



Asbestos cement roof hotspots study

The asbestos cement roof hotspots project was commissioned to better understand the residential asbestos cement roofing legacy.

We tested and validated a mixed methods approach, combining urban analytics, high-resolution imagery, and machine learning to detect asbestos cement roofing in specific study localities.

Analytics allowed for the entire of Australia to be scanned (at the Statistical Area 2 or SA2 level), to rank localities for the predicted presence of ACMs anywhere in the home and the potential for disturbance, based on various socio-economic and property development factors.



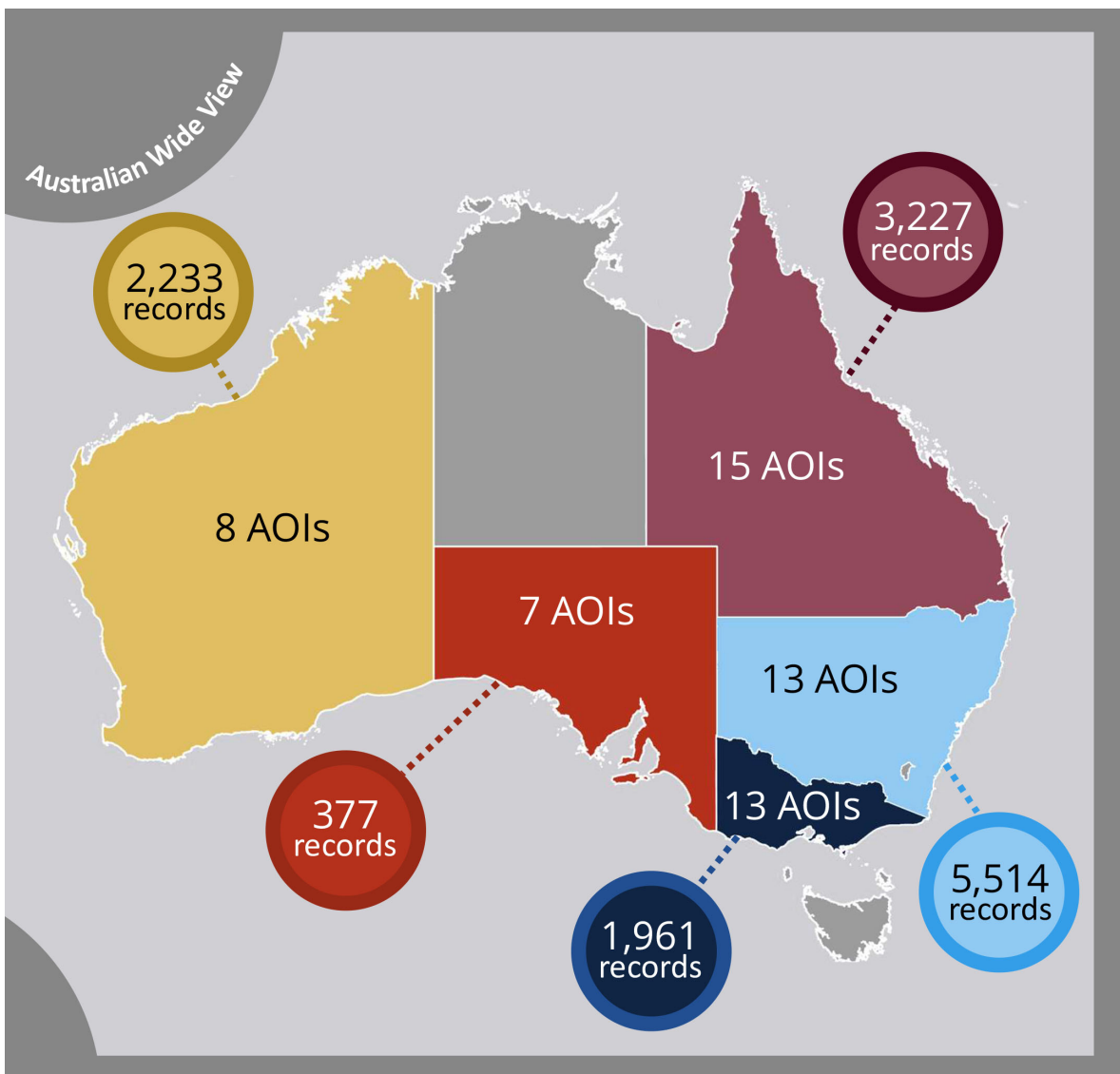
Asbestos National Strategic Plan

Implementation 2019–23

Coverage



In this study, the highest ranked localities in NT, ACT and TAS did not reveal significant amounts of asbestos cement roofing and so these jurisdictions were excluded from further analysis.





