CITY OF CAPE TOWN
ISIXEKO SASEKAPA
STAD KAAPSTAD

From Pixels to Building Footprints: GeoAI in the City of Cape Town

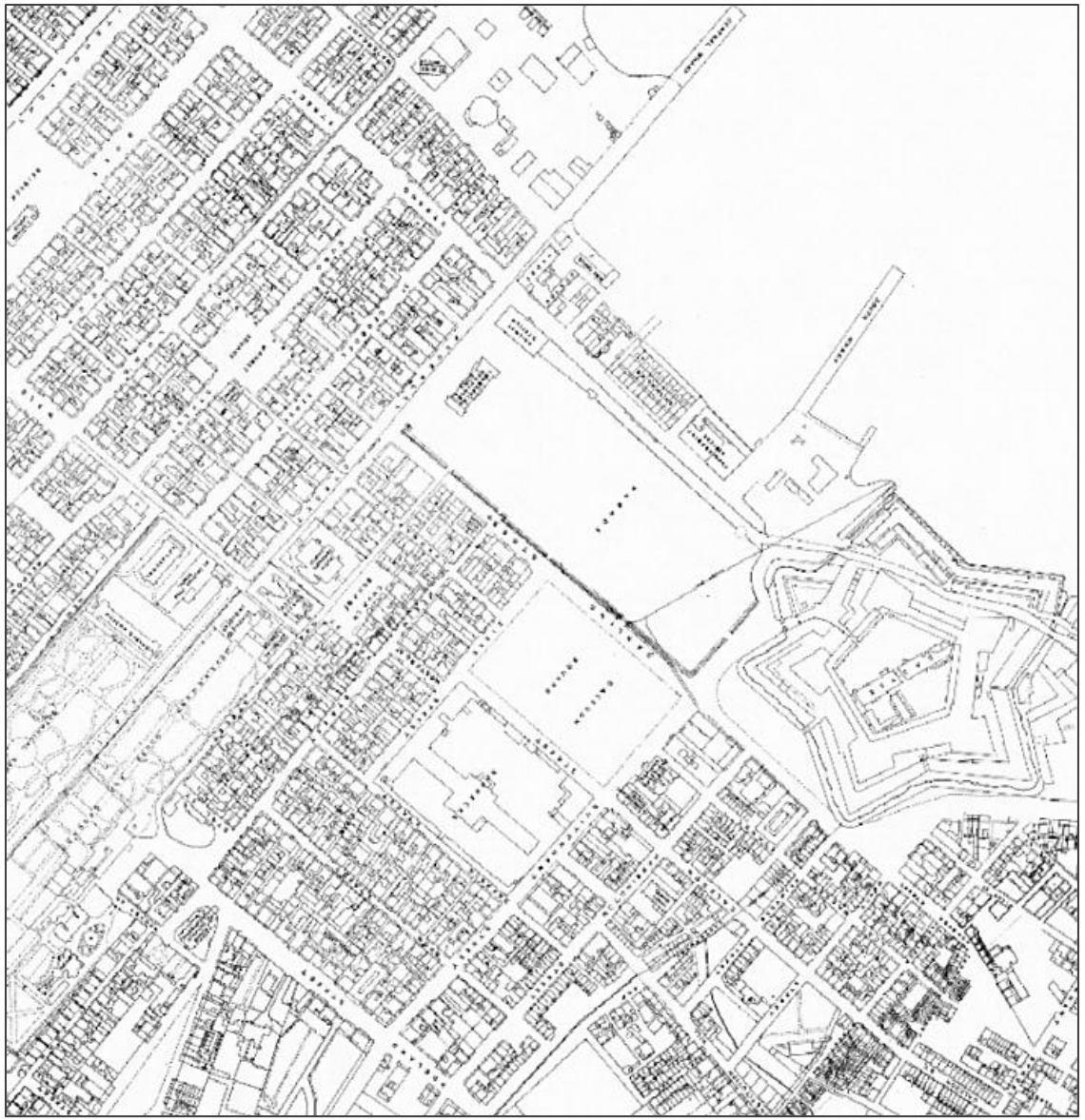
Lara Röttcher | **Khumeleni Makungo**
Head: GIS & Surveys | Principal GIS Analyst

4 November 2025

Making progress possible. Together.

INTRODUCTION: The Core Geospatial Datasets

- Aerial Imagery
- LiDAR
- Oblique Imagery
- 3D Building Models
- Digital Terrain Models
- Contours
- Historical Imagery & Maps
- Drone Imagery



