CIVIC ANALYTICS

Urban Rail Studies Move Faster in 3D

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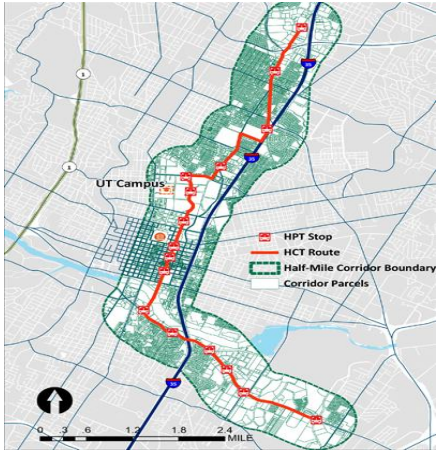
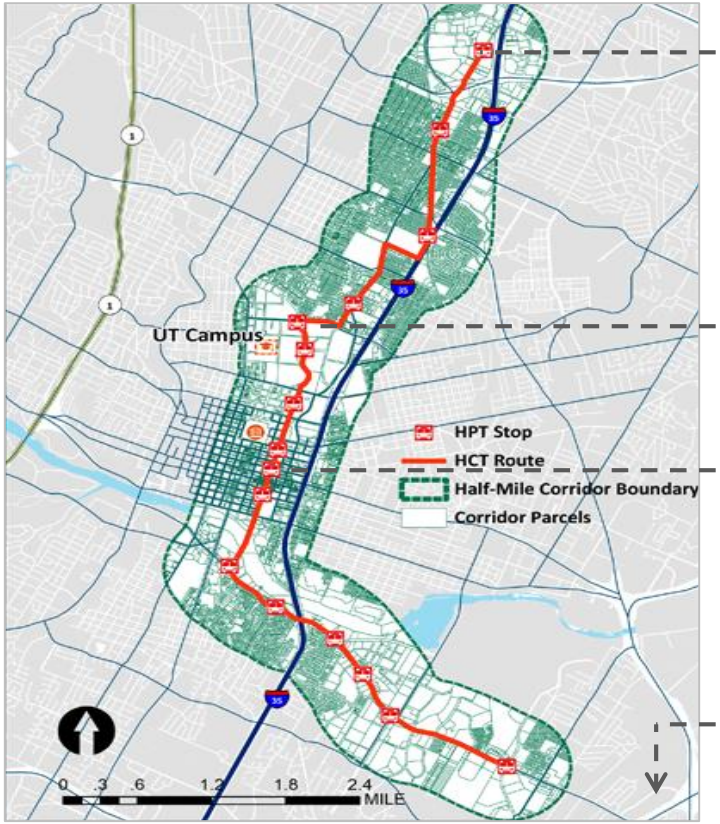
GeoDesign Summit
January 22-23, 2015
Redlands, CA

Project



- Analyzing the impact of a future urban rail line in Austin
- “Build” versus “No Build”
- City of Austin, University of Texas – Austin, Advisory Committee, and Civic Analytics