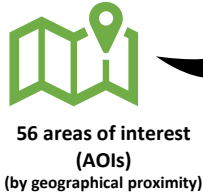
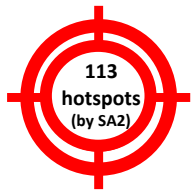
Asbestos cement roof hotspots – summary

RESULTS

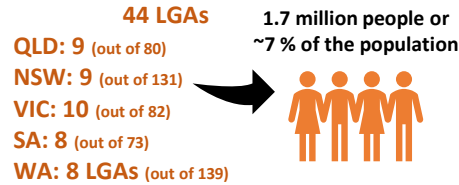
asbestos cement roof count = 13 312
estimated waste volume = 23 105 t
estimated waste area = 1 481 190 m²
estimated waste in football fields = ~207



COVERAGE



15 in QLD
13 in NSW
13 in VIC
7 in SA
8 in WA



RESULTS



ROOFS DETECTED

3227

5514

1961

377

2233

AVG ROOF FOOTPRINT

144 m²

84 m²

126 m²

143 m²

113 m²

DENSITY RANGE (average)

0.4–6.0 %
(1.5 %)

0.7–5.9 %
(2.9 %)

0.4–2.8 %
(1.2 %)

0.2–1.6 %
(0.5 %)

0.2–6.6 %
(2.4 %)



VOLUME

7249 t

7225 t

3854 t

841 t

3936 t

AREA (football fields)

464 688 m² (~65)

463 176 m² (~65)

247 086 m² (~35)

53 911 m² (~7.5)

252 329 m² (~35)



AI MODEL ACCURACY

98 %

99 %

99 %

100 %

96 %

	QLD	NSW	VIC	SA	WA
ROOFS DETECTED	3227	5514	1961	377	2233
AVG ROOF FOOTPRINT	144 m ²	84 m ²	126 m ²	143 m ²	113 m ²
DENSITY RANGE (average)	0.4–6.0 % (1.5 %)	0.7–5.9 % (2.9 %)	0.4–2.8 % (1.2 %)	0.2–1.6 % (0.5 %)	0.2–6.6 % (2.4 %)
VOLUME	7249 t	7225 t	3854 t	841 t	3936 t
AREA (football fields)	464 688 m ² (~65)	463 176 m ² (~65)	247 086 m ² (~35)	53 911 m ² (~7.5)	252 329 m ² (~35)
AI MODEL ACCURACY	98 %	99 %	99 %	100 %	96 %



Asbestos cement cladding – preliminary insights

COVERAGE



qualitative trends about external wall cladding for 29 SA2s



external wall asbestos cement cladding prevalence estimates in 19 SA2s

6 in QLD
3 in NSW
3 in VIC
3 in SA
4 in WA



observations in ~0.8 km² of each SA2, covering a total of ~15 km² and 1505 dwellings

RESULTS

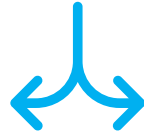


Most commonly found in CBD fringing or coastal areas, with a double-pitched non-ACM roof



Commonly associated with:

- iron roofing
- vertical cladding cover strips



Commonly associated with:

