

# City of Raleigh EVSE Suitability Analysis Tool

Electrify the South  
February 22, 2024



Raleigh



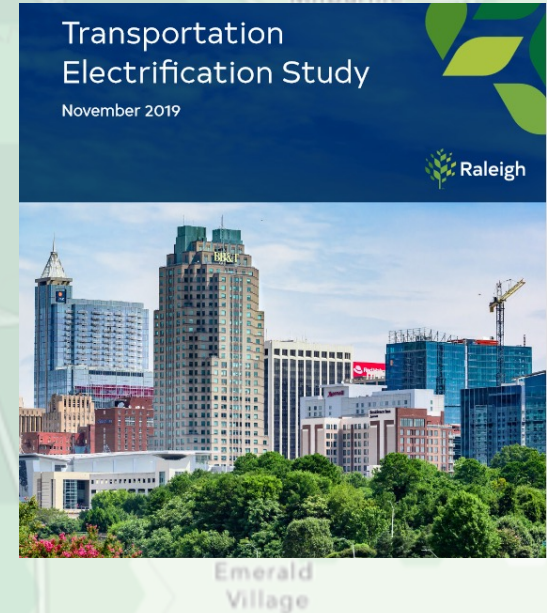
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# Transportation Electrification Study

## Strategy 2.6

To position Raleigh to be aligned with the growing EV market, **create an EV-ready strategy that identifies locations for future charging stations.** As funds become available to support additional City-owned stations, this strategy will enable the capturing and execution of funds.



# Issue

Where should we put EV charging stations?

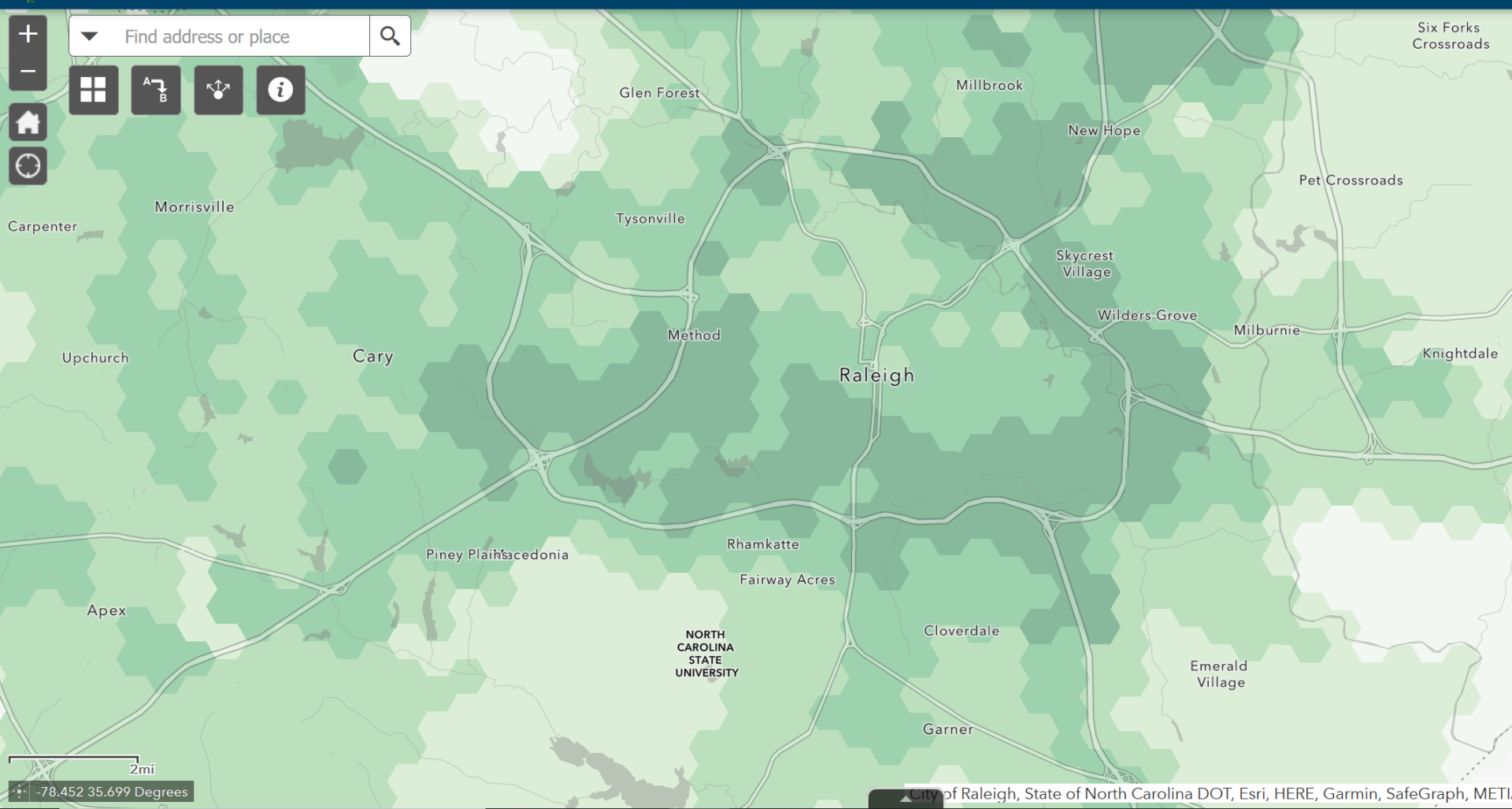
Why should we put it there?



