

Content for UBID Standard

- A standard makes it so that various sources can provide UBID services with the same quality of service and expected results

Topics:

- Terminology
- Methodology
- Use Cases
- Equivalency
- Building definition
- Edge cases
- KPI

Terminology, Nomenclature, Ontology

- Unique Building ID
 - Only buildings?
- UBID₀
- Bounding box, extents, centroid
- Heuristics
 - Intersection over union, area overlap, centroid distance, angle of rotation, etc.
- More

Methodology, Software Package, and Algorithms

- UBID creation
 - Grid referencing system for polygons (e.g. WG84)
 - Grid referencing system for reiterative locating (e.g. OLC)
 - Geolocation storage (e.g. WKT, WKB)
 - UBID string length (grid resolution)
 - Units (degrees/meters/feet, etc.)
- Cross Referencing
 - Match searching algorithm
 - Cross referencing heuristics (IoU, centroid distance, etc.)
- Software Packages
 - Included features, compatibility
 - Referenced packages (ogr2ogr, etc.)
 - Visualization guidelines (e.g. demonstrator)

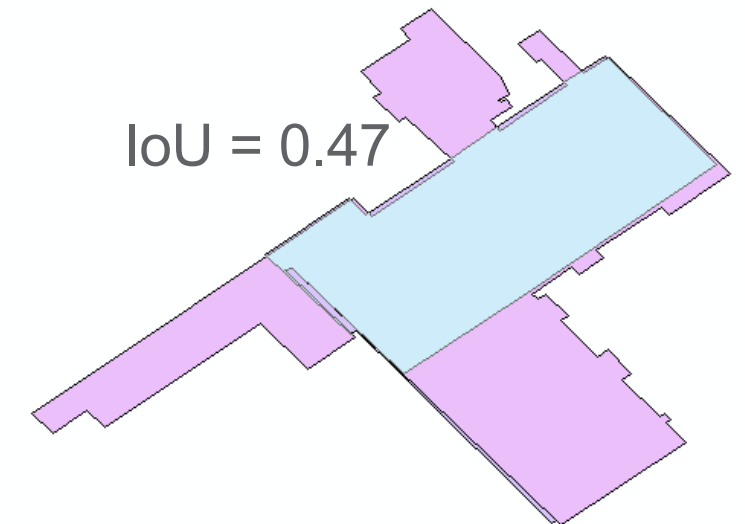
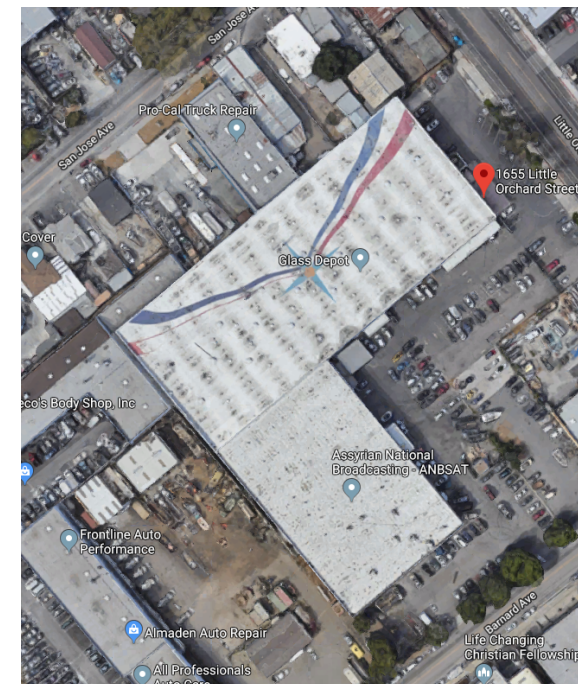
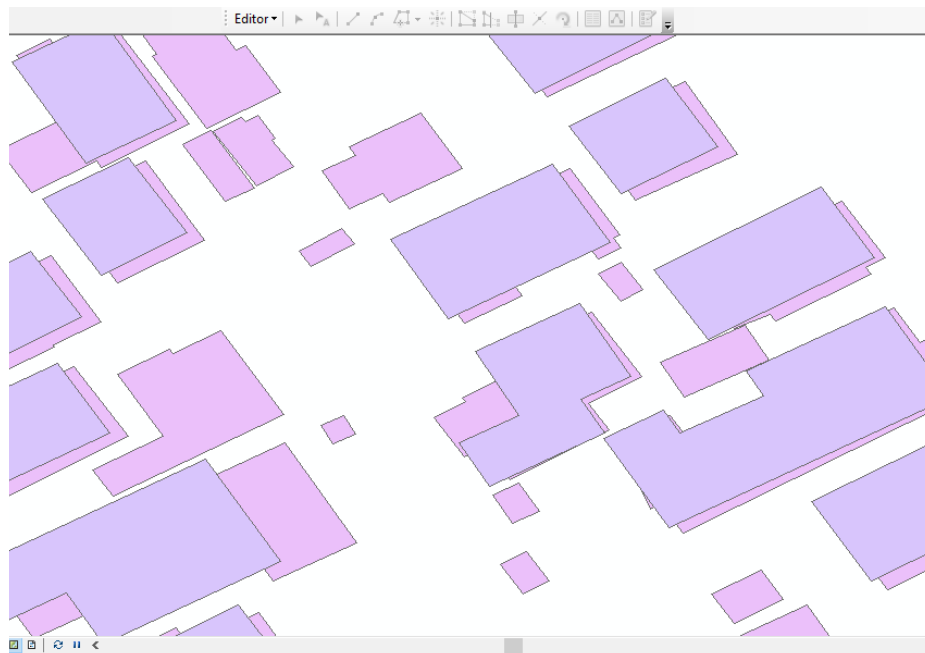
Use Cases