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THE DREAM

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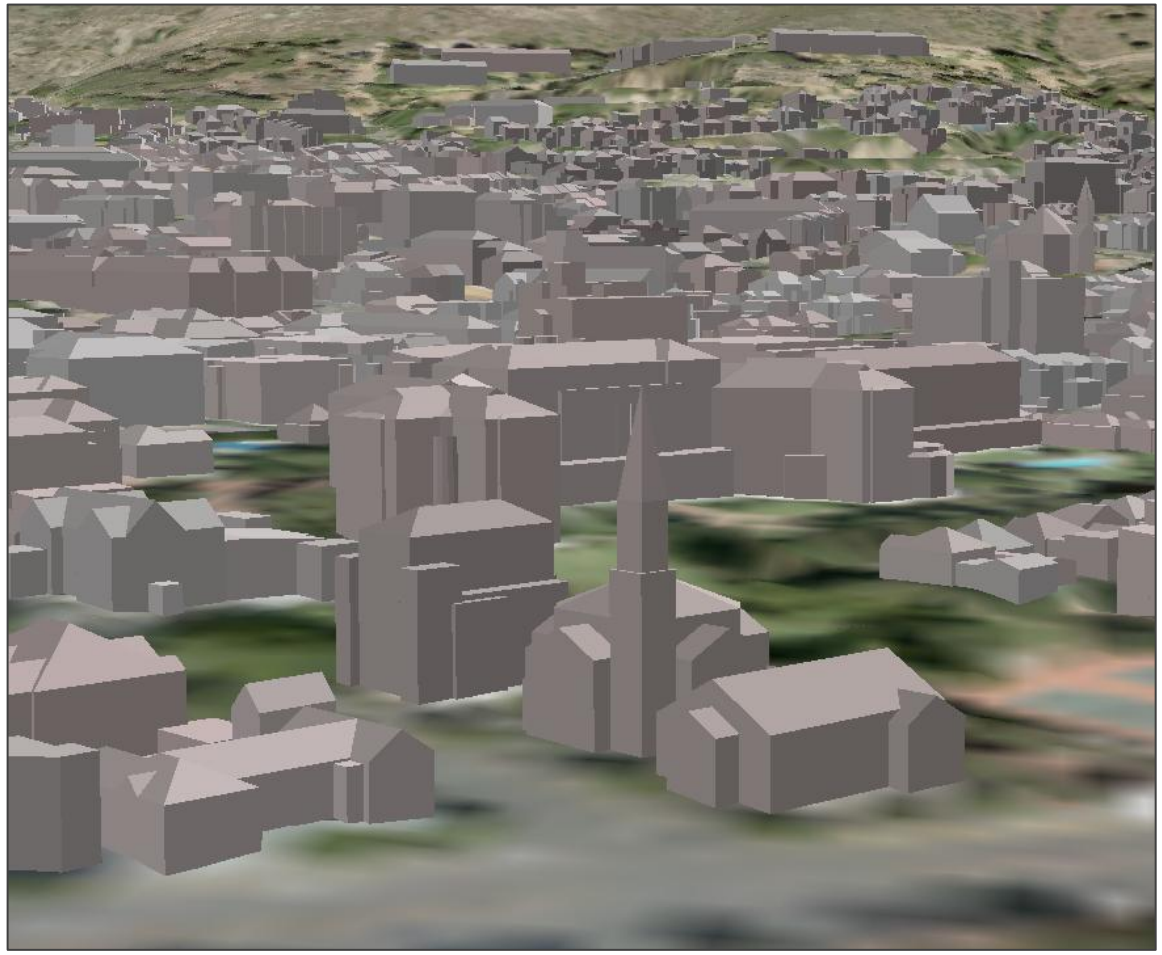
THE CHALLENGE

THE CHALLENGE



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THE CHALLENGE

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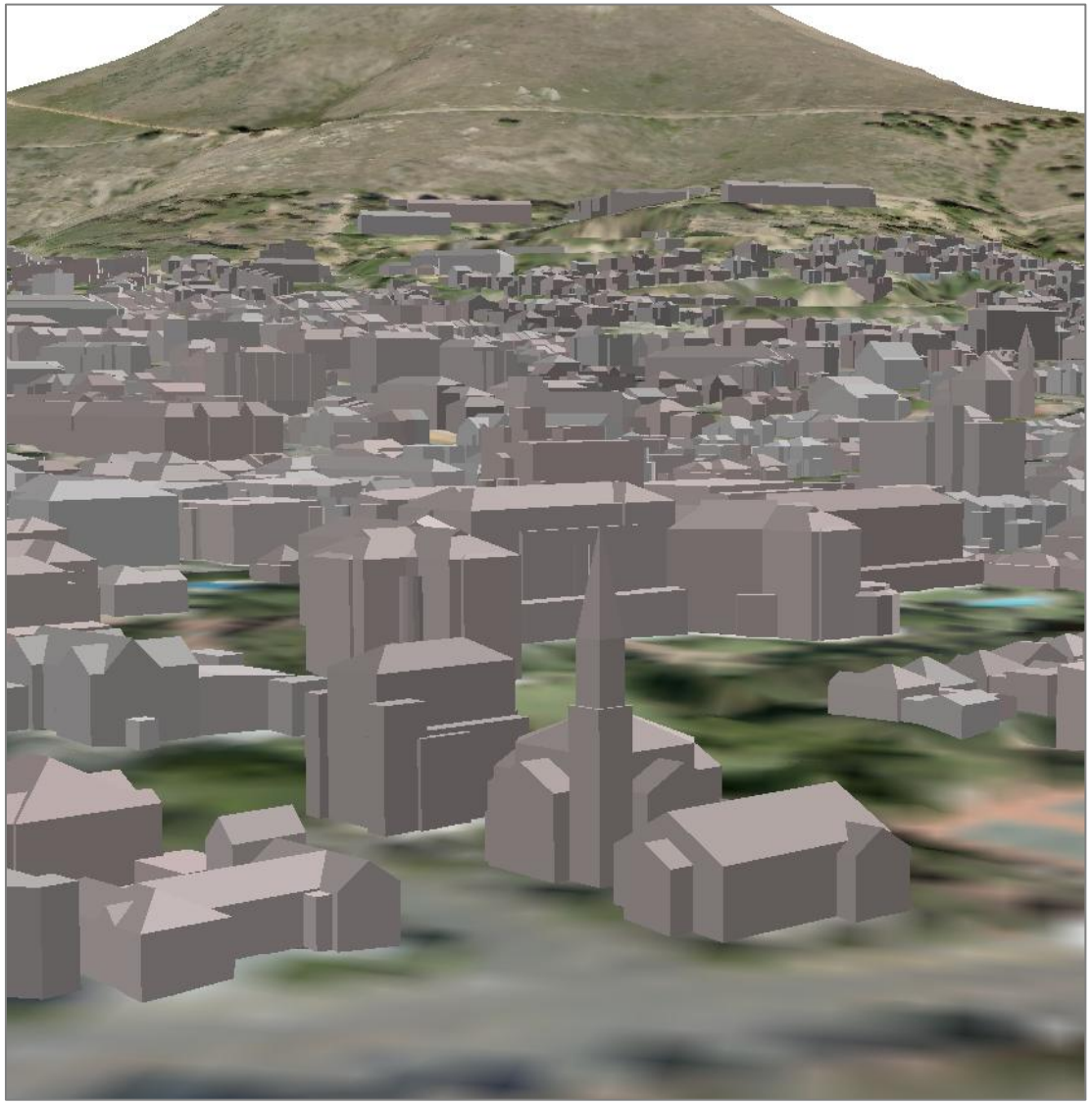
THE APPROACH