Project



New ACC Campus

University of Texas

Downtown

Airport

Project Workflow

- Scenario planning: ArcMap + Envision Tomorrow + CityEngine

GIS Layers + Building Library

Analysis by UT Researchers and CA

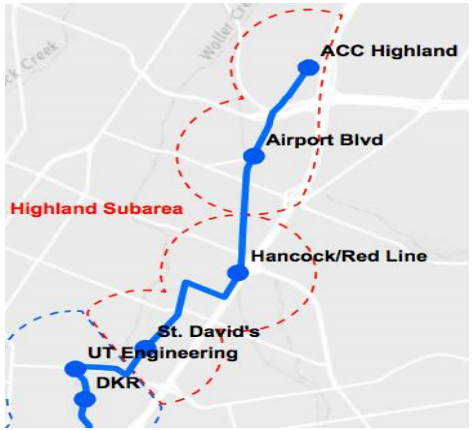
Visual and Analytical Impacts

Feedback

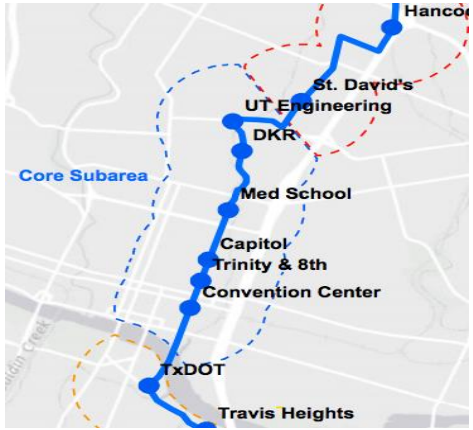
Methods

- Divided route in three subareas

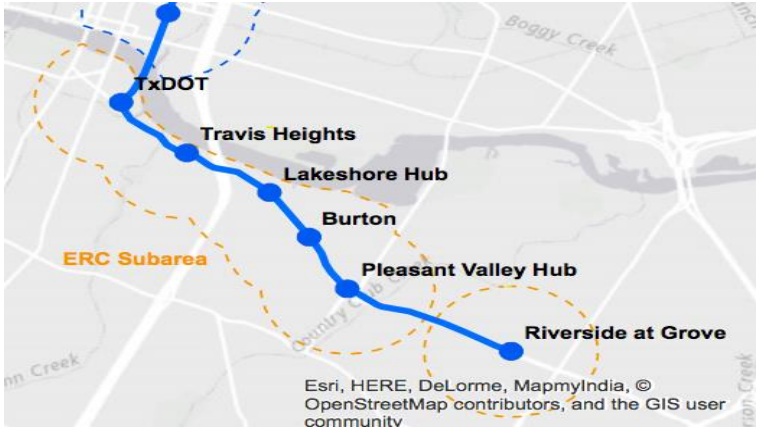
Highland



Core



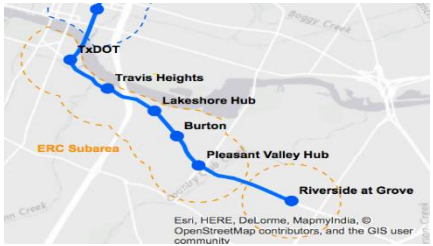
East Riverside



Methods

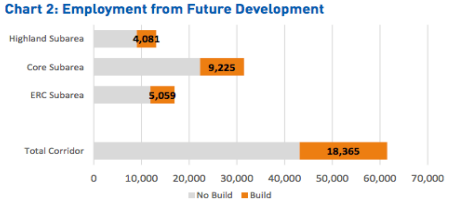
Ex:
East Riverside

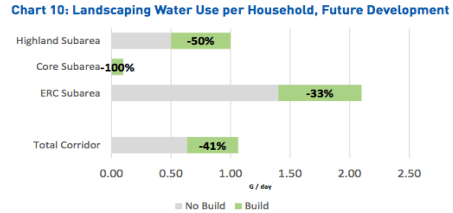
Population
28,366
- 46,007
17,641

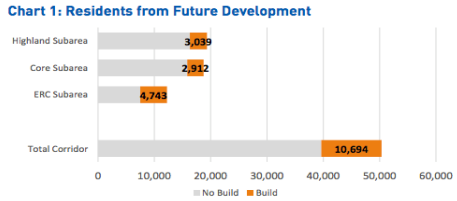


- 2010 data & 2030 population and employment projections
- Find difference for each corridor – control totals.
- Use building library (~ 75-80 building types)

Methods



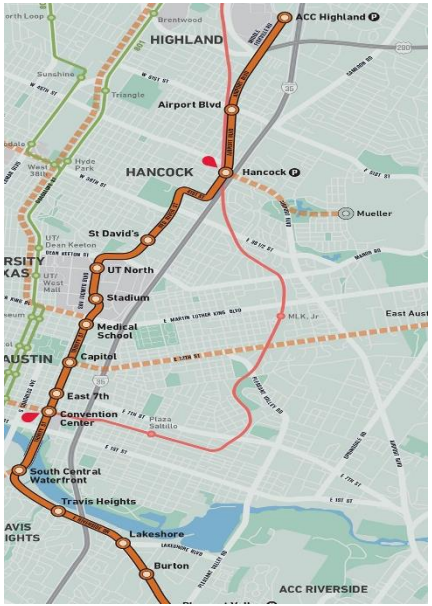




- Using building attributes: population, employment, estimated property tax revenue, people per acre, parking spaces, water use, etc…

… we gain insight into “Build” and “No Build” scenarios.

Ensuring Accuracy

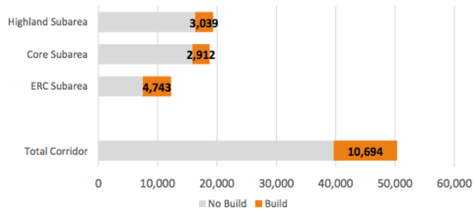


- Feedback process with University of Texas
- Feedback process with Central Corridor Advisory Committee

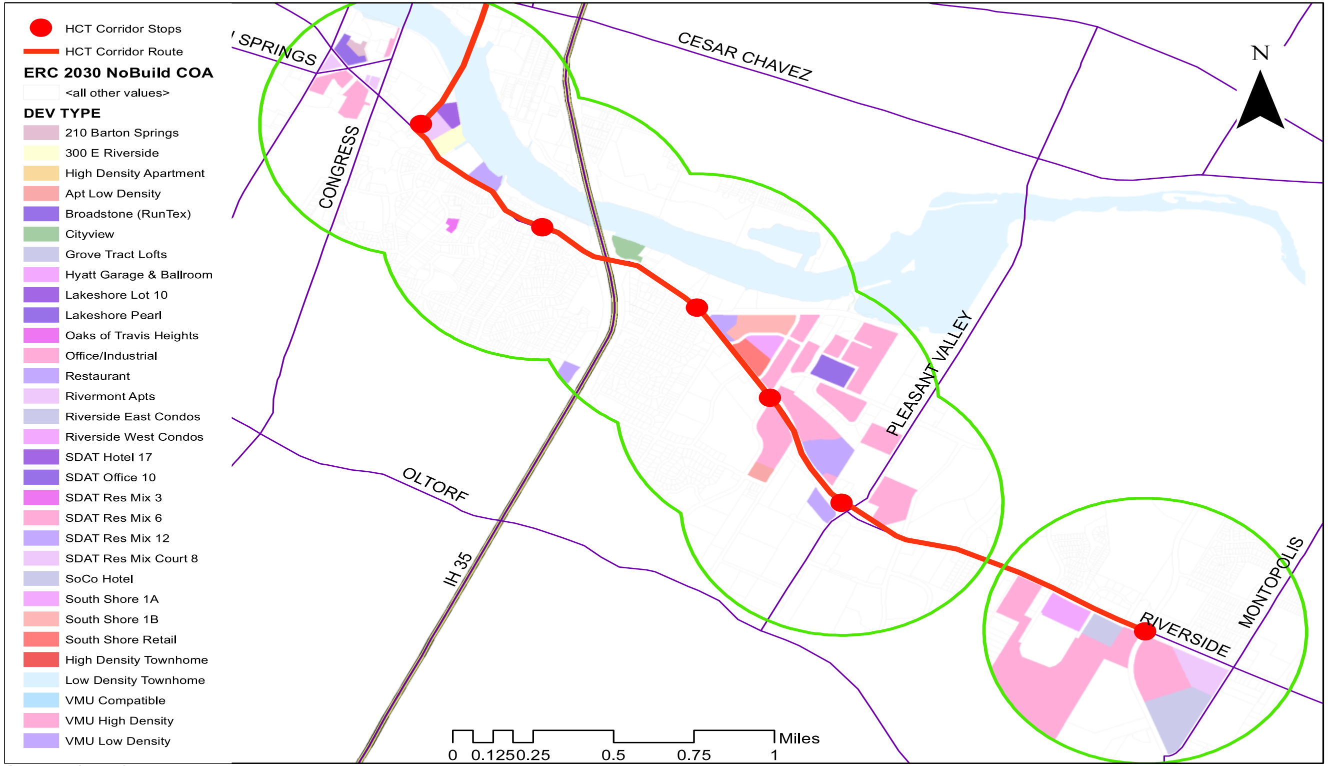
Ensuring Accuracy

Ex:
East Riverside

Chart 1: Residents from Future Development



2030 'No-Build High' ET Scenario (COA) 04/30/2014



Source: City of Austin 2014

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CityEngine

- Low buy in at first
- How does 3D contribute?
- Not presented until mid-project

