



Innovative Approaches to Guide Policy Decisions and Land Use

American Planning Association, Pennsylvania Chapter

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Purpose of this Session

Describe different **analytical** and **visual** planning tools designed to help guide land use and development decisions by incorporating **sustainability, resiliency and green infrastructure** into the **comprehensive planning process**.

Key topics will include:

- ❑ Point System and Planning Visualization Maps

- Sustainability and Site Location
- Resiliency and Risk
- Other applications

- ❑ Targeting Green Infrastructure Placement

Planning Visualization Mapping

Create a planning algorithm and GIS mapping framework that:

- Allows policymakers to easily visualize and evaluate sustainability, as well as other complex planning issues such as resiliency and risk;

As applied to sustainability and site selection (e.g., housing):

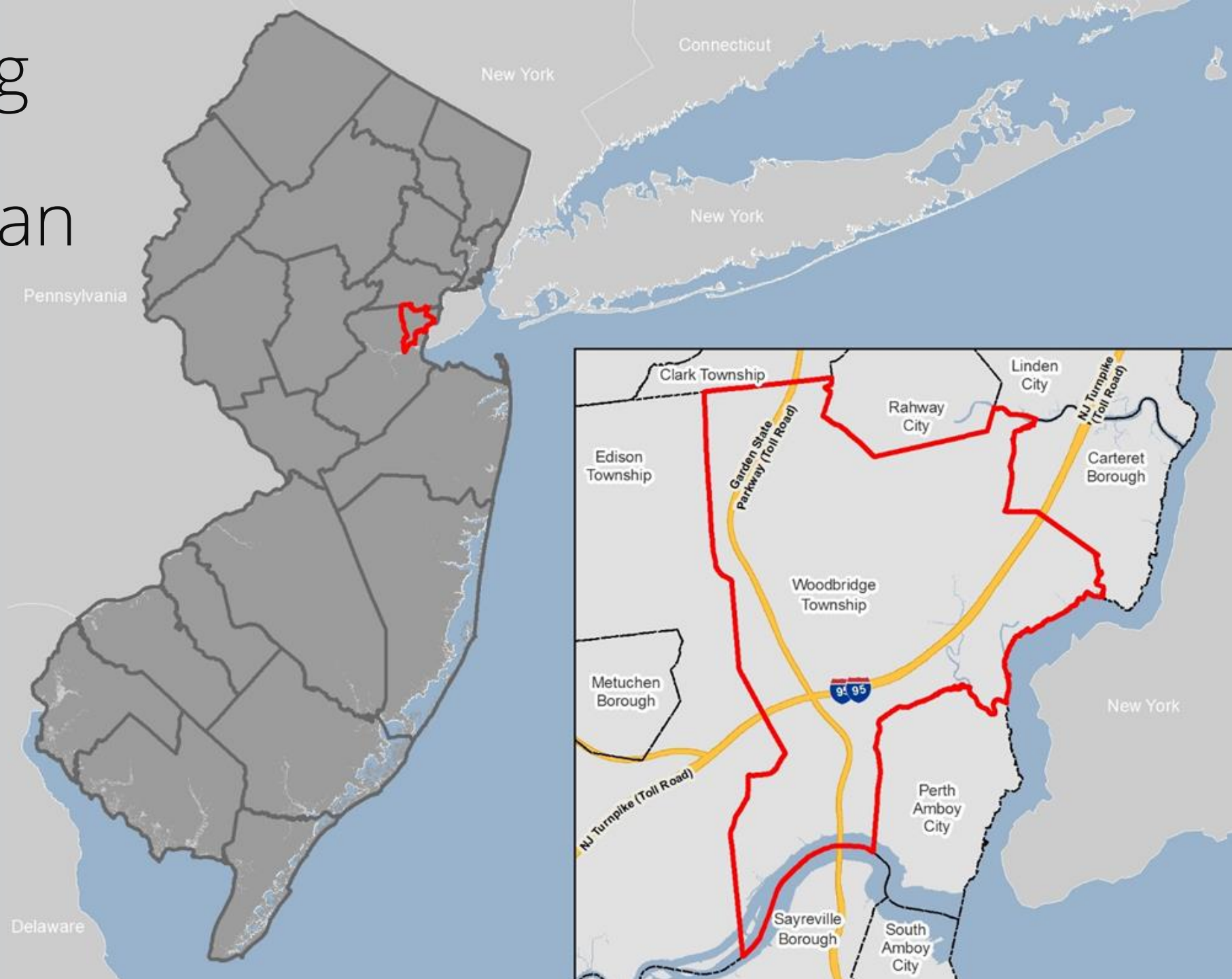
- Identifies most appropriate sites based on sustainability factors;
- Adapts LEED-ND standards as a method for allocating points;
- Has been approved as part of court settlements and embedded into municipal ordinances; and,
- Is versatile and can be adjusted to different types of municipalities.

Elements of Planning Visualization Mapping for Affordable Housing

- Point system
- Color gradation mapping – Planning visualization map
- Point system ordinance preparation:
 - Mandatory affordable housing set-aside for multifamily residential developments
 - Percentage of affordable units on-site established by number of points, with remaining units provided by payment in lieu of construction
- Zoning enhancement areas
- Redevelopment areas (where applicable)

Using Planning Visualization Mapping to Plan for Affordable Housing

Woodbridge Township



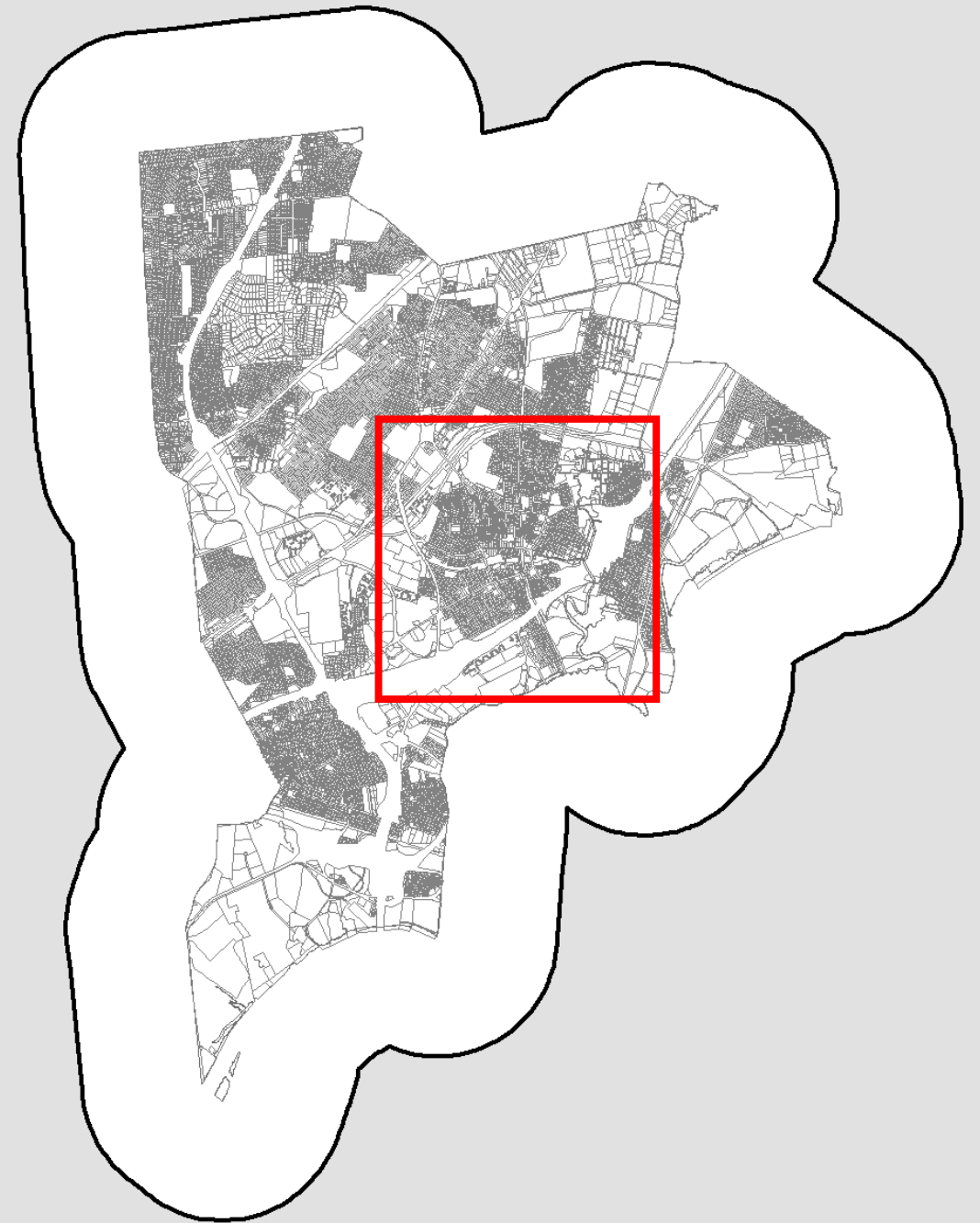
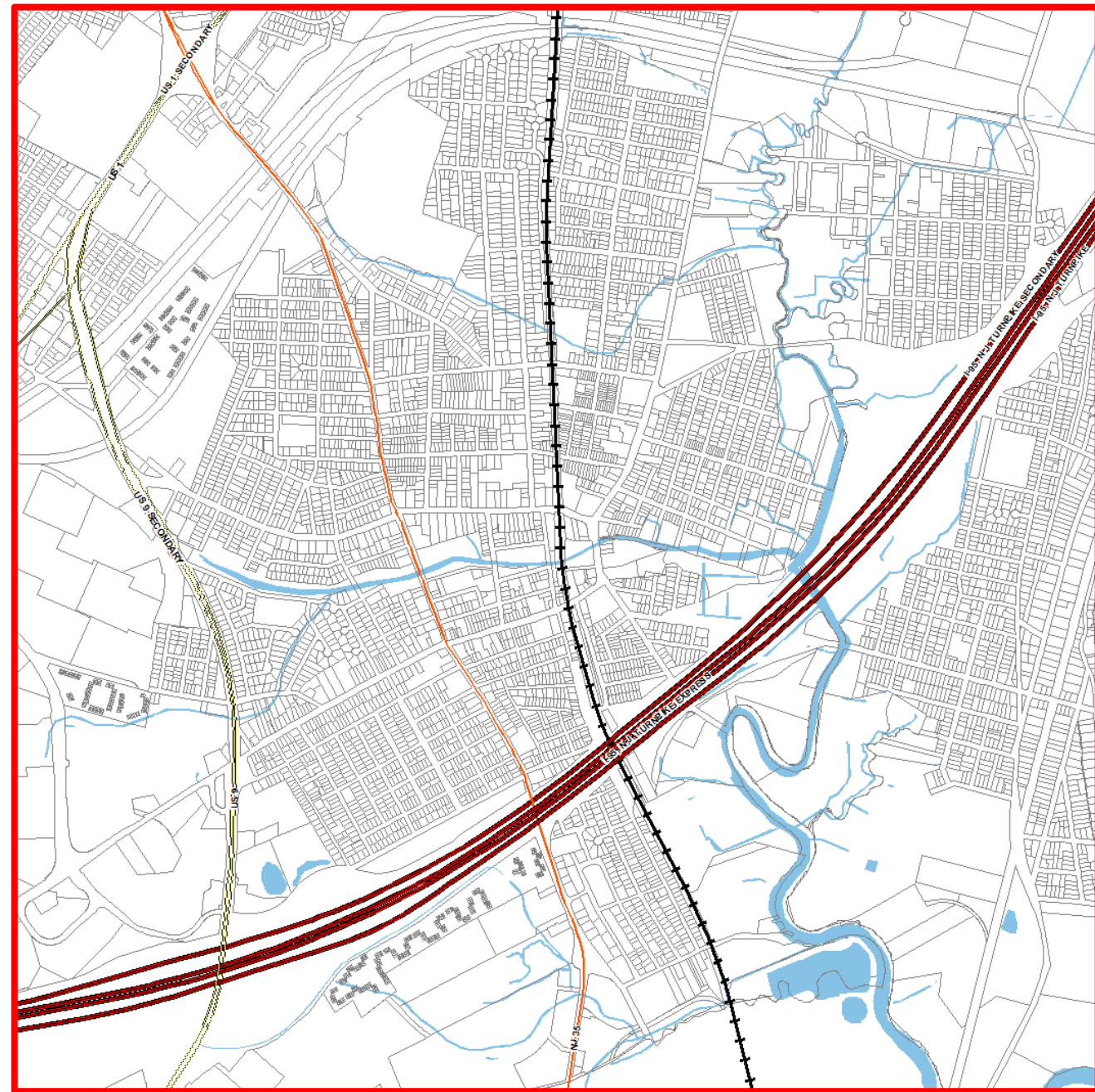
Methodology: Overview

Sustainability Factors

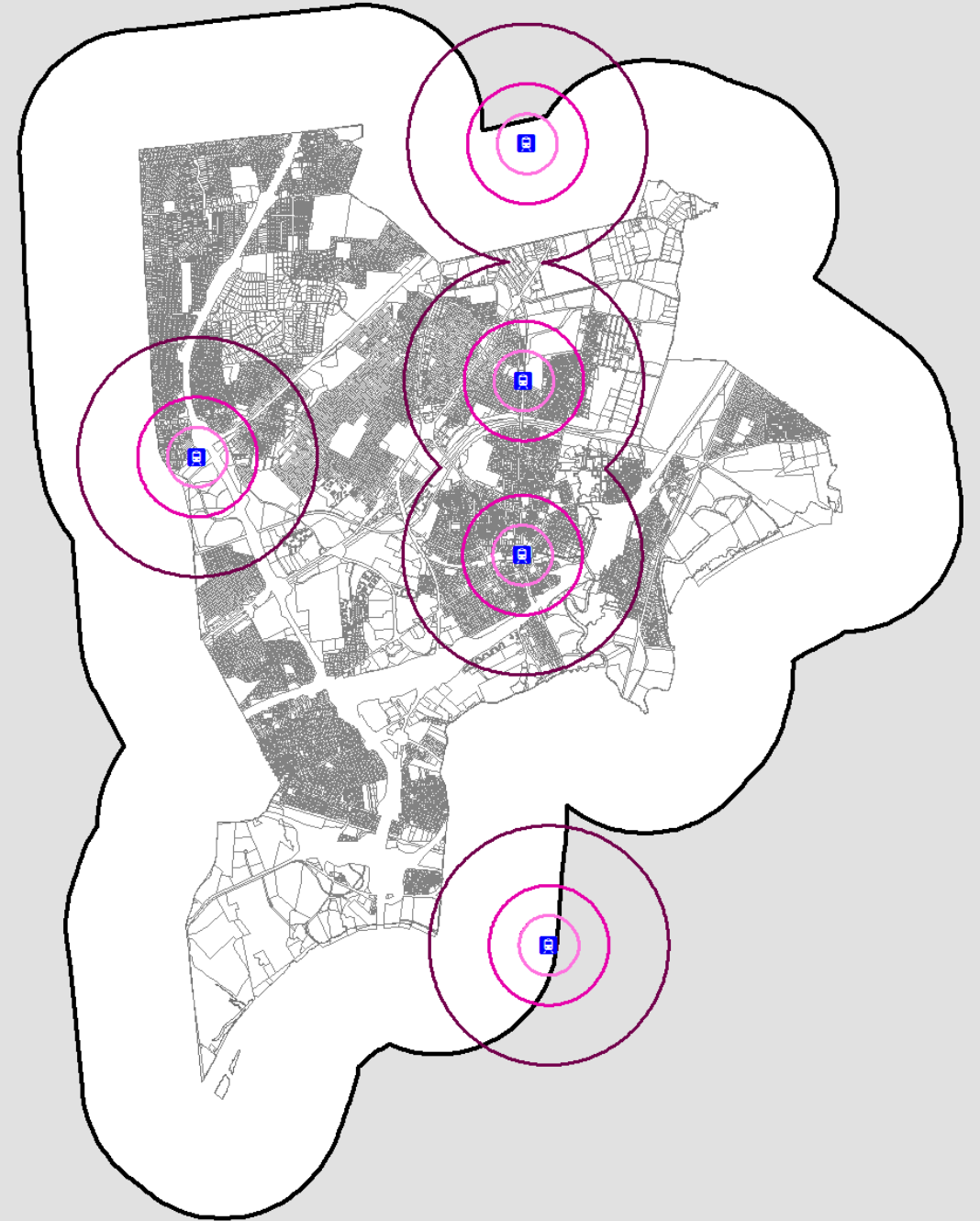
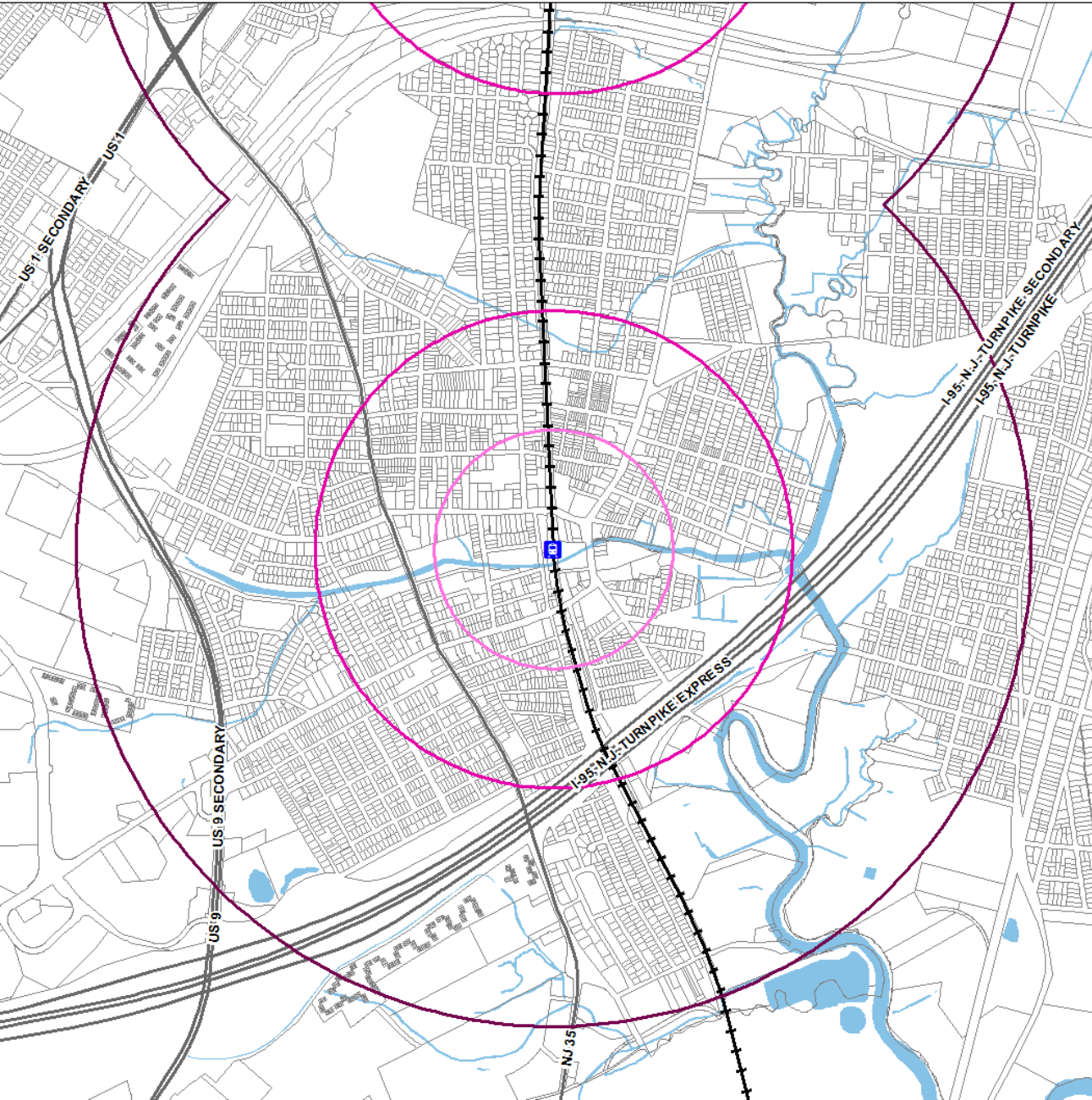
- **Proximity to:**
 - Train stations
 - Bus stops
 - Schools
 - Public park, open space area, or recreational facility
 - Shopping center
 - Employment hub
 - Existing continuous sidewalks and crosswalks
 - Mixed-use development



