



# 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.



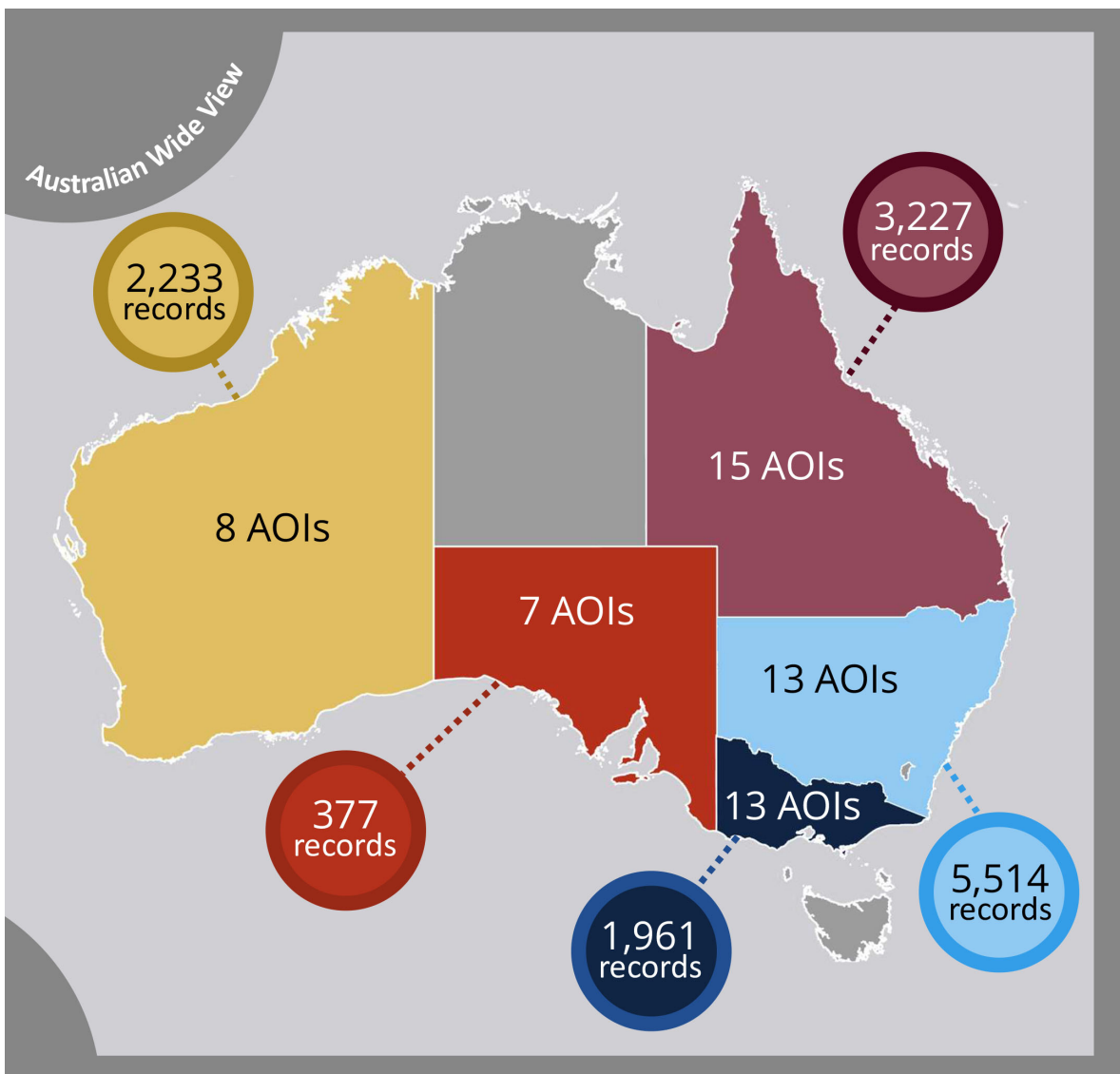
Asbestos National Strategic Plan

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.



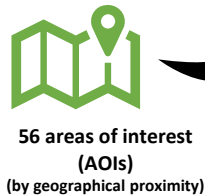
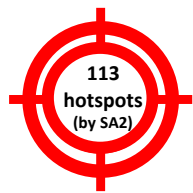


# Asbestos cement roof hotspots – summary

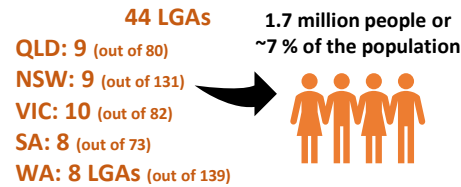
**RESULTS**  
 asbestos cement roof count = 13 312  
 estimated waste volume = 23 105 t  
 estimated waste area = 1 481 190 m<sup>2</sup>  
 estimated waste in football fields = ~207

**Asbestos National Strategic Plan**  
 Implementation 2019–23

**COVERAGE**



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



**RESULTS**



ROOFS DETECTED

AVG ROOF FOOTPRINT

DENSITY RANGE (average)



VOLUME

AREA (football fields)

AI MODEL ACCURACY

	QLD	NSW	VIC	SA	WA
ROOFS DETECTED	3227	5514	1961	377	2233
AVG ROOF FOOTPRINT	144 m <sup>2</sup>	84 m <sup>2</sup>	126 m <sup>2</sup>	143 m <sup>2</sup>	113 m <sup>2</sup>
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 <sup>2</sup> (~65)	463 176 m <sup>2</sup> (~65)	247 086 m <sup>2</sup> (~35)	53 911 m <sup>2</sup> (~7.5)	252 329 m <sup>2</sup> (~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 km<sup>2</sup> of each SA2, covering a total of ~15 km<sup>2</sup> and 1505 dwellings

RESULTS

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

QLD WA

Commonly associated with:

- iron roofing
- vertical cladding cover strips

NSW VIC SA

Commonly associated with:

- tile roofing
- horizontal cladding cover strips

**ESTIMATED DENSITY**

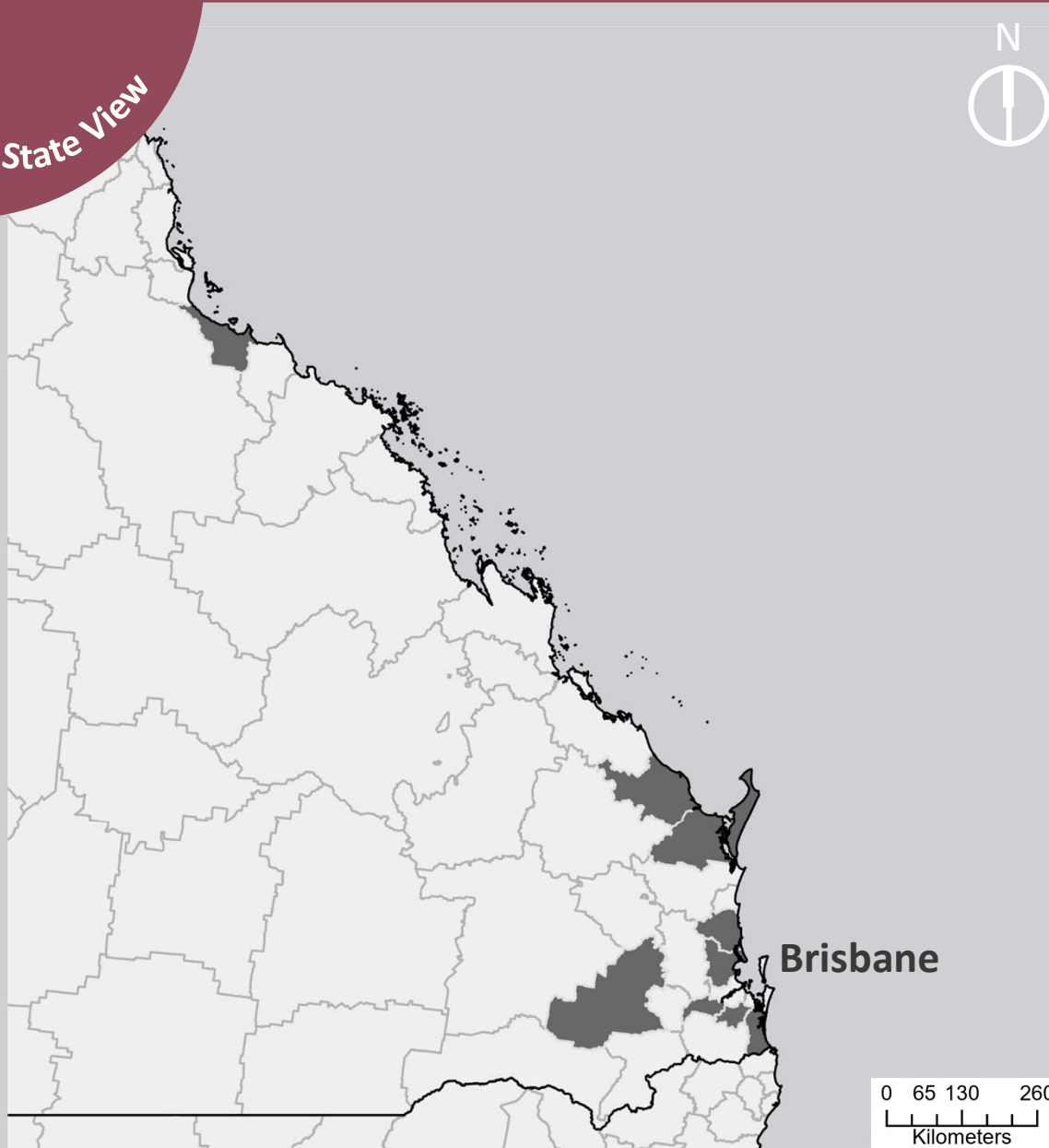
ACM roofing only : ACM roofing and cladding : ACM cladding only