# Objective

Create a tool that can identify the most suitable, priority locations for publicly available Level 2 EV charging stations in the City. The placement is based on criteria such as:

- EV Driver Behavior
- Location Convenience
- Charger Utilization
- Economic Development Opportunities
- Environmental Justice
- Equity



Find address or place



Morrisville

Glen Forest

Millbrook

New Hope

Six Forks Crossroads

Carpenter

Tysonville

Pet Crossroads

Upchurch

Cary

Method

Skycrest Village

Knightdale

Raleigh

Wilders Grove

Milburnie

Piney Plains cedonia

Rhamkatte

Fairway Acres

Apex

NORTH CAROLINA STATE UNIVERSITY

Cloverdale

Emerald Village

Garner

2mi

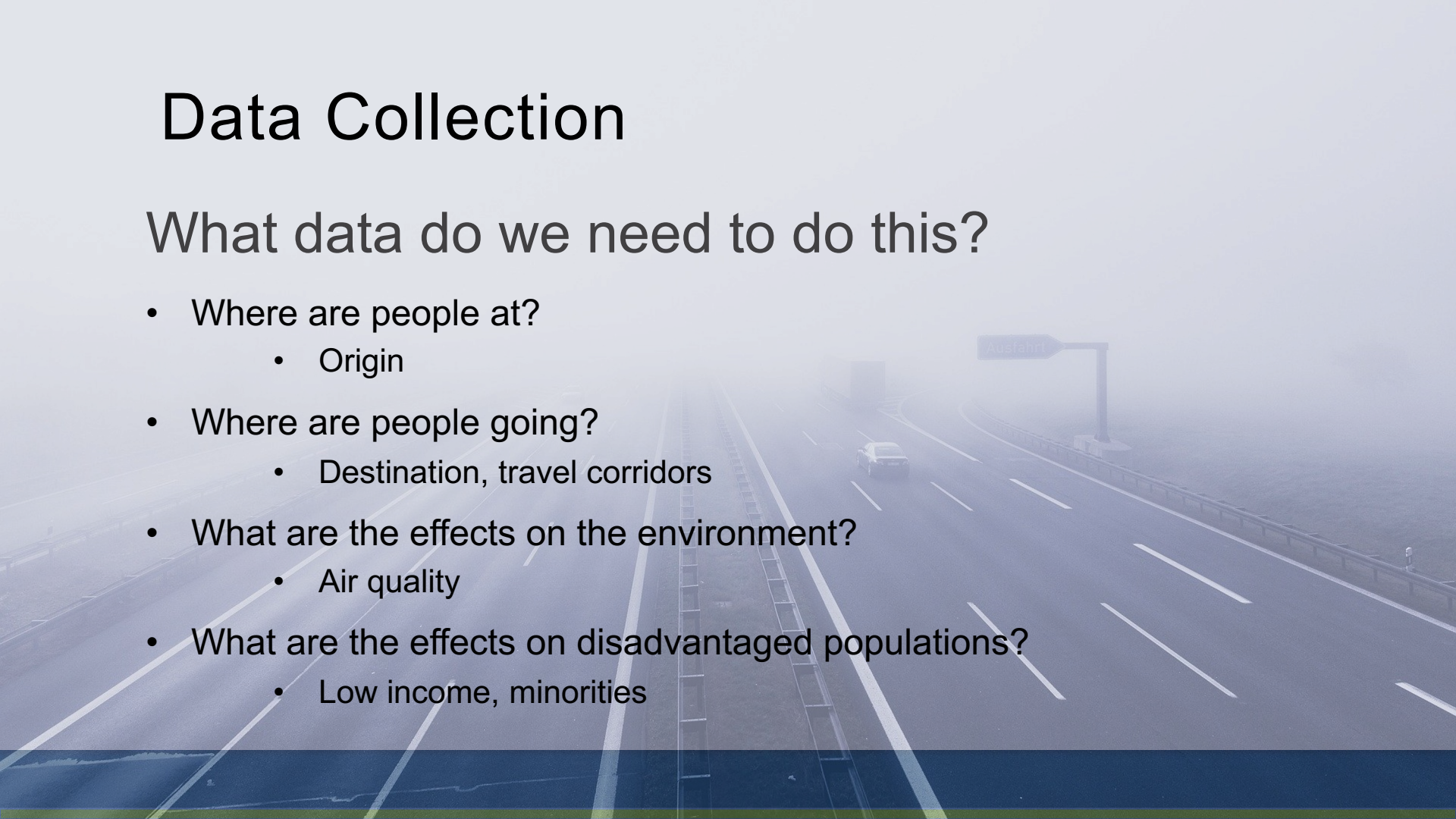
-78.452 35.699 Degrees

City of Raleigh, State of North Carolina DOT, Esri, HERE, Garmin, SafeGraph, METI

# Data Collection

## What data do we need to do this?

- Where are people at?
  - Origin
- Where are people going?
  - Destination, travel corridors