THE APPROACH: FORMAL BUILDINGS



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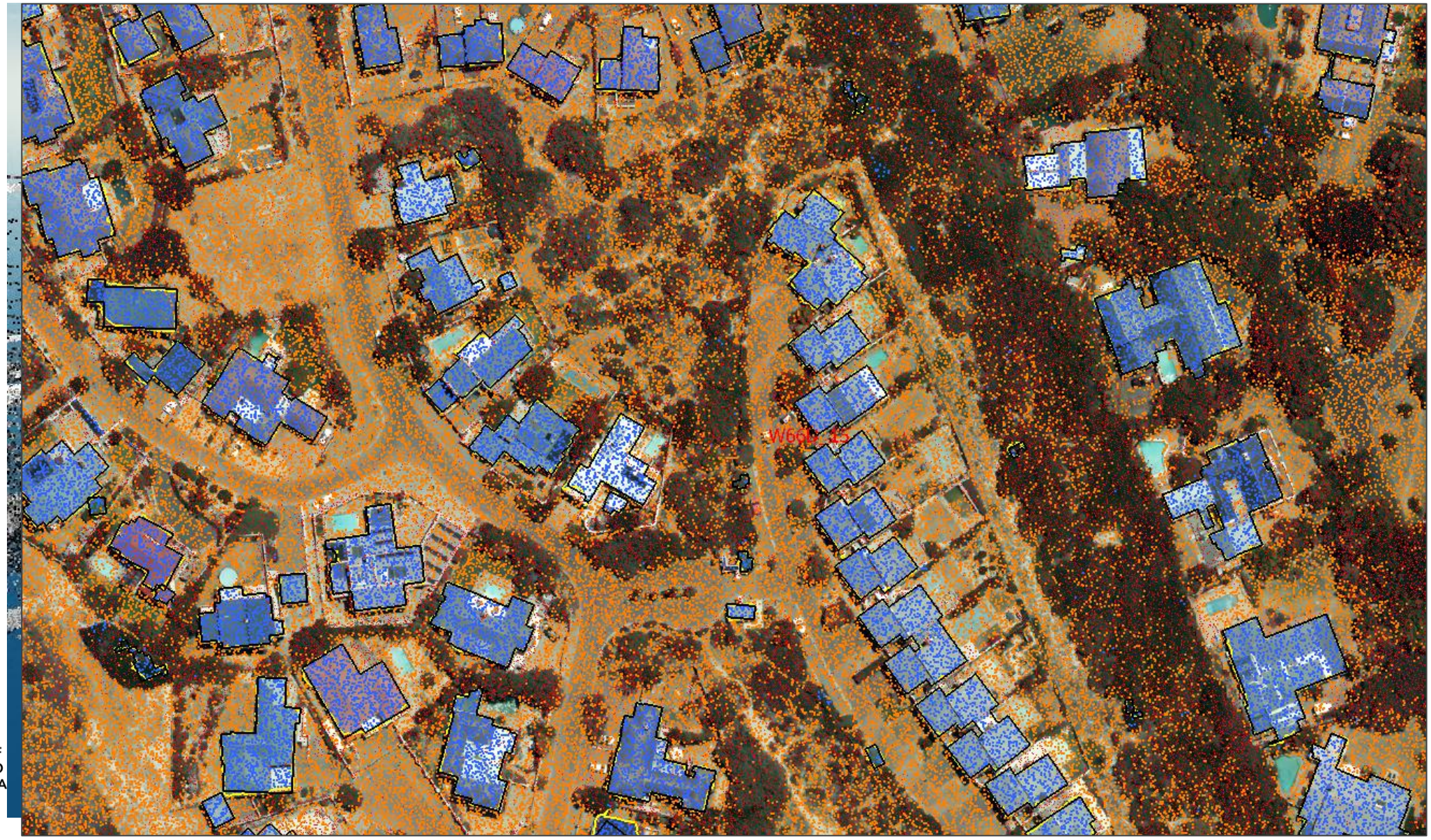