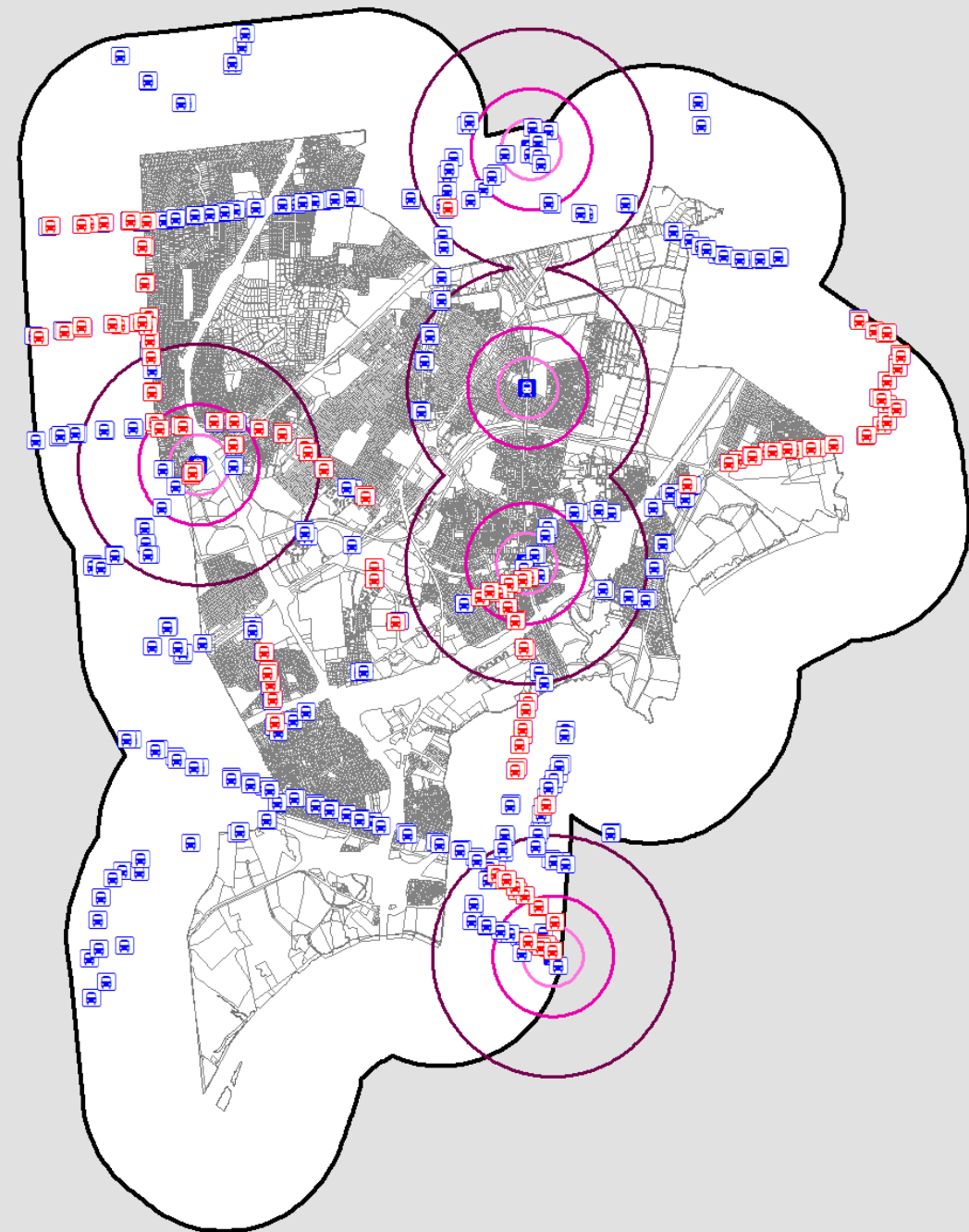
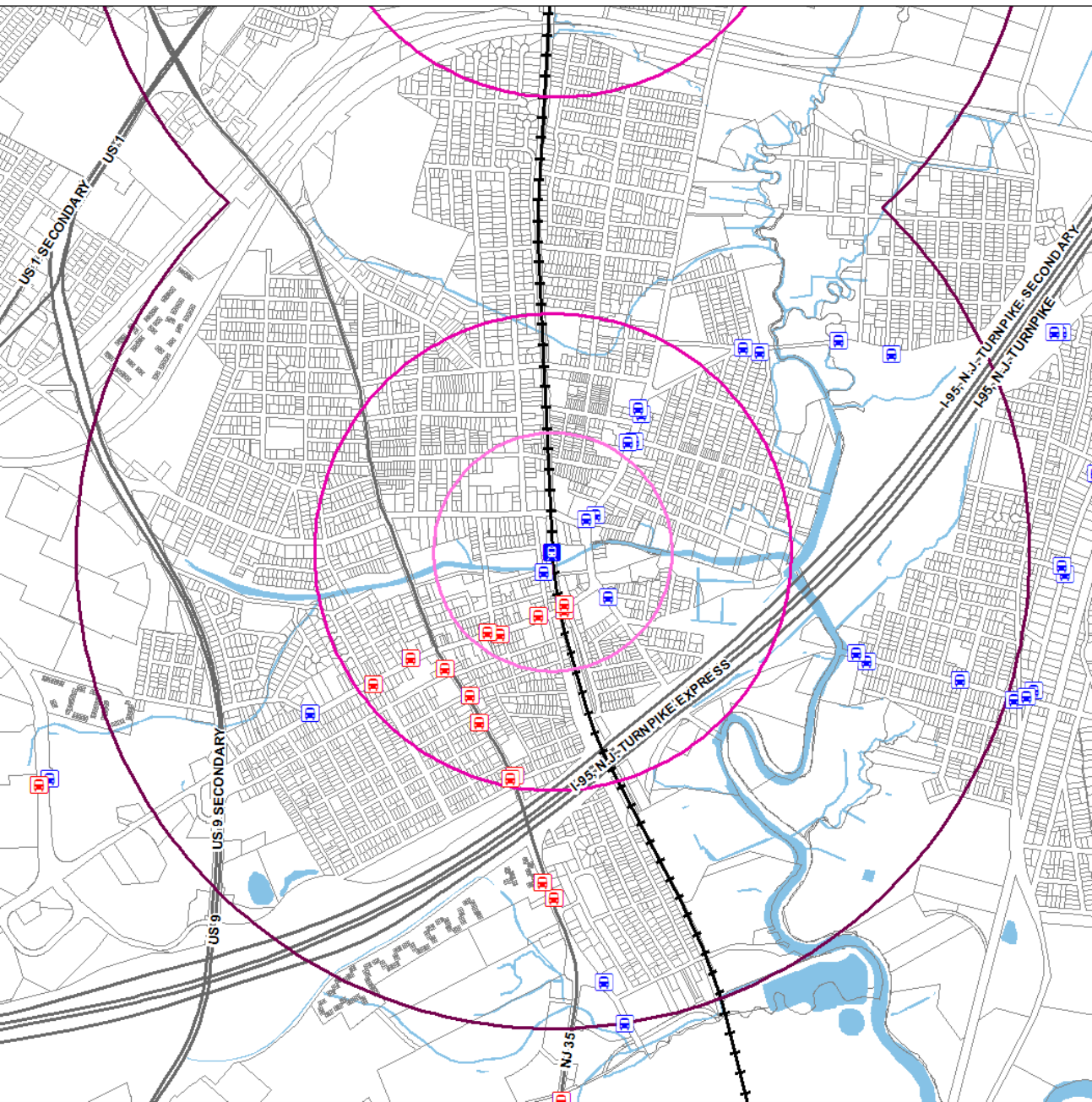
Methodology



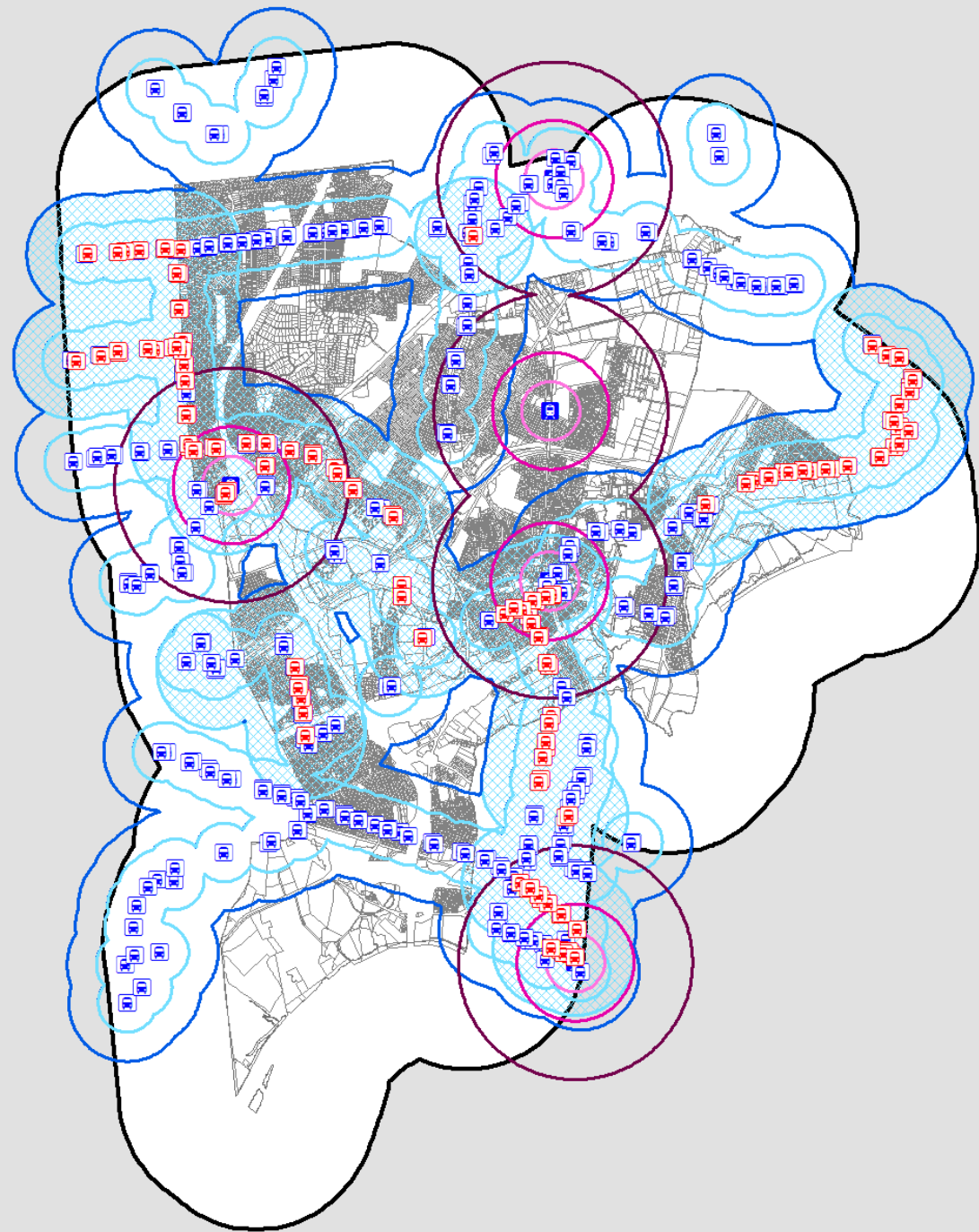
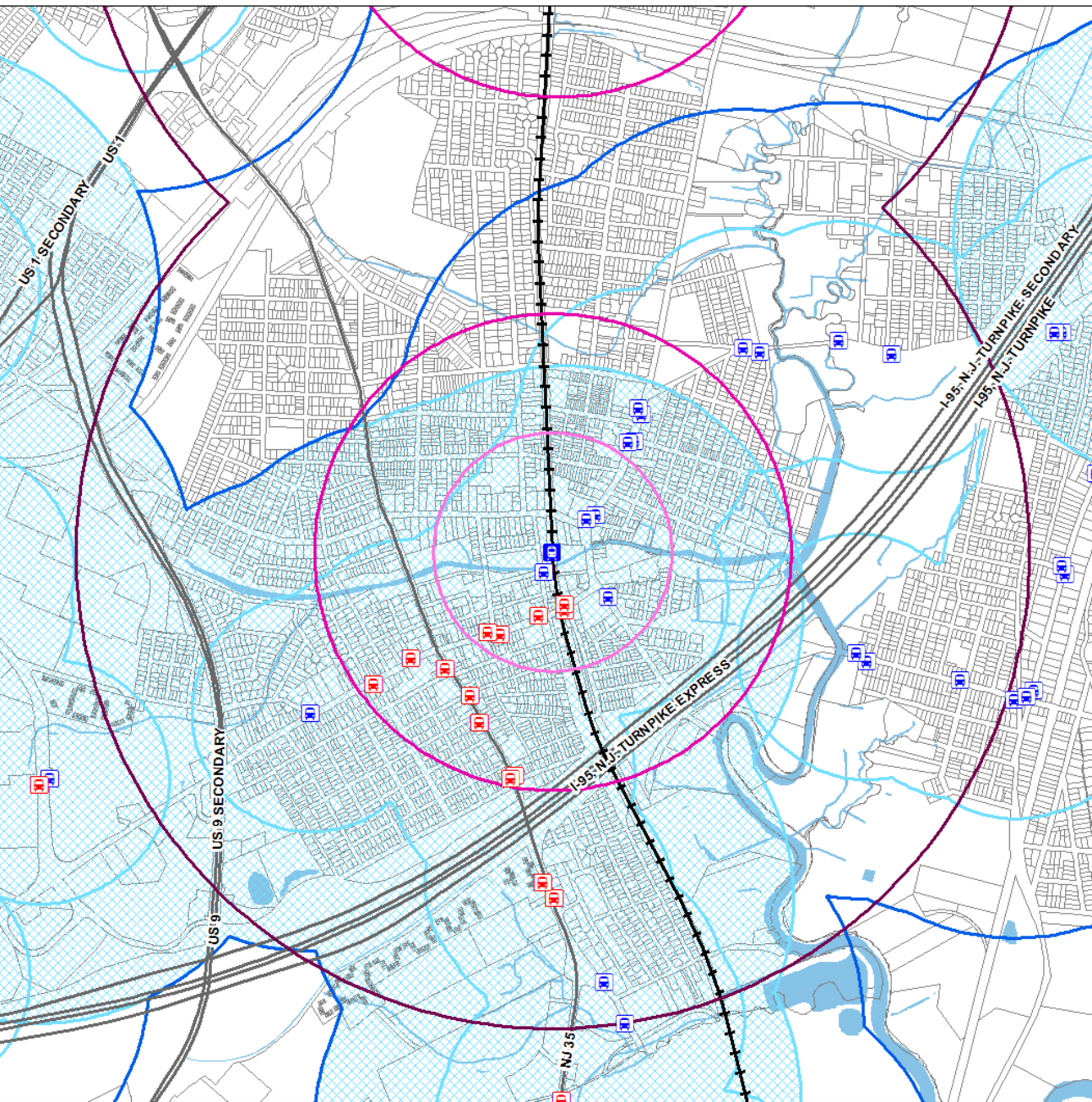
Proximity to Train Stations