- What are the effects on the environment?
  - Air quality
- What are the effects on disadvantaged populations?
  - Low income, minorities



# Data Collection

## Data Sources

- Publicly available data
- Dynamic updates
- Generated through existing sources



# Data Collection

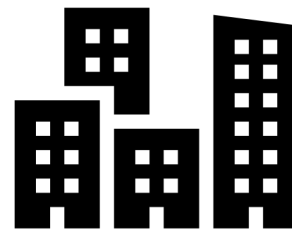
## Variables

- Population Density Census Tract
- POI Layer 1 (Most valuable)
- Traffic Count (AADT)
- Air Quality (AADT)
- MUDs
- POI Layer 2
- Interchange Buffer
- Low Income Census Tract
- Parking Meter Utilization
- POI Layer 3 (Less Valuable)
- MWBE Business
- Car Ownership Census Tract

# Data Collection

## Static Layers

- City Facilities
- Existing EVSE
- Affordable Housing



# Data Collection

## Additional Considerations

- Available utility grid capacity
- Walkability
- Existing EVSE utilization
- DCFC vs. Level 2

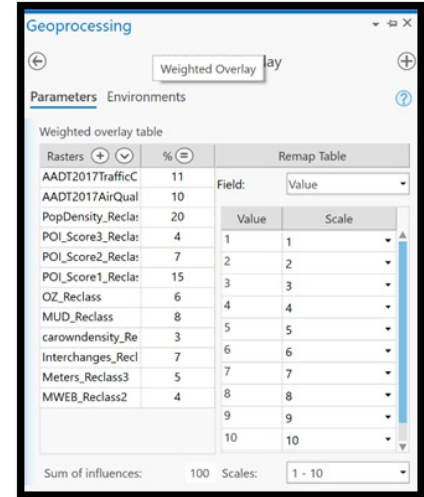
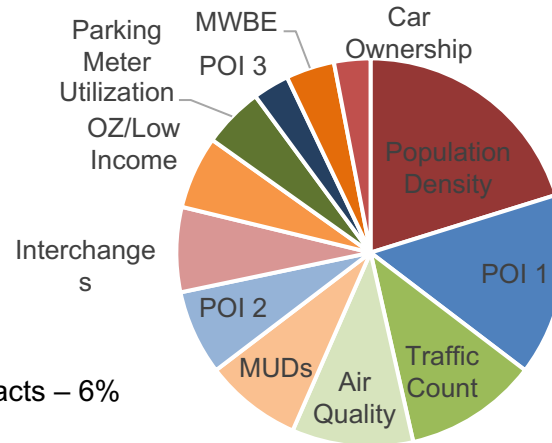
# Weights and Scoring