Workflow

CityEngine

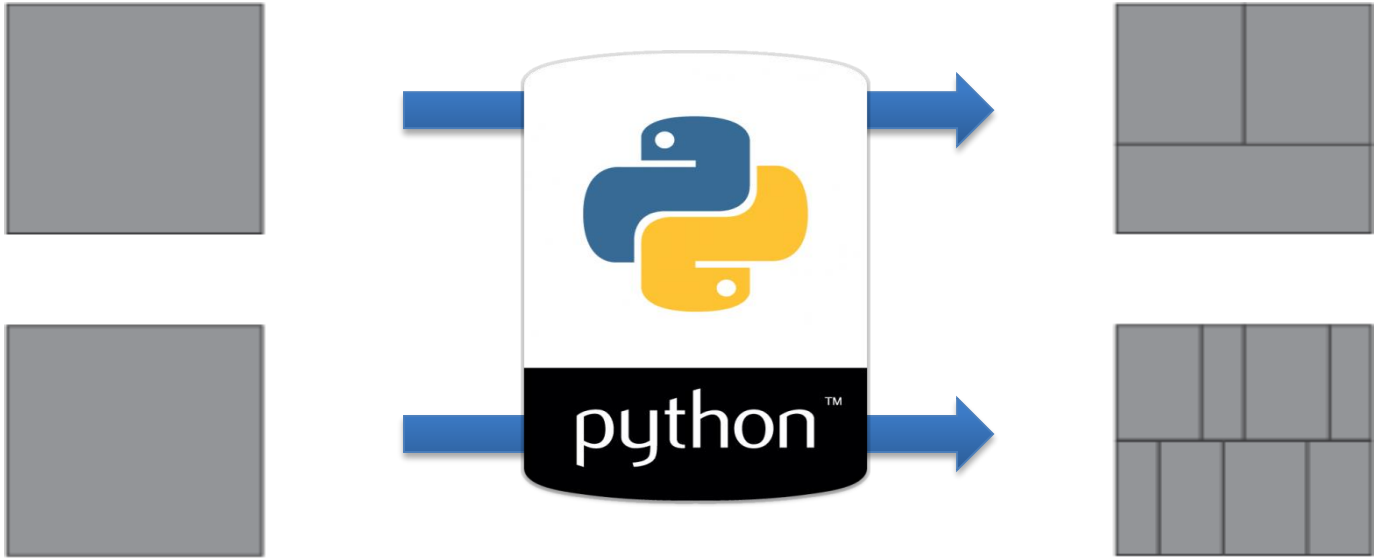
Envision Tomorrow

Building Name	Building and Site Characteristics				
	Lot Size (Sq Ft)	Building Lot Coverage	Parking Lot Coverage	Height (Stories)	Floor Area Ratio (FAR)
210 Barton Springs	69,131	100%	0%	17	4.05
300 E Riverside	186,367	45%	24%	5	1.27
High Density Apartment	101,054	70%	21%	4	1.98
Apt Low Density	65,340	35%	17%	2	0.19
Broadstone (RunTex)	66,503	100%	0%	6	3.16
Cityview	175,265	77%	0%	8	1.99
Grove Tract Lofts	789,510	21%	13%	2	0.27
Hyatt Garage & Ballroom	416,739	74%	3%	1	0.40
Lakeshore Lot 10	137,824	42%	18%	5	2.05
Lakeshore Pearl	261,273	29%	37%	5	0.82