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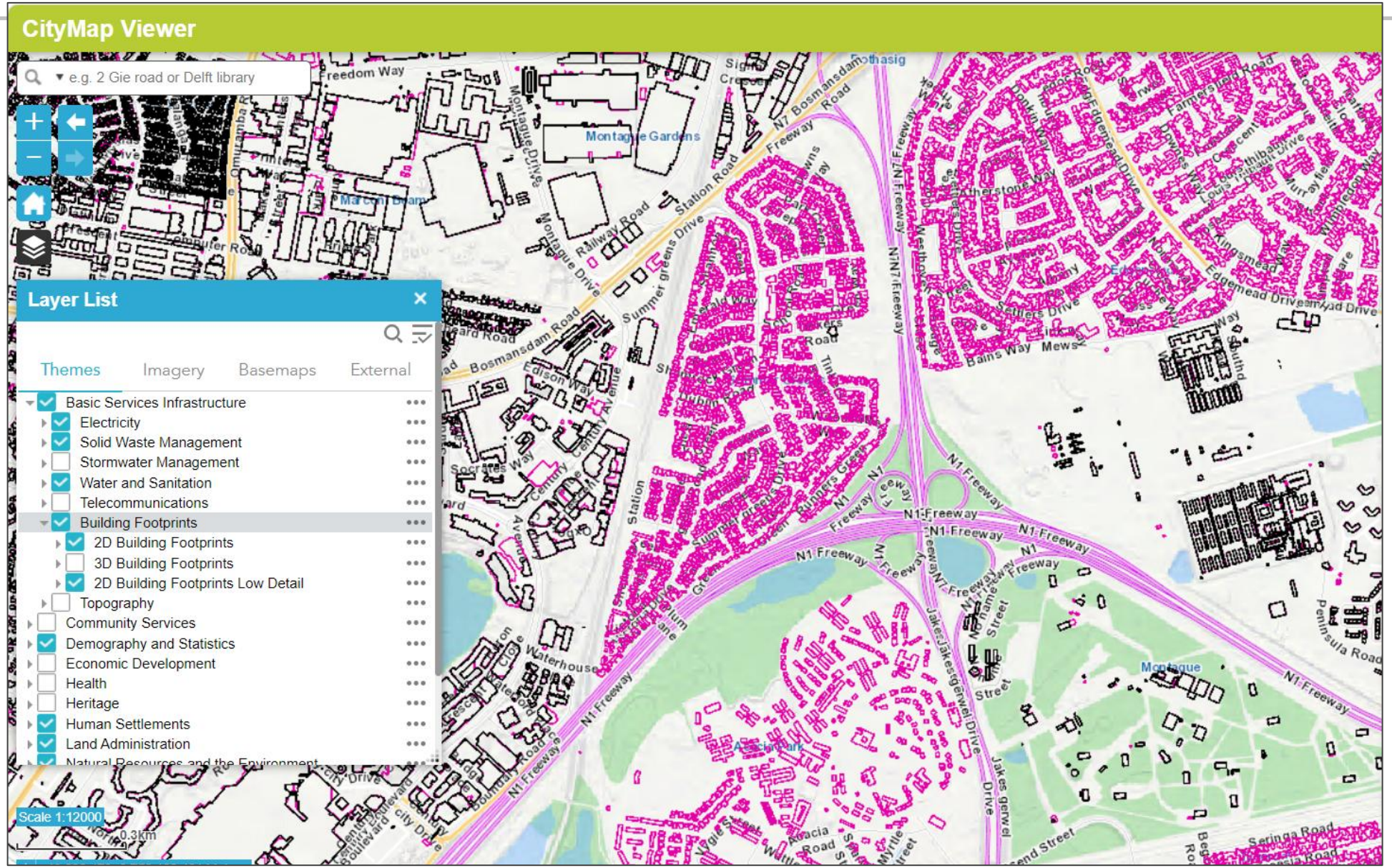
STAD KA

THE APPROACH: FORMAL BUILDINGS

- Auto Feature Extraction on:

  8cm Aerial Imagery + 10pts/sqm LiDAR

THE APPROACH: FORMAL BUILDINGS



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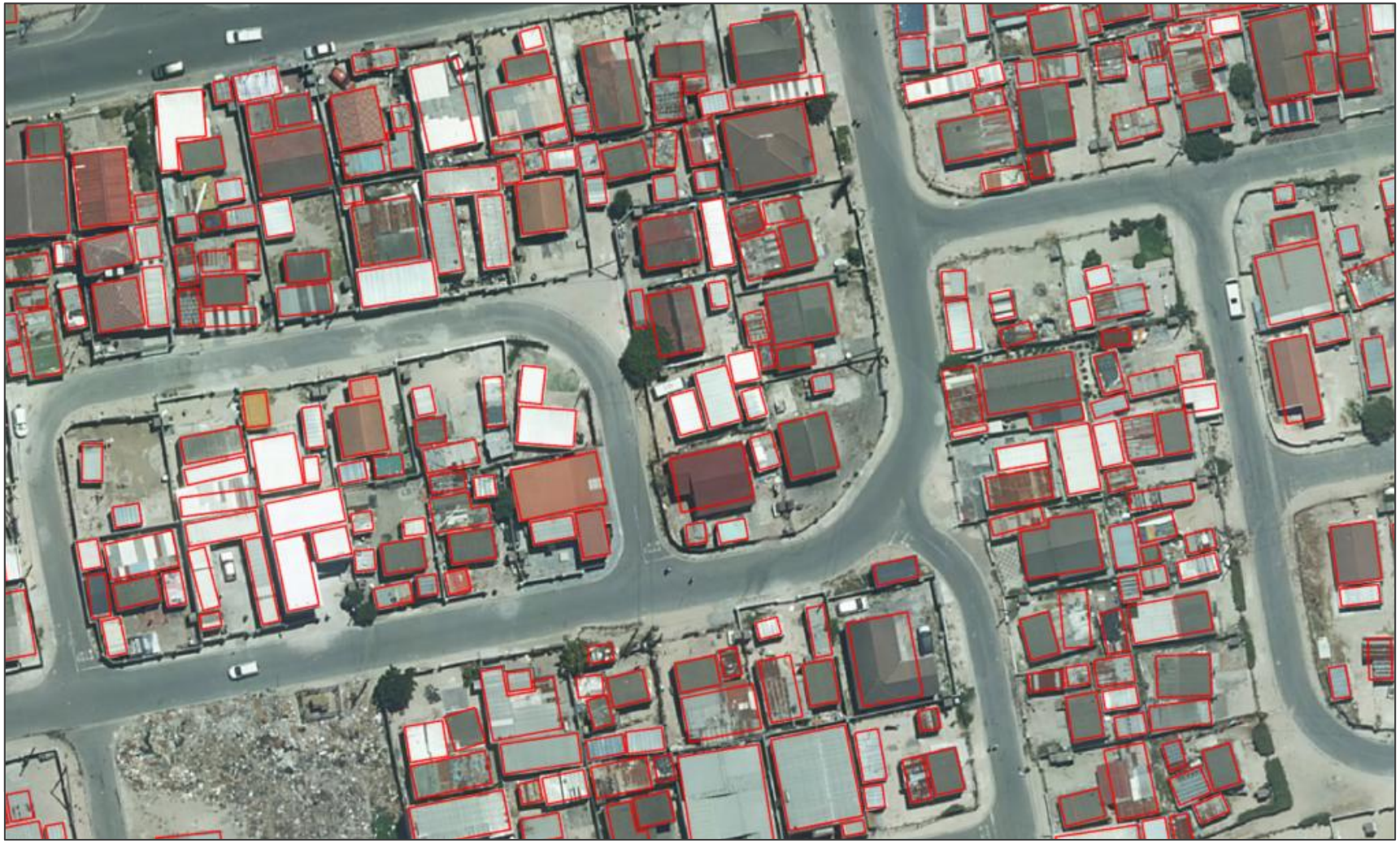
THE APPROACH: INFORMAL STRUCTURES



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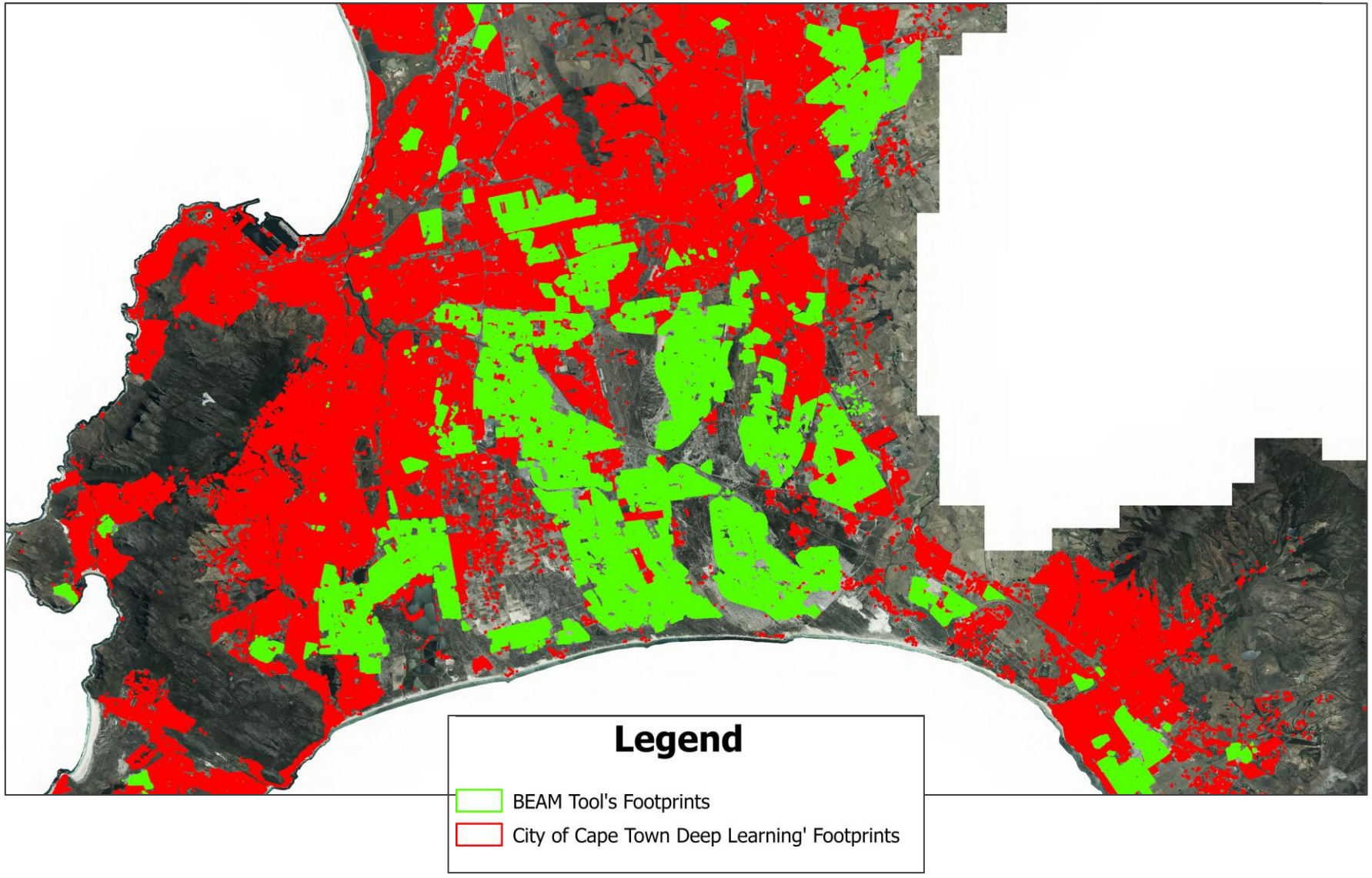