Approved use cases:

- Energy benchmarking
- Dataset management
- Geographic cross-reference
 - Point to polygon, polygon to polygon, parcels?
- Utility data
- Etc.

Equivalency

- Datasets obtained from different sources may have variations in geospatial data for the same buildings
- How similar do two buildings have to be to be recognized as the same buildings?



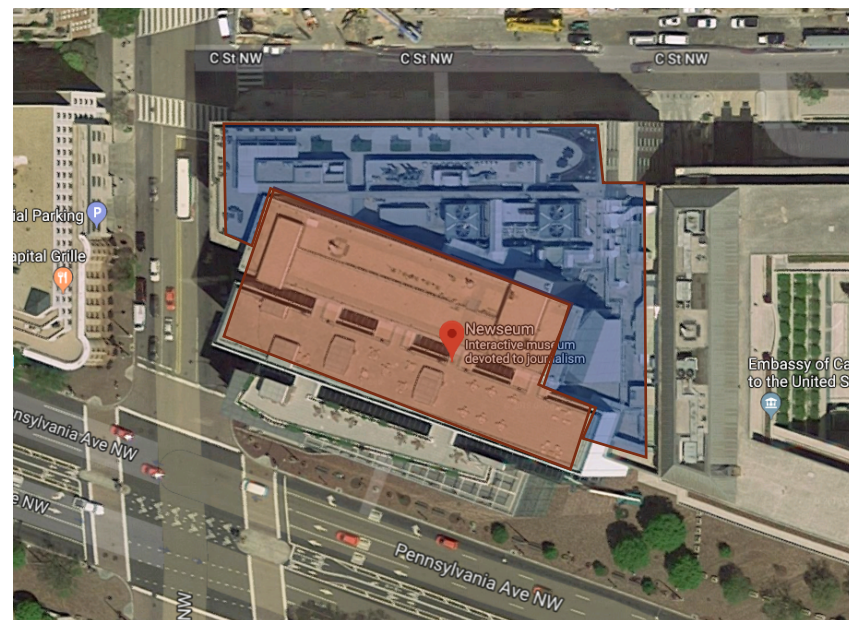
Definition of a Building



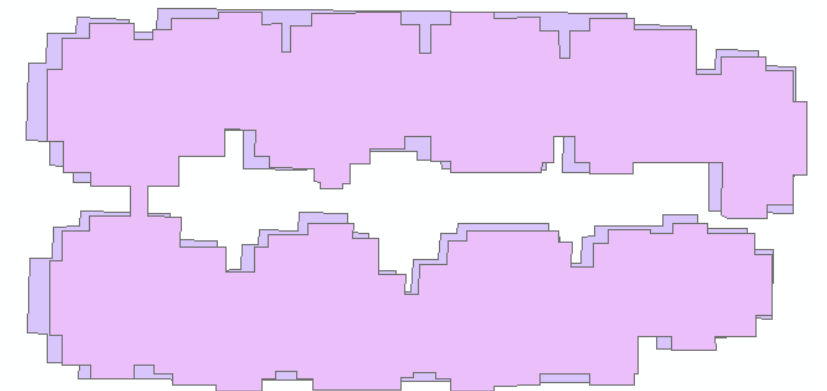
Adjacent Buildings



Shared meter/
equipment/parcel



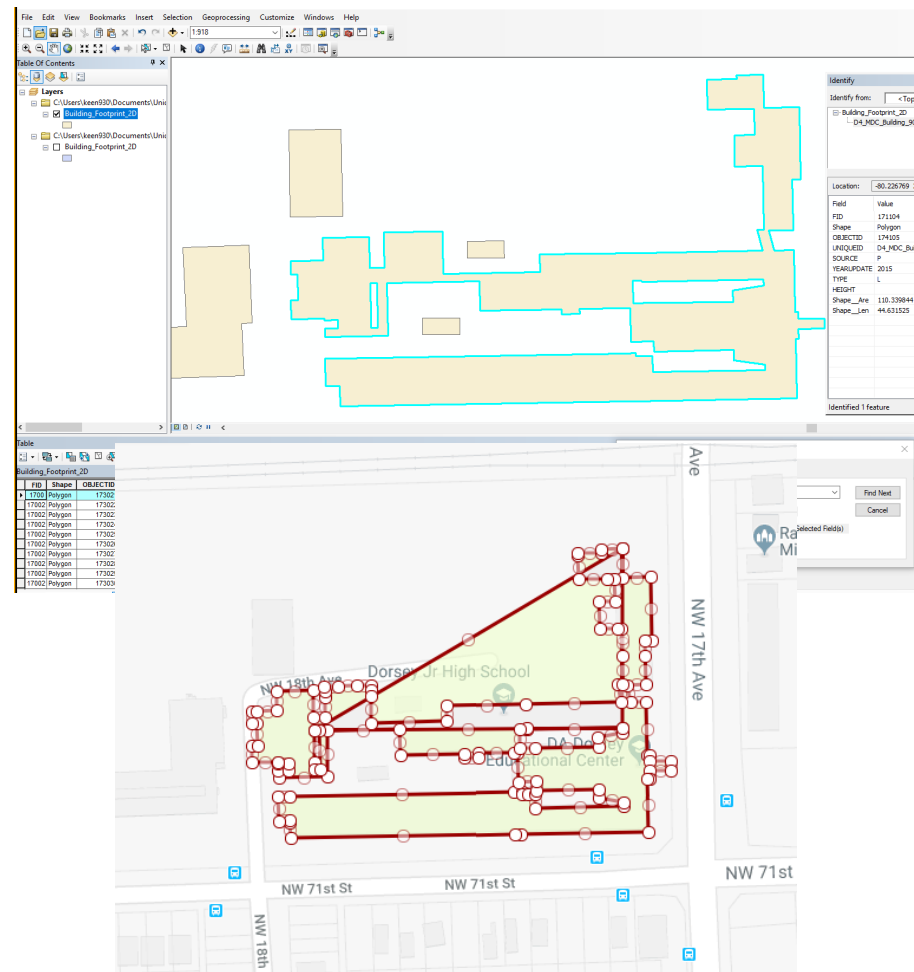