Workflow

- Python Scripting:

```
If (Bldng X) { divide into "Bldng X" lots }
```



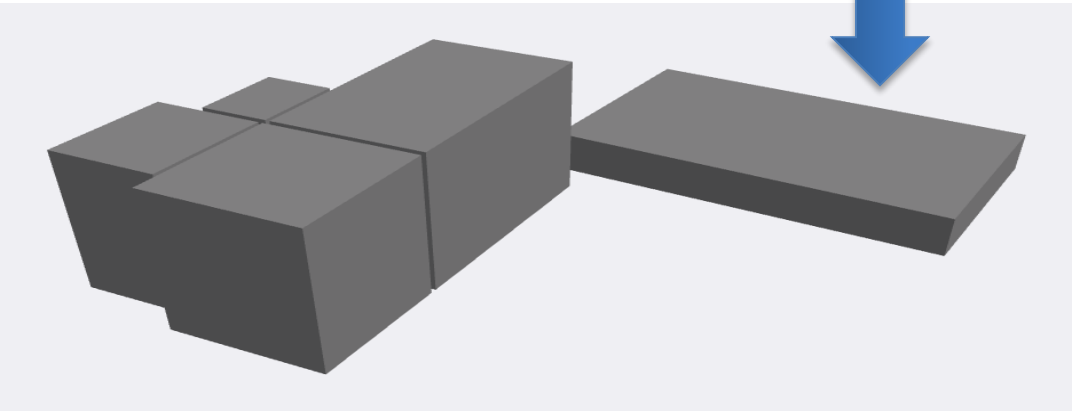
Workflow

GIS_Building_Template.cga

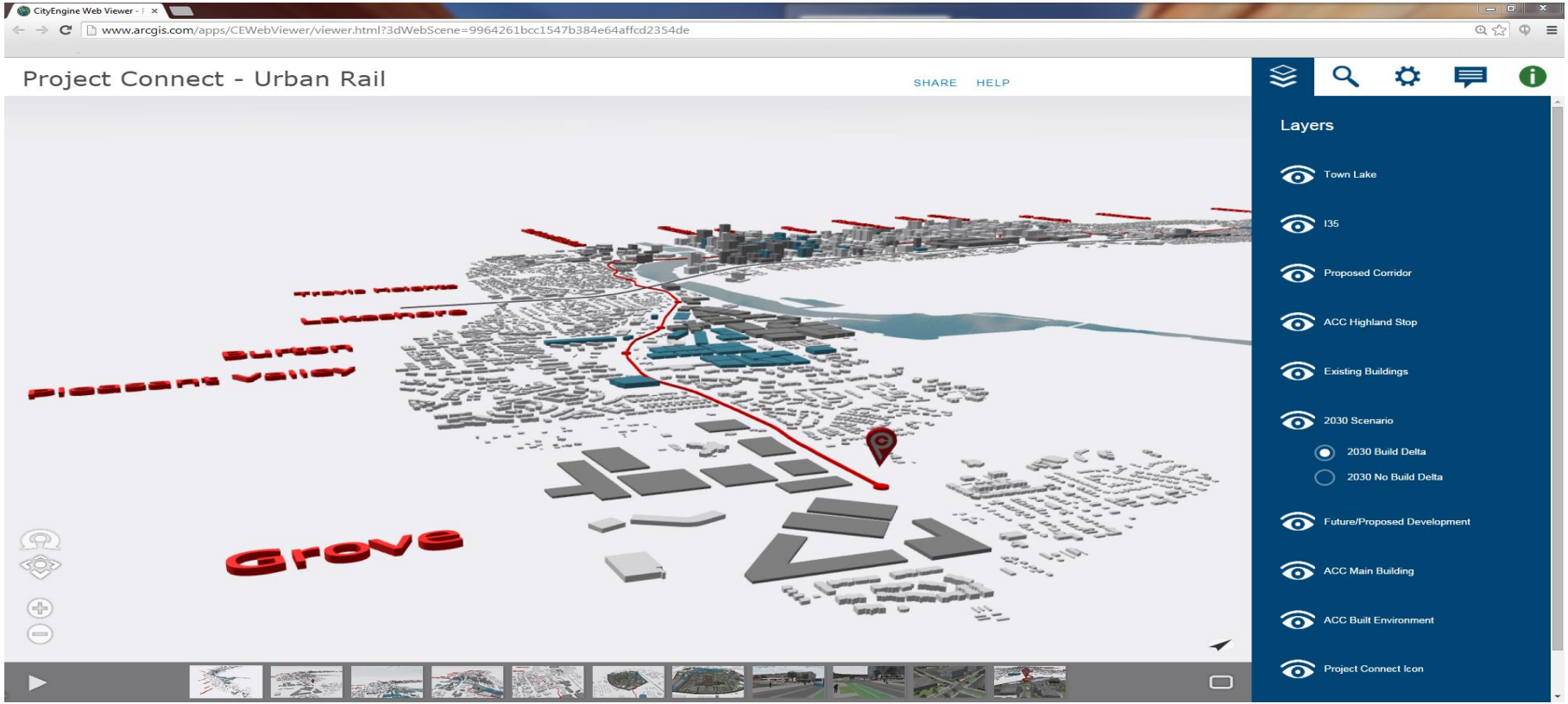
```
### TREES
#

Trees -->
    scatter(surface,geometry.area / 150,uniform) { PutTree(rand(.4,1.5))
    NIL

PutTree(scalar) -->
    s(0,0,0)
    r(0,rand(360),0)
    center(xz)
    i(fileRandom("assets/vegetation/*.obj"))
    s('scalar, 'scalar, 'scalar)
    center(xz)
```



3D Model


CityEngine Web Viewer
www.arcgis.com/apps/CEWebViewer/viewer.html?3dWebScene=9964261bcc1547b384e64affcd2354de
Project Connect - Urban Rail
SHARE
HELP
Layers
Town Lake
I35
Proposed Corridor
ACC Highland Stop
Existing Buildings
2030 Scenario
2030 Build Delta
2030 No Build Delta
Future/Proposed Development
ACC Main Building
ACC Built Environment
Project Connect Icon
Grove

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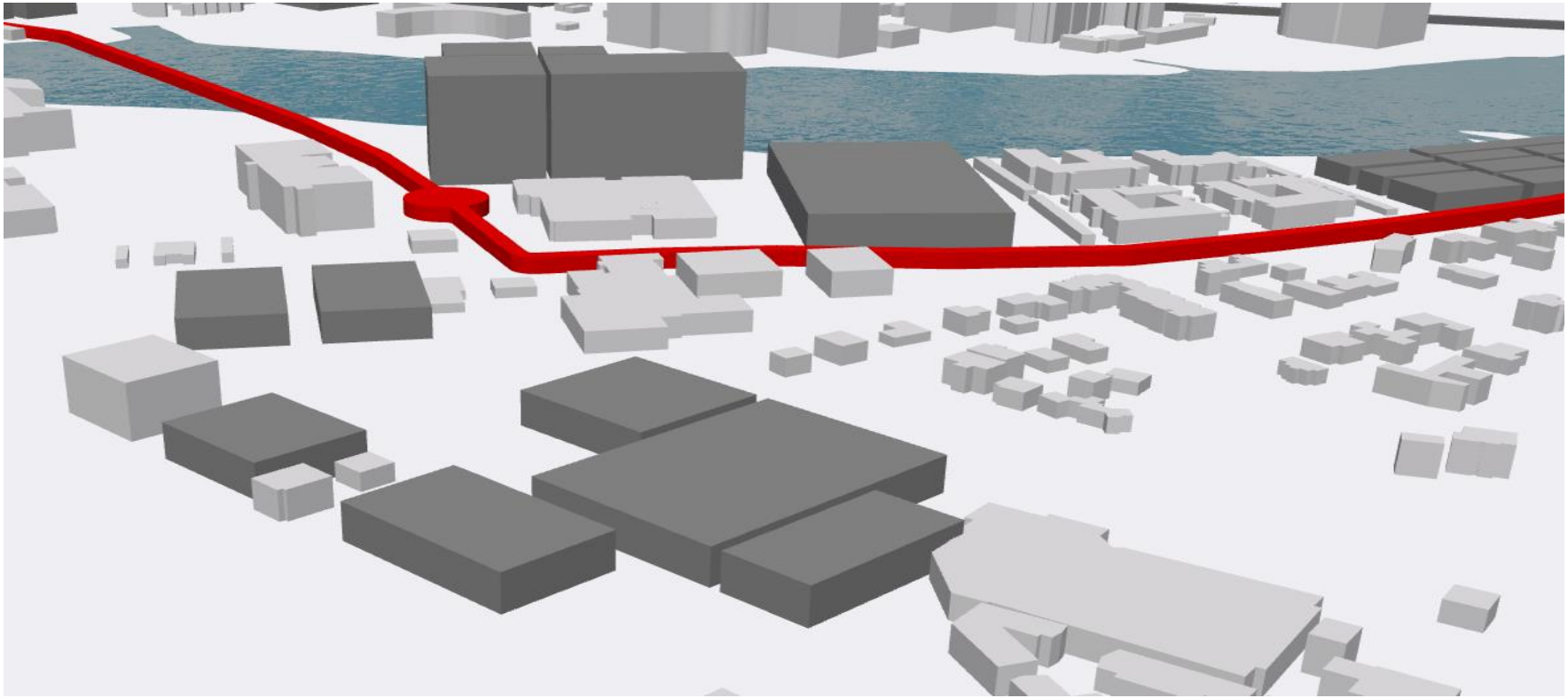
3D Model