**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*

# Residential Asbestos Roof Hotspots

State View



Hotspots:  
9 LGAs



3,227  
Total  
Buildings

Accuracy



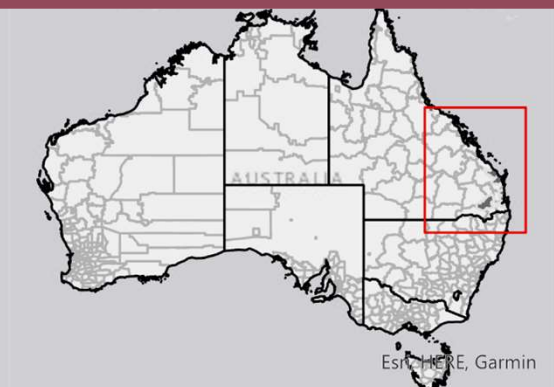
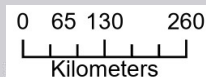
97%



15 Areas of  
Interest



198km<sup>2</sup>  
Hotspot  
area



## Legend

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

## Queensland

Queensland's asbestos roofing hotspots were identified in the Bundaberg, Fraser Coast, Gold Coast, Ipswich, Logan, Moreton Bay, Sunshine Coast, Toowoomba, and Townsville local government areas. The Queensland areas of interest are distributed across 35 SA2s with a population of 375,538 persons in 2016. In total, 464,688 square metres of asbestos roofing were found in the state, which equates to 7,249 tonnes of ACM.

# Residential Asbestos Roof Hotspots

Local Government View



aerometrex

ACM roofing



67 / 2683 dwellings

ACM area



9,648 m<sup>2</sup>

ACM mass



150.5 t

Density



Absolute: 2.5%  
Relative to avg. roof size: 3.1%

Aerial imagery

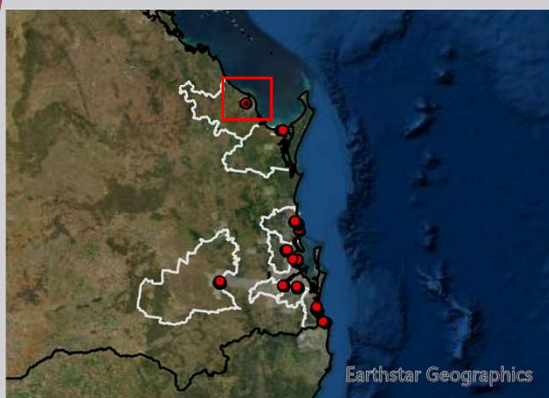


29/08/2020

Accuracy



90%



Earthstar Geographics

### Legend

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

## Bundaberg – 2.5km<sup>2</sup>

The Bundaberg area of interest is comprised of the 'Svensson Heights – Norville' SA2. This AOI covers an area of 19.56 square kilometres with a population of 5,622 in 2016, and projected growth of 3,750 persons between 2016 and 2031. The area is located in Climate Zone 2 (i.e. warm humid summer and mild winter) at a latitude of 24.9 degrees.

# Residential Asbestos Roof Hotspots

Local Government View



ACM roofing



48 / 14,004 dwellings

ACM area



6,912 m<sup>2</sup>

ACM mass



107.8 t

Density



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

Aerial imagery



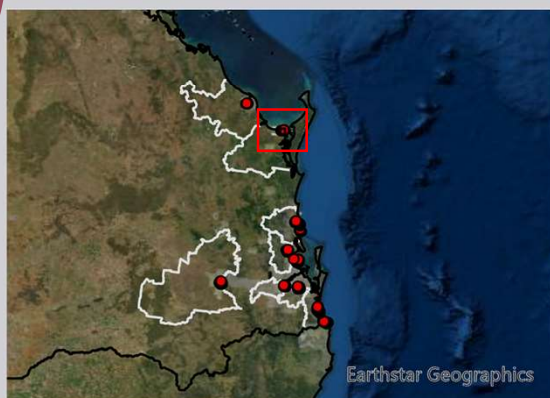
22/04/2020

Accuracy



100%

aerometrex



## Legend

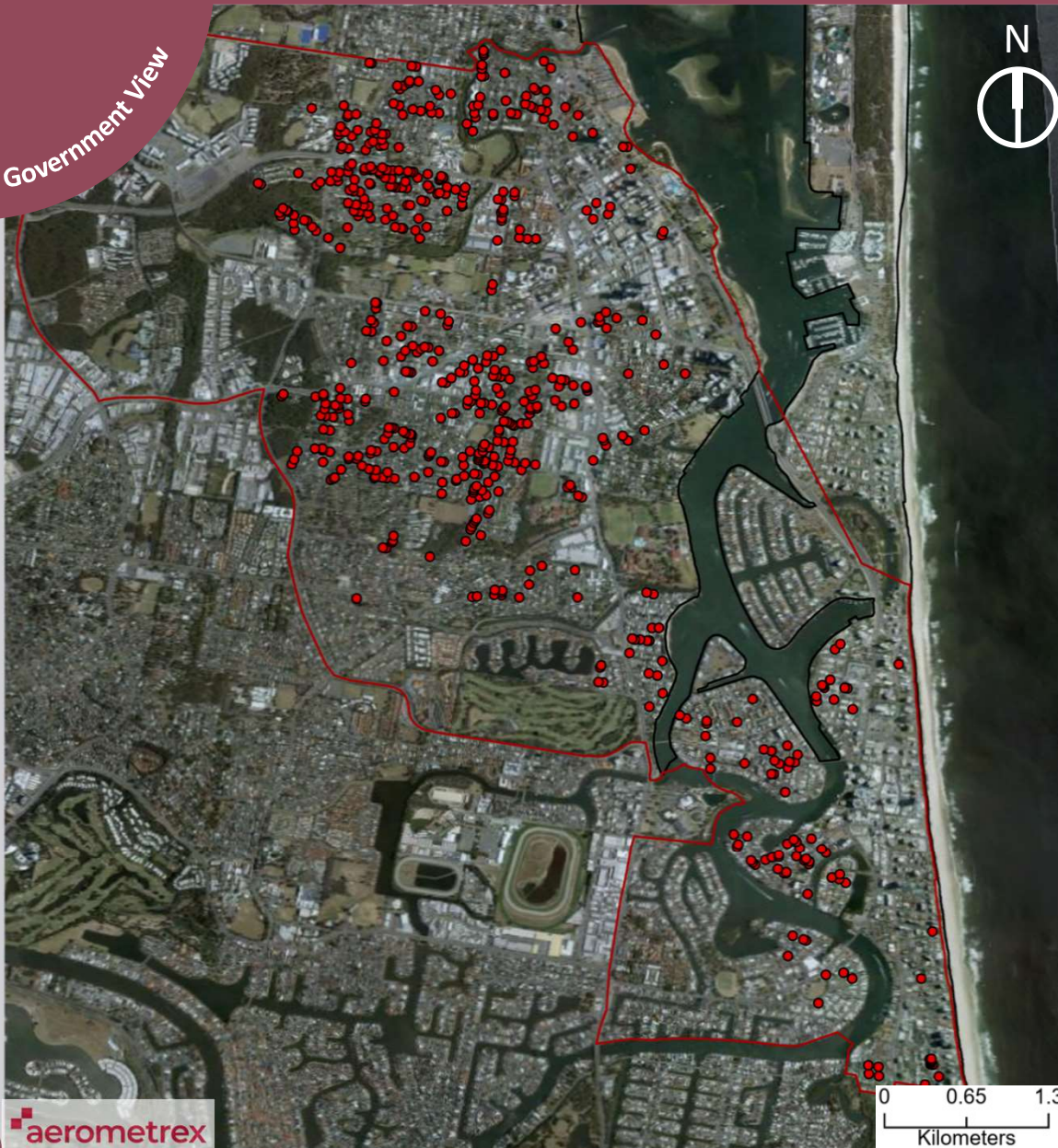
- Roofs with Asbestos Containing Material
- Area of Interest Boundaries
- Local Government Areas with Asbestos Hotspots (QLD)
- State & Territory Boundaries

## Hervey Bay – 20.1km<sup>2</sup>

The Hervey Bay area of interest is comprised of the 'Torquay – Scarness – Kawungan' and 'Urangan – Wondunna' SA2s. This AOI covers an area of 20 square kilometres with a population of 27,633 in 2016, and projected growth of 7,500 persons between 2016 and 2031. The area is located in Climate Zone 2 (i.e. warm humid summer and mild winter) at a latitude of 25.2 degrees.