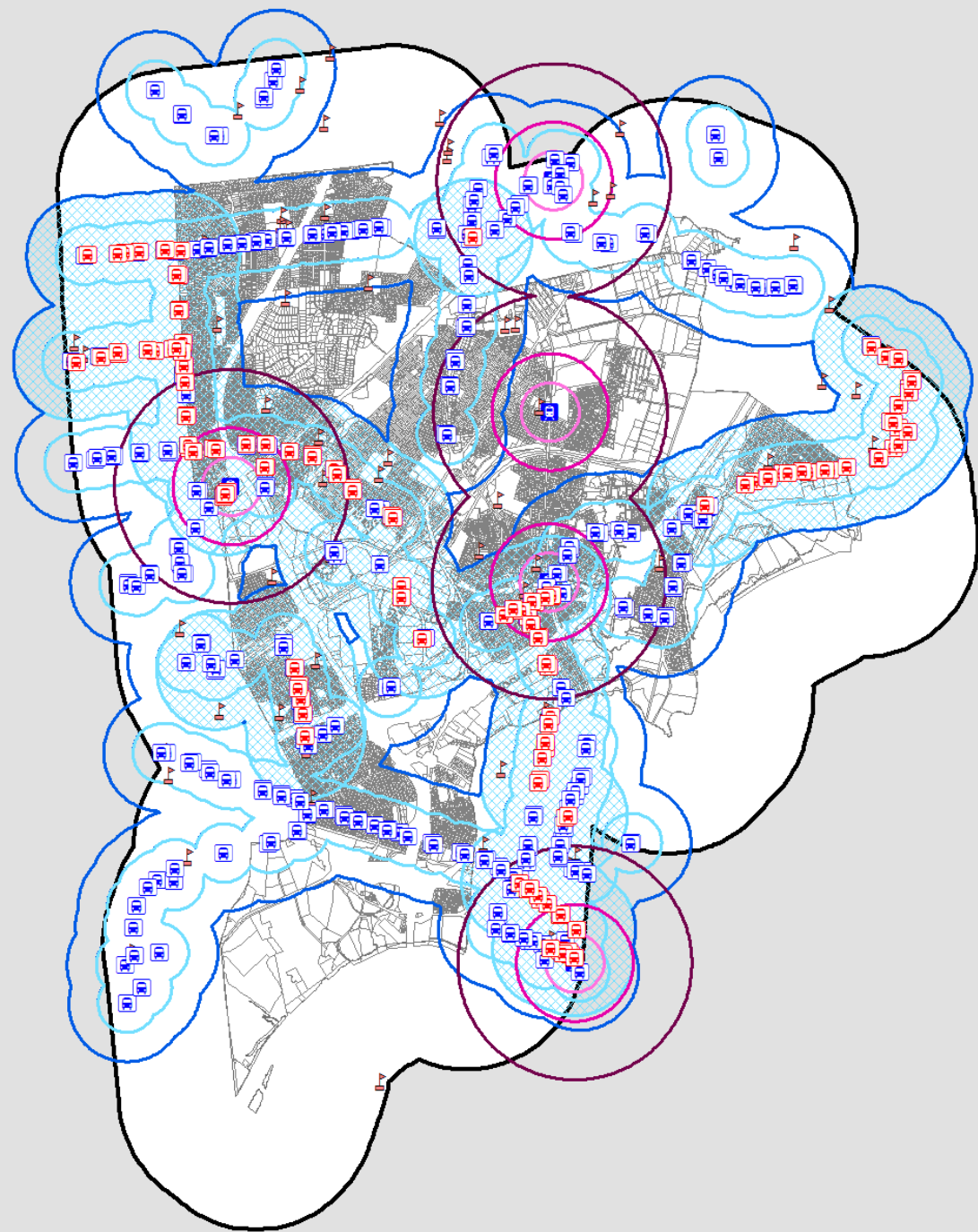
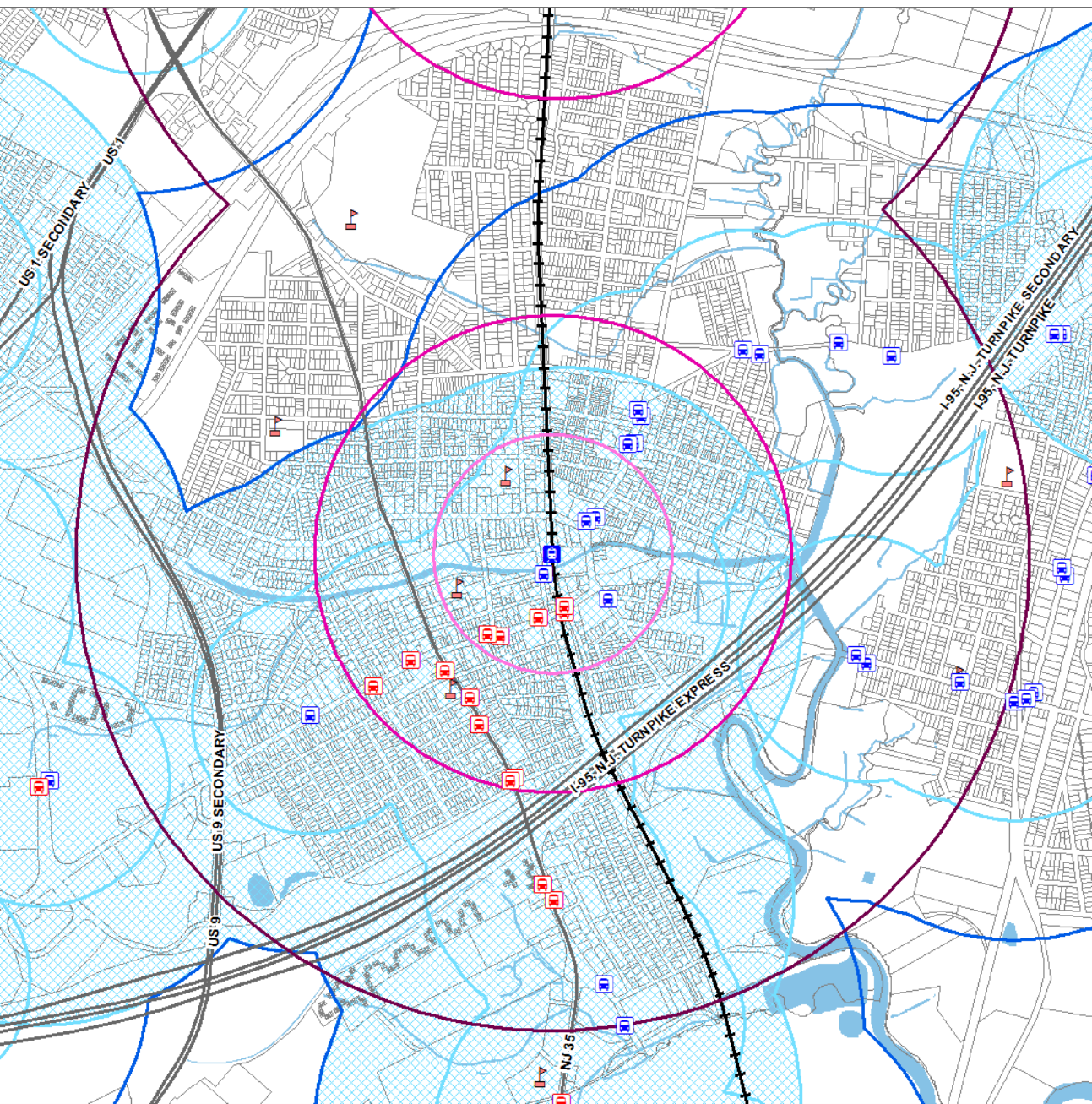
Proximity to Bus Stops



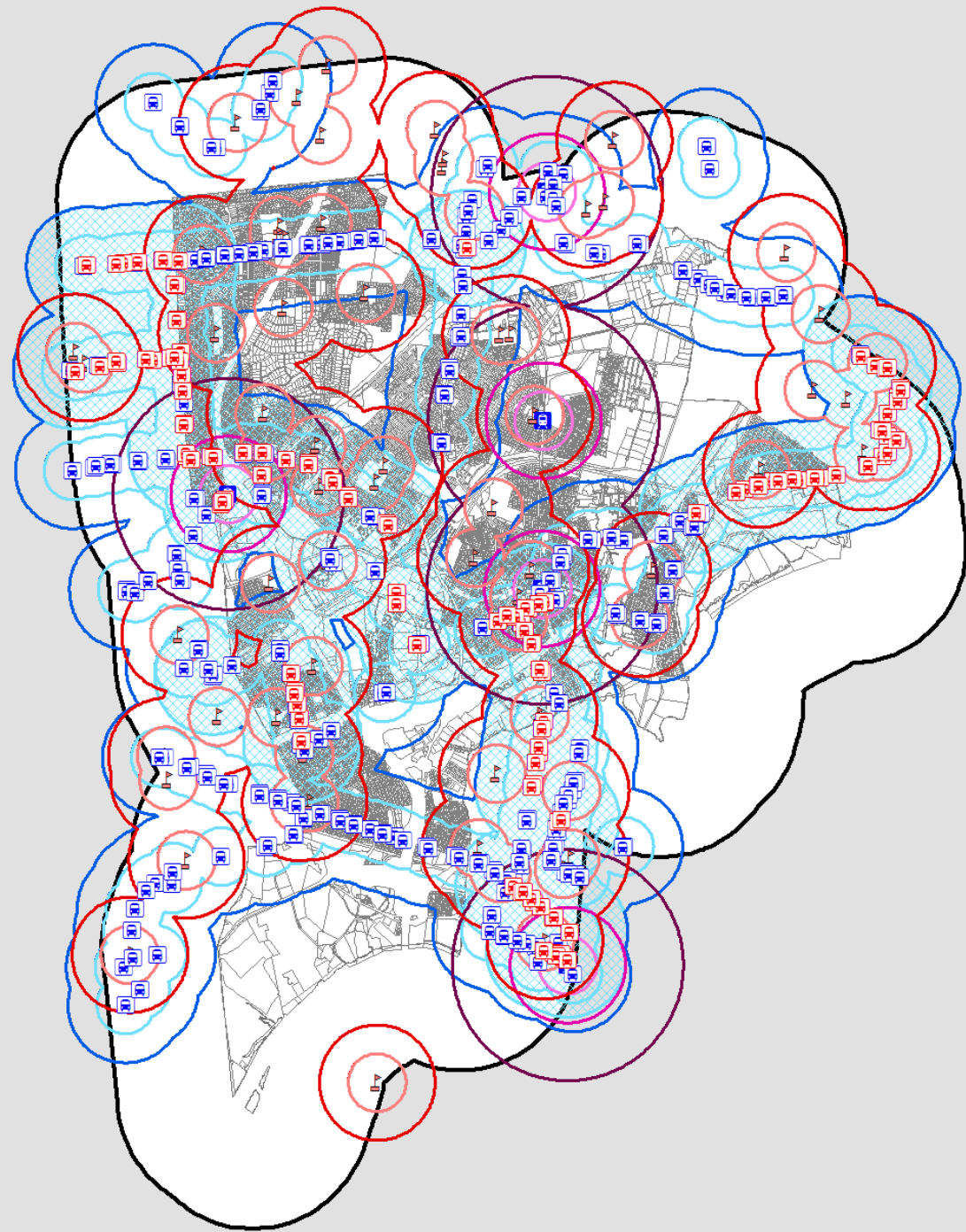
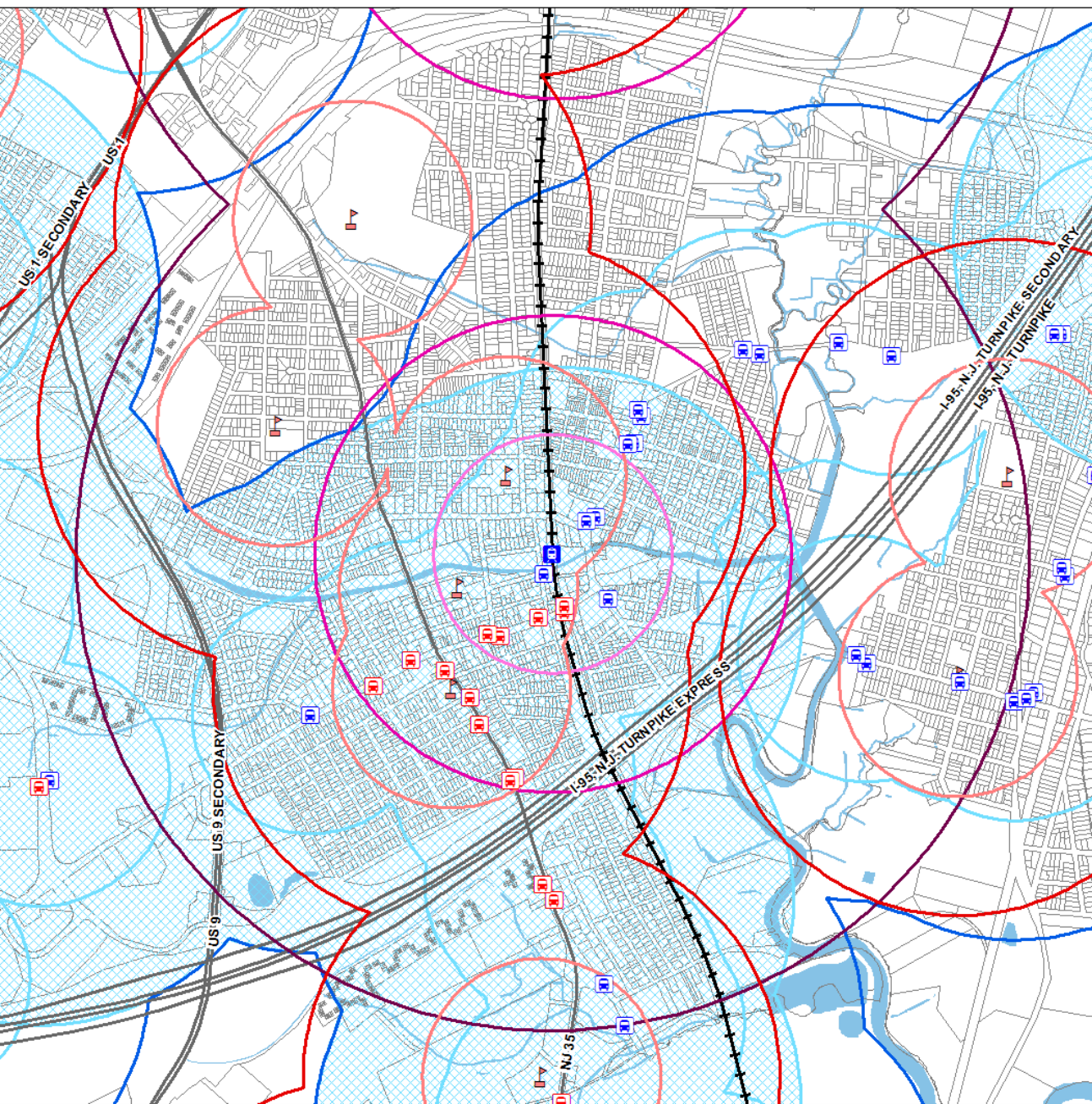
Proximity to Bus Stops