- tile roofing
- horizontal cladding cover strips



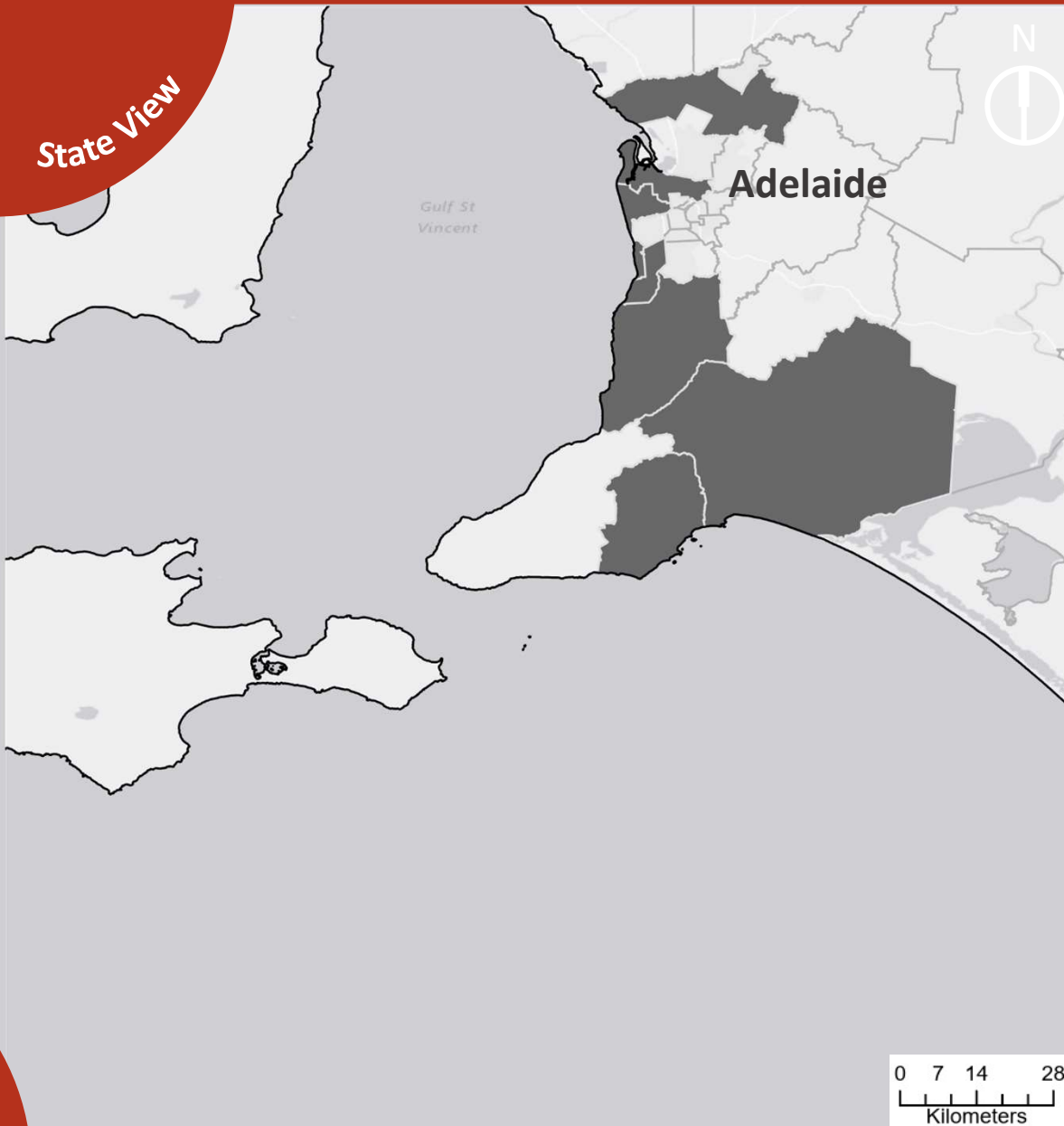
ESTIMATED DENSITY

ACM roofing only : ACM roofing and cladding : ACM cladding only

3 : 1 : 6

for every 3 homes with asbestos cement roofing only, there is 1 more home with both asbestos cement roofing and cladding, and 6 more homes with external wall asbestos cement cladding only

State View



Hotspots:
8 LGAs



377
Total
Buildings

Accuracy



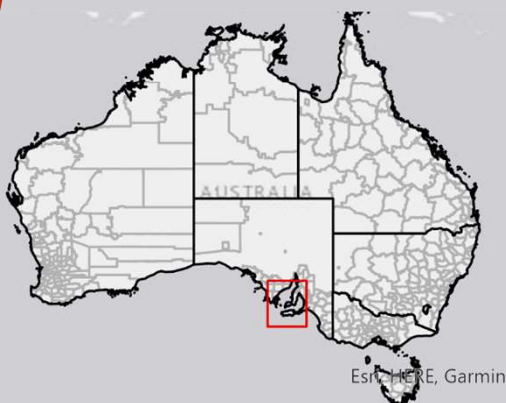
99%



7 Areas of
Interest



104km²
Hotspot
area



Legend

- Local Government Areas with Asbestos Hotspots (SA)
- Local Government Areas
- State & Territory Boundaries