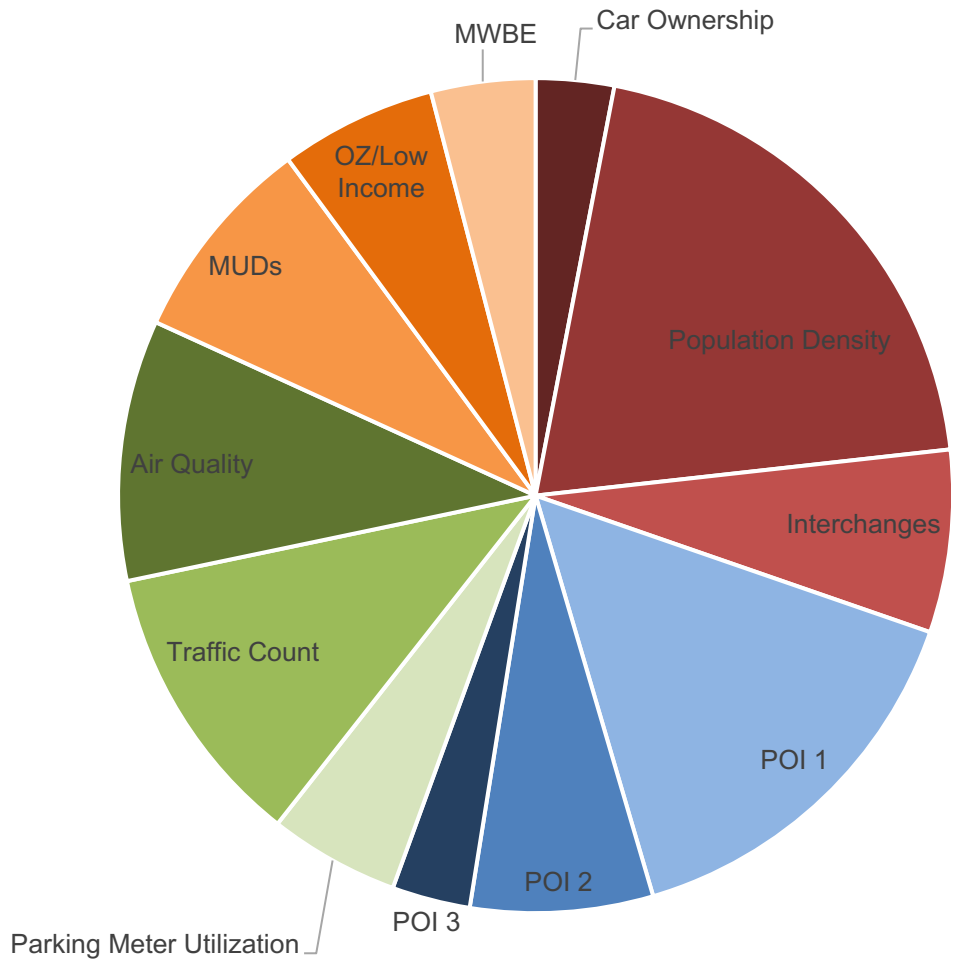
- What variables are most important to achieve objective?
- All variables included are important
- Weights reflect the **subjective** importance of each variable to reach the outcome
- Distribution is limited to 100%



# Weights and Scoring

- Population Density – 20%
- Points of Interest 1 – 15%
- Traffic Count – 11%
- Air Quality – 10%
- Multi-Unit Dwellings – 8%
- Points of Interest 2 – 7%
- Interchanges – 7%
- Opportunity Zones/Low Income Census Tracts – 6%
- Parking Meters – 5%
- Points of Interest 3 – 4%
- Minority, Women Owned Business Enterprises – 4%
- Car Ownership – 3%