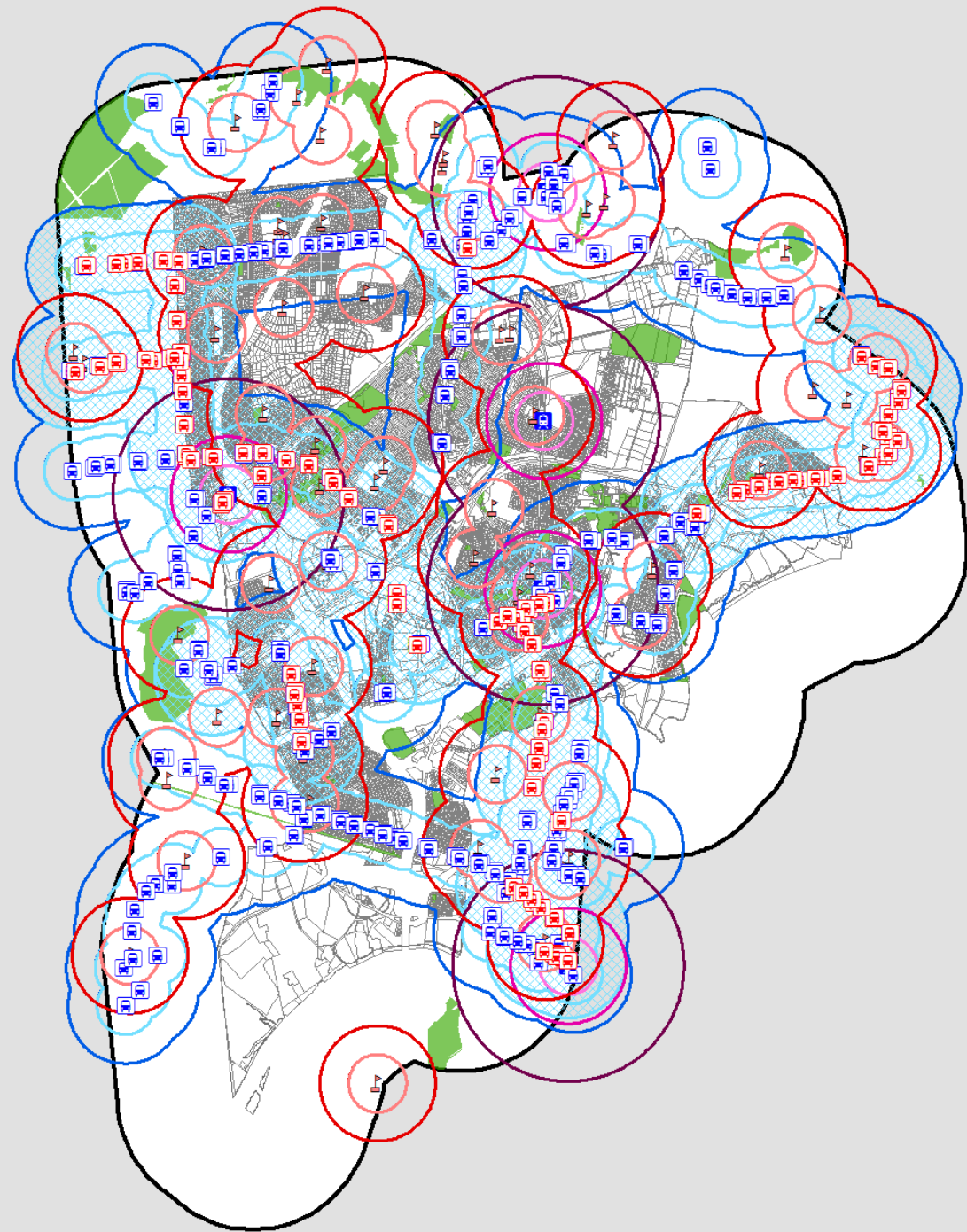
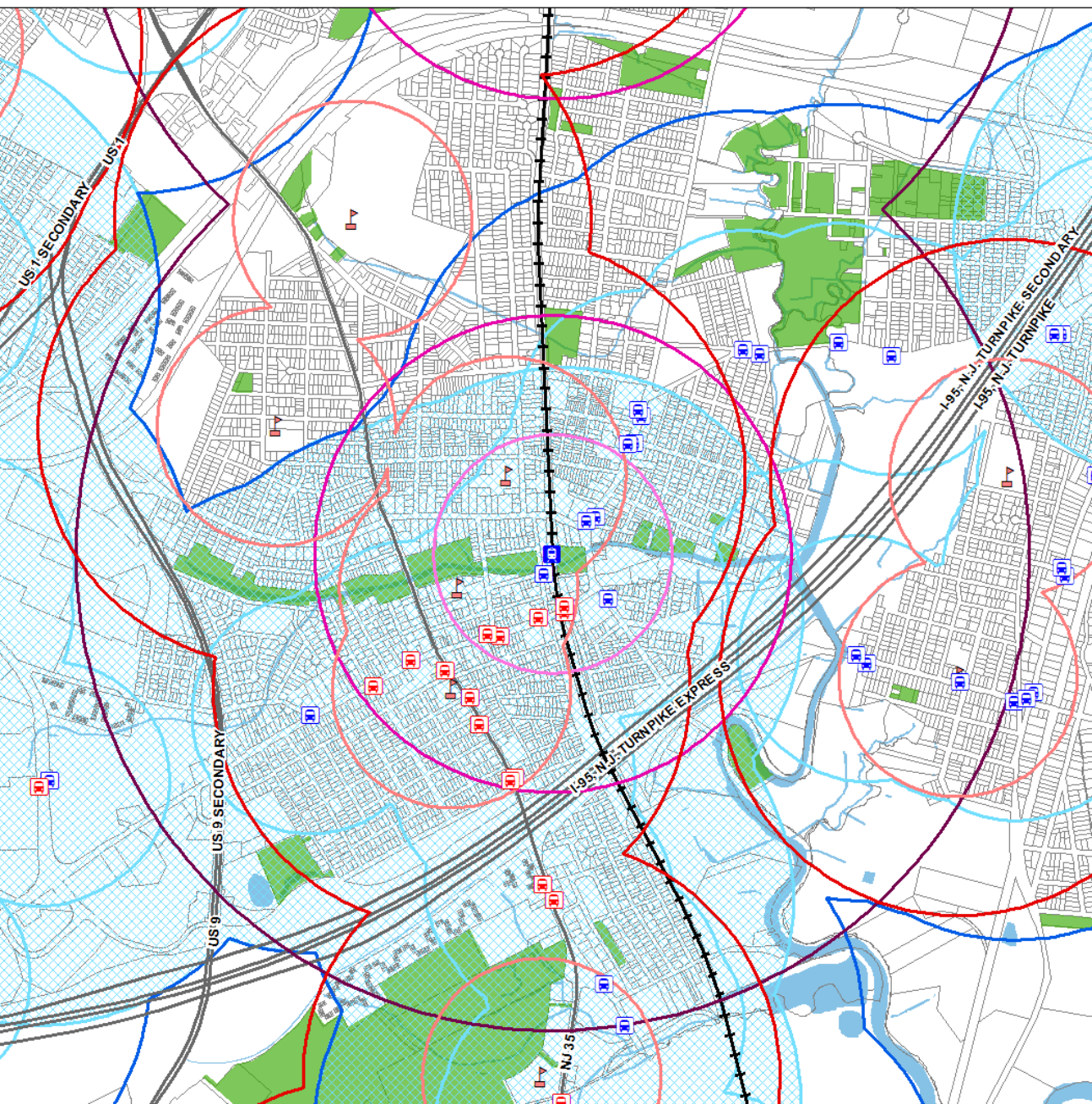
Proximity to Schools



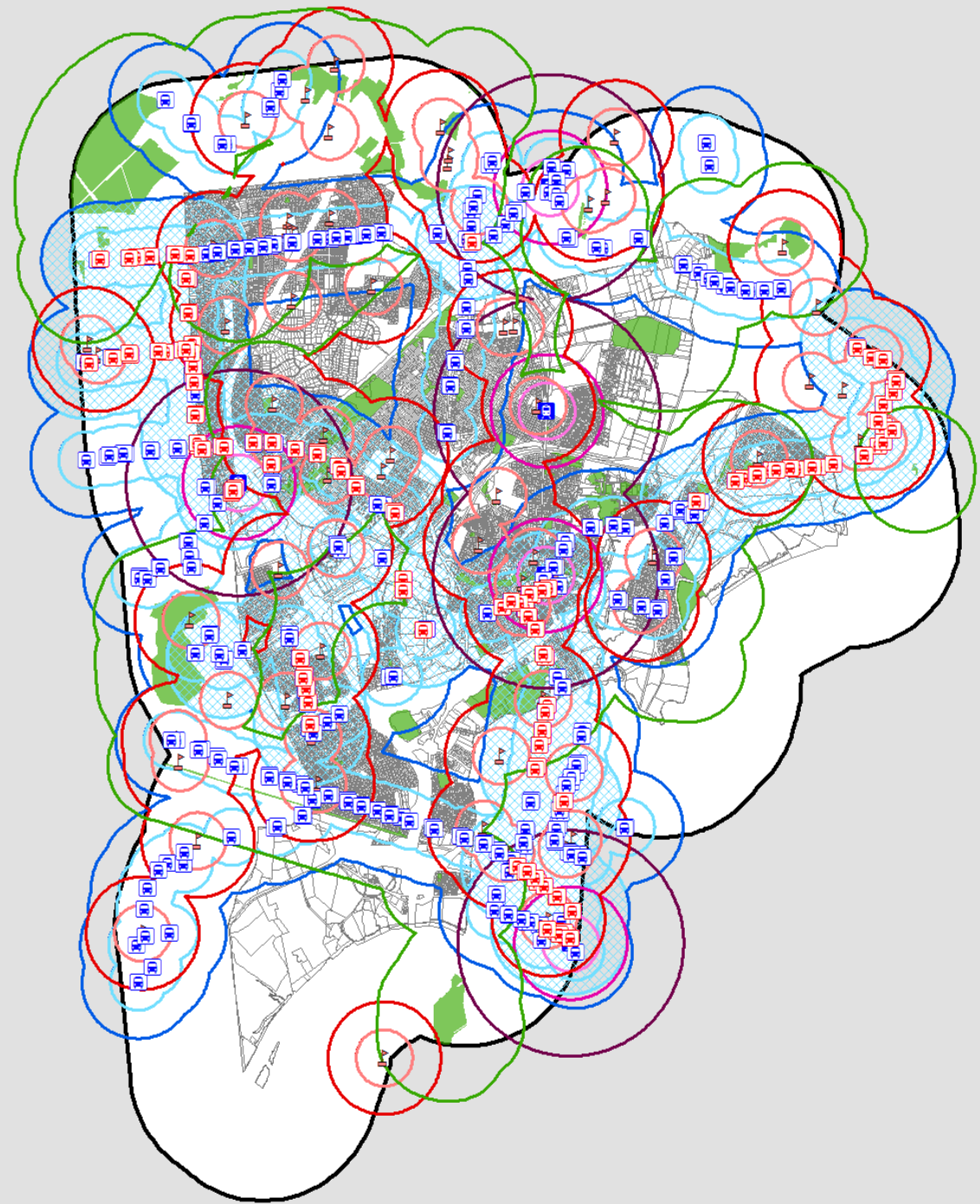
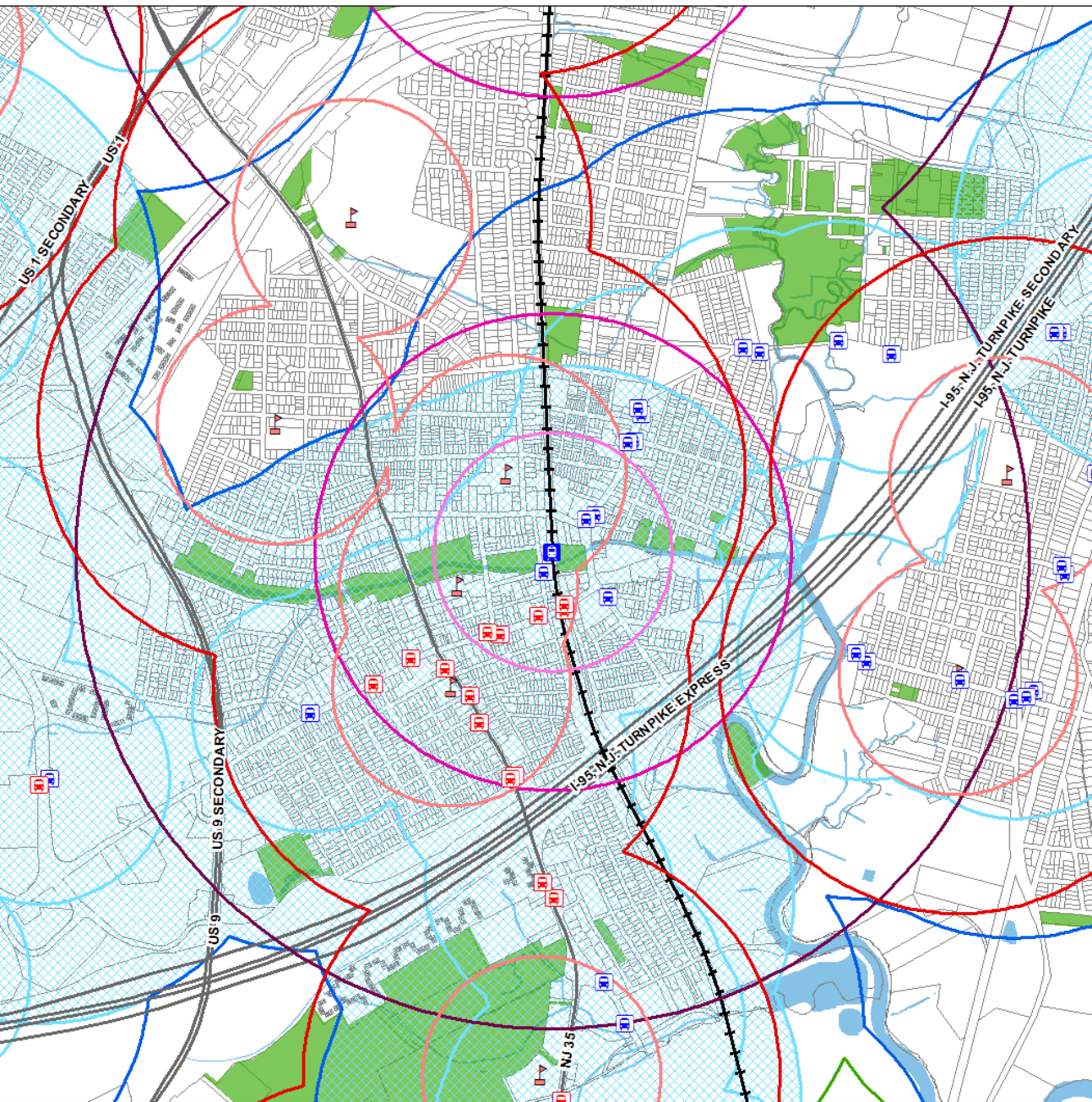
Proximity to Schools