# Residential Asbestos Roof Hotspots

Local Government View



ACM roofing



596 / 31,252 dwellings

ACM area



85,824 m<sup>2</sup>

ACM mass



1,338.8 t

Density



Absolute: 1.9%  
Relative to avg. roof size: 2.4%

Aerial imagery

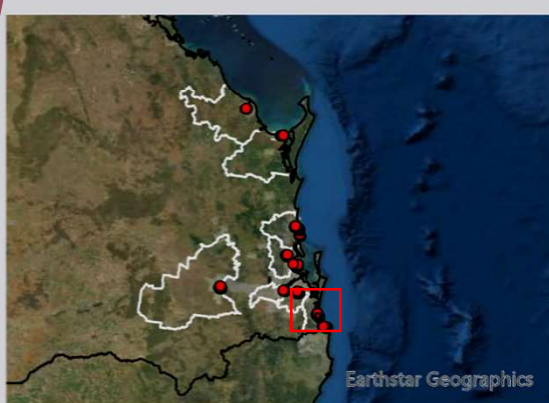


27/11/2020

Accuracy



98%



## Legend

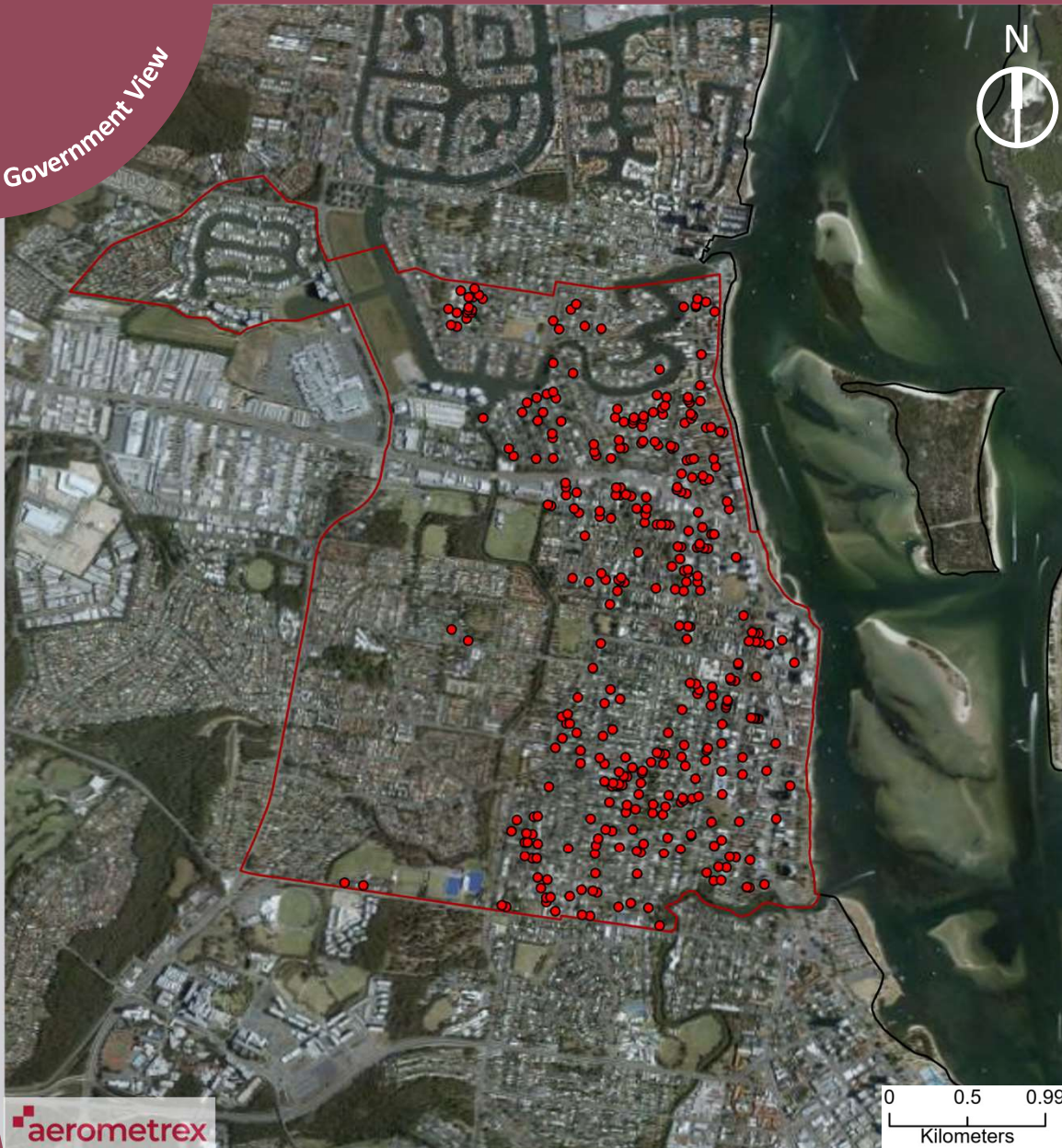
- Roofs with Asbestos Containing Material
- Area of Interest Boundaries
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## Southport Surfers – 22.3km<sup>2</sup>

The Southport Surfers area of interest is comprised of the 'Surfers Paradise', 'Southport – North' and 'Southport – South' SA2s. This AOI covers an area of 22.2 square kilometres with a population of 40,856 in 2016, and projected growth of 20,215 persons between 2016 and 2031. The area is located in Climate Zone 2 (i.e. warm humid summer and mild winter) at a latitude of 27.9 degrees.

# Residential Asbestos Roof Hotspots

Local Government View



ACM roofing



347 / 44,461 dwellings

ACM area



49,968 m<sup>2</sup>

ACM mass



779.5 t

Density



Absolute: 0.8%  
Relative to avg. roof size: 1.0%

Aerial imagery

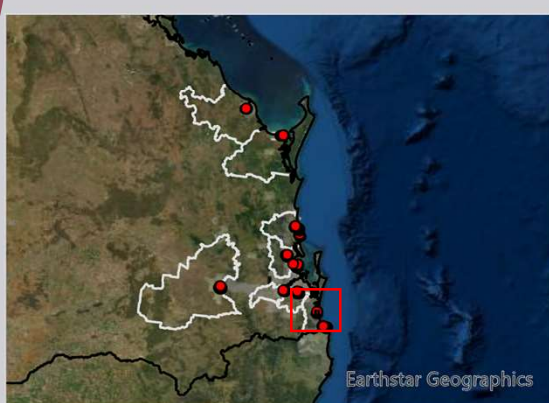


27/11/2020

Accuracy



100%



## Legend

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

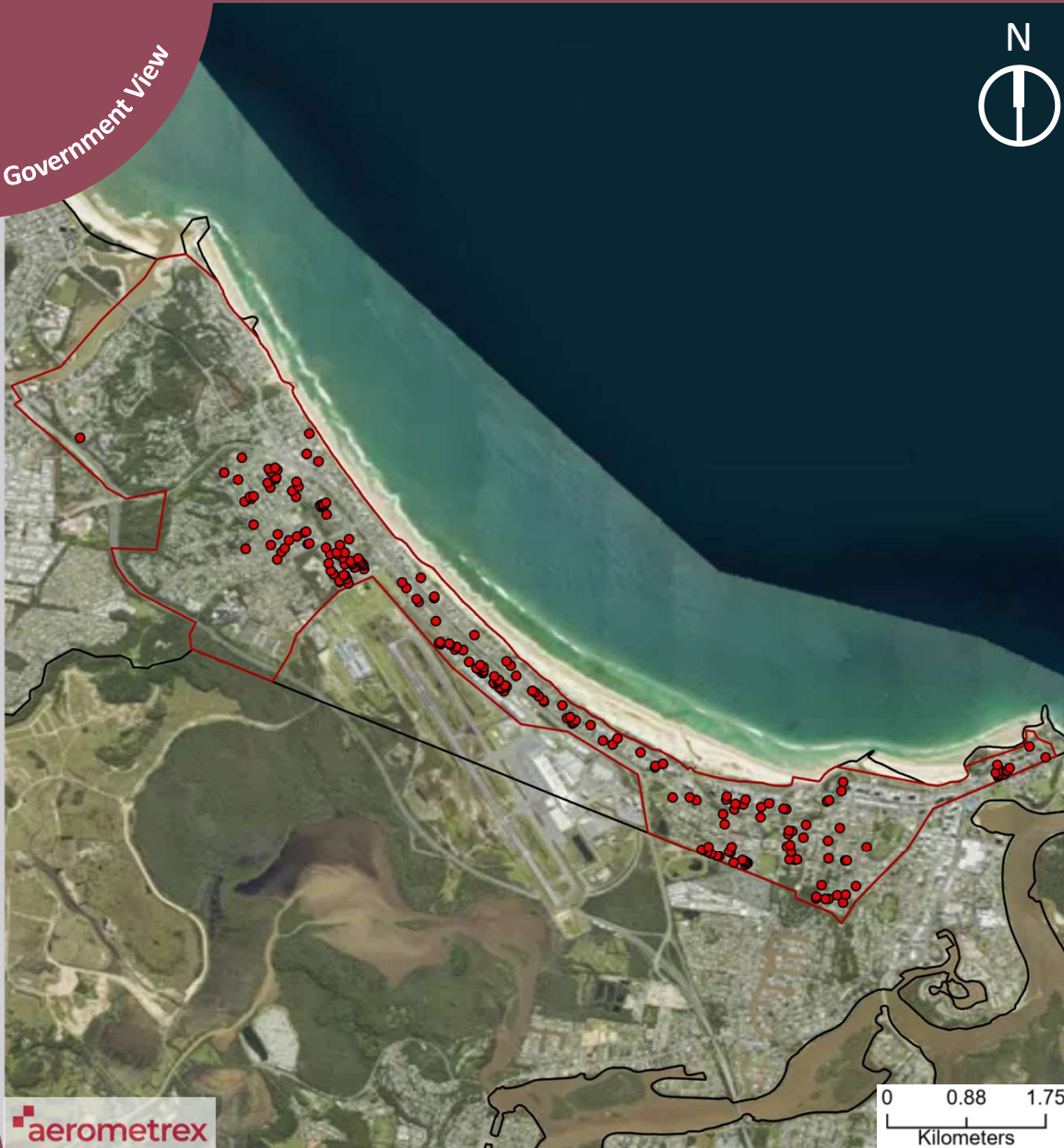
## Biggera Waters Labrador – 7.8km<sup>2</sup>

The Biggera Waters Labrador area of interest is comprised of the 'Biggera Waters' and 'Labrador' SA2s. This AOI covers an area of 7.8 square kilometres with a population of 41,536 in 2016, and projected growth of 14,653 persons between 2016 and 2031. The area is located in Climate Zone 2 (i.e. warm humid summer and mild winter) at a latitude of 27.9 degrees.