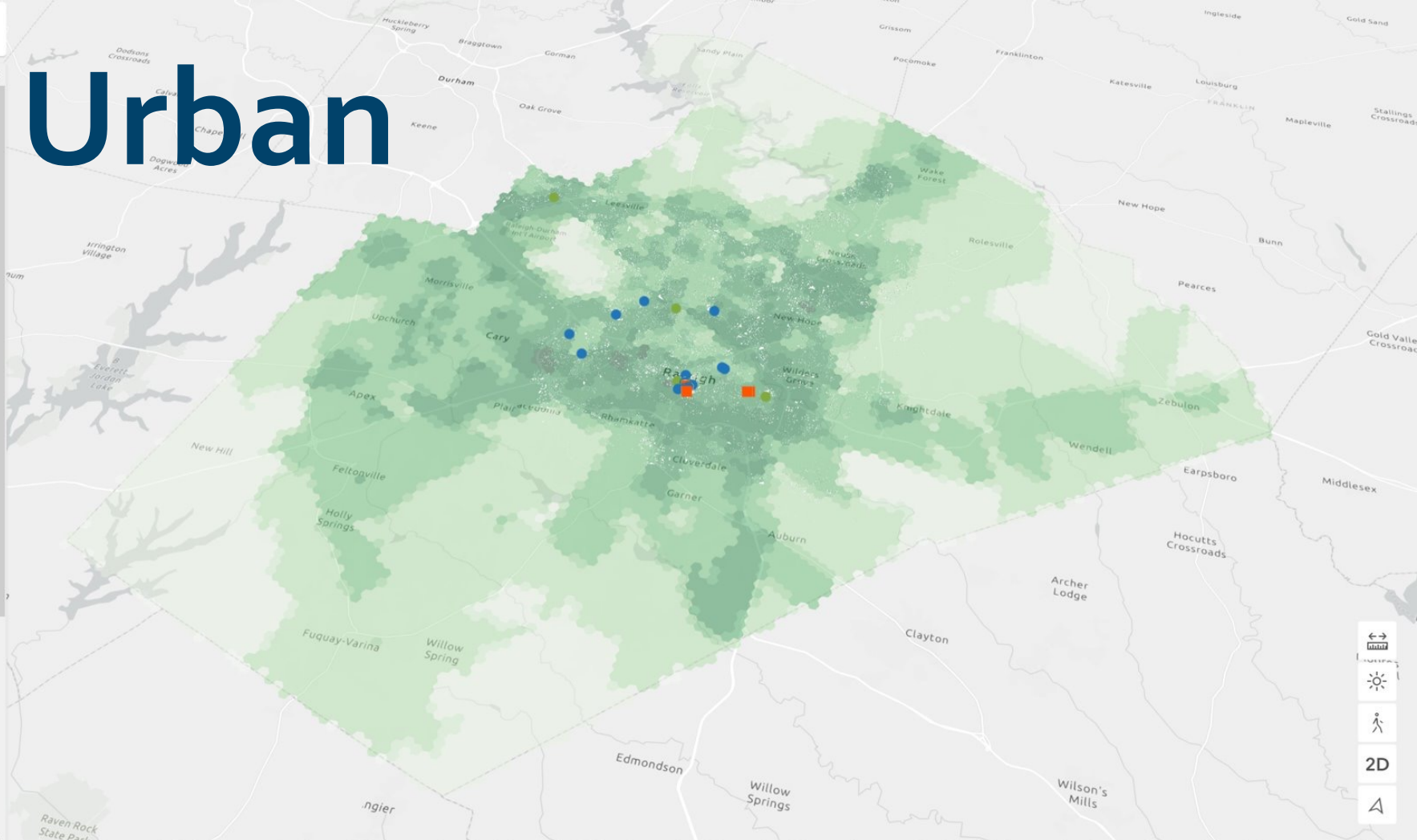
# Using the Tool

Public link is active:

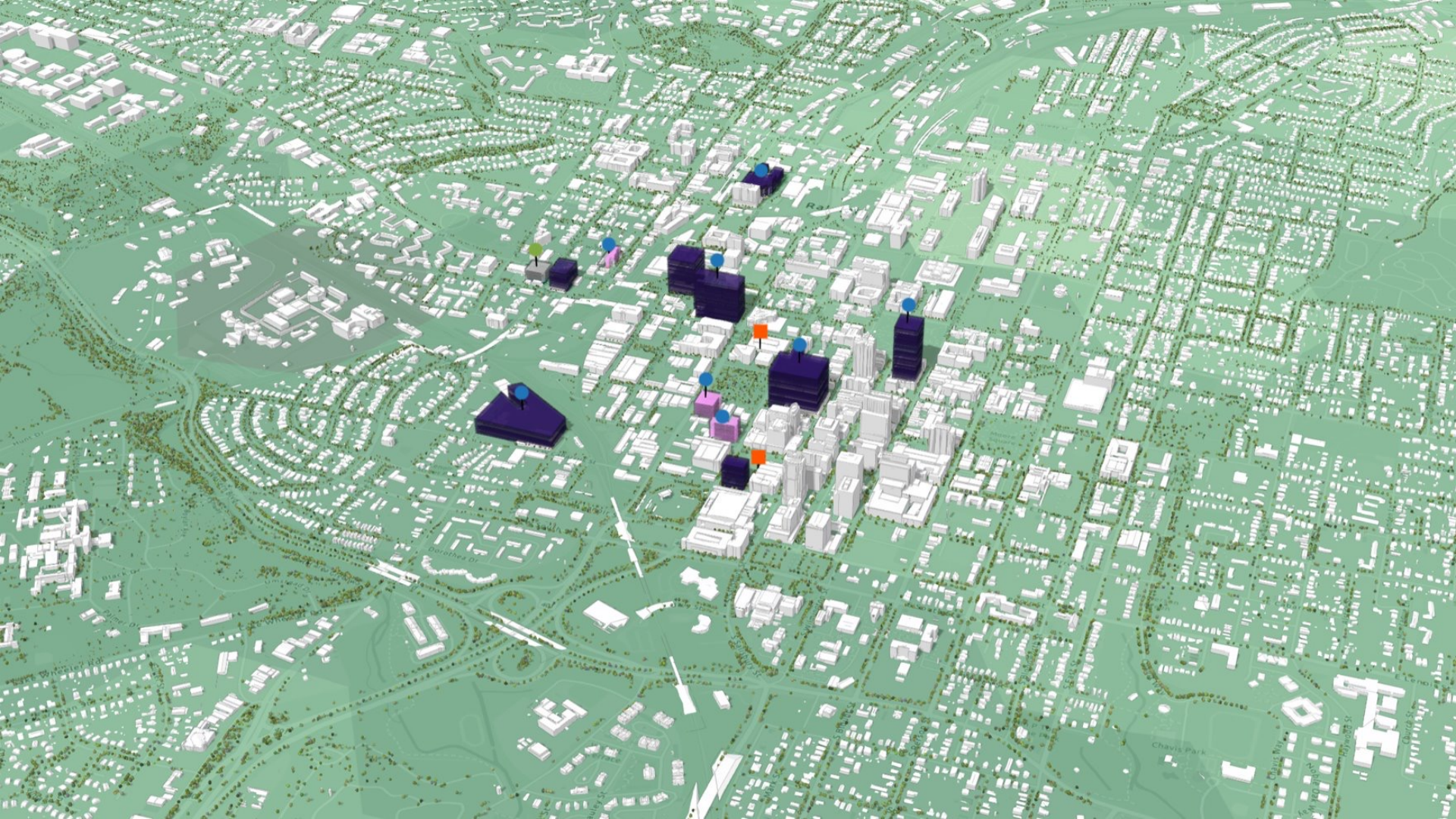
<https://ral.maps.arcgis.com/apps/webappviewer/index.html?id=b157b9f69d284bcc8e9f3827f1d4c41>

[a](#)

# Urban









2D



Find address or place

Smart Editor

EVPriorityParkingLots

Priority

0

FTR\_CODE

1

DESCRIPTION

PARK\_PAVED

SUBTYPE

PARKING\_LOT

IMPERVIOUS

YES

Close

Save



EVSE Stations | Wake County Existing EV Chargers | EVPriorityParkingLots | Building Footprints | City of Raleigh Fee Properties

Options | Filter by map extent | Zoom to | Clear selection | Refresh

DESCRIPTION	Priority	EV_SuitabilityScore
PARK_PAVED	0	8.00
PARK_PAVED		8.00
PARK_PAVED		8.00
PARK_PAVED		8.00



- EVSE Stations
- Wake County Existing EV Chargers
- EVPriorityParkingLots
- Building Footprints
- City of Raleigh Fee Properties

Options Filter by map extent Zoom to Clear selection Refresh

DESCRIPTION	Priority	EV_SuitabilityScore
PARK_PAVED	1	8.75
PARK_PAVED	0	8.44
PARK_PAVED	0	8.44

481 features 0 selected



# DOE Grant

## EVSE and Affordable Housing

June 2021 Grant

\$4M to \$6.6M with 50% matching funds

Project approach must include both:

1. PEVs and charging infrastructure in underserved communities (e.g., low income, rural, and demographics that currently have minimal access to PEVs).
2. Multi-family housing and curbside charging providing PEV charging opportunities for residents without access to dedicated off-street parking.

# Questions?



# Transportation Electrification Study

[https://cityofraleigh0drupal.blob.core.usgovcloudapi.net/drupal-prod/COR27/EV%20Study\\_Final.pdf](https://cityofraleigh0drupal.blob.core.usgovcloudapi.net/drupal-prod/COR27/EV%20Study_Final.pdf)