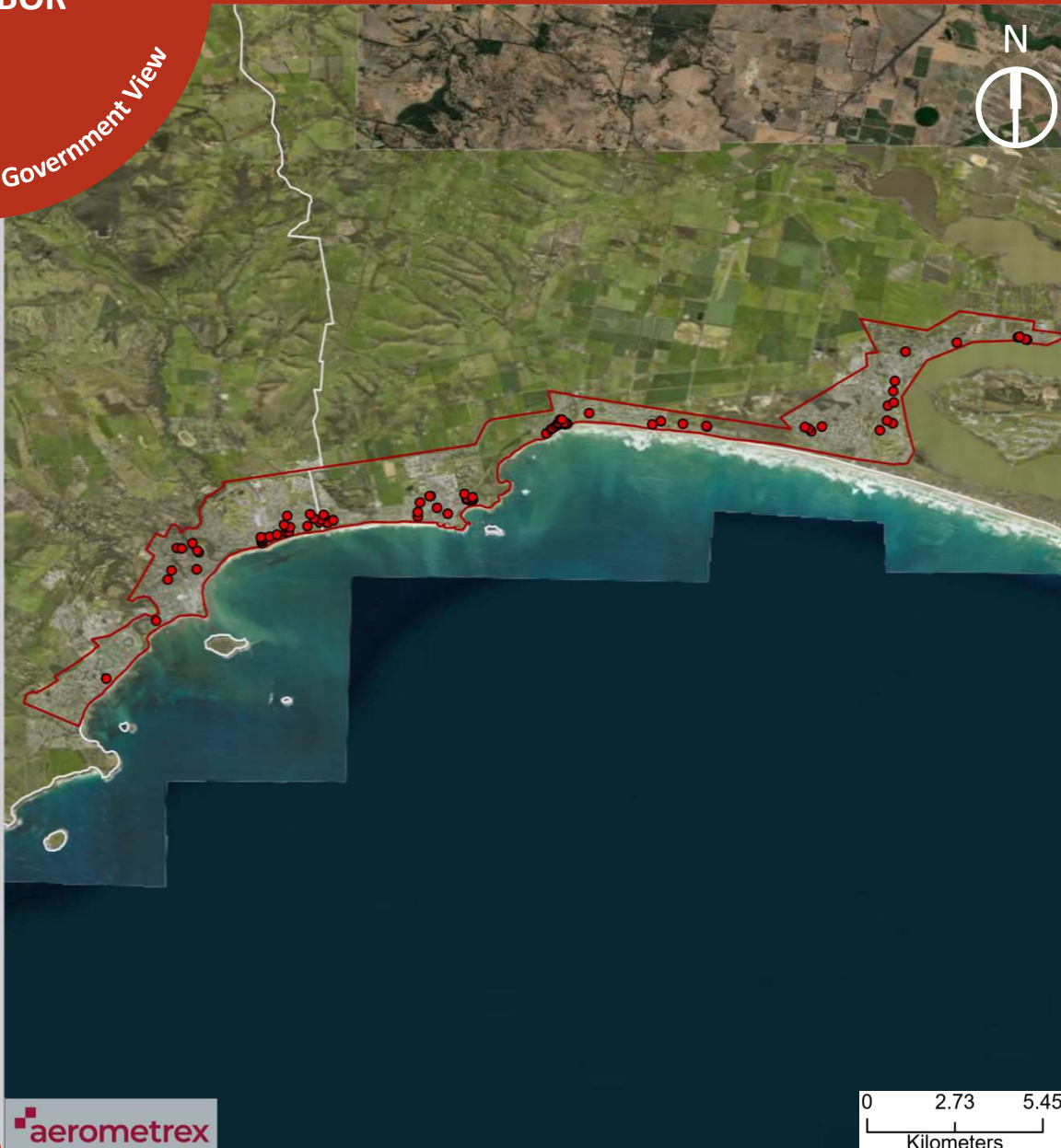
South Australia

South Australia's asbestos roofing hotspots were identified in the Alexandrina, Charles Sturt, Holdfast Bay, Marion, Onkaparinga, Playford, Port Adelaide Enfield, and Victor Harbor local government areas. The South Australia area of interests are distributed across 12 SA2s with a population of 174,135 persons in 2016. In total, 53,911 square metres of asbestos roofing were found in the state, which equates to 841 tonnes of ACM.

**ALEXANDRINA
& VICTOR
HARBOR**

Residential Asbestos Roof Hotspots

Local Government View



ACM roofing



85 / 17,813 dwellings

ACM area



12,155m²

ACM mass



189.6 t

Density



Absolute: 0.5%
Relative to avg.
roof size: 0.6%

Aerial imagery



01/09/2020

Accuracy



100%



Legend

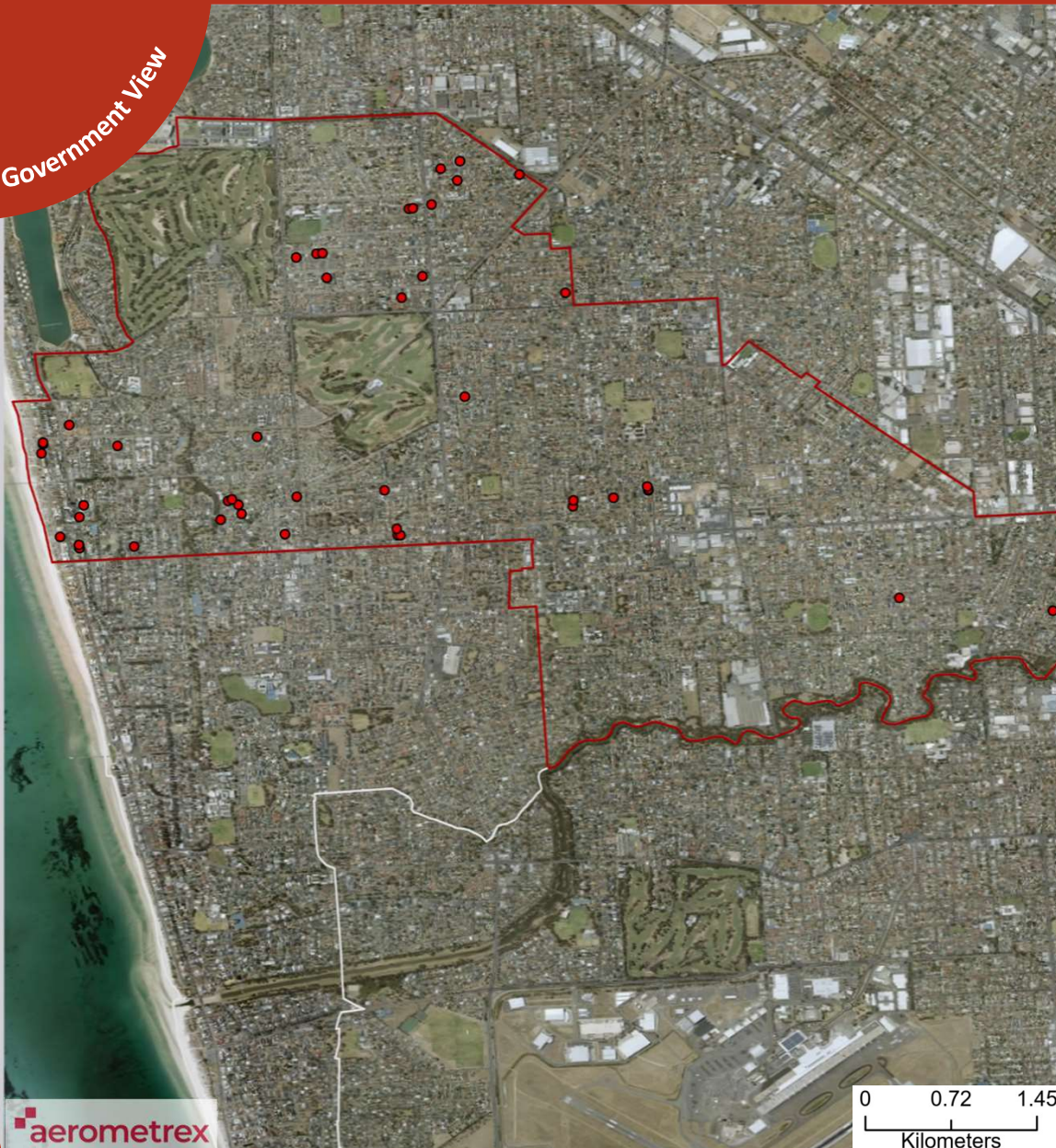
- Roofs with Asbestos Containing Material
- Area of Interest Boundaries
- Local Government Areas with Asbestos Hotspots (SA)
- State & Territory Boundaries

