



AND **Locate25** | **G**  
THE NATIONAL GEOSPATIAL CONFERENCE

Presented at the FIG Working Week 2025,  
6-10 April 2025 in Brisbane, Australia



**FIG** Geospatial  
Council of Australia

Collaboration, Innovation and Resilience: Championing a Digital Generation

Brisbane, Australia 6-10 April

# New York City Unlocks the Value of 3D Cadastre with GIS

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# Limitations of a 2D Cadastral Map

- Unable to render Condominium Lots



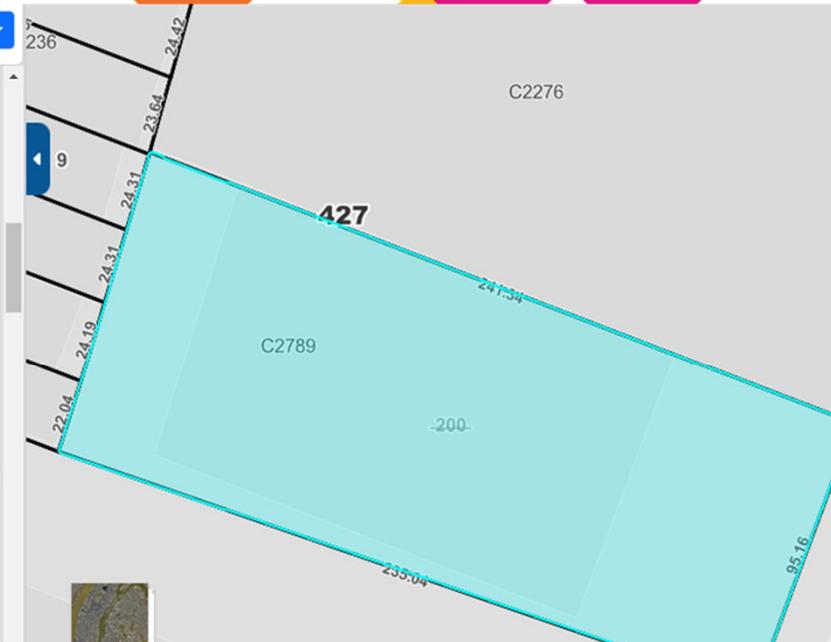
**Over 290,000 residential condo lots unmapped**

Condominium ▾ Unit: HTL (Tax lot: 1601) ▾

Unit	Tax Lot	Base Lot	Block	Effective Tax Year
HTL	1601	200	427	2018 - 2019
26E	1602	200	427	2018 - 2019
26W	1603	200	427	2018 - 2019
27E	1604	200	427	2018 - 2019
27W	1605	200	427	2018 - 2019
28E	1606	200	427	2018 - 2019
28W	1607	200	427	2018 - 2019
29E	1608	200	427	2018 - 2019
29W	1609	200	427	2018 - 2019
PH3	1610	200	427	2018 - 2019
PH2	1611	200	427	2018 - 2019