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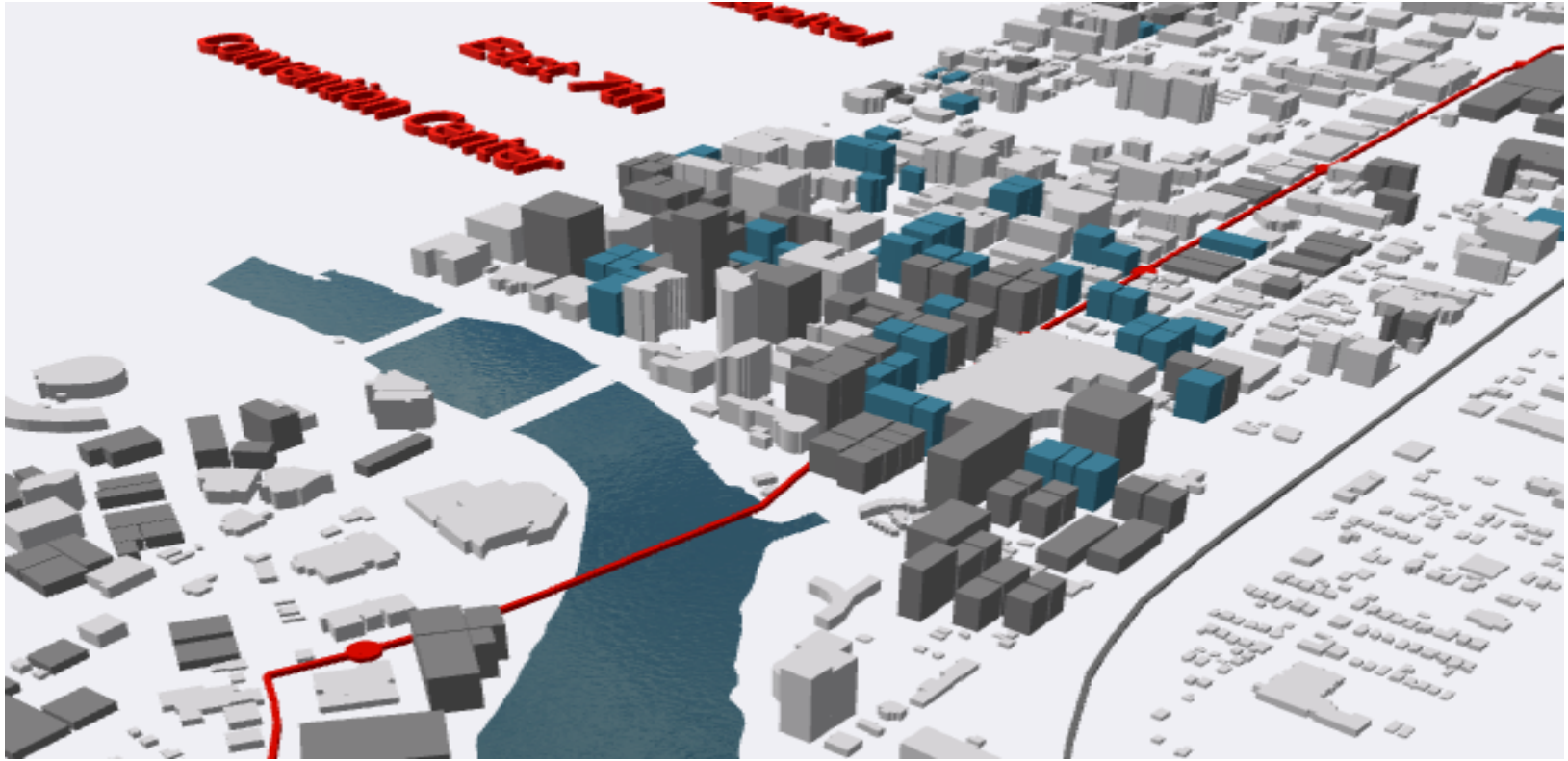
3D Model