Port Elliot – 27.6km²

The Port Elliot area of interest is comprised of the 'Goolwa – Port Elliot' and 'Victor Harbor' SA2s. This AOI covers an area of 27.6 square kilometres with a population of 25,489 in 2016, and projected growth of 1,586 persons between 2016 and 2031. The area is located in Climate Zone 6 (i.e. mild temperate) at a latitude of 35.5 degrees.

Residential Asbestos Roof Hotspots

Local Government View



ACM roofing



46 / 13,992 dwellings

ACM area



6,578m²

ACM mass



102.6 t

Density



Absolute: 0.3%
Relative to avg. roof size: 0.4%

Aerial imagery

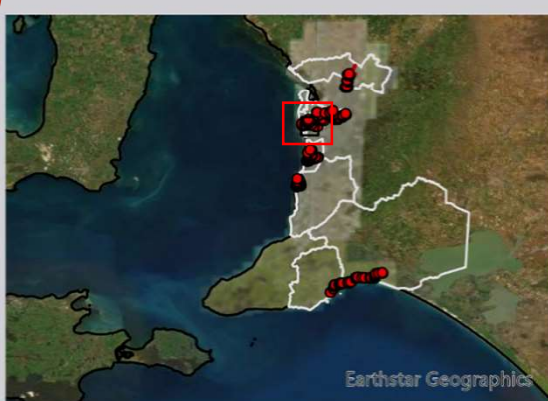


11/10/2020

Accuracy



100%



Legend

- Roofs with Asbestos Containing Material
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- Local Government Areas with Asbestos Hotspots (SA)
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Seaton Flinders Park – 14.7km²

The Seaton Flinders Park area of interest is comprised of the 'Flinders Park' and 'Seaton – Grange' SA2s. This AOI covers an area of 14.6 square kilometres with a population of 30,781 in 2016, and projected growth of 1,583 persons between 2016 and 2031. The area is located in Climate Zone 5 (i.e. warm temperate) at a latitude of 34.8 degrees.

Local Government View



ACM roofing



91 / 10,383 dwellings

ACM area



13,013m²

ACM mass



203 t

Density



Absolute: 0.9%
Relative to avg. roof size: 1.1%

Aerial imagery

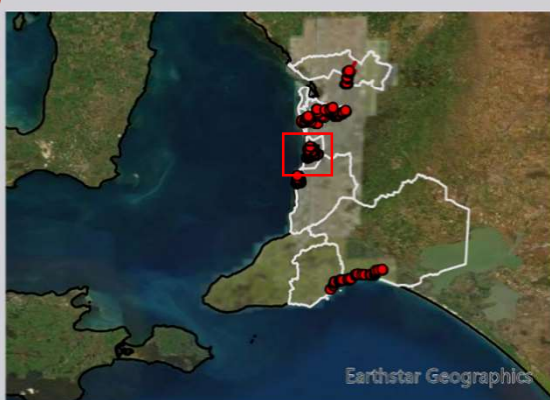


03/04/2021

Accuracy



100%



Legend

- Roofs with Asbestos Containing Material
- Area of Interest Boundaries
- Local Government Areas with Asbestos Hotspots (SA)
- State & Territory Boundaries

Marino Brighton – 11.6km²

The Marino Brighton area of interest is comprised of the 'Brighton (SA)' and 'Marino – Seaview Downs' SA2s. This AOI covers an area of 11.5 square kilometres with a population of 23,116 in 2016, and projected growth of 1,020 persons between 2016 and 2031. The area is located in Climate Zone 5 (i.e. warm temperate) at a latitude of 35 degrees.