# Residential Asbestos Roof Hotspots

Local Government View



ACM roofing



202 / 9,824 dwellings

ACM area



29,088 m<sup>2</sup>

ACM mass



453.7 t

Density



Absolute: 2.1%  
Relative to avg. roof size: 2.6%

Aerial imagery



25/03/2021

Accuracy



96%



## Legend

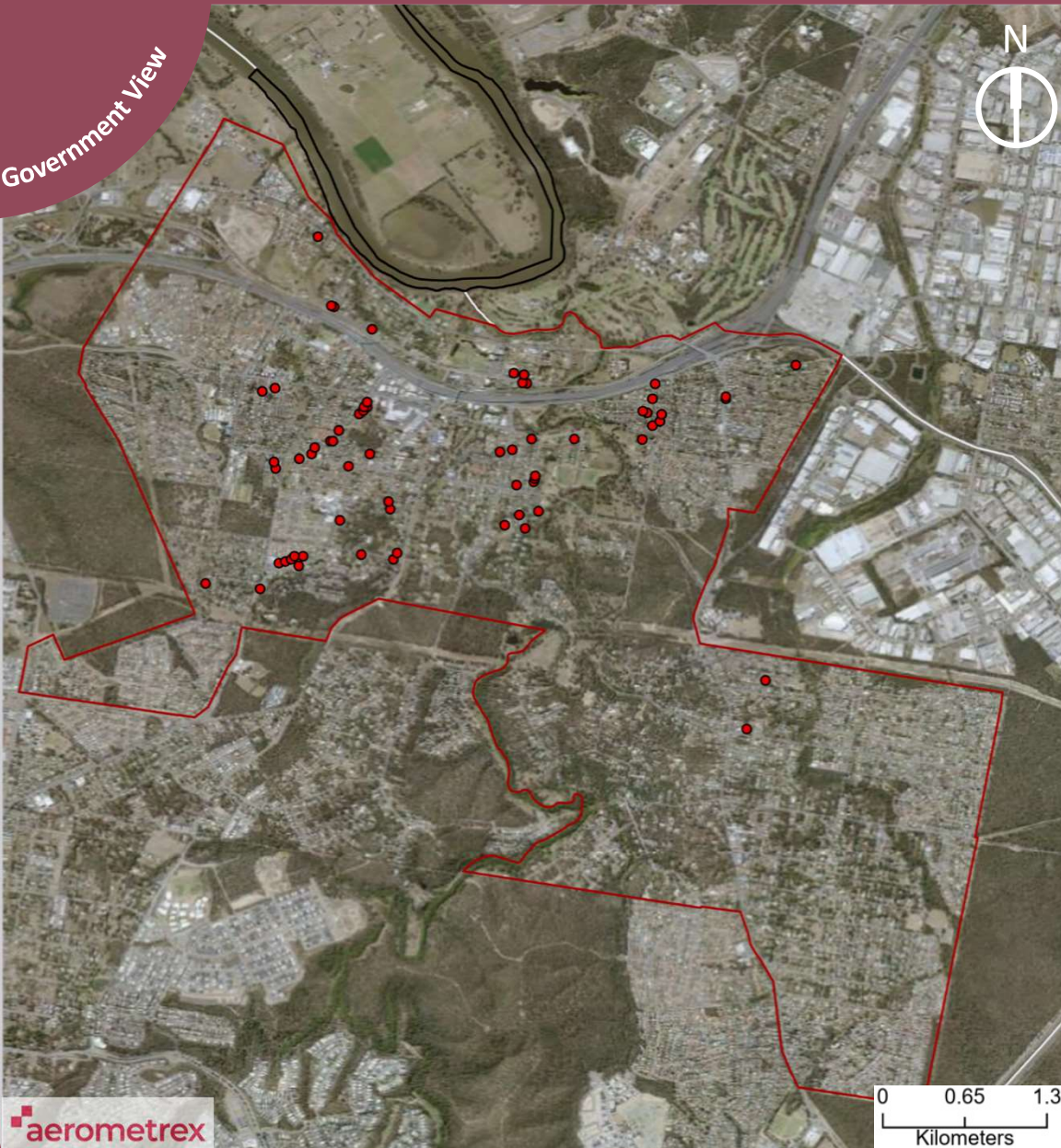
- Roofs with Asbestos Containing Material
- Area of Interest Boundaries
- Local Government Areas with Asbestos Hotspots (QLD)
- State & Territory Boundaries

## Coolangatta – 8.3km<sup>2</sup>

The Coolangatta area of interest is comprised of the 'Coolangatta' and 'Currumbin – Tugun' SA2s. This AOI covers an area of 8.2 square kilometres with a population of 17,241 in 2016, and projected growth of 4,910 persons between 2016 and 2031. The area is located in Climate Zone 2 (i.e. warm humid summer and mild winter) at a latitude of 28.1 degrees.

# Residential Asbestos Roof Hotspots

Local Government View



ACM roofing



64 / 7,180 dwellings

ACM area



9,216 m<sup>2</sup>

ACM mass



143.7 t

Density



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

Aerial imagery

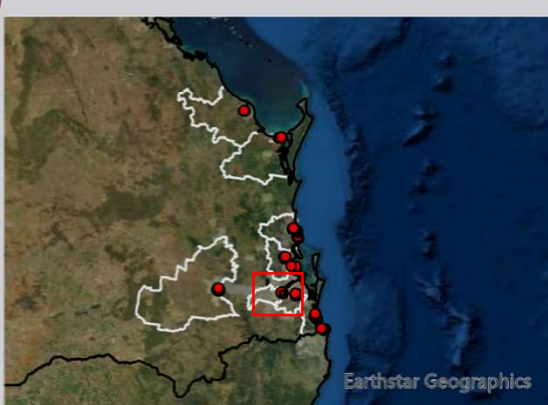


27/09/2020

Accuracy



100%



## Legend

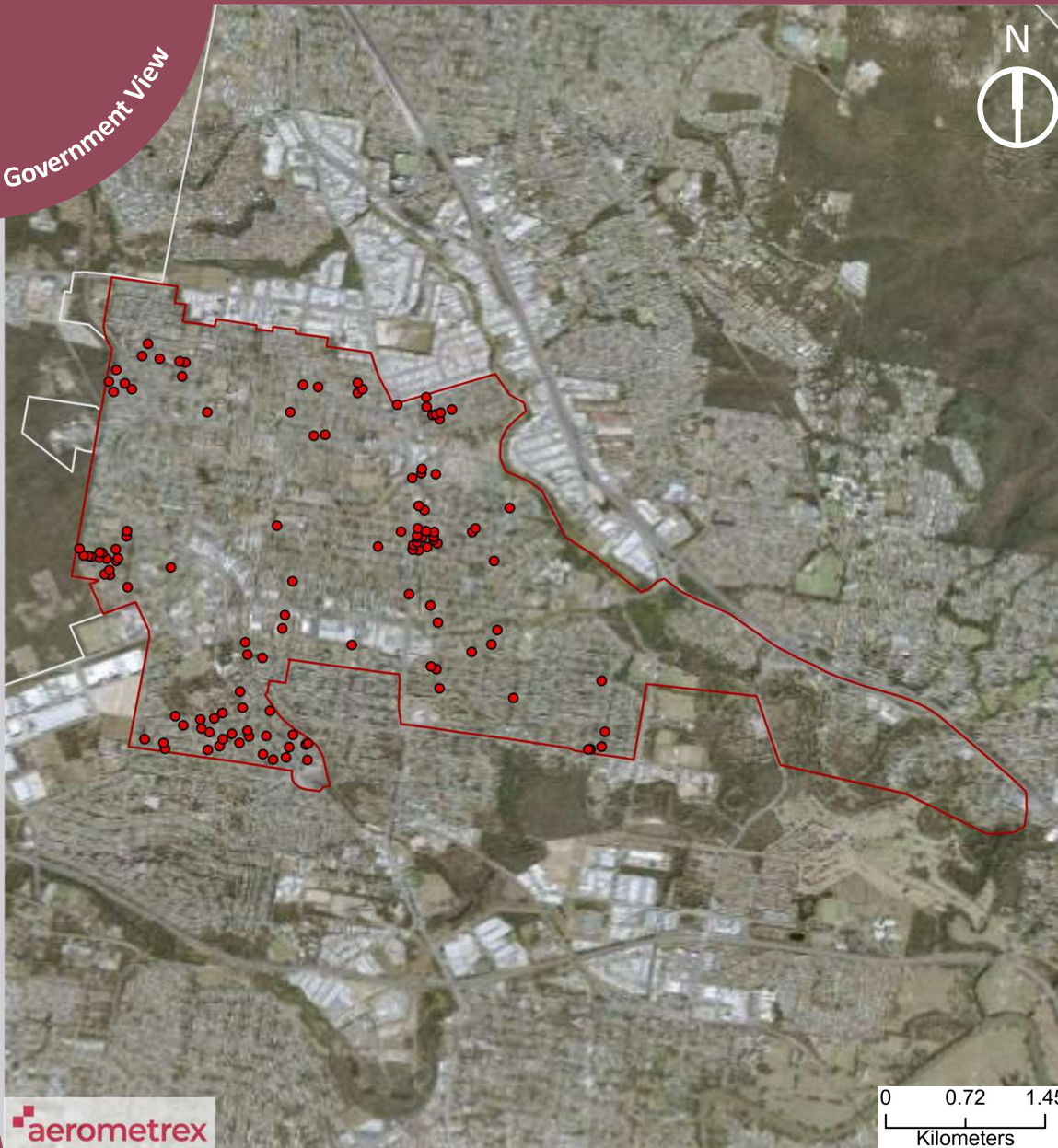
- Roofs with Asbestos Containing Material
- Area of Interest Boundaries
- Local Government Areas with Asbestos Hotspots (QLD)
- State & Territory Boundaries

## Goodna Camira – 15.4km<sup>2</sup>

The Goodna Camira area of interest is comprised of the 'Camira – Gailles' and 'Goodna' SA2s. This AOI covers an area of 15.4 square kilometres with a population of 20,123 in 2016, and projected growth of 3,454 persons between 2016 and 2031. The area is located in Climate Zone 2 (i.e. warm humid summers, mild winters) at a latitude of 27.6 degrees.