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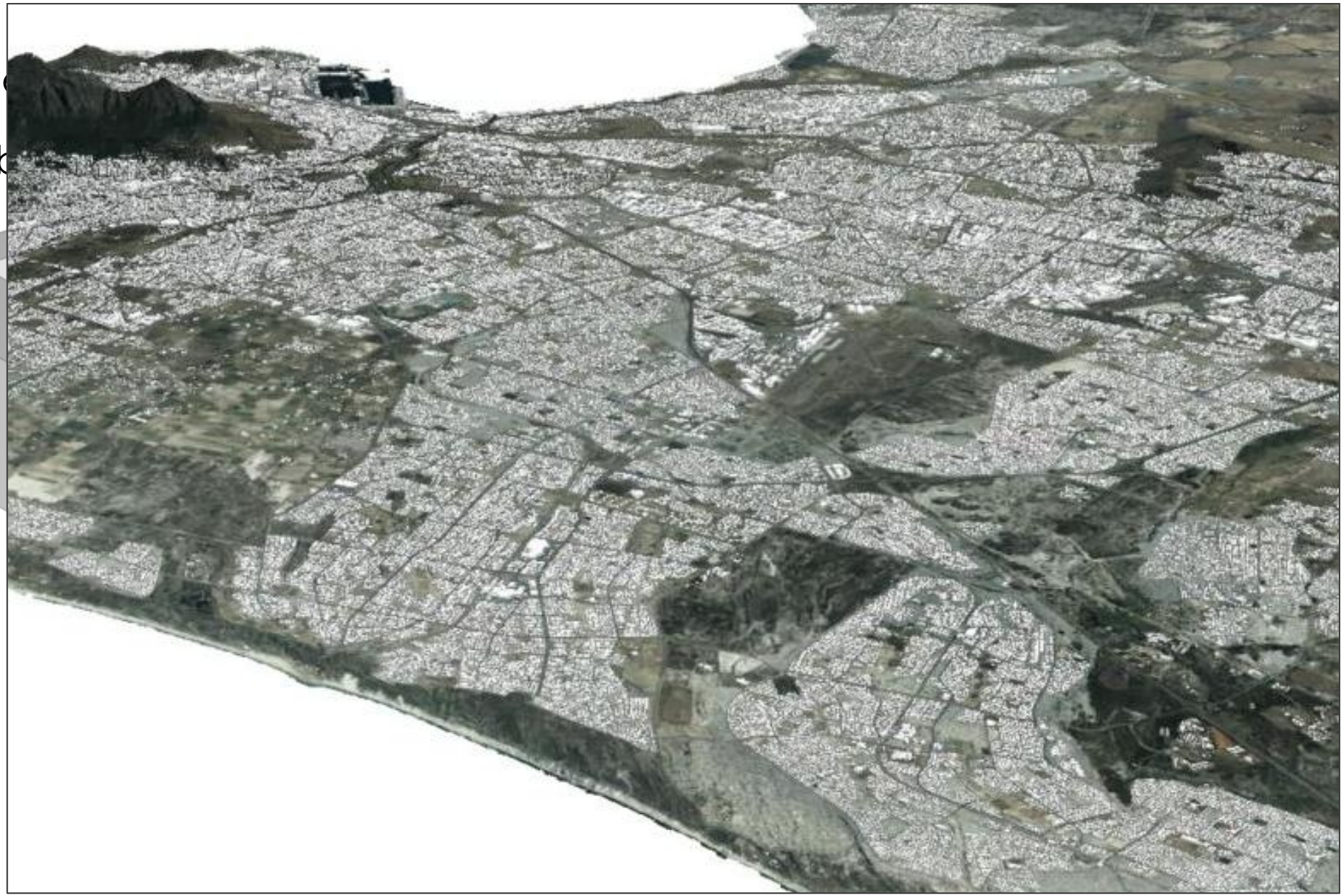
THE APPROACH: 3D BUILDING MODELS