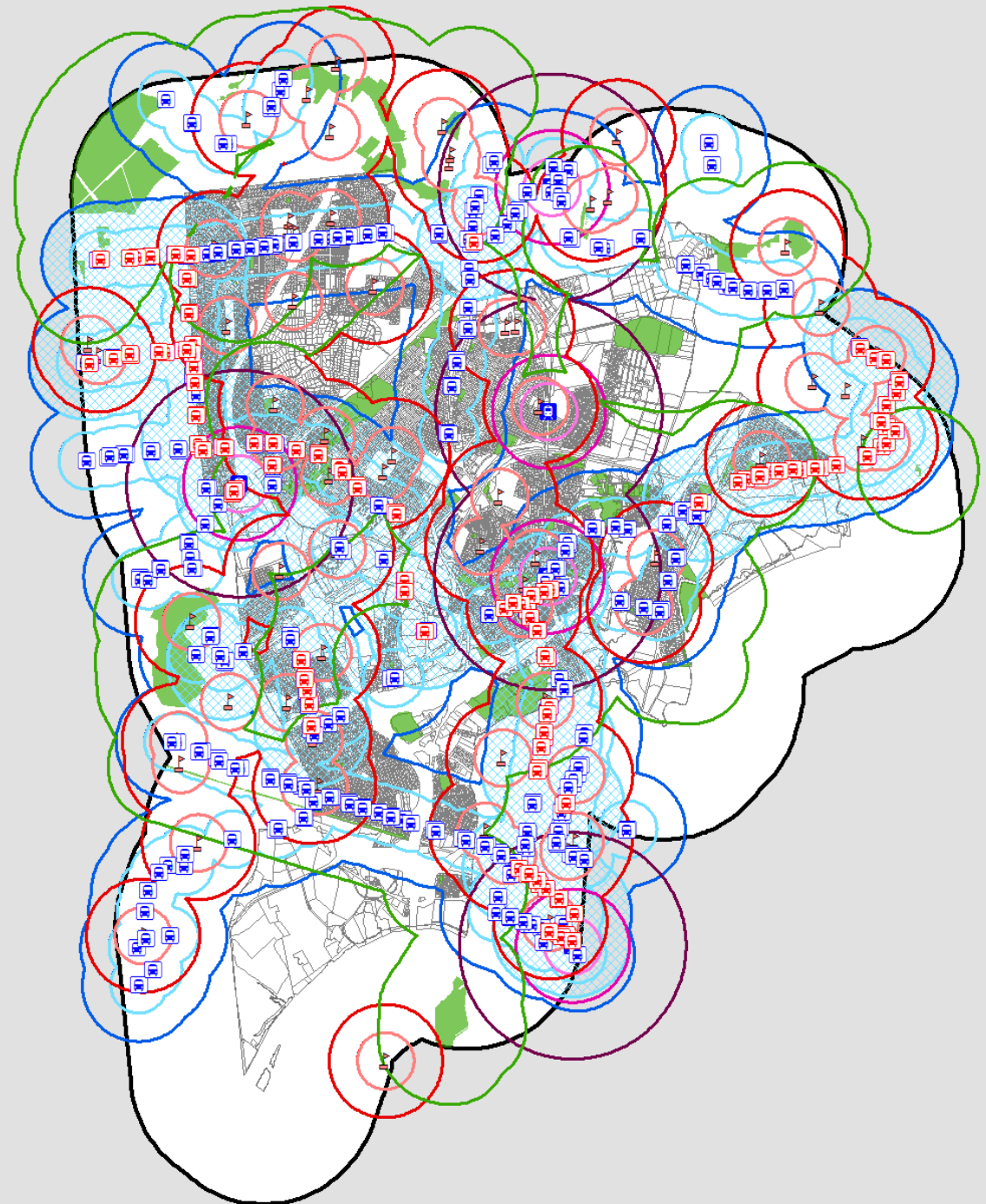
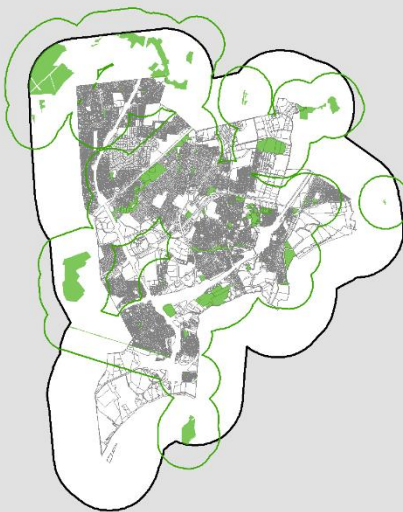
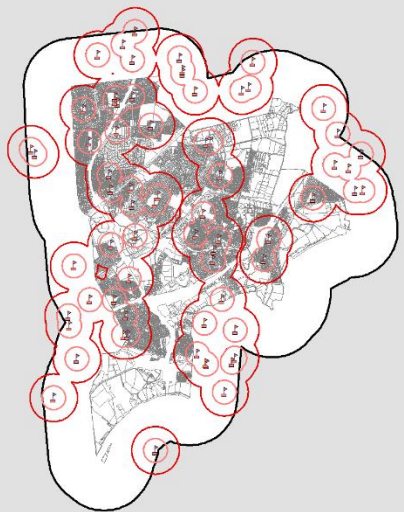
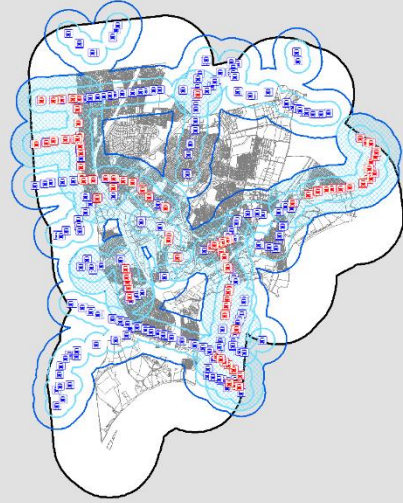
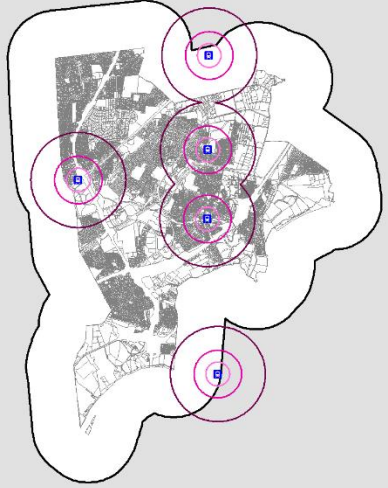
Proximity to Open Space



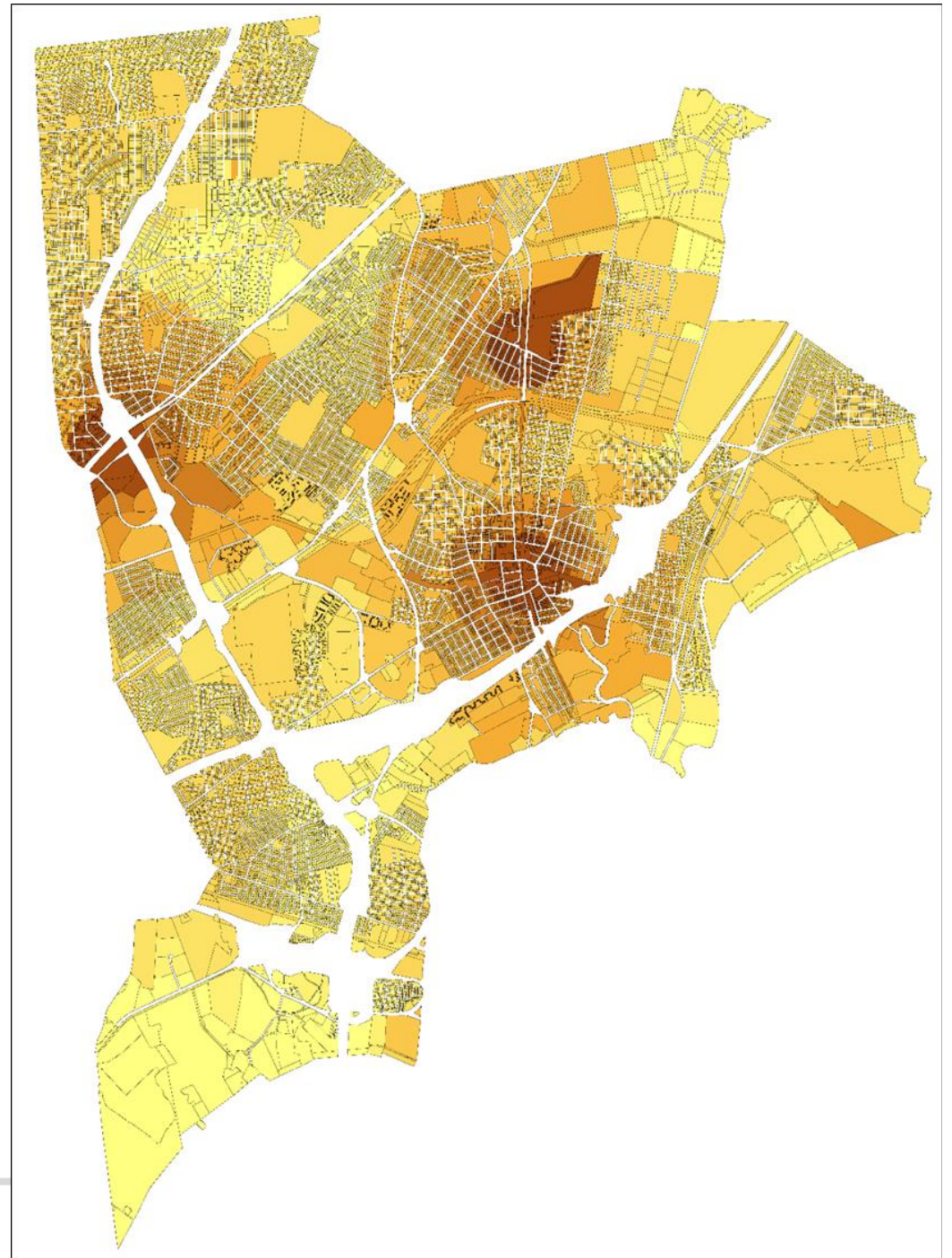
Proximity to Open Space



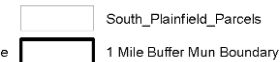
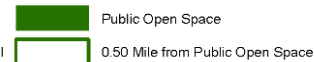
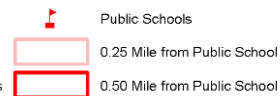
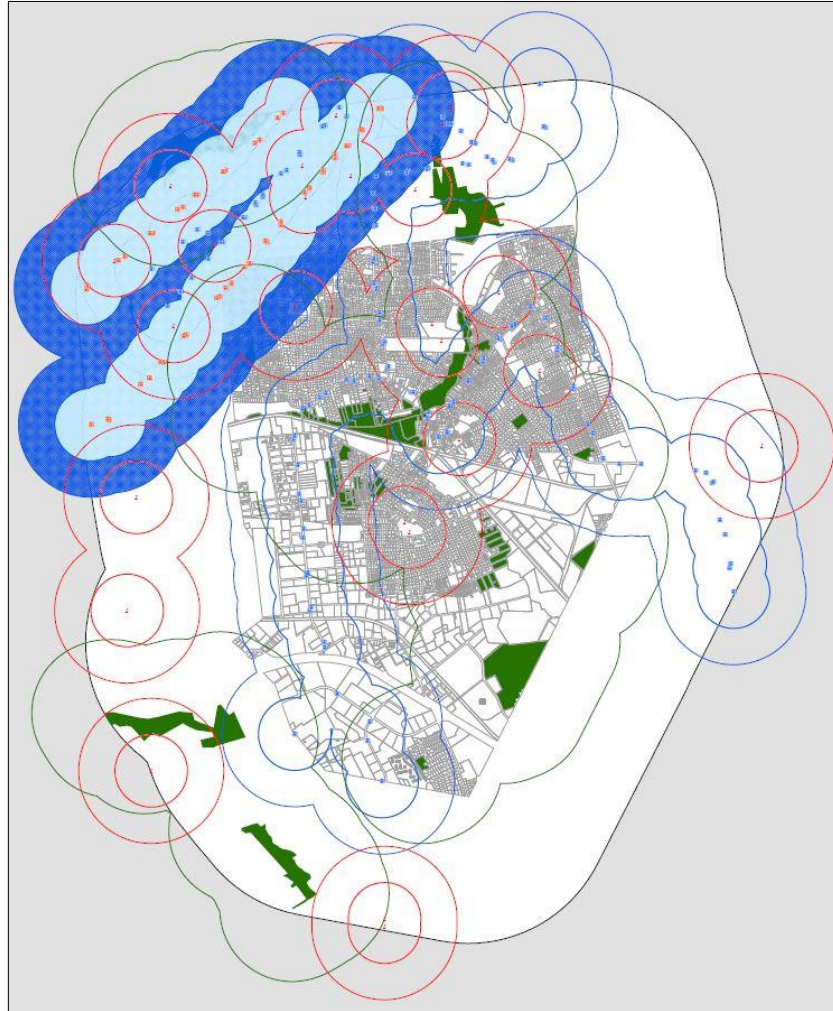
Methodology: Final Tally of Points



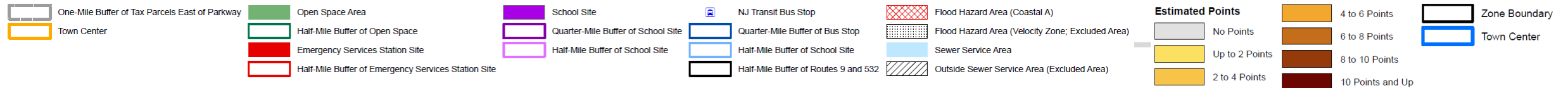
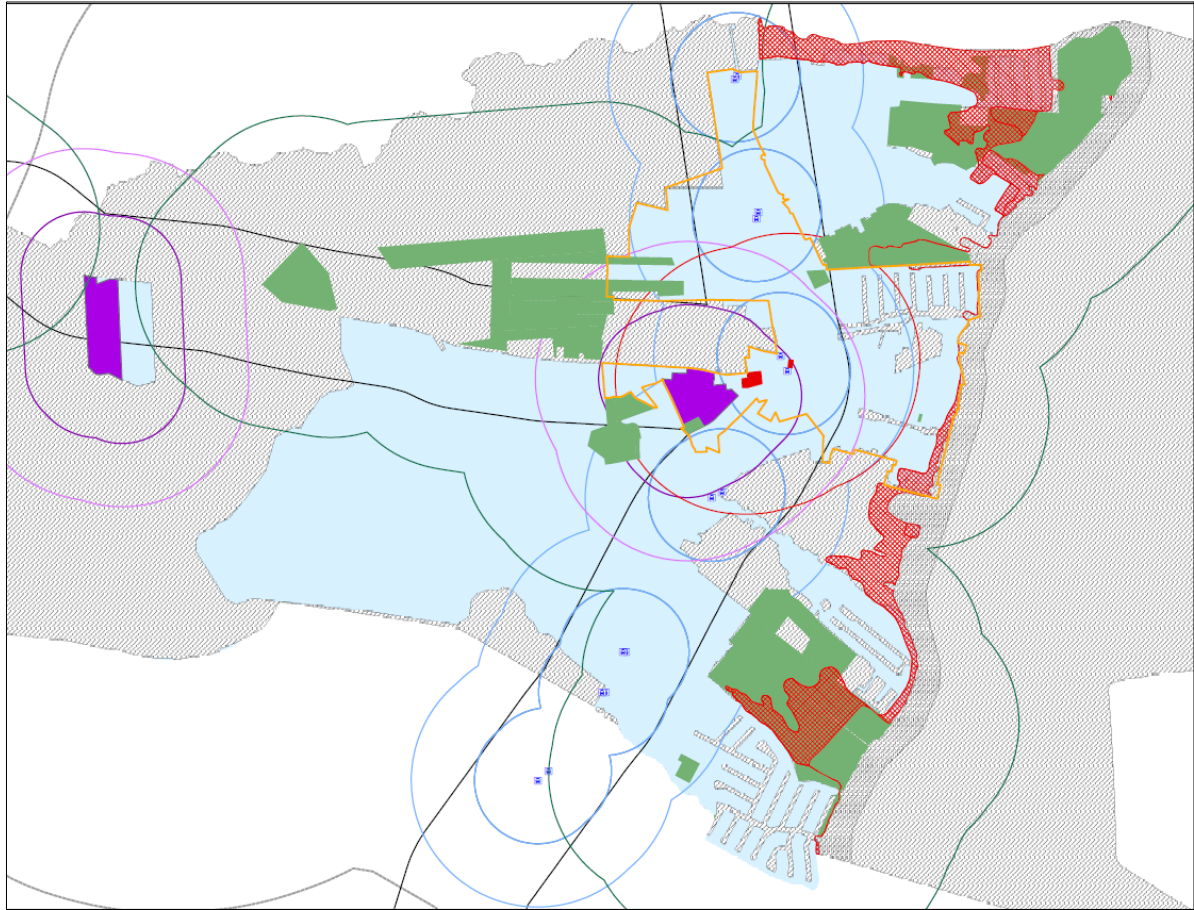
Point Allocation by Parcel