# Residential Asbestos Roof Hotspots

Local Government View



ACM roofing



124 / 11,266 dwellings

ACM area



17,856 m<sup>2</sup>

ACM mass



278.5 t

Density



Absolute: 1.1%  
Relative to avg. roof size: 1.4%

Aerial imagery



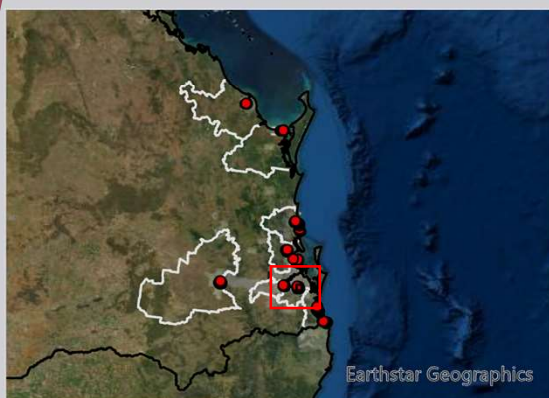
27/09/2020

Accuracy



88%

aerometrex



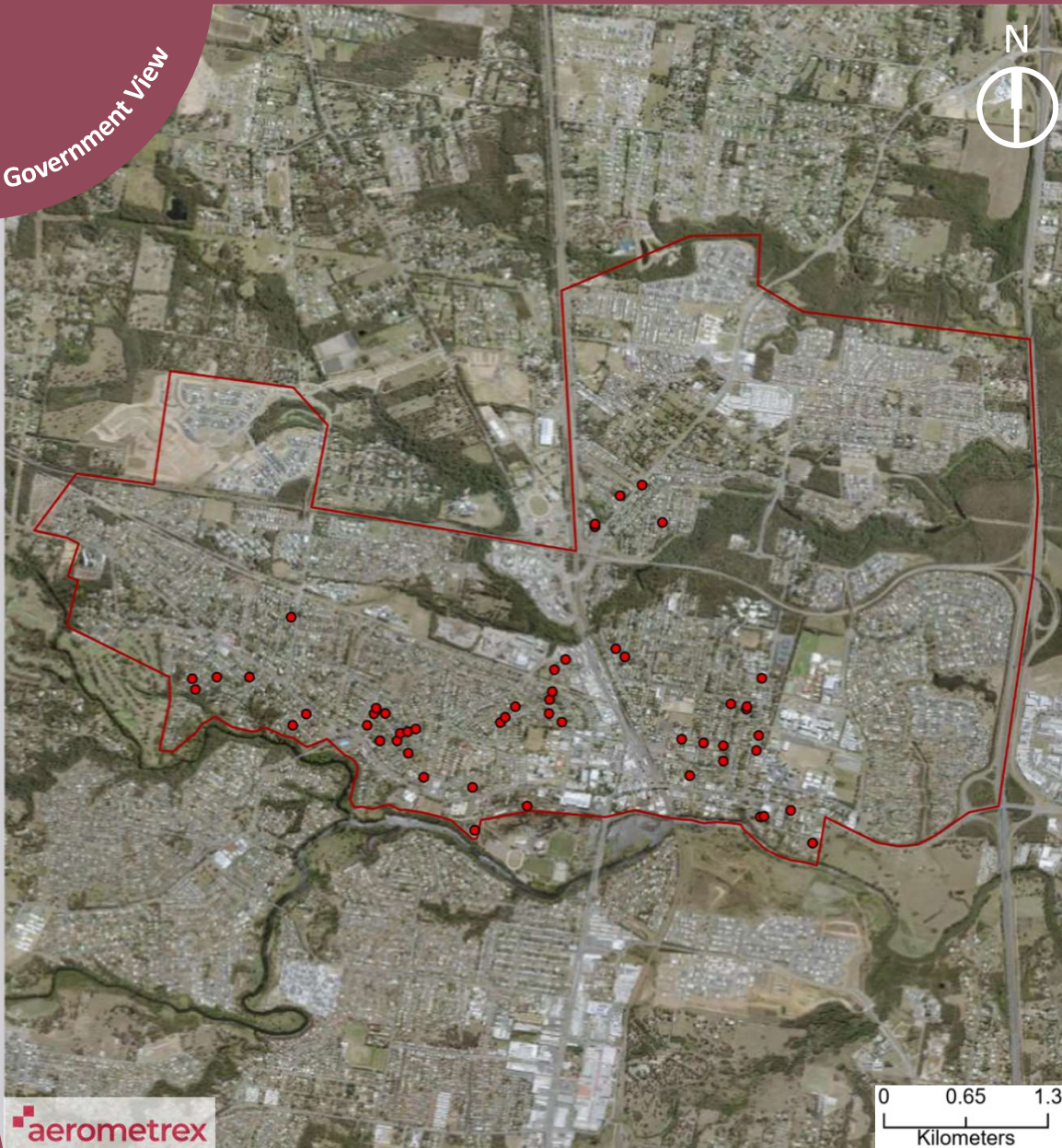
## Legend

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

## Logan Central – 13.4km<sup>2</sup>

The Logan Central area of interest is comprised of the 'Logan Central', 'Slacks Creek' and 'Woodridge' SA2s. This AOI covers an area of 13.4 square kilometres with a population of 29,126 in 2016, and projected growth of 2,796 persons between 2016 and 2031. The area is located in Climate Zone 2 (i.e. warm humid summers, mild winters) at a latitude of 27.6 degrees.

Local Government View



ACM roofing



52 / 10,767 dwellings

ACM area



7,488 m<sup>2</sup>

ACM mass



116.8 t

Density



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

Aerial imagery

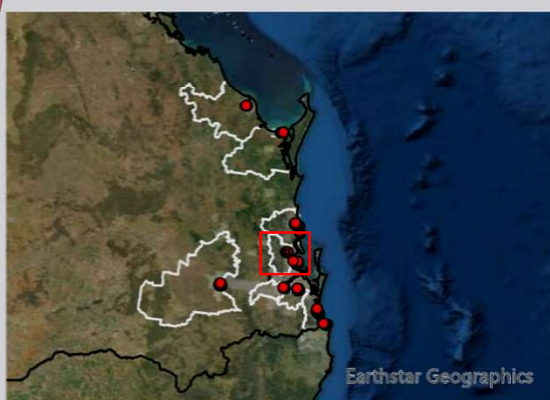


27/09/2020

Accuracy



98%



**Legend**

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

**Caboolture – 16.9km<sup>2</sup>**

The Caboolture area of interest is comprised of the 'Caboolture' SA2. This AOI covers an area of 16.9 square kilometres with a population of 26,876 in 2016, and projected growth of 11,019 persons between 2016 and 2031. The area is located in Climate Zone 2 (i.e. warm humid summers, mild winters) at a latitude of 27 degrees.