Residential Asbestos Roof Hotspots

Local Government View



ACM roofing



62 / 4,860 dwellings

ACM area



8,866m²

ACM mass



138.3 t

Density



Absolute: 1.3%
Relative to avg. roof size: 1.6%

Aerial imagery

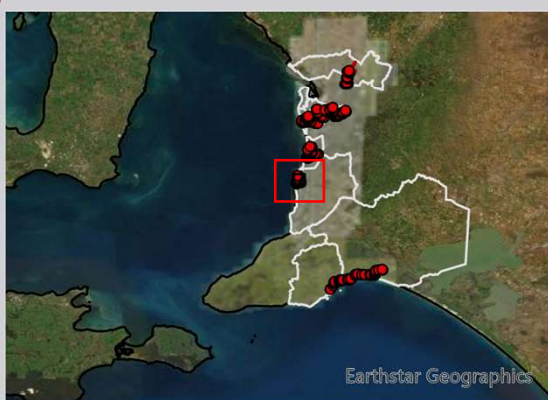


20/01/2021

Accuracy



94%



Legend

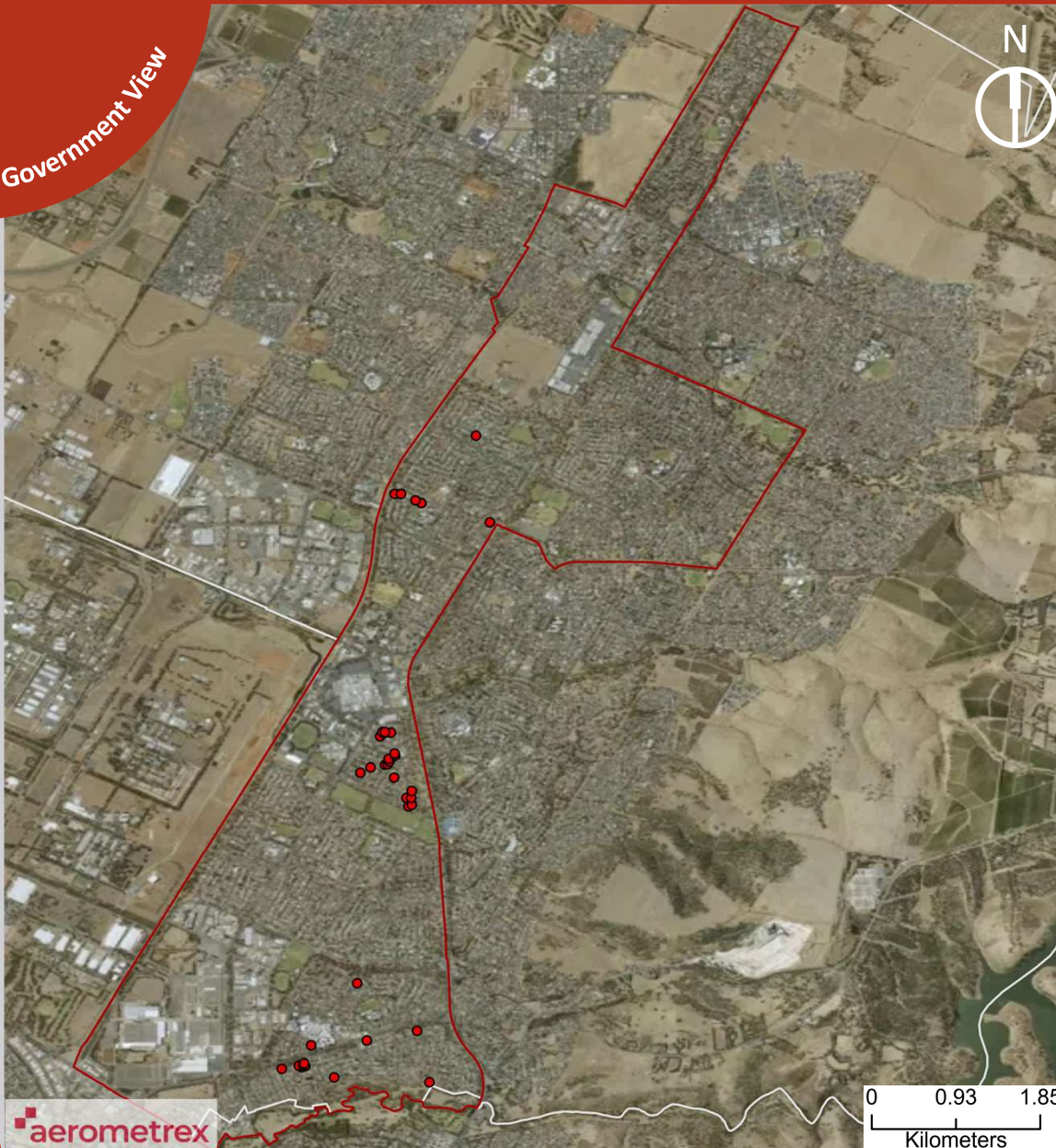
- Roofs with Asbestos Containing Material
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Christies Beach – 5.3km²

The Christies Beach area of interest is comprised of the 'Christies Beach' SA2. This AOI covers an area of 5.2 square kilometres with a population of 10,256 in 2016, and projected growth of 453 persons between 2016 and 2031. The area is located in Climate Zone 5 (i.e. warm temperate) at a latitude of 35.1 degrees.

