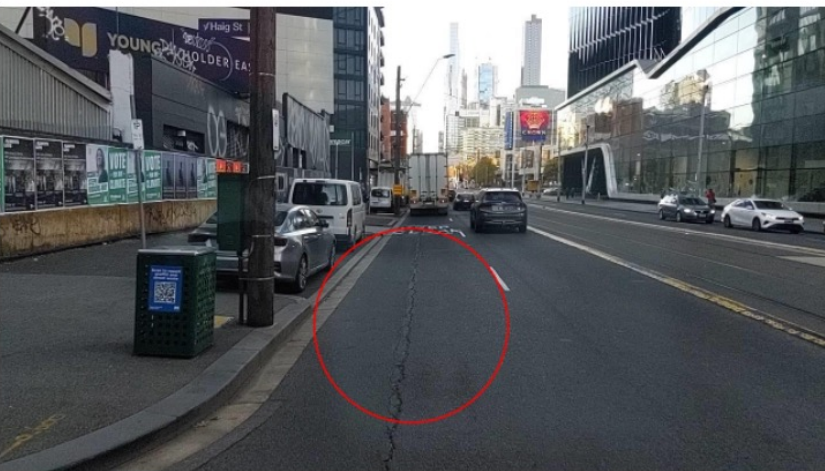
Severity
8

Detection Type
New

Passed
1 Times

Last Update
31/03/2022 9:59 AM

Defect Details



Asset Type
Roadway

Defect Type
Cracking

Severity
7

Detection Type
Updated

Passed
4 Times

Last Update
05/05/2022 7:58 AM

Defect Examples (Footpath)

Defect Details



Asset Type
Footpath

Defect Type
Pothole

Severity
7

Detection Type
New

Passed
1 Times

Last Update
06/04/2022 3:23 PM

Defect Details



Asset Type
Footpath

Defect Type
Displacement

Severity
5

Detection Type
New

Passed
1 Times

Last Update
05/04/2022 3:19 PM

Defect Details



Asset Type
Footpath

Defect Type
Displacement

Severity
5

Detection Type
New

Passed
1 Times

Last Update
06/04/2022 11:29 AM

Defect Details



Asset Type
Footpath

Defect Type
Cracking

Severity
5

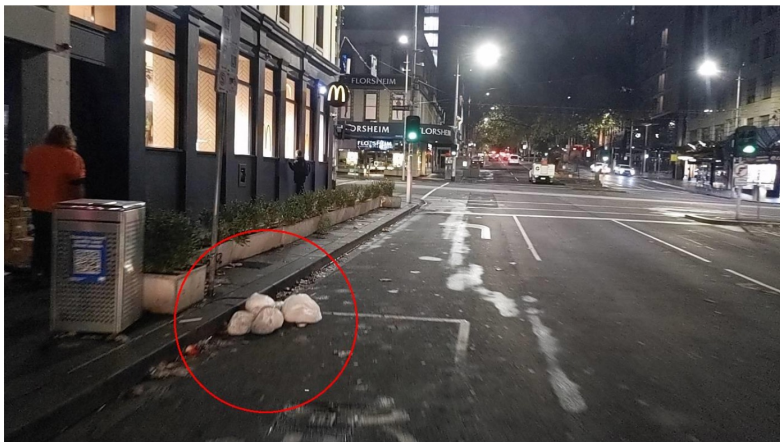
Detection Type
New

Passed
1 Times

Last Update
05/04/2022 3:19 PM

Defect Examples (Litter)

Defect Details



Asset Type
Roadway

Defect Type
Litter

Severity
4

Detection Type
New

Passed
1 Times

Last Update
16/05/2022 6:14 AM

Defect Details



Asset Type
Roadway

Defect Type
Litter

Severity
4

Detection Type
New

Passed
1 Times

Last Update
09/05/2022 7:58 AM

Defect Details



Asset Type
Footpath

Defect Type
Litter

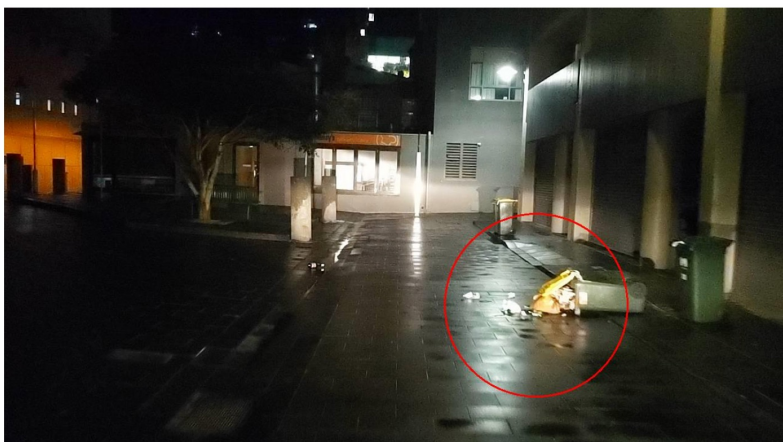
Severity
4

Detection Type
New

Passed
1 Times

Last Update
16/04/2022 2:10 PM

Defect Details



Asset Type
Roadway

Defect Type
Litter

Severity
4

Detection Type
New

Passed
1 Times

Last Update
31/05/2022 6:18 AM

Defect Examples (Graffiti)