**Unit Information**

-	-	86.0317	1004271601
Bedrooms	Bathrooms	CIP Land	Unit BBL



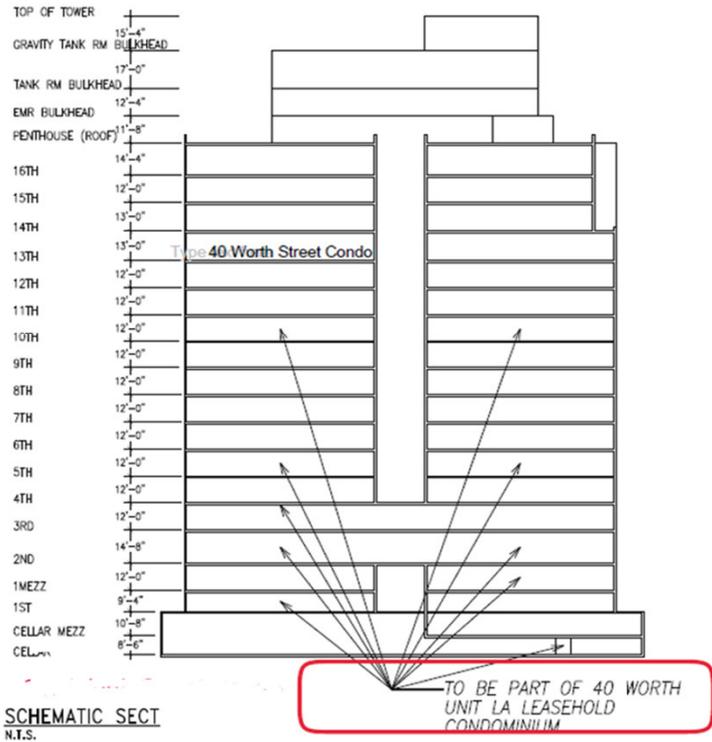
## Limitations of a 2D Cadastral Map

- Unable to render Air and Subterranean (Utility) lots



# Limitations of a 2D Cadastral Map

- Unable to render condos-within-condos



## Condo-within-condo

- Created when a current condo owner creates a new condo embedded within another condo structure

## Non-adjacent units

- All units in floors 10, 5, 3, 2
- partial units in mezzanine, floor 1, cellar

There are 26 condos-within-condos

Complex vertical  
& horizontal partitions



3D Mapping



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### Enabling new capabilities and efficiencies in local government



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### Geospatial infrastructure transforming operations

#### System of Record



Data Management and Integration

Cadastral Mapping

Parcels



#### System of Engagement



Open Data

Hubs

Sharing  
Collaboration  
Dissemination

#### System of Insight

Value Analysis



Spatial Models

Visual Analytics

Analytics, Models,  
and Data Exploration



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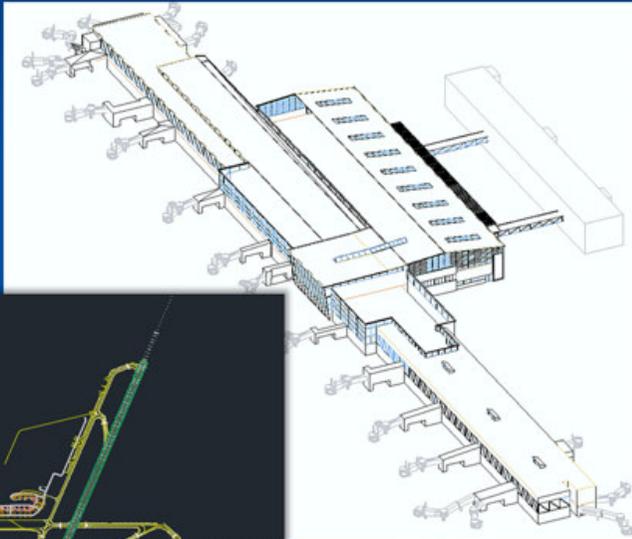


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## BIM

Supplies detailed information about *developed assets*



## GIS

Provides information about assets in the context of the *built and natural environment*