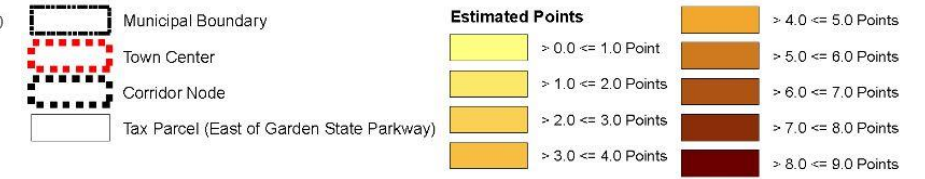
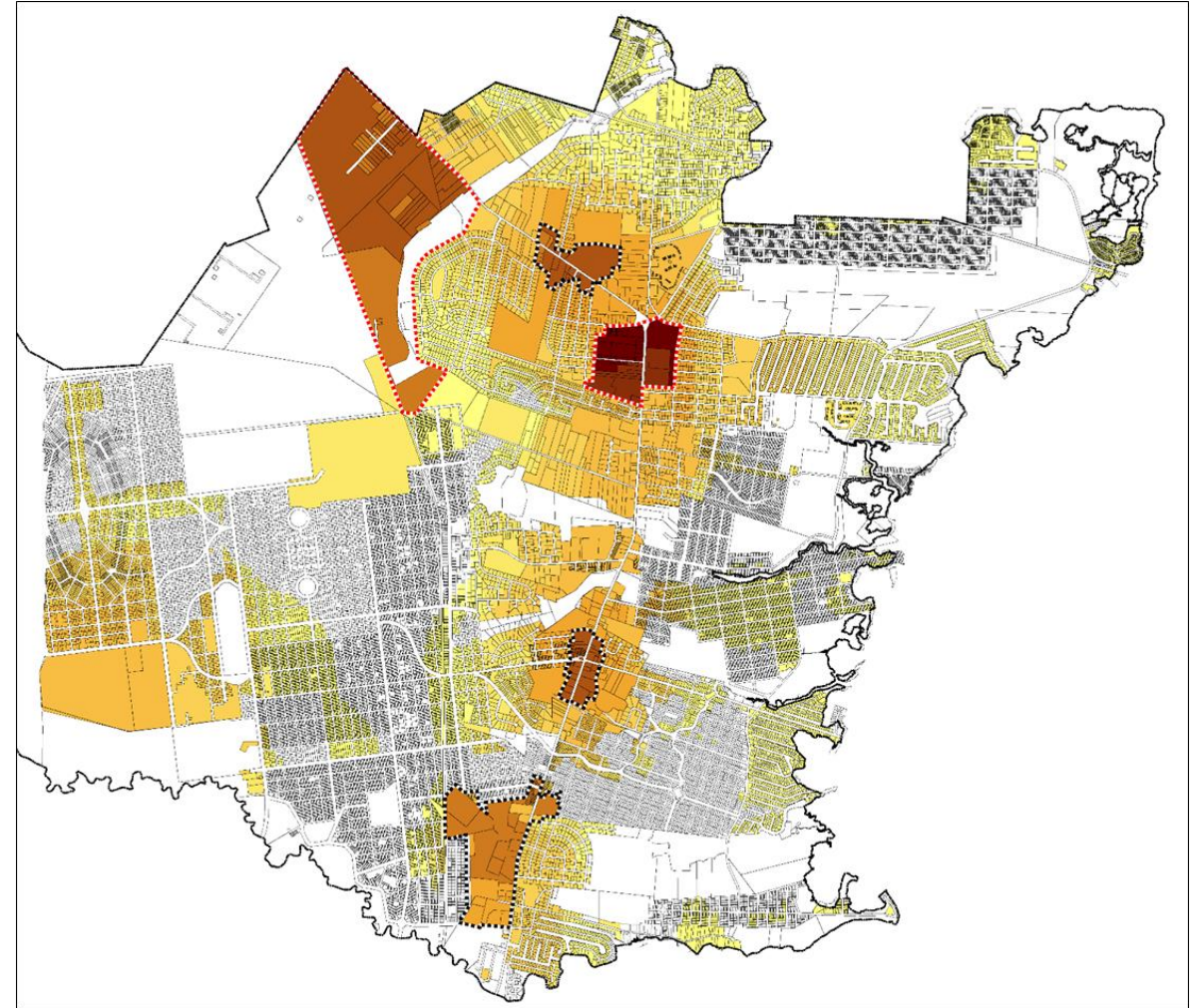
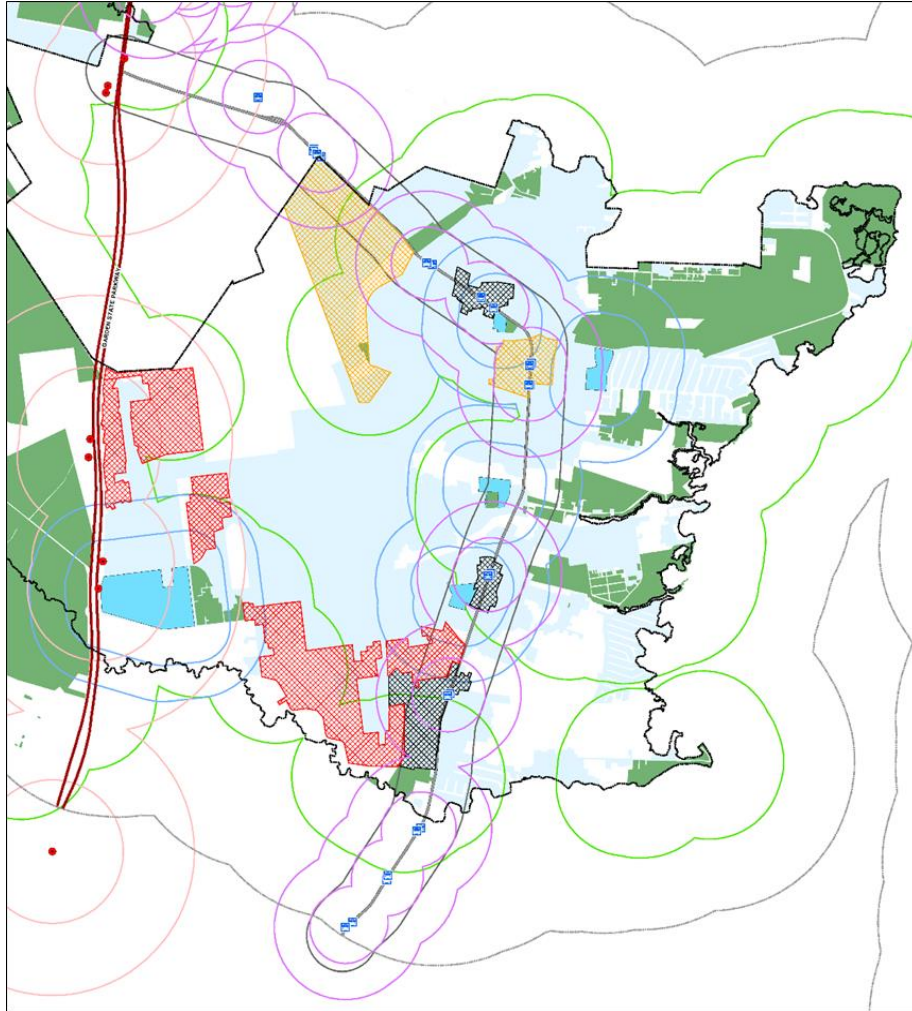
Borough of South Plainfield Affordable Housing



Ocean Township Affordable Housing



Berkeley Township Affordable Housing



Resiliency Index Point System Mapping

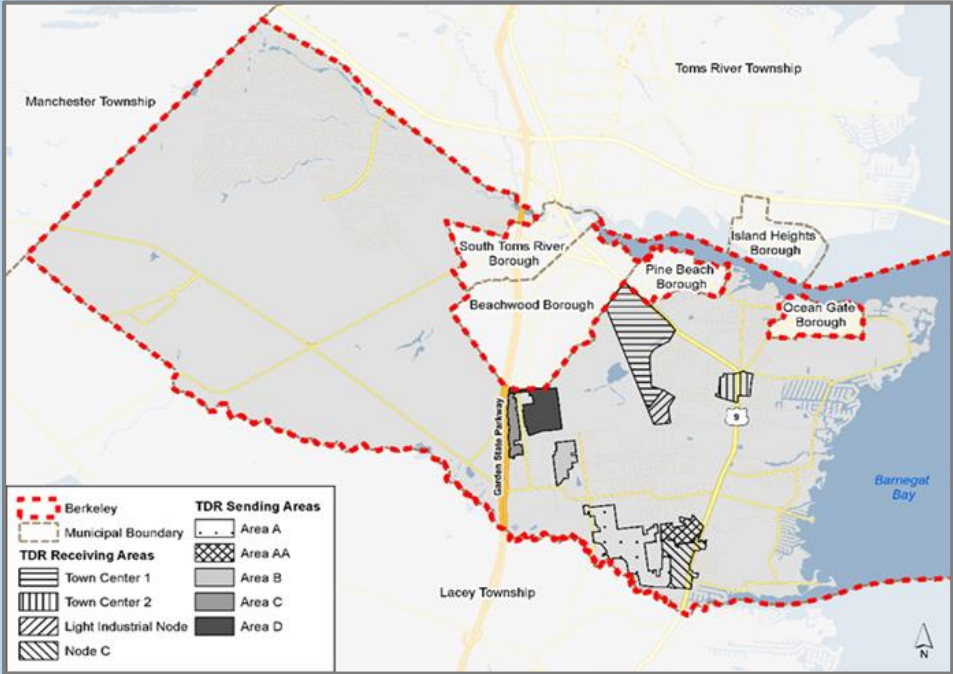
Purpose of Resiliency Index Point System Mapping

Create a GIS mapping framework that:

- **Allows policymakers and members of the public to easily visualize and evaluate the resiliency and risk of their community.**
- **Can be embedded into future planning recovery work, including:**
 - Comprehensive plans
 - Local zoning ordinances
 - Floodplain management plans and ordinances
 - Hazard mitigation plans
 - Capital investments

Using Resiliency Point System Mapping

Berkeley Township



Methodology: Overview

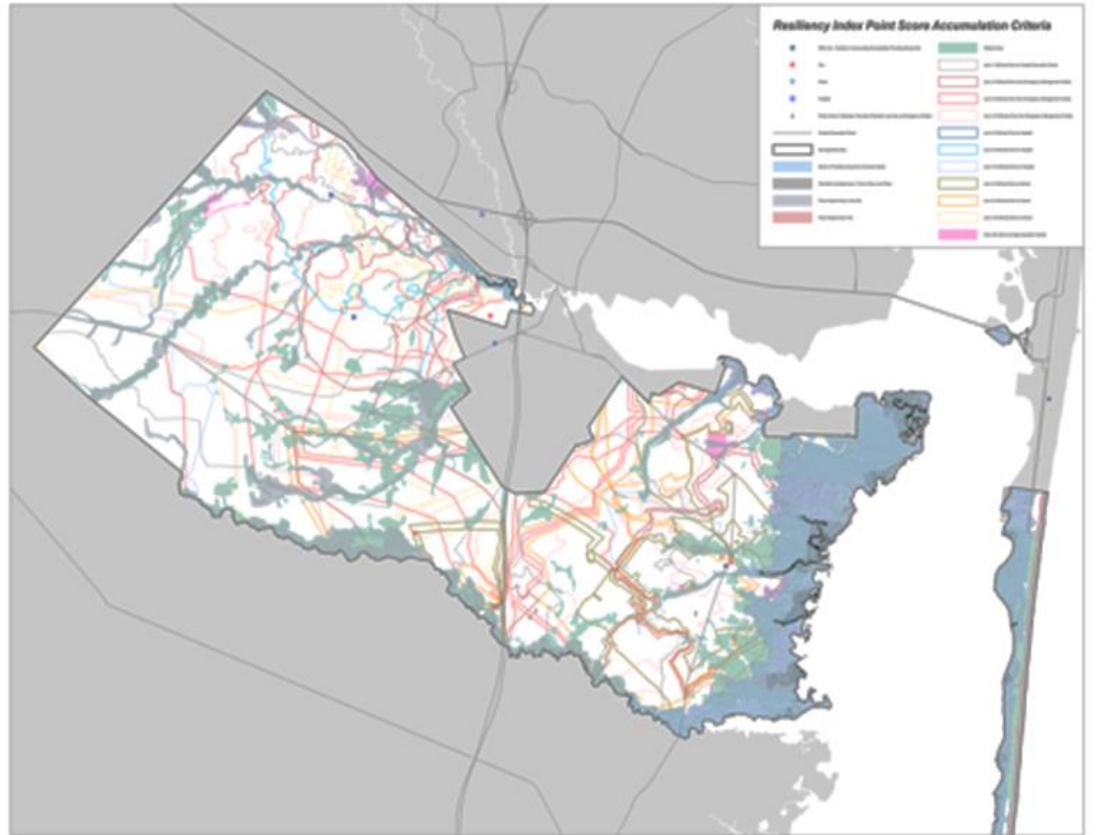
Resiliency Factors

- Proximity to:
 - Schools
 - Emergency Management Facilities
 - Evacuation Routes
 - Hospitals
- ...