Defect Details



Asset Type
Roadway

Defect Type
Graffiti

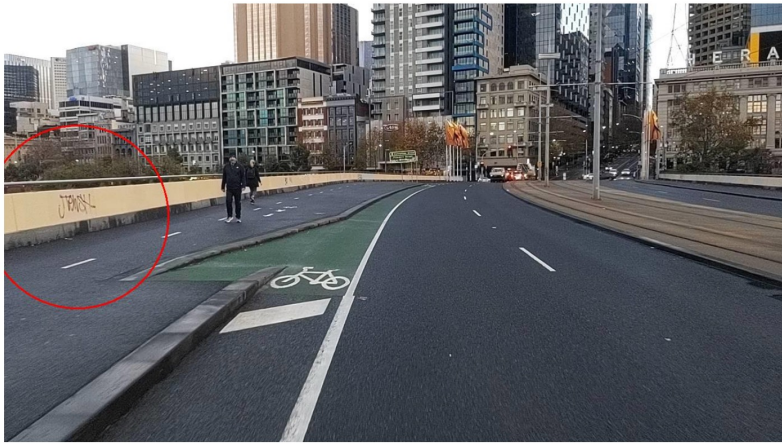
Severity
4

Detection Type
Passed

Passed
2 Times

Last Update
31/05/2022 7:38 AM

Defect Details



Asset Type
Roadway

Defect Type
Graffiti

Severity
4

Detection Type
Updated

Passed
2 Times

Last Update
31/05/2022 7:38 AM

Defect Details



Asset Type
Roadway

Defect Type
Graffiti

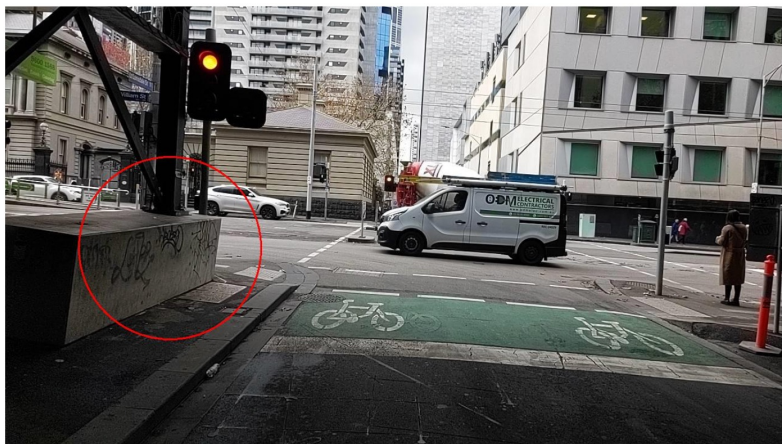
Severity
4

Detection Type
Removed

Passed
1 Times

Last Update
17/05/2022 10:49 AM

Defect Details



Asset Type
Roadway

Defect Type
Graffiti

Severity
4


Detection Type
New

Passed
1 Times

Last Update
27/05/2022 11:52 AM

Defect Examples (Sweeping)

Defect Details

A photograph of a footpath next to a brick wall, heavily covered with fallen brown leaves. A red circle highlights a specific area of the path.

Asset Type
Footpath

Defect Type
Sweeping

Severity
5

Detection Type
New

Passed
1 Times

Last Update
26/04/2022 8:39 AM

Defect Details

A photograph of a residential street with trees and parked cars. The road surface is covered with fallen leaves. A red circle highlights a section of the road.

Asset Type
Roadway

Defect Type
Sweeping


Severity
3

Detection Type
New

Passed
1 Times

Last Update
21/04/2022 9:46 AM

Defect Details

A photograph of a street with parked cars and green bins. The ground is covered with fallen leaves. A red circle highlights an area near the bins.

Asset Type
Roadway

Defect Type
Sweeping


Severity
3

Detection Type
New

Passed
1 Times

Last Update
12/04/2022 10:44 AM

Defect Details

A photograph of a city street with a modern skyline in the background. The road is covered with fallen leaves. A red circle highlights a section of the road.

Asset Type
Roadway

Defect Type
Sweeping

Severity
2

Detection Type
Passed

Passed
12 Times

Last Update
31/05/2022 1:14 PM

Road Data Catalogue



Roadway

- Kerb & Channel
- Litter / Debris
- Barriers / Guardrails
- Potholes
- Cracking
- Crocodile Cracking
- Shoving
- Rutting
- Raveling
- Flushing
- Vegetation
- Overhanging Branches
- Edge Damage
- Ponding Water
- Sweeping
- Roadkill
- Graffiti



Signage

- Speed Signs
- Parking Signs
- Stop / Give Way Signs
- Roadwork
- School Zones
- Bent / Faded Signs
- Bent Guideposts



Linemarking

- Faded chevron paint
- Faded Messages
(Speed, bike, bus)
- Faded Line Marking

Footpath Assessment



Camera is fit to e-bike or other footpath inspection vehicle.



Footage is automatically uploaded to servers where automated processing is conducted.



Output data is automatically sent to asset maintenance system or data lake via an API.

Footpath Data Catalogue



Footpath

- Cracking
- Displacement
- Crocodile Cracking
- Damaged Tactiles
- Edge Damage
- Edge Drop
- Faded Linemarking
- Litter
- Overhanging Branches
- Ponding Water
- Pothole
- Sweeping
- Temporary Repair
- Vegetation

Existing footpath assessments involve walking or riding a vehicle across the footpath network and manually capturing defects. Through our work with councils to provide our automated assessment, feedback from the councils shows an 8 times increase in efficiency for defect assessment.

One example is a council that was previously conducting their footpath assessment with four inspectors, taking them 12 months. Since introducing Retina Visions' footpath assessment, they are completing their footpath assessment in 6 months and using only one inspector.