Local Government View



ACM roofing



67 / 7,704 dwellings

ACM area



9,648 m<sup>2</sup>

ACM mass



150.5 t

Density



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

Aerial imagery

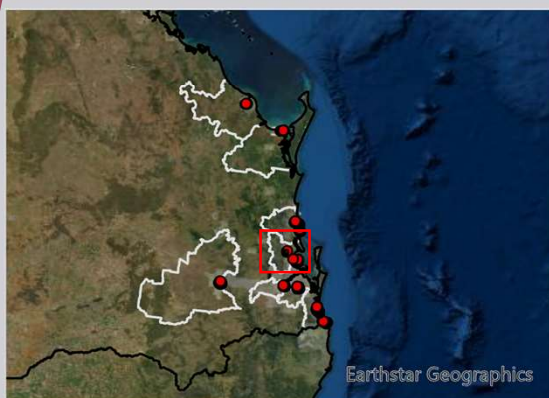


27/09/2020

Accuracy



96%



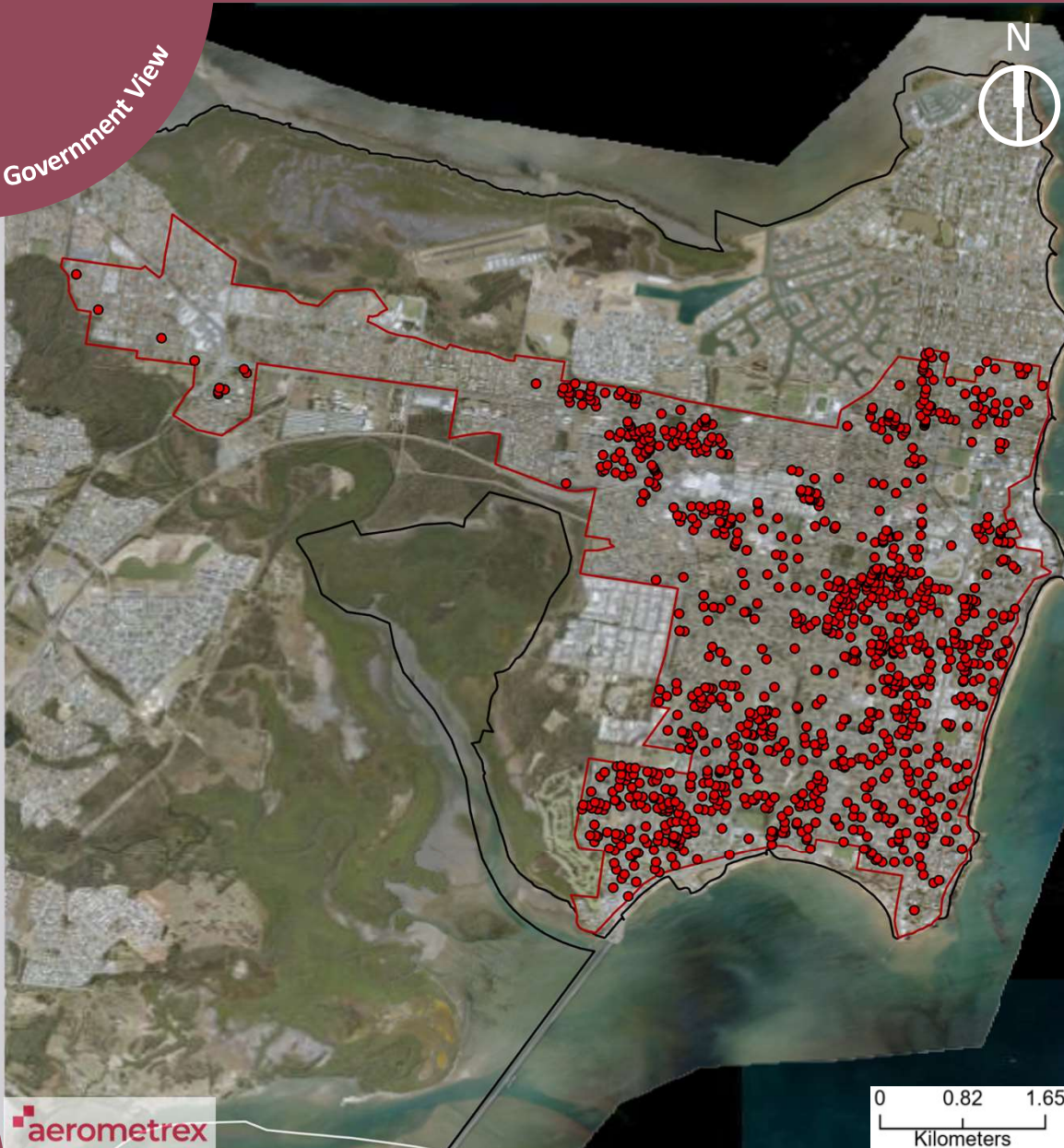
**Legend**

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

**Caboolture South – 13.1km<sup>2</sup>**

The Caboolture South area of interest is comprised of the 'Caboolture South' SA2. This AOI covers an area of 13.1 square kilometres with a population of 20,327 in 2016, and projected growth of 6,370 persons between 2016 and 2031. The area is located in Climate Zone 2 (i.e. warm humid summers, mild winters) at a latitude of 27.1 degrees.

Local Government View



ACM roofing



1048 / 21,606 dwellings

ACM area



150,912 m<sup>2</sup>

ACM mass



2,354 t

Density



Absolute: 4.9%  
Relative to avg. roof size: 6.0%

Aerial imagery

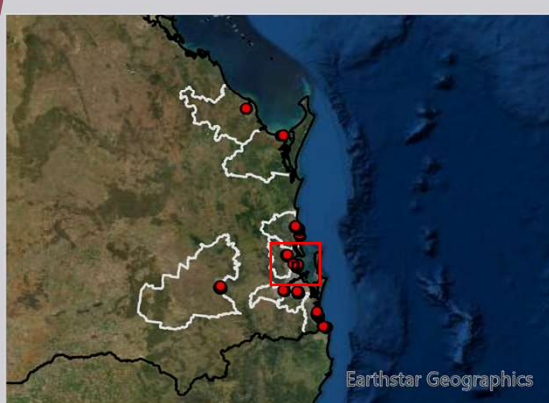


27/09/2020

Accuracy



100%



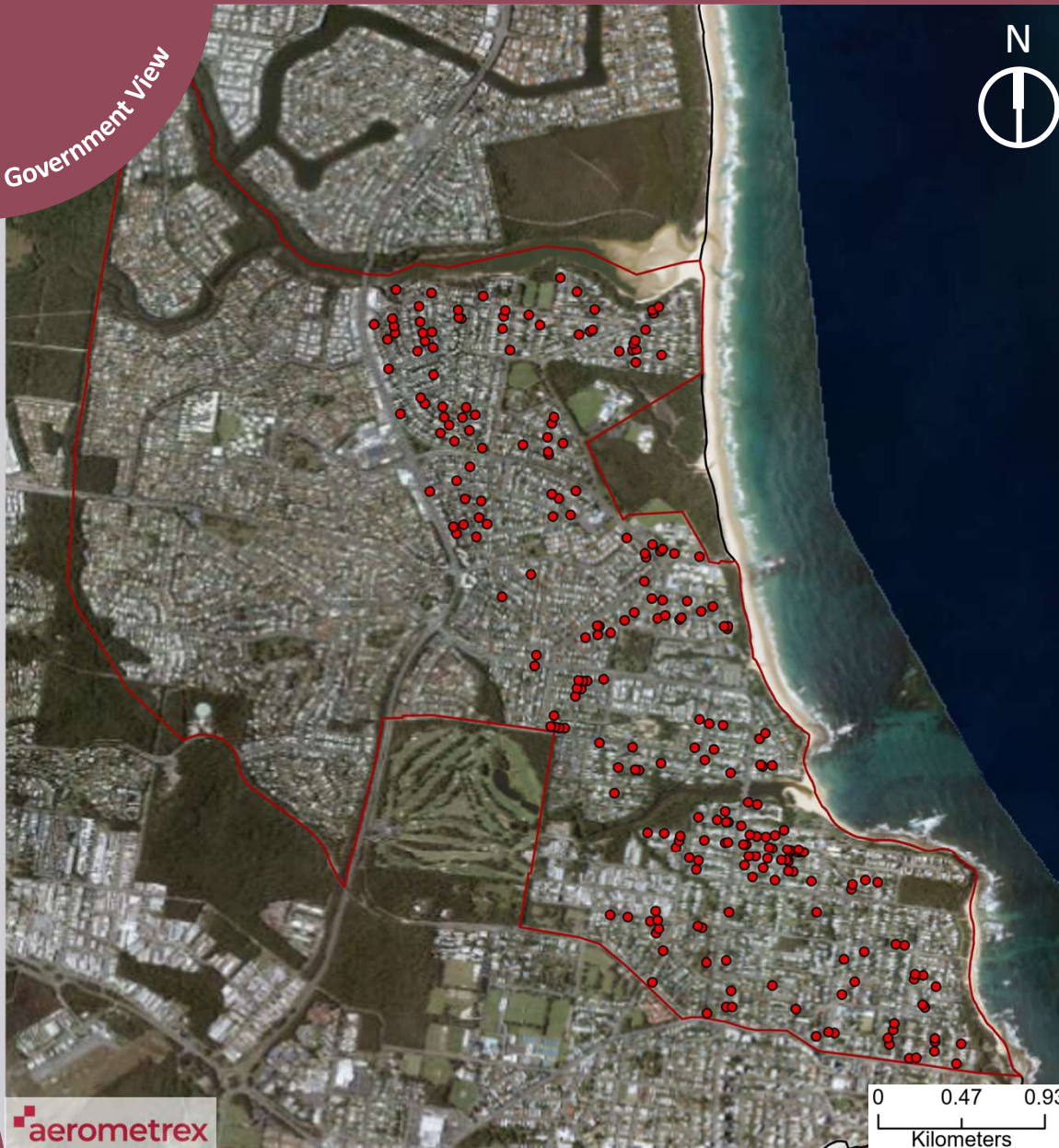
Legend

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

Redcliffe – 19.6km<sup>2</sup>

The Redcliffe area of interest is comprised of the 'Redcliffe', 'Clontarf', 'Margate – Woody Point' and 'Rothwell – Kippa-Ring' SA2s. This AOI covers an area of 19.5 square kilometres with a population of 47,324 in 2016, and projected growth of 7,748 persons between 2016 and 2031. The area is located in Climate Zone 2 (i.e. warm humid summers, mild winters) at a latitude of 27.2 degrees.