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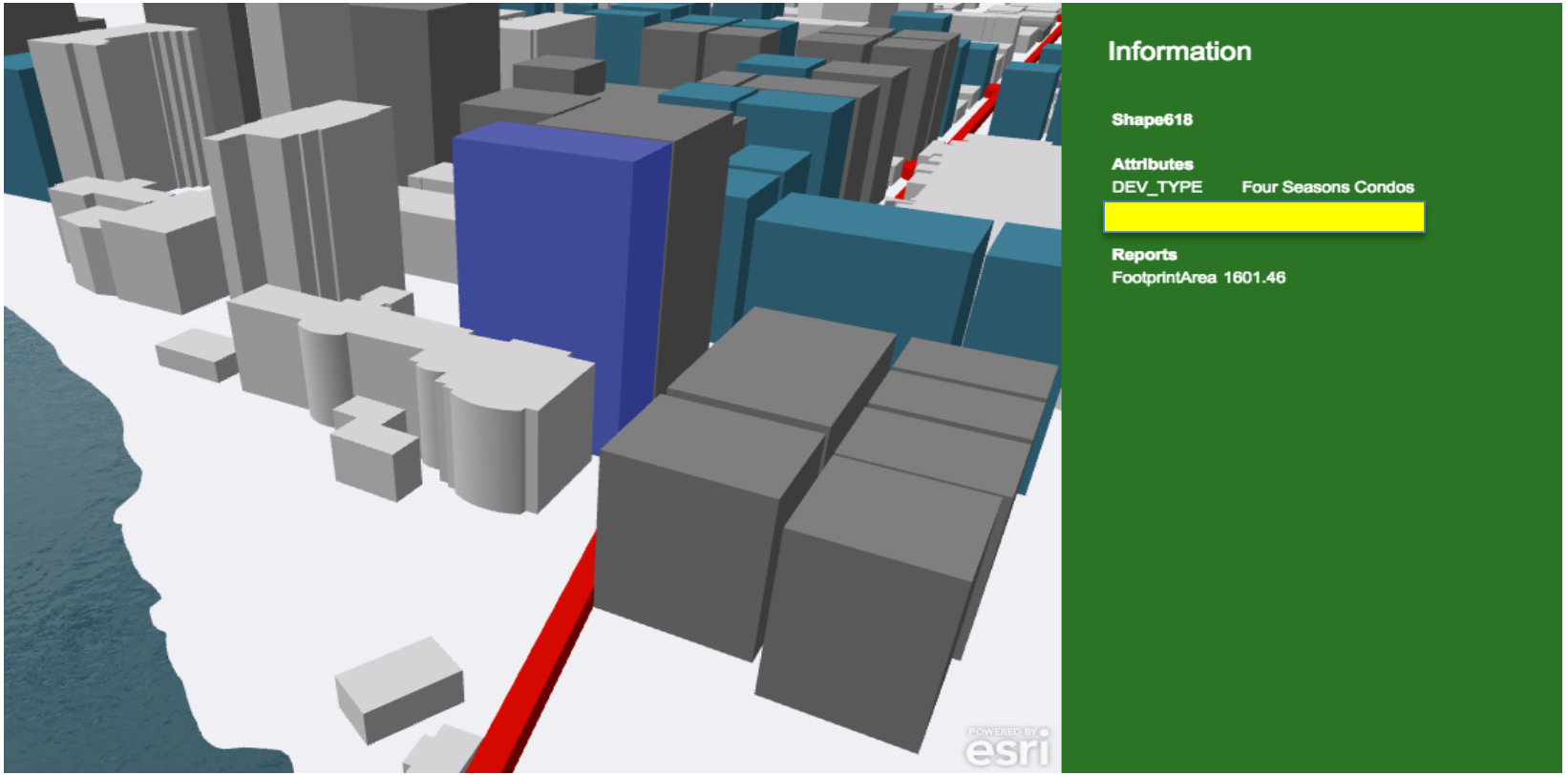

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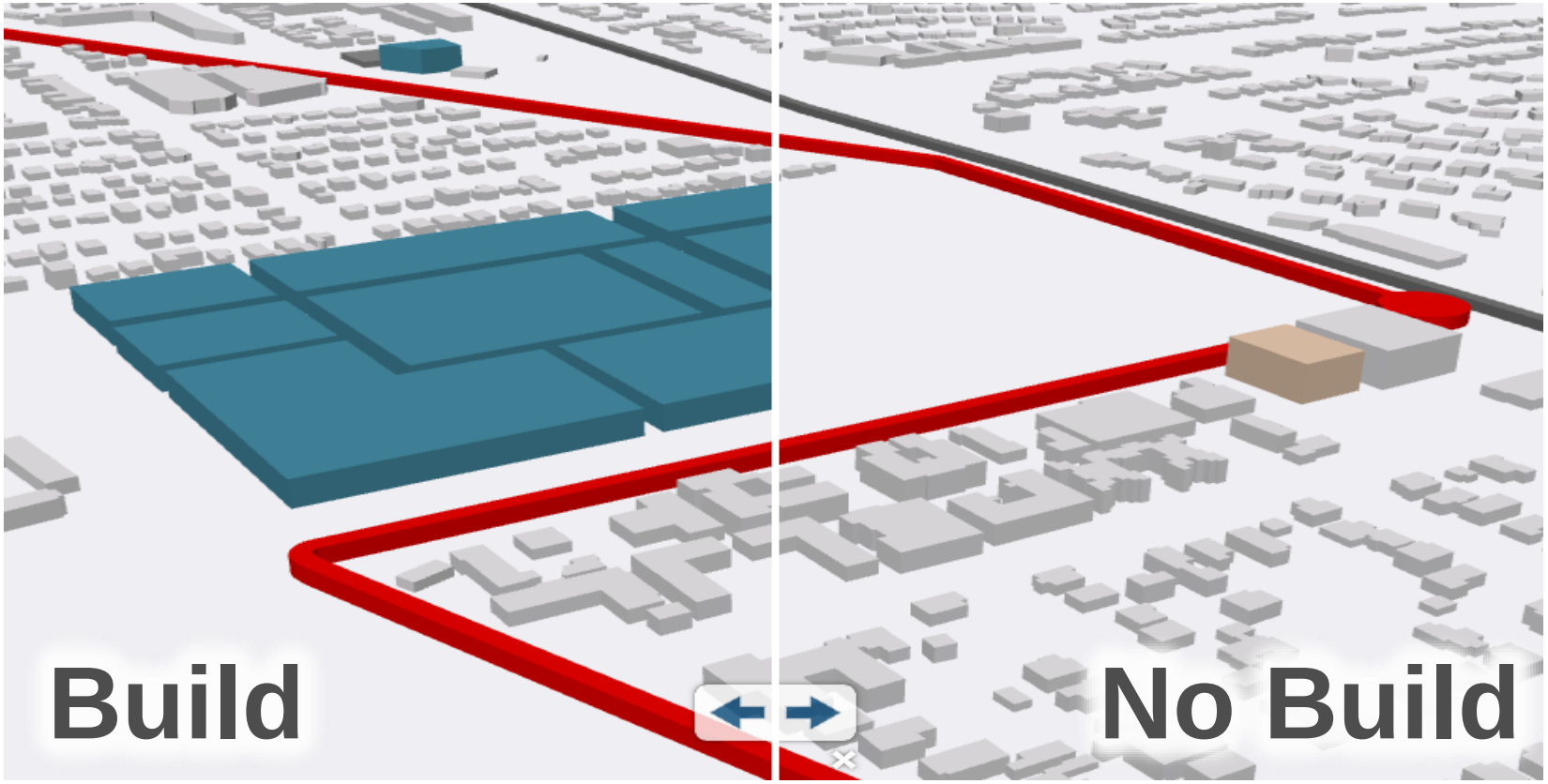