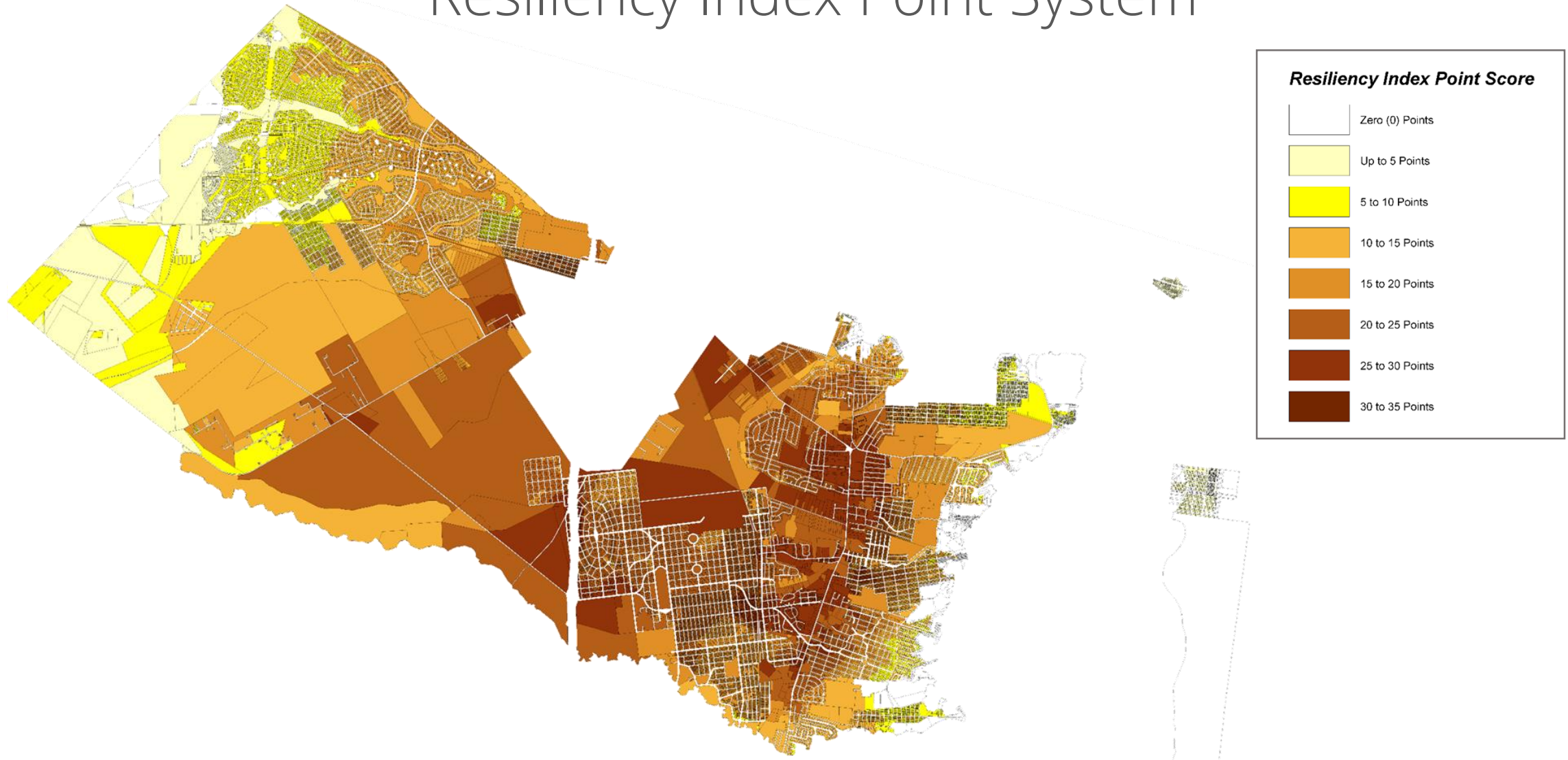
Risk Factors

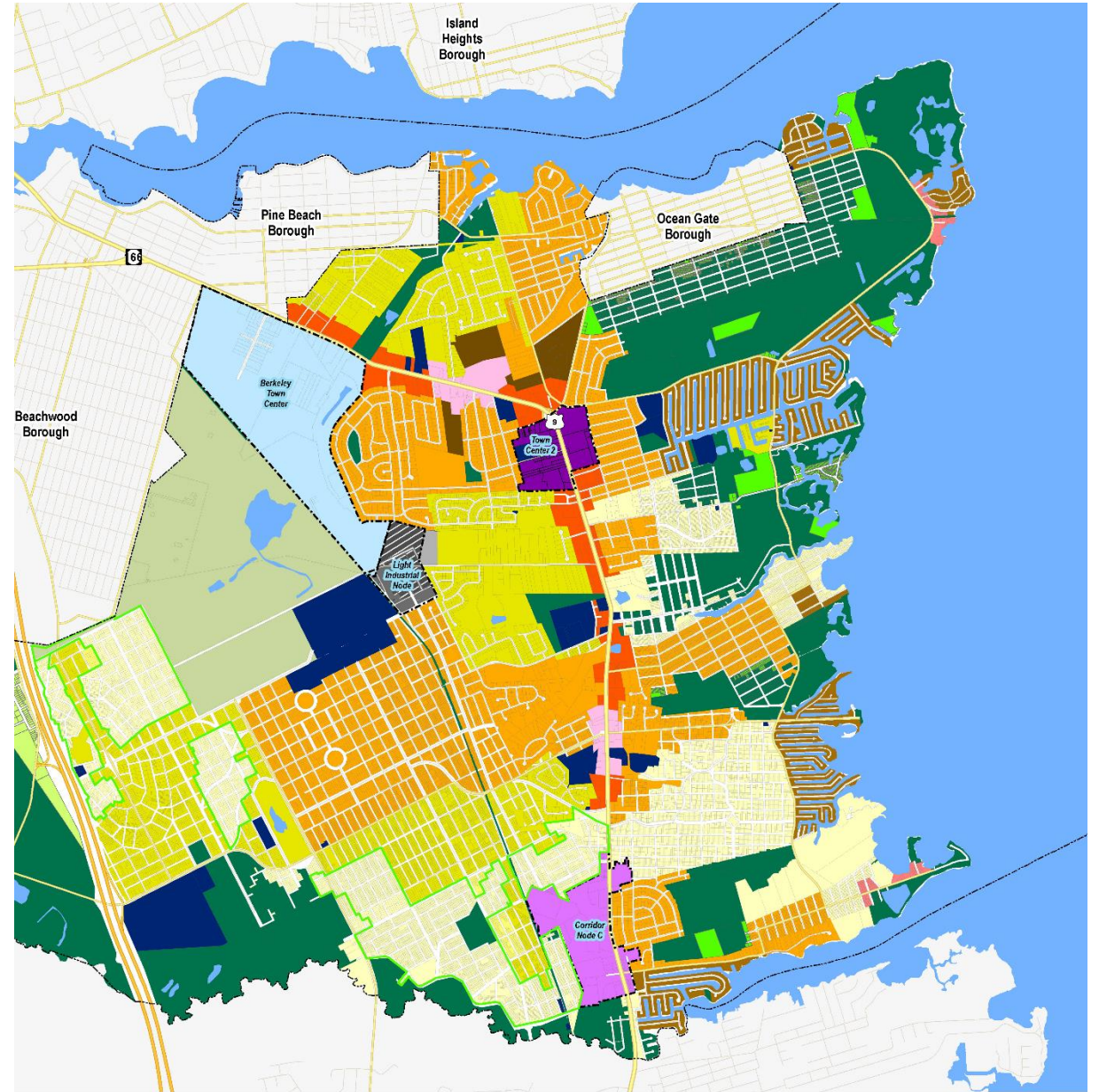
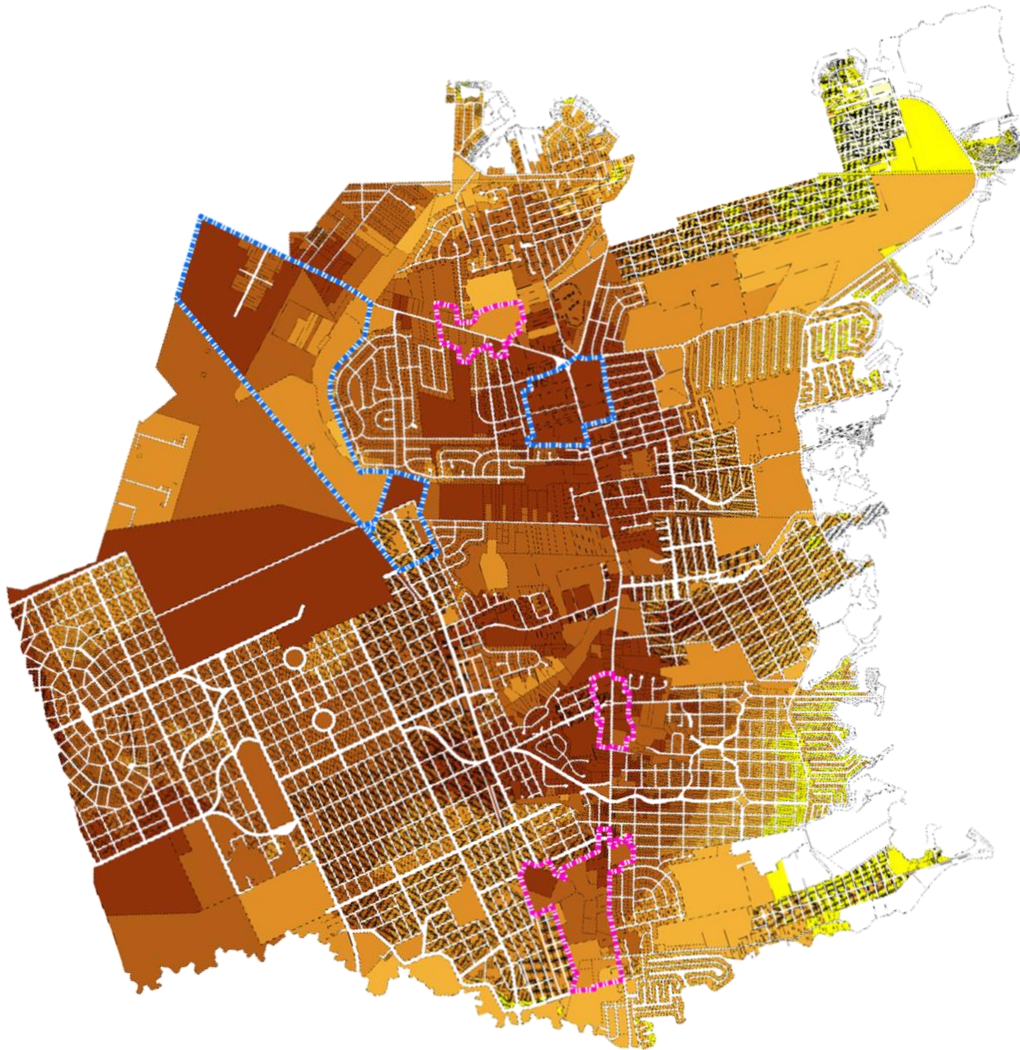
- Flood Hazard Areas
- Wetlands
- Sea Level Rise
- Storm Surge
- Densely Populated Areas
- ...

Methodology: Final Tally of Points

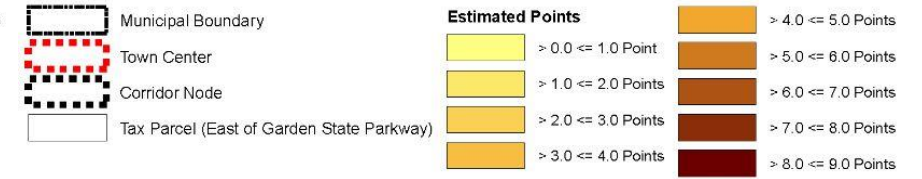
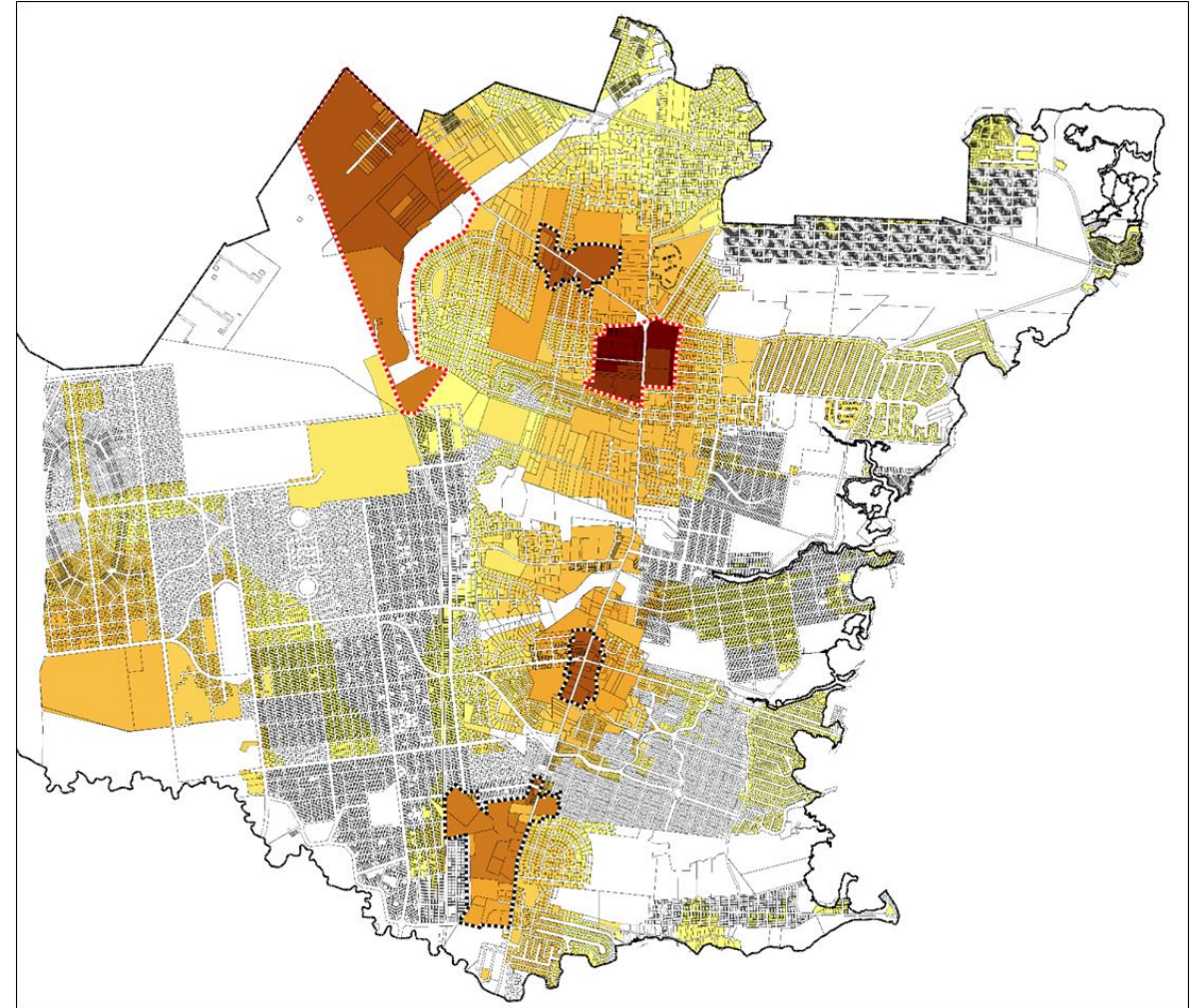
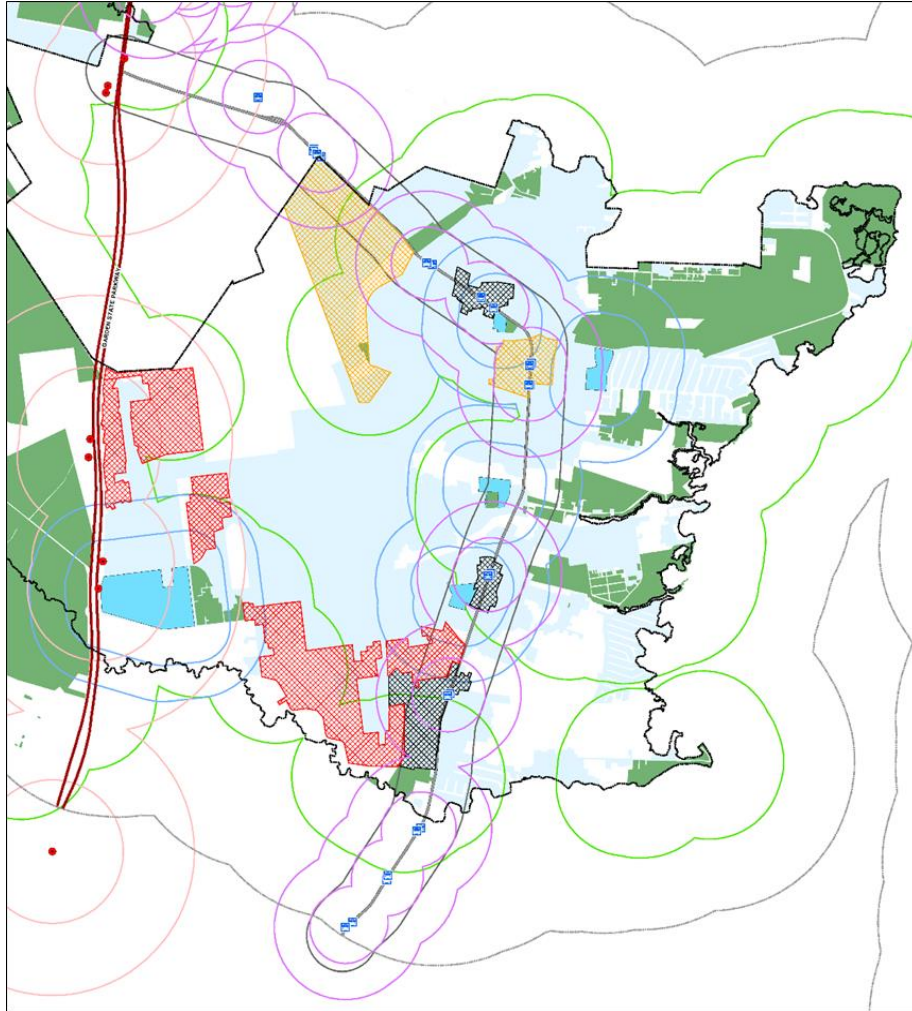


Resiliency Index Point System

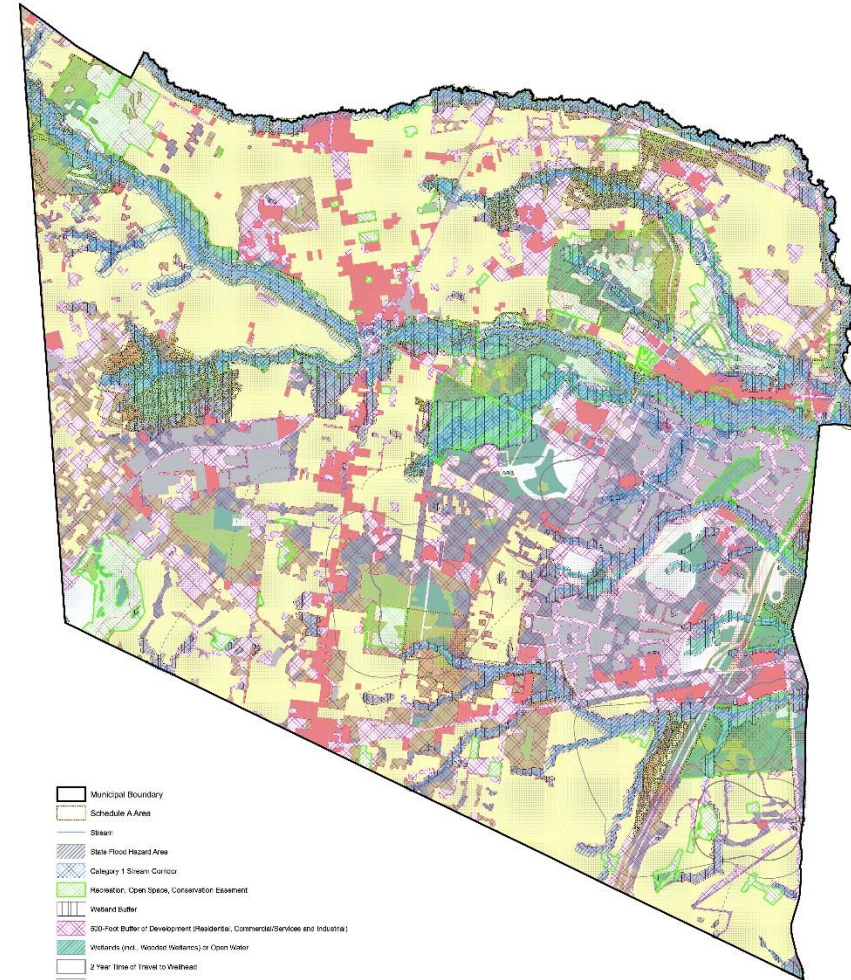




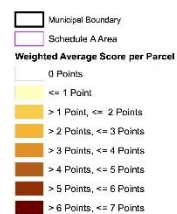
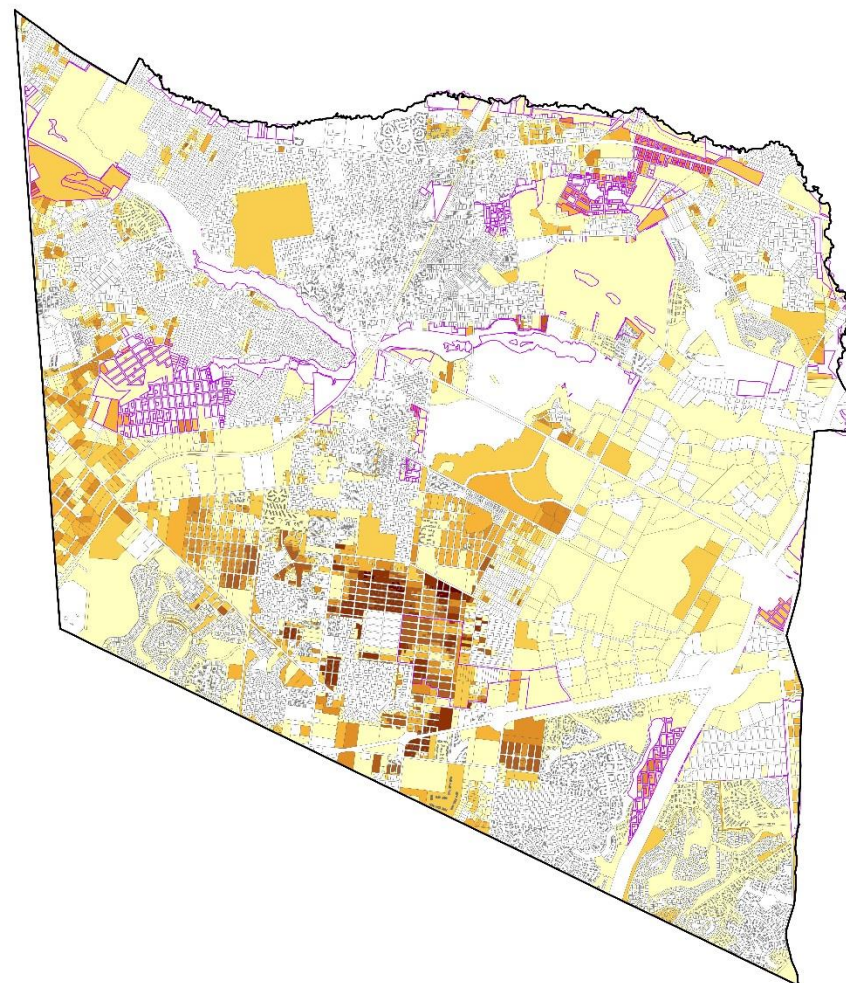
Berkeley Township Affordable Housing