Local Government View



ACM roofing



241 / 8,092  
dwellings

ACM area



34,704 m<sup>2</sup>

ACM mass



541.3 t

Density



Absolute: 3.0%  
Relative to avg.  
roof size: 3.7%

Aerial imagery

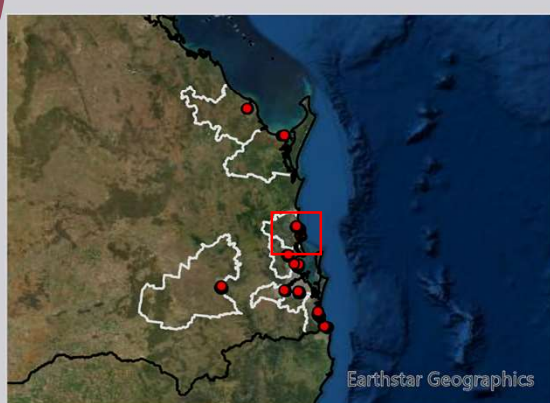


30/10/2020

Accuracy



92%



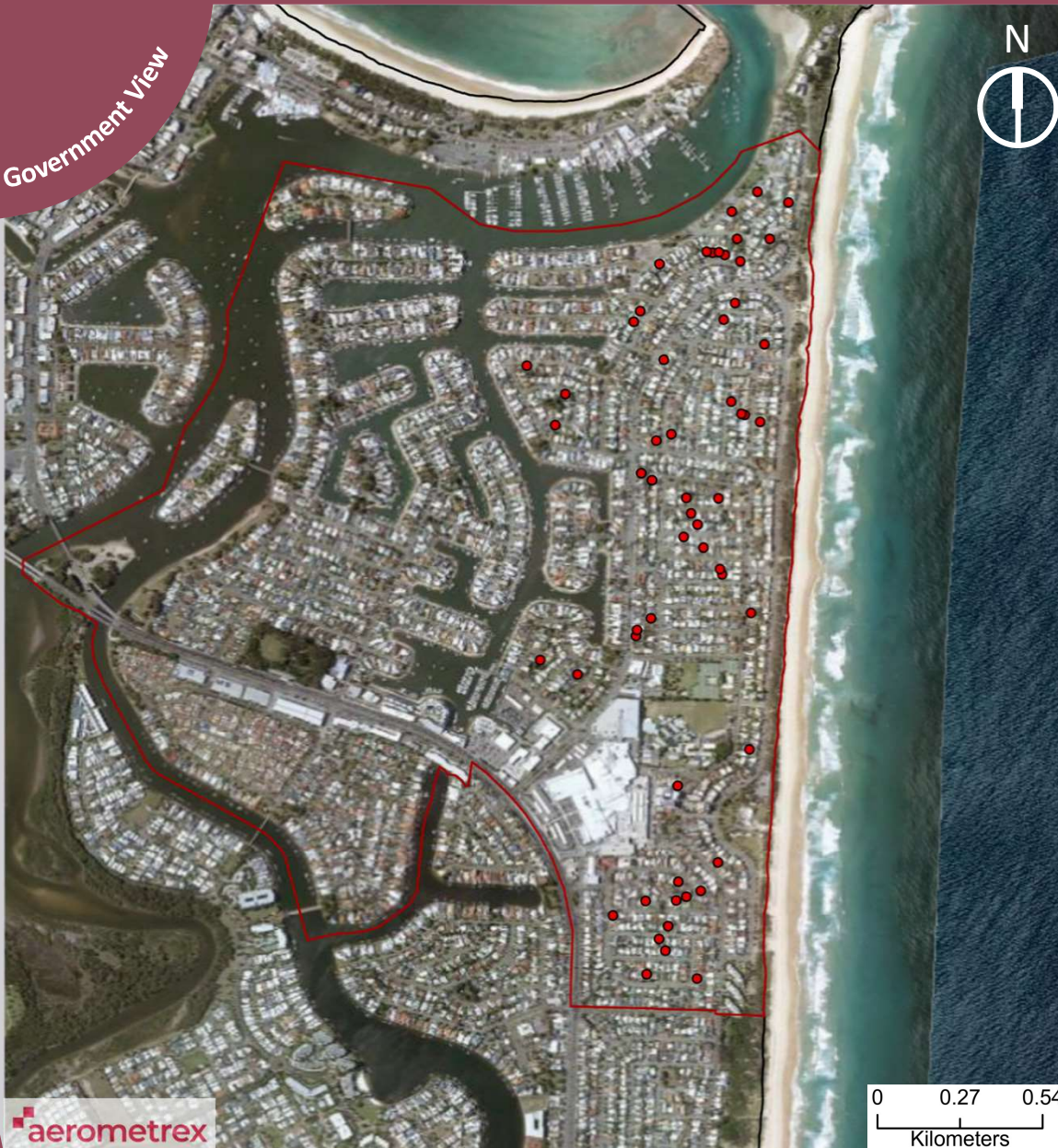
Legend

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

**Aroona – 9.6km<sup>2</sup>**

The Aroona area of interest is comprised of the 'Aroona – Currimundi' and 'Moffat Beach – Battery Hill' SA2s. This AOI covers an area of 9.6 square kilometres with a population of 17,891 in 2016, and projected growth of 2,254 persons between 2016 and 2031. The area is located in Climate Zone 2 (i.e. warm humid summers, mild winters) at a latitude of 26.7 degrees.

Local Government View



ACM roofing



56 / 3,104 dwellings

ACM area



8,064 m<sup>2</sup>

ACM mass



125.7 t

Density



Absolute: 1.8%  
Relative to avg. roof size: 2.3%

Aerial imagery

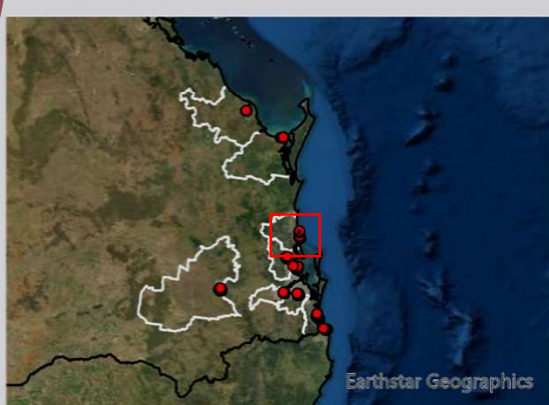


30/10/2020

Accuracy



97%



Legend

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

**Buddina – 4.1km<sup>2</sup>**

The Buddina area of interest is comprised of the 'Buddina – Minyama' SA2. This AOI covers an area of 4.1 square kilometres with a population of 18,035 in 2016, and projected growth of 1,359 persons between 2016 and 2031. The area is located in Climate Zone 2 (i.e. warm humid summers, mild winters) at a latitude of 26.6 degrees.