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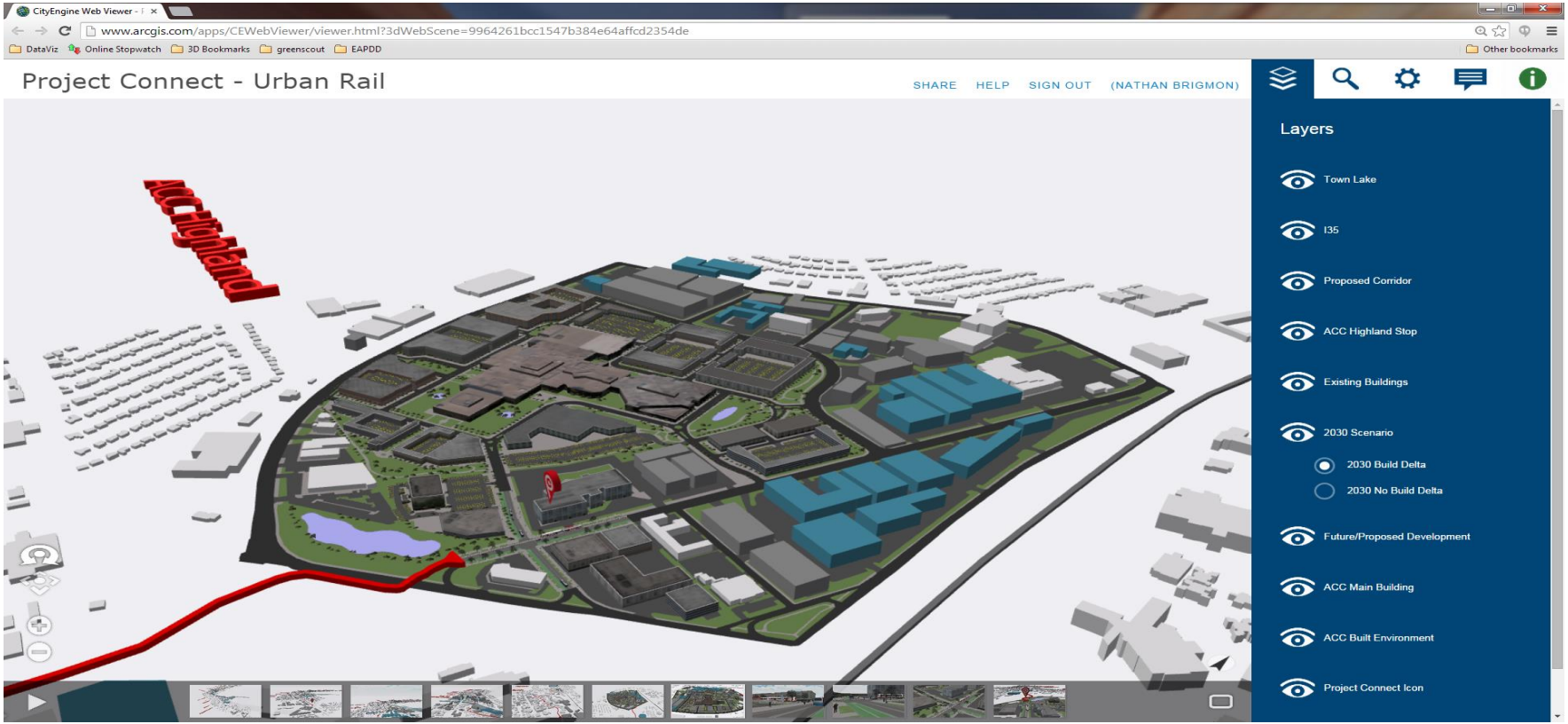