Walkways/
breezeways



Multiple tenants

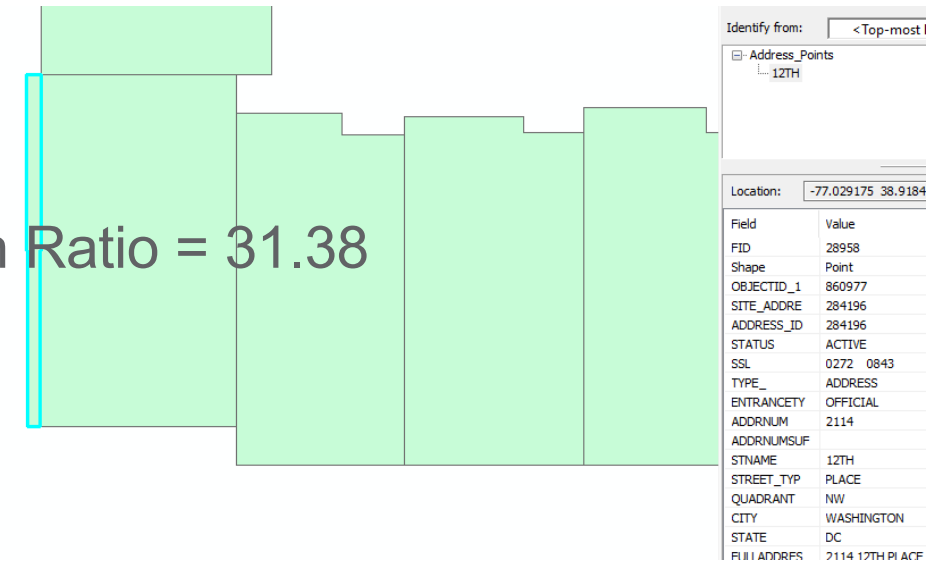
Edge Cases

- Detecting and treating unusual geometries

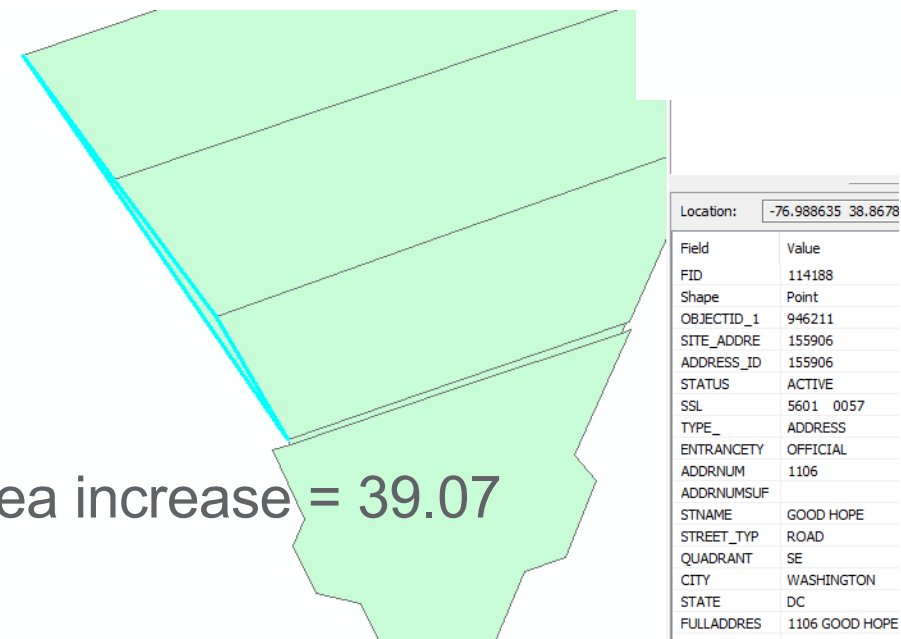


Polygon ordering of points

Height:Width Ratio = 31.38



Area increase = 39.07



Key Performance Indicators

- Cross Reference
 - Match rate
 - Number of intersections and relationships (1-1, 1-many, etc.)
 - IoU, centroid distance, etc.
- Dataset evaluation
 - Angle of rotation histogram
 - Percent area increase histogram
 - Height vs width chart

Standard Adoption Questions

- How could a UBID Standard help local governments or private sector to adopt UBID?
- What is the process for local governments to adopt a Standard like UBID?

Next Steps

Accelerator (FY20)

- Develop case study/best practice guide with IMT
- Continue supporting Accelerator partners with data analysis
 - Meeting planned for CEC
 - Other partners let PNNL know support needs
- BEDA Accelerator year 1 outcome report and year 2 plan

Software (FY21)

- Enhanced tutorials and documentation for software developers
- Enhanced function of released tooling for users

Thank you