Residential Asbestos Roof Hotspots

Local Government View



ACM roofing



37 / 10,363 dwellings

ACM area



5,291m²

ACM mass



82.5 t

Density



Absolute: 0.4%
Relative to avg. roof size: 0.4%

Aerial imagery

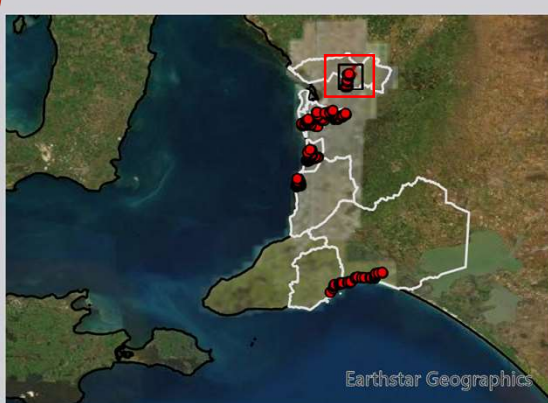


07/01/2021

Accuracy



93%



Legend

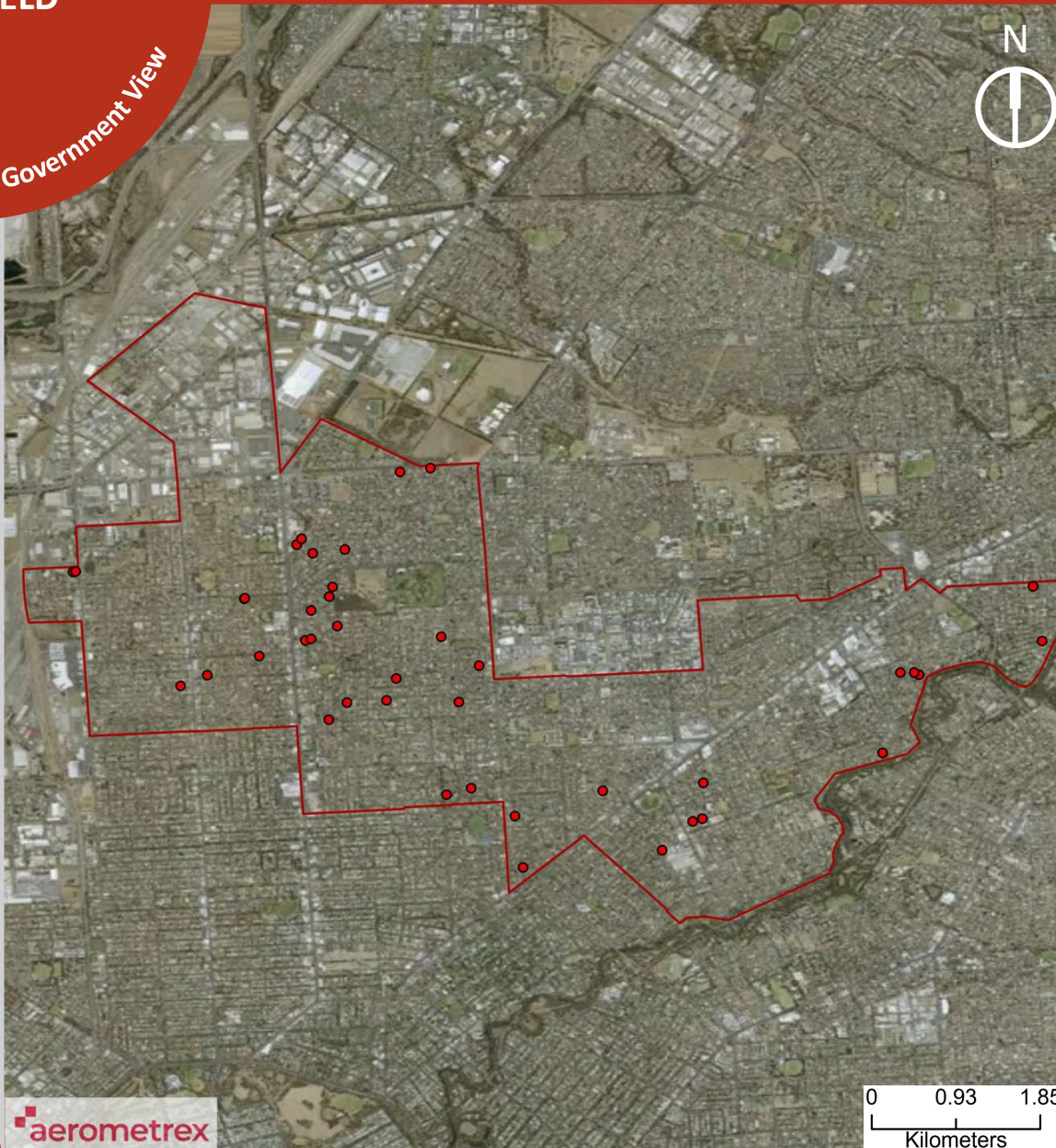
- Roofs with Asbestos Containing Material
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Elizabeth Smithfield – 17.3km²

The Elizabeth Smithfield area of interest is comprised of the 'Elizabeth' and 'Smithfield – Elizabeth North' SA2s. This AOI covers an area of 17.2 square kilometres with a population of 22,614 in 2016, and projected growth of 645 persons between 2016 and 2031. The area is located in Climate Zone 5 (i.e. warm temperate) at a latitude of 34.6 degrees.