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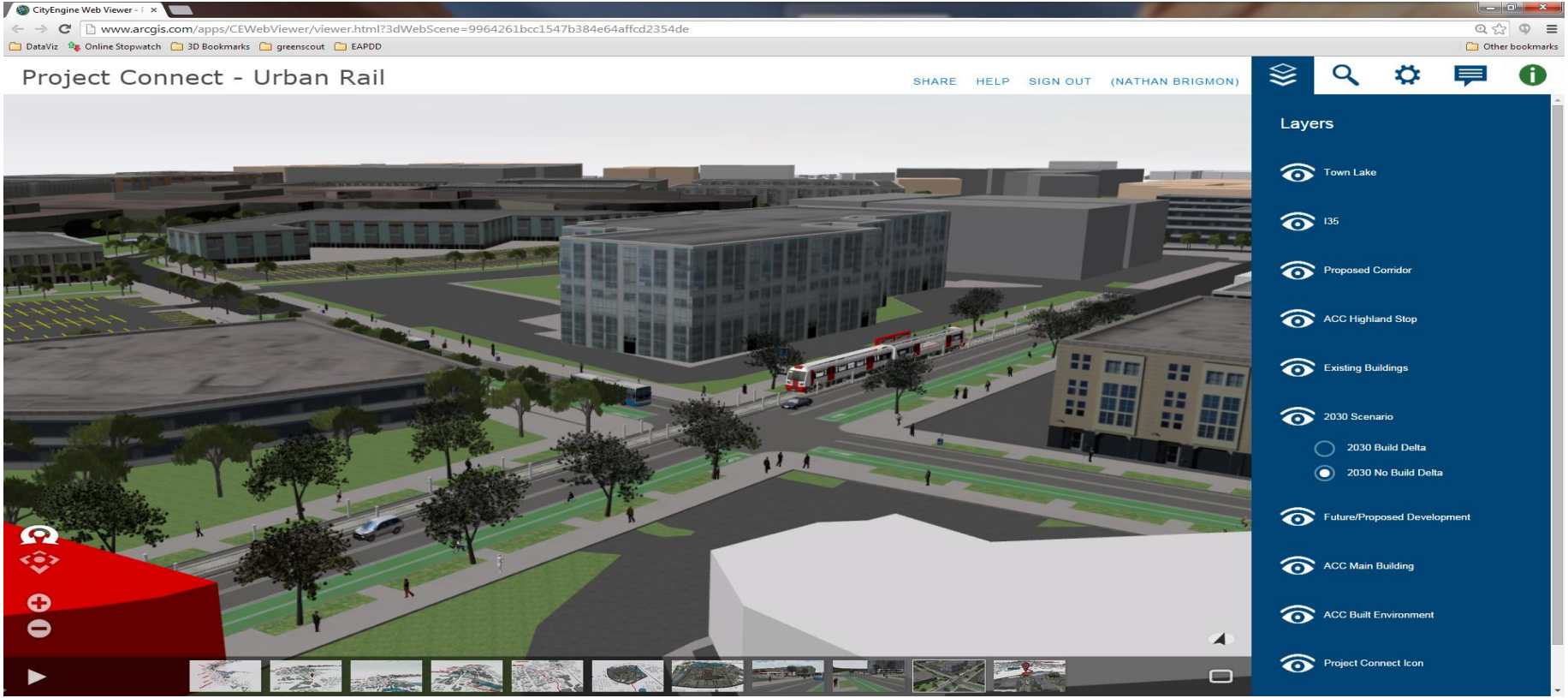

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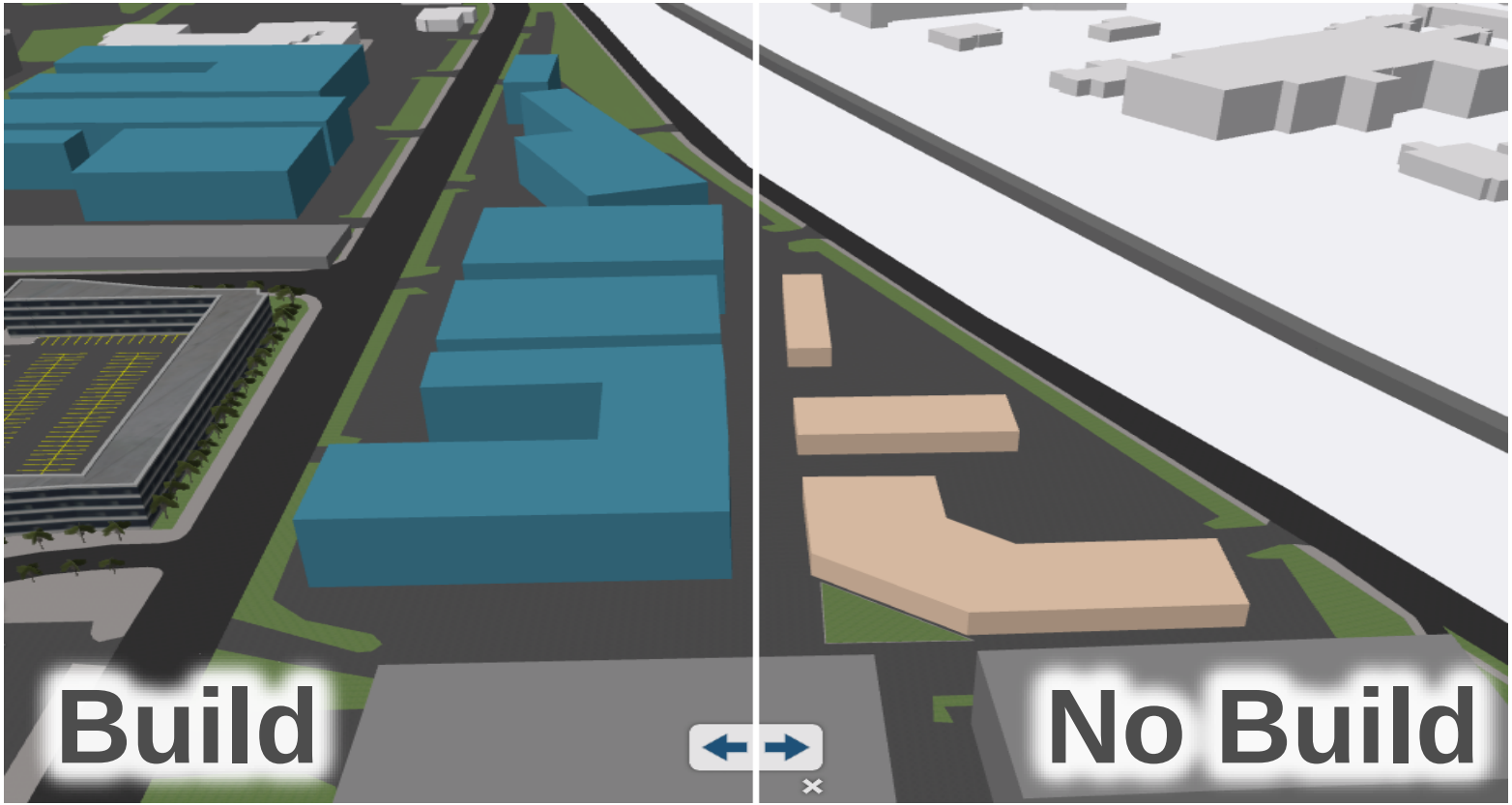

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3D Model

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Urban Rail Impact

- More engagement
- Faster feedback
- New conversations
- Unique data validation
- Process moved *faster*

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