- Full 2D 'D
- LoD1 3D b

LoD1



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THE RESULTS & IMACT

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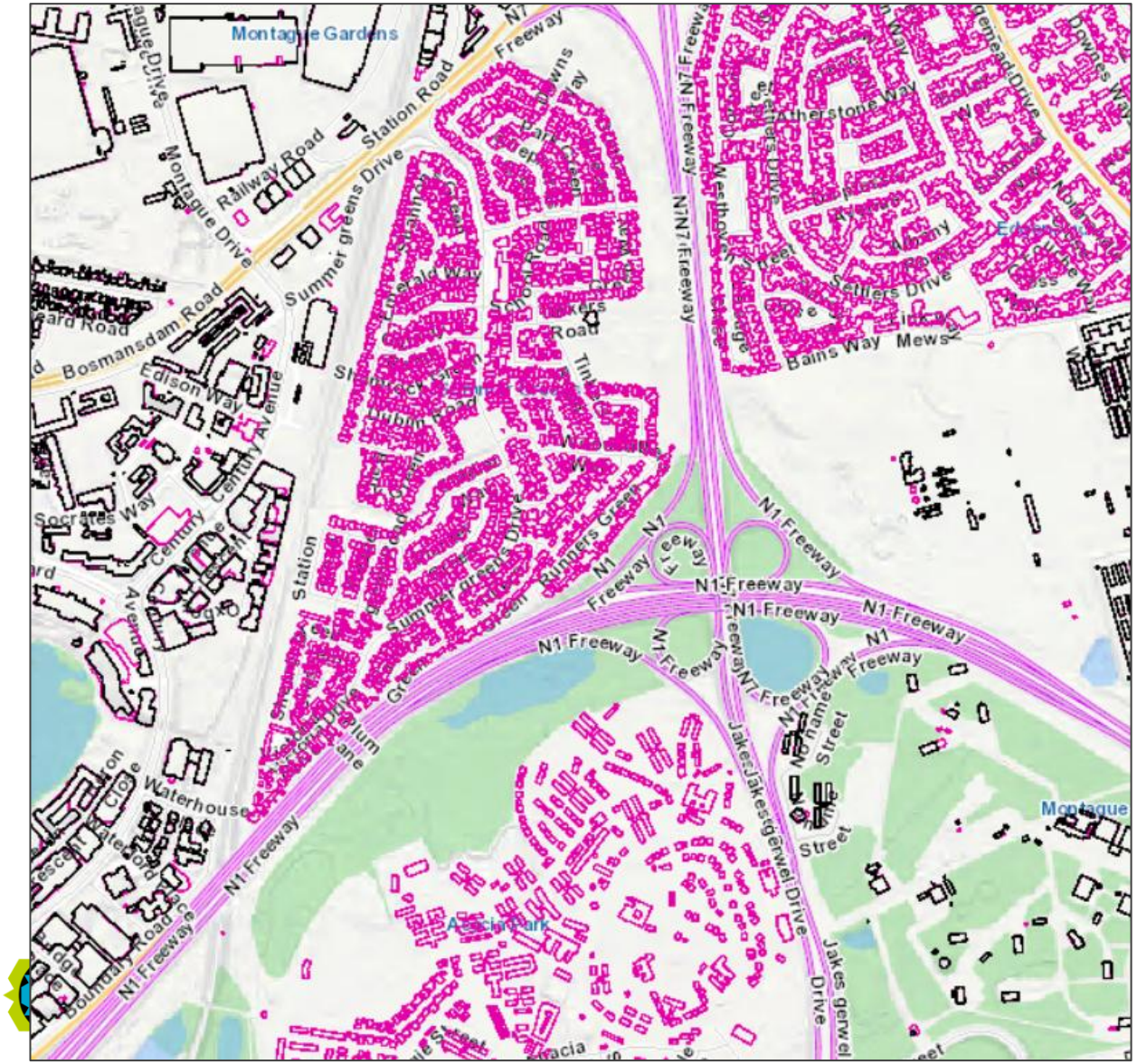
THE RESULTS