Residential Asbestos Roof Hotspots

Local Government View



aerometrex

ACM roofing



41 / 9,942 dwellings

ACM area



5,863m²

ACM mass



91.4 t

Density



Absolute: 0.4%
Relative to avg. roof size: 0.5%

Aerial imagery

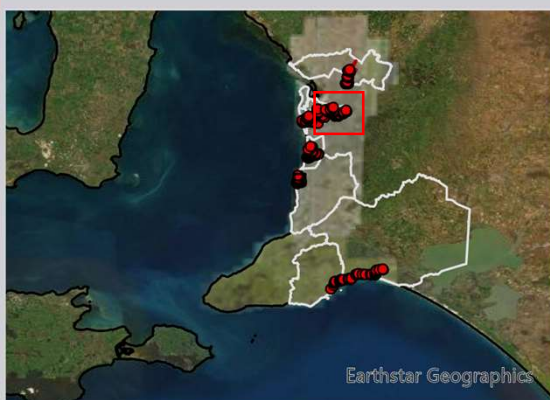


07/01/2021

Accuracy



100%



Earthstar Geographics

Legend

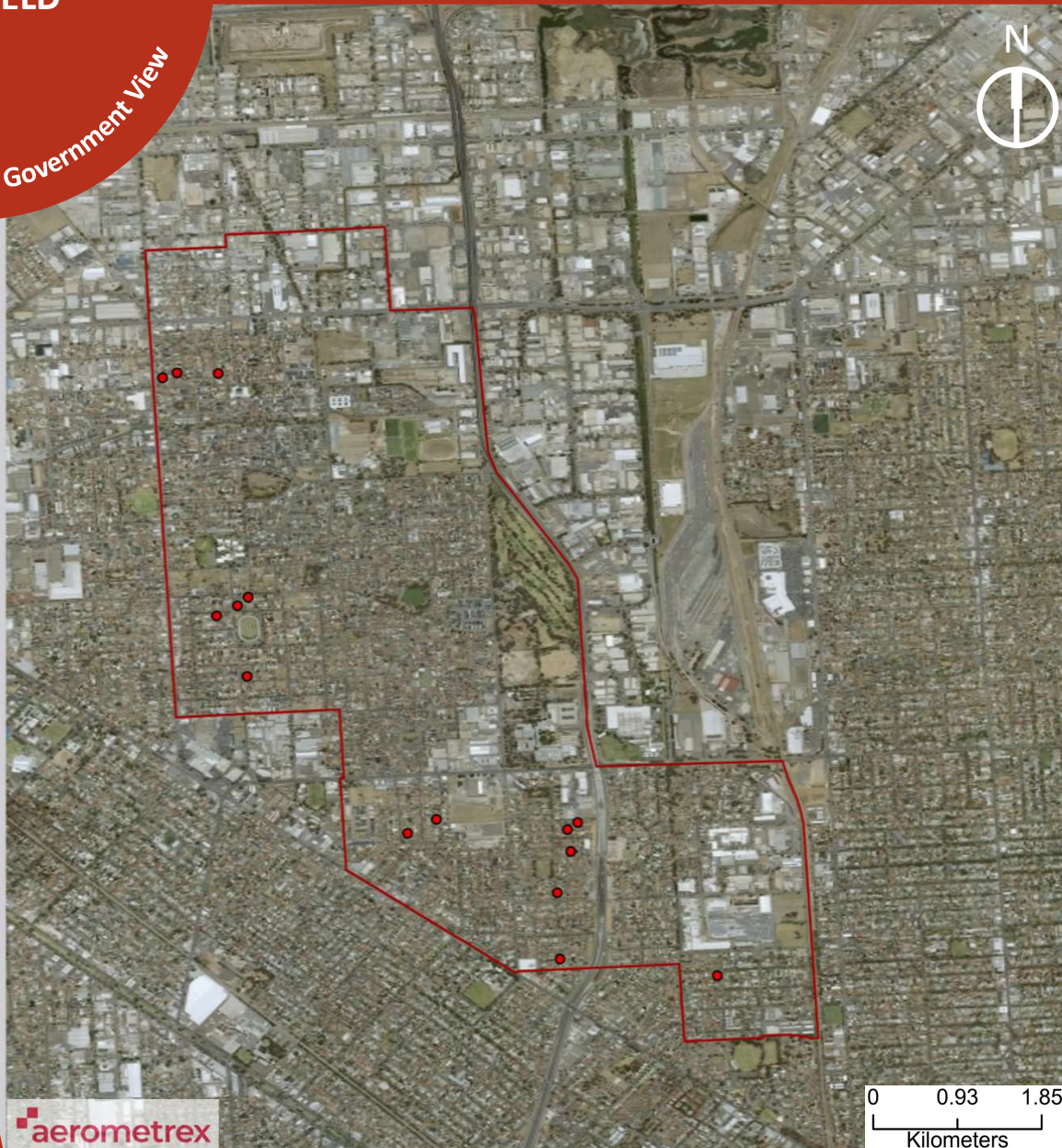
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Enfield East – 19.1km²

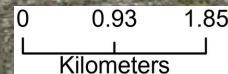
The Enfield East area of interest is comprised of the 'Enfield – Blair Athol' and 'Windsor Gardens' SA2s. This AOI covers an area of 19.1 square kilometres with a population of 30,940 in 2016 (i.e., average between Enfield East and Enfield West), and projected growth of 2,673 persons between 2016 and 2031. The area is located in Climate Zone 5 (i.e. warm temperate) at a latitude of 34.8 degrees.

Residential Asbestos Roof Hotspots

Local Government View



aerometrex



ACM roofing



15 / 7,532 dwellings

ACM area



2,145m²

ACM mass



33.4 t

Density



Absolute: 0.2%
Relative to avg. roof size: 0.2%

Aerial imagery



07/01/2021

Accuracy



100%



Earthstar Geographics

Legend

- Roofs with Asbestos Containing Material
- Area of Interest Boundaries
- Local Government Areas with Asbestos Hotspots (SA)
- State & Territory Boundaries

Enfield West – 8.5km²

The Enfield West area of interest is comprised of the 'The Parks' SA2. This AOI covers an area of 8.4 square kilometres with a population of 30,940 in 2016 (i.e., average between Enfield East and Enfield West), and projected growth of 526 persons between 2016 and 2031. The area is located in Climate Zone 5 (i.e. warm temperate) at a latitude of 34.8 degrees.