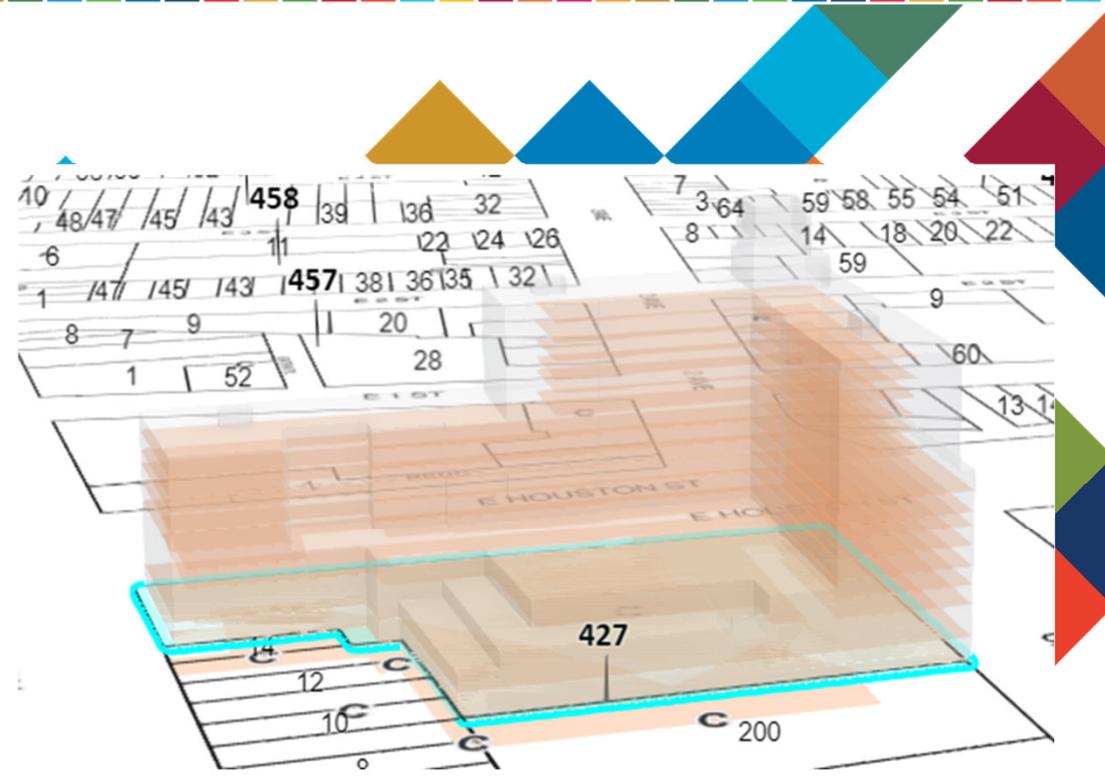
DEMO

[Property Information Portal](#)



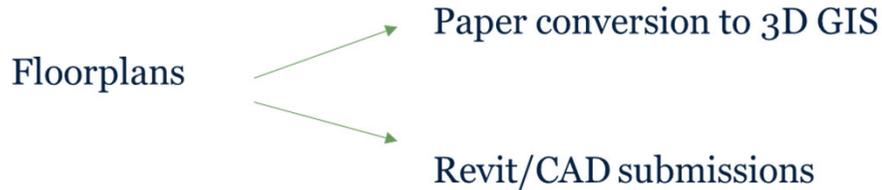
## Advantages of 3D Cadastre

1. Views of
  - Interior layout
  - LCE or amenity specific to unit
2. Improves model performance
  - adding z-coordinate
  - adding 3D variables
3. Take advantage of mapping technology versus pdf
4. Develop a Multiuse Cadastre
  - develop **map layers** with the information needed at the unit or lot level.



# Challenges

- Data



## Challenges

- requires software, hardware, staff knowledge
- requires software, hardware, staff knowledge
- Requires public acceptance
- Requires rule change
- \* Revit/CAD submission prior to certificate of occupancy

- Integration with systems and *workflows*

- interagency use of a uniform floorplan format



**Citywide strategy for digital floorplan submissions**



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## Opportunities

- Extension to 3D Analytics

Addition of third dimension improves models if elevation is correlated with y variable:

- \* Building models that estimate wear and tear used to trigger inspections

=> Deterioration of building façade materials is correlated with elevation

- \* Climate Change and Digital Twin models can differ by elevation to affect condo units differently

- 3D Floorplans

- \* Citywide Administration – space management (3D Indoor)

- \* City Planning – 3D Zoning

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CHCNAV



# The most relevant SDGs related to the presentation and theme of this session



SUSTAINABLE DEVELOPMENT GOALS

International Federation of Surveyors supports the Sustainable Development Goals

Thank you!

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