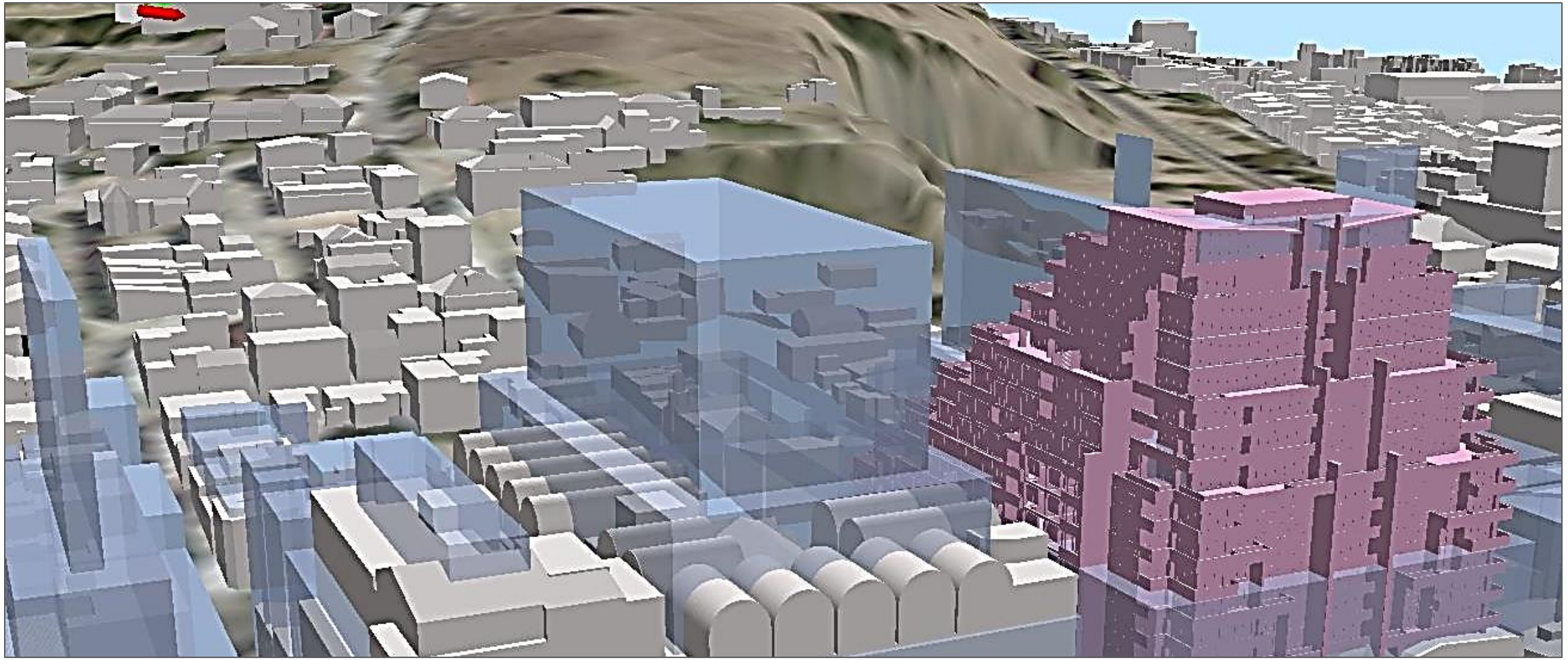

Montague Gardens
Station Road
Railway Road
Montague Drive
Summer greens Drive
Bosmansdam Road
Edison Way
Century Avenue
Socrates Way
Station
Waterhouse
N1 Freeway
N7 Freeway
Bains Way
Mews
Jakes gerwel Drive
Montague

THE IMPACT

- Major time & cost savings vs manual digitizing
- Faster, scalable & consistent data extraction
- Enables evidence-based governance: better planning, transparency & service delivery
- N

IN CONCLUSION

LOOKING AHEAD



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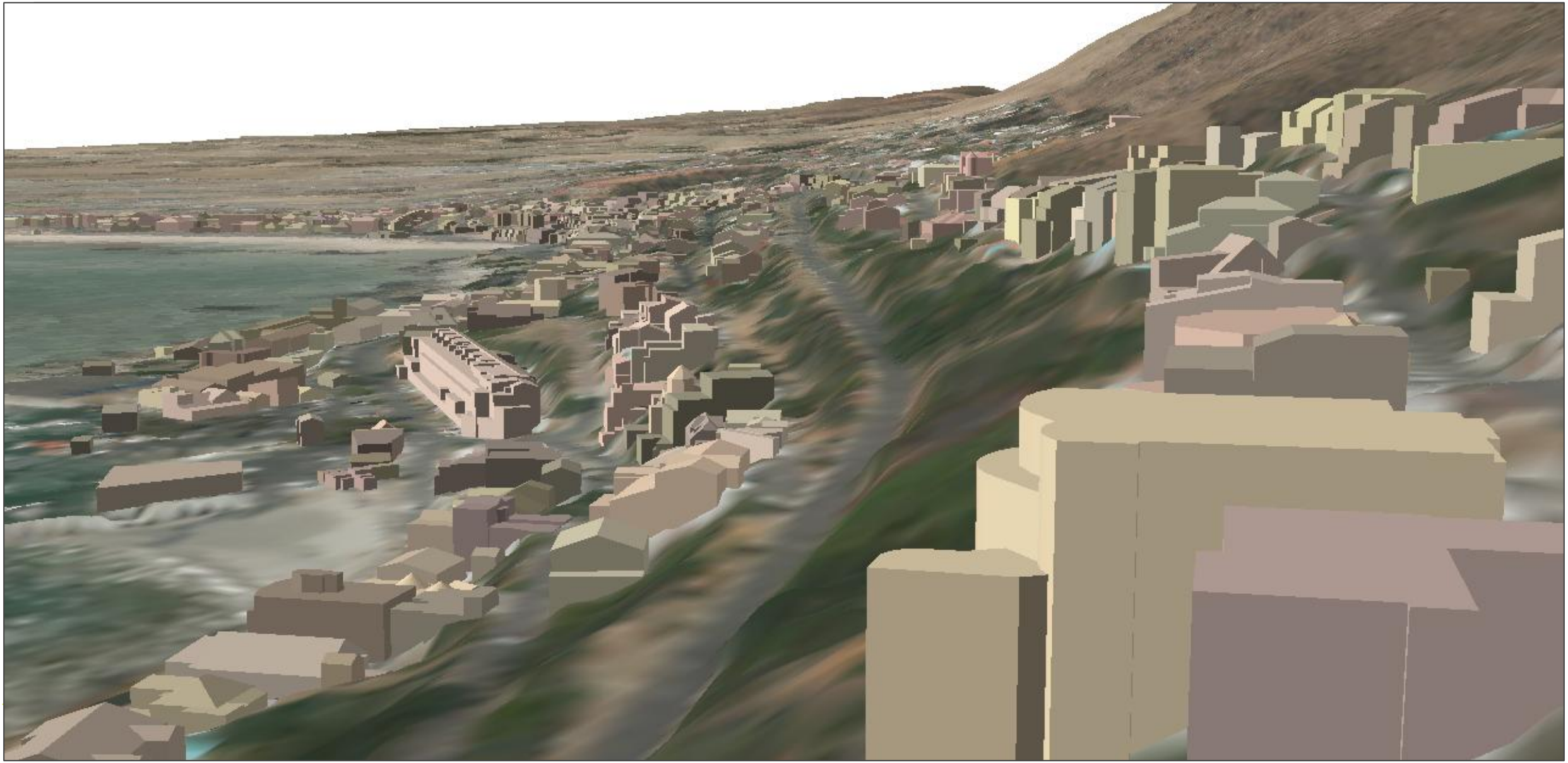
IN CONCLUSION



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THANK YOU

Please contact for any questions or comments:

lara.rottcher@capetown.gov.za

Please follow me on LinkedIn for updates and articles:

Lara Röttcher

Making progress possible. Together.