Local Government View



ACM roofing



110 / 17,748  
dwellings

ACM area



15,840 m<sup>2</sup>

ACM mass



247.1 t

Density



Absolute: 0.6%  
Relative to avg.  
roof size: 0.8%

Aerial imagery

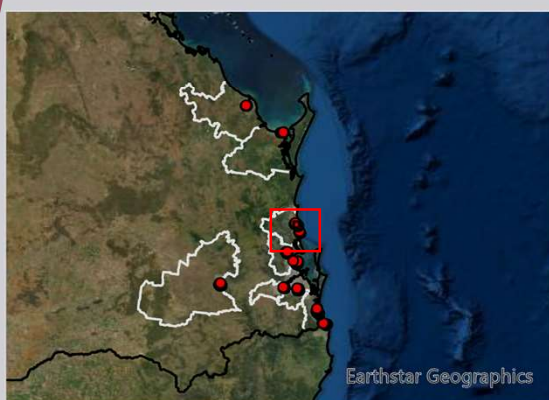


30/10/2020

Accuracy



100%



Legend

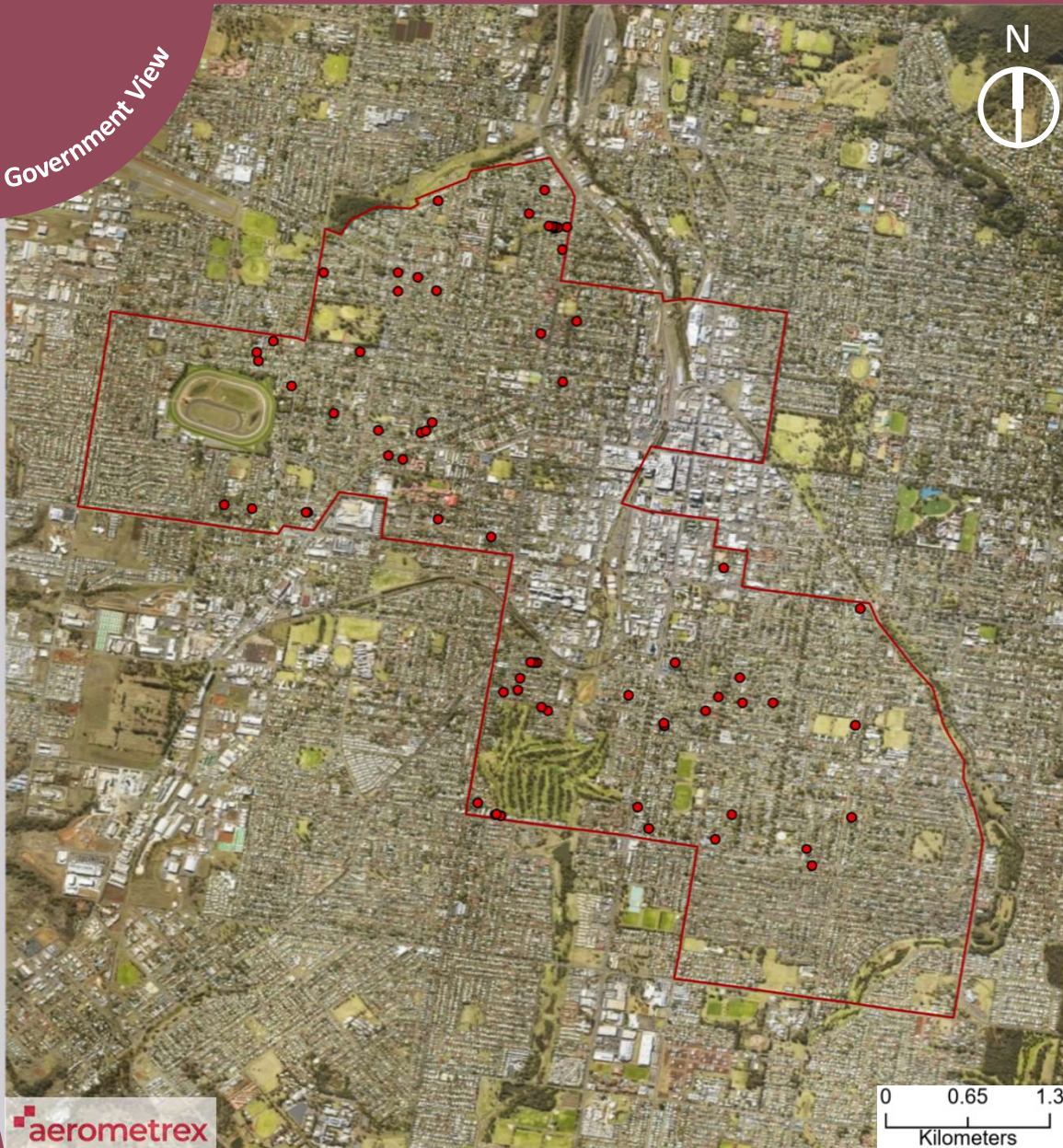
- Roofs with Asbestos Containing Material
- Area of Interest Boundaries
- Local Government Areas with Asbestos Hotspots (QLD)
- State & Territory Boundaries

**Mooloolaba Maroochydore – 17.3km<sup>2</sup>**

The Mooloolaba Maroochydore area of interest is comprised of the 'Mooloolaba – Alexandra Headland' and 'Maroochydore – Kuluin' SA2s. This AOI covers an area of 17.2 square kilometres with a population of 19,148 in 2016, and projected growth of 10,594 persons between 2016 and 2031. The area is located in Climate Zone 2 (i.e. warm humid summers, mild winters) at a latitude of 26.6 degrees.

# Residential Asbestos Roof Hotspots

Local Government View



ACM roofing



67 / 11,264 dwellings

ACM area



9,648 m<sup>2</sup>

ACM mass



150.5 t

Density



Absolute: 0.6%  
Relative to avg. roof size: 0.7%

Aerial imagery

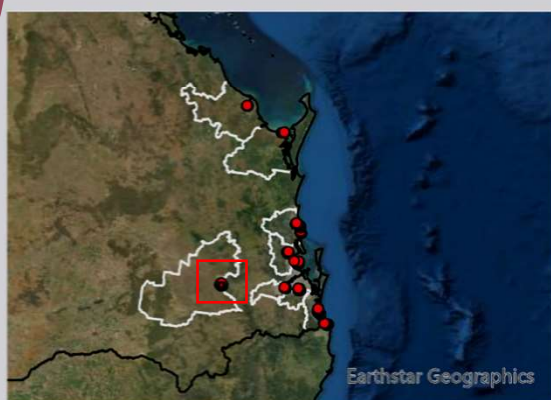


07/07/2020

Accuracy



100%



## Legend

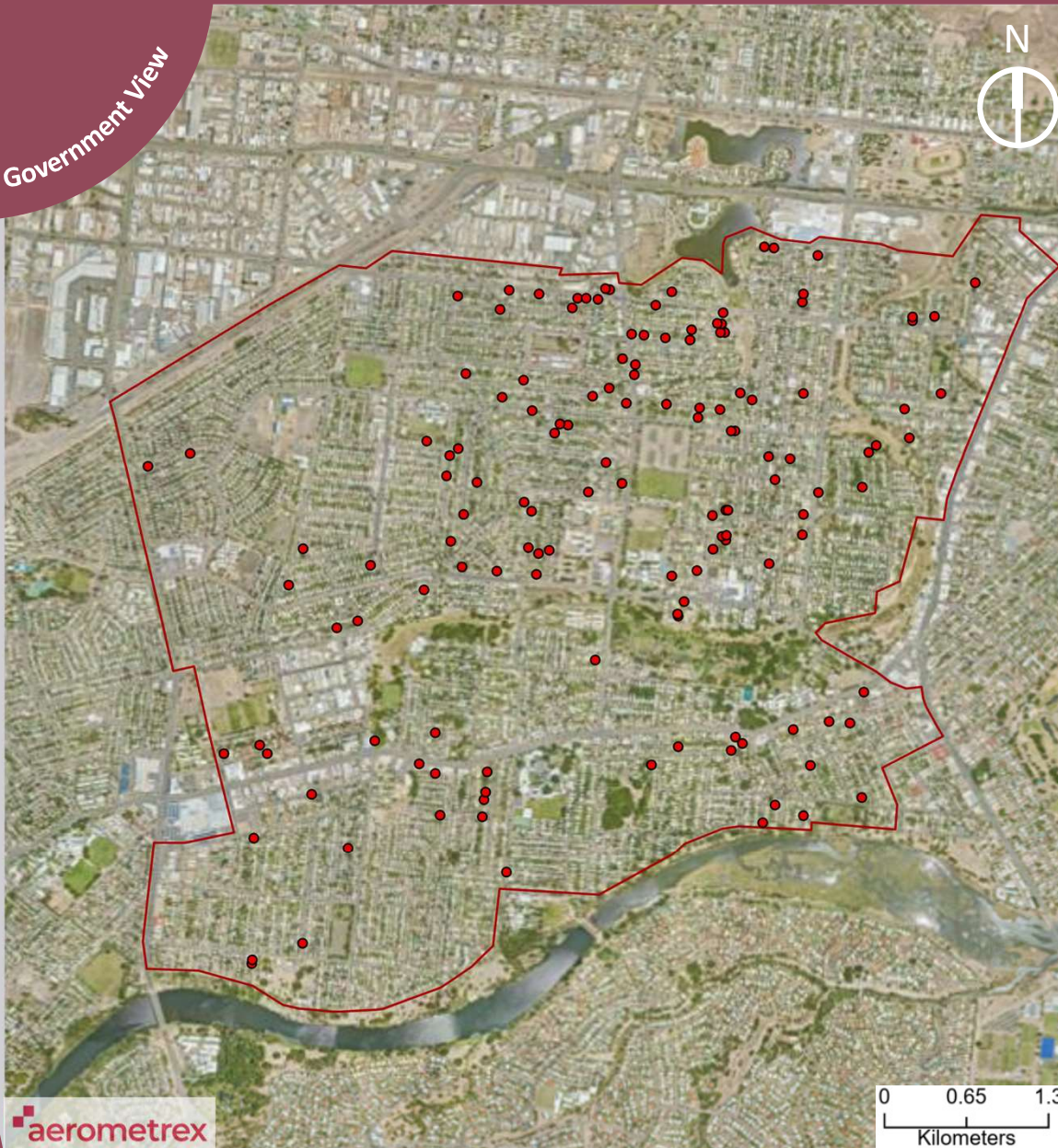
- Roofs with Asbestos Containing Material
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## Toowoomba Newtown – 15.2km<sup>2</sup>

The Toowoomba Newtown area of interest is comprised of the 'Toowoomba – Central' and 'Newtown (Qld)' SA2s. This AOI covers an area of 15.2 square kilometres with a population of 22,977 in 2016, and projected growth of 52 persons between 2016 and 2031. The area is located in Climate Zone 5 (i.e. warm temperate) at a latitude of 27.5 degrees.

# Residential Asbestos Roof Hotspots

Local Government View



ACM roofing



138 / 10,135 dwellings

ACM area



19,872 m<sup>2</sup>

ACM mass



310 t

Density



Absolute: 1.4%  
Relative to avg. roof size: 1.7%

Aerial imagery

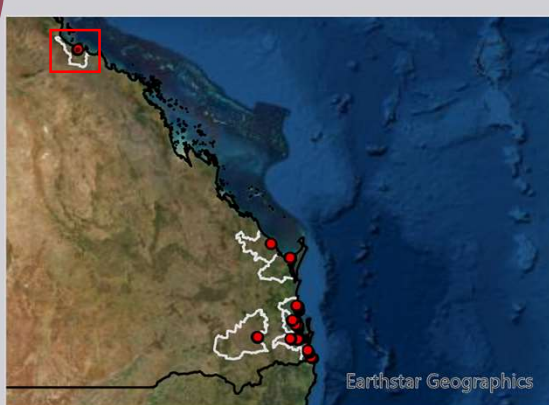


12/01/2020

Accuracy



100%



## Legend

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

## Townsville – 12.5km<sup>2</sup>

The Townsville area of interest is comprised of the 'Aitkenvale', 'Gulliver – Currajong – Vincent', 'Hyde Park – Pimlico' and 'Mundingburra' SA2s. This AOI covers an area of 12.4 square kilometres with a population of 20,823 in 2016, and projected growth of 1,154 persons between 2016 and 2031. The area is located in Climate Zone 1 (i.e. high humidity summer, warm winter) at a latitude of 19.2 degrees.