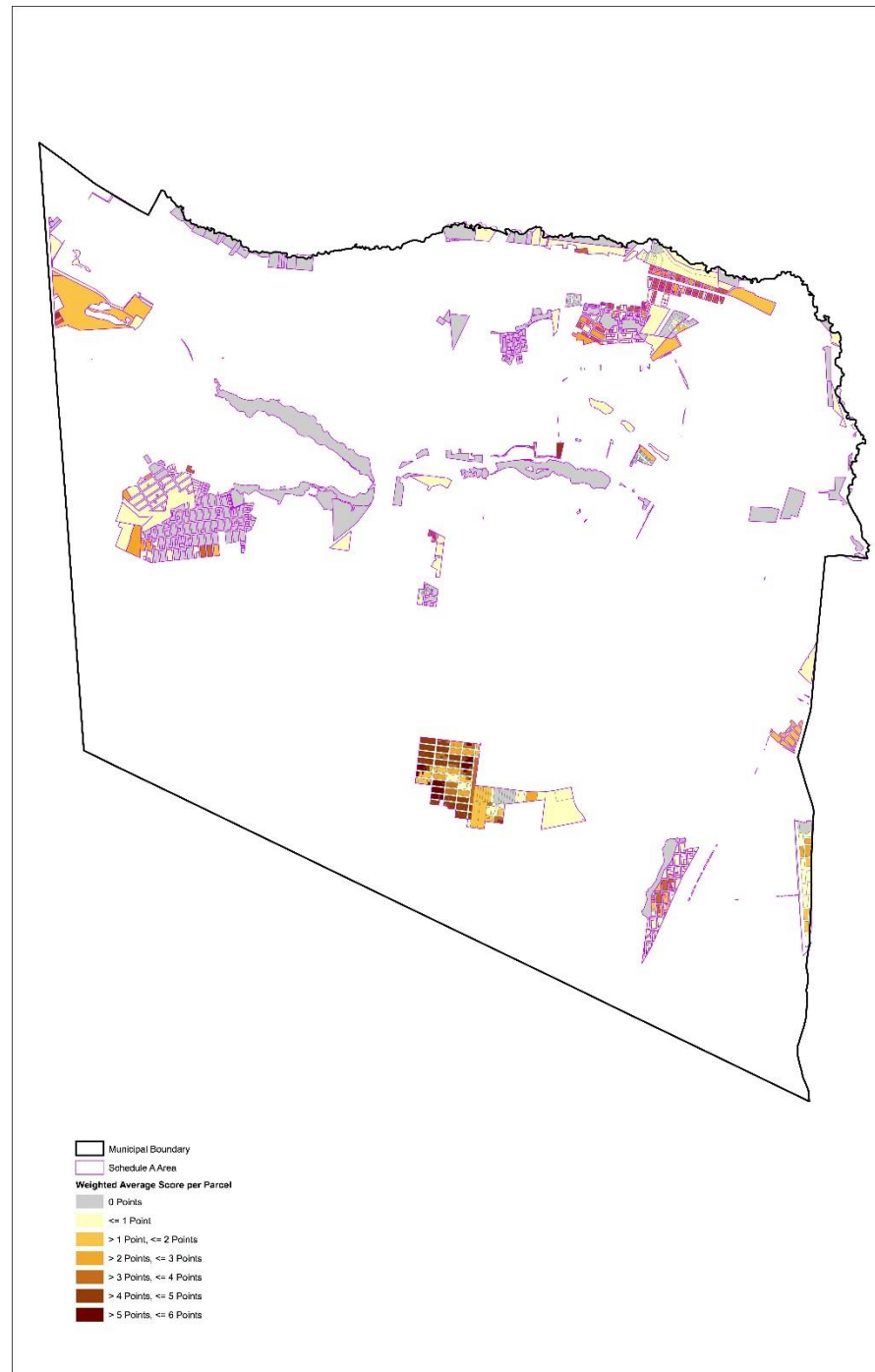


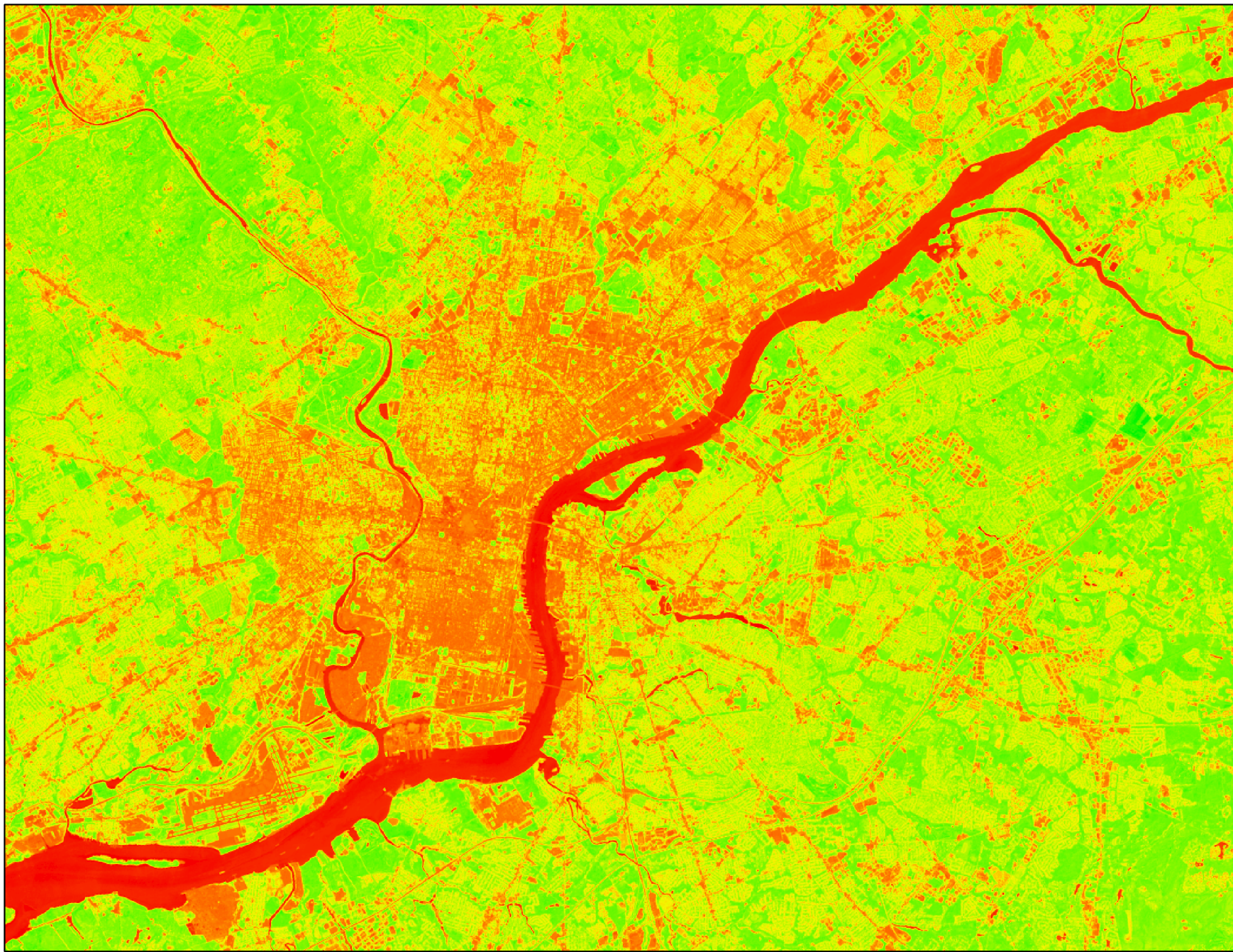
Ecological Value: Lakewood Non-Contiguous Cluster Ordinance



- Municipal Boundary
- Schedule A Area
- Stream
- State Flood Hazard Area
- Category 1 Stream Corridor
- Recreation, Open Space, Conservation Easement
- Wetland Buffer
- 500-Foot Buffer of Development (Residential, Commercial/Service and Industrial)
- Wetlands (incl. Wooded Wetlands) or Open Water
- 2 Year Time of Travel to Wetland
- 5 Year Time of Travel to Wetland
- 12 Year Time of Travel to Wetland
- Habitat Area (Fingerprints)
- Habitat Area (Threshold)
- Habitat Area (Species of Special Concern)
- Sewer Service Area
- Not in Sewer Service Area
- Commercial/Services
- Industrial
- Residential
- Coniferous Forest (or Predominantly Coniferous)
- Deciduous Forest (or Predominantly Deciduous)





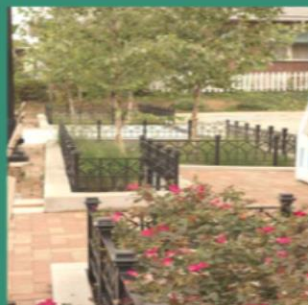
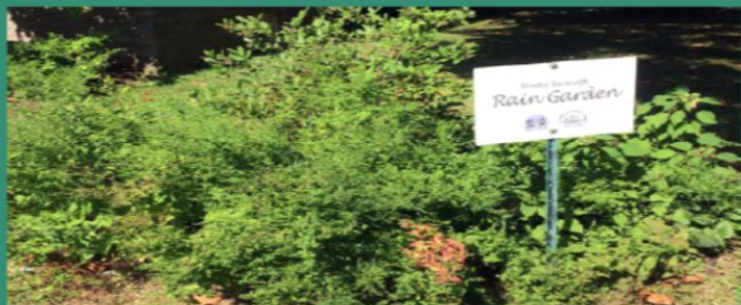


Targeting Green Infrastructure Placement

EXAMPLES OF GREEN INFRASTRUCTURE PLANNING



- 1 Washington Street Streetscape
Hoboken, NJ
Rain Gardens
- 2 West End Theatre District
Allentown, PA
Bio Retention Planters
- 3 Traders Cove Marina
Brick, NJ
Porous Pavement
- 4 1st Avenue
Hoboken, NJ
Bioswale
- 5 Canal Crossings Redevelopment
Area Plan
Jersey City, NJ
*Rain Gardens, Bio Retention,
Stormwater Harvesting*
- 6 Carnegie Bldg. 804
West Windsor, NJ
Stormwater Harvesting, Green Roof



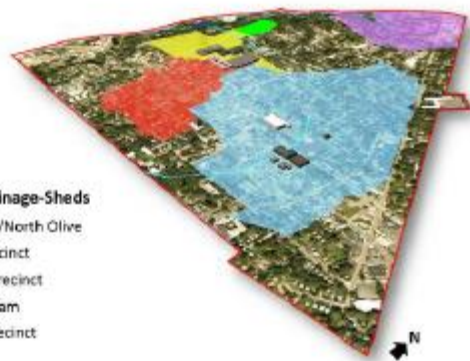
MEDIA STORMWATER MASTER PLAN BOROUGH OF MEDIA, PA

July 2017 | Prepared by T&M Associates



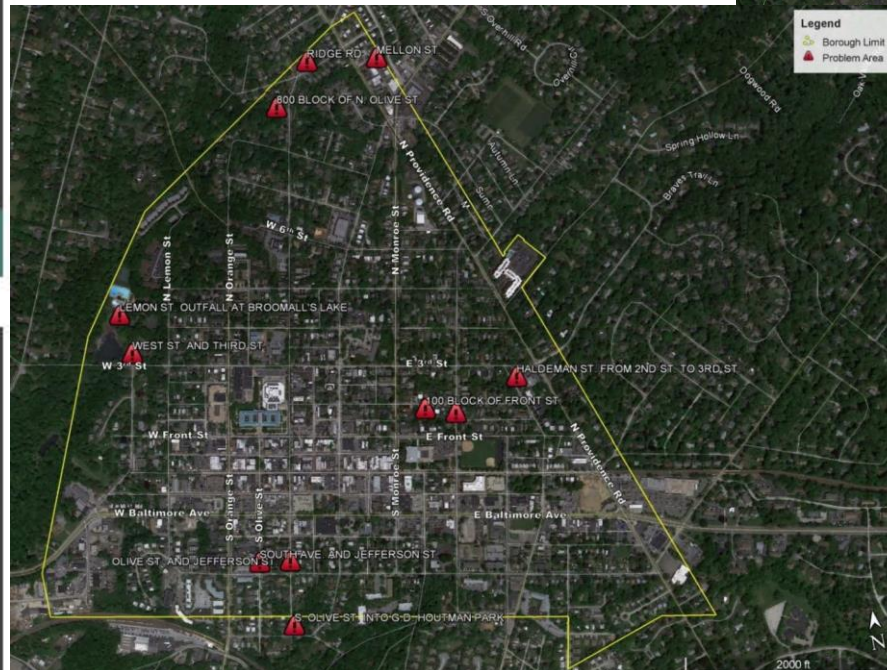


Impervious Areas in Borough



Media Borough Drainage-Sheds
 DS1 | Ridge Road/North Olive
 DS2 | Eastern Precinct
 DS3 | Southern Precinct
 DS4 | 3rd Street Dam
 DS5 | Western Precinct

Critical Drainage-Sheds in Borough





RAINWATER
HARVESTING



UNDERGROUND
DETENTION



COLLECTION SYSTEM /
STORM SEWER UPGRADES



BIORETENTION



NATURALIZED
DETENTION BASINS



GREEN ALLEY



GREEN ROOF/BLUE ROOF



GREEN INFRASTRUCTURE
RETROFITS



CONTINUOUS TREE
TRENCHES



Details of Potentially Vulnerable Parcels

Block	Lot	Land Use	Improvement Value
22	21	Commercial	\$113,700
22	22, 23	Residential	\$15,500
22	24, 25	Commercial	\$12,400
22	26	Vacant	\$0
22	27	Vacant	\$0
22	28	Commercial	\$83,100
22	29	Public	\$0
22	30	Residential	\$18,600
22	31	Commercial	\$0
22	32	Tax Exempt	\$9,729,800
22	33.01	Vacant	\$0
22.02	8	Residential	\$112,300
22.02	9	Residential	\$109,000
22.02	10	Residential	\$115,100
22.02	11	Residential	\$110,800
22.02	12	Residential	\$113,000
22.03	13	Residential	\$109,100
22.05	24	Residential	\$142,900
39	1	Residential	\$123,900
39	3	Residential	\$126,200

Block	Lot	Land Use	Improvement Value
39	4.01	Residential	\$110,500
39	5.01	Residential	Unavailable
39	6	Residential	\$69,600
39	7	Residential	Unavailable
39	8, 9, 10	Residential	\$113,200
39	11	Residential	\$102,800
39	12.01	Multifamily	\$101,400
39	13.01	Residential	\$118,000
39	20	Residential	\$88,200
39	21	Residential	\$194,100
39	25	Residential	Unavailable
39	26, 27	Residential	\$113,700
39	28	Commercial	\$166,800
39	29	Residential	\$164,200
42	1	Residential	\$86,300
42	2	Residential	\$181,000
42	3.01	Residential	\$278,800
42	3.02	Residential	\$219,500
42	6	Residential	\$145,200
42	7	Residential	\$129,700

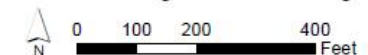
- Beers Street Neighborhood
- Block Boundary
- Parcel Boundary
- Potentially Vulnerable Parcel
- Potential Vulnerabilities
- Flood Hazard
- Area of Excessive Stormwater Runoff/Accumulation*

* Potential Area of Excessive Stormwater Runoff / Accumulation has been calculated with digital elevation modeling of the United States Geological Survey, and represents the generalized areas where stormwater may accumulate, or where there may be excessive stormwater runoff, if ground-water infiltration is impaired (e.g., by impervious surfaces and water-logged soil) and without regard to existing stormwater catchment devices. It should be taken to represent a worst-case scenario. The areas displayed on this map are areas where 150 or more inches of stormwater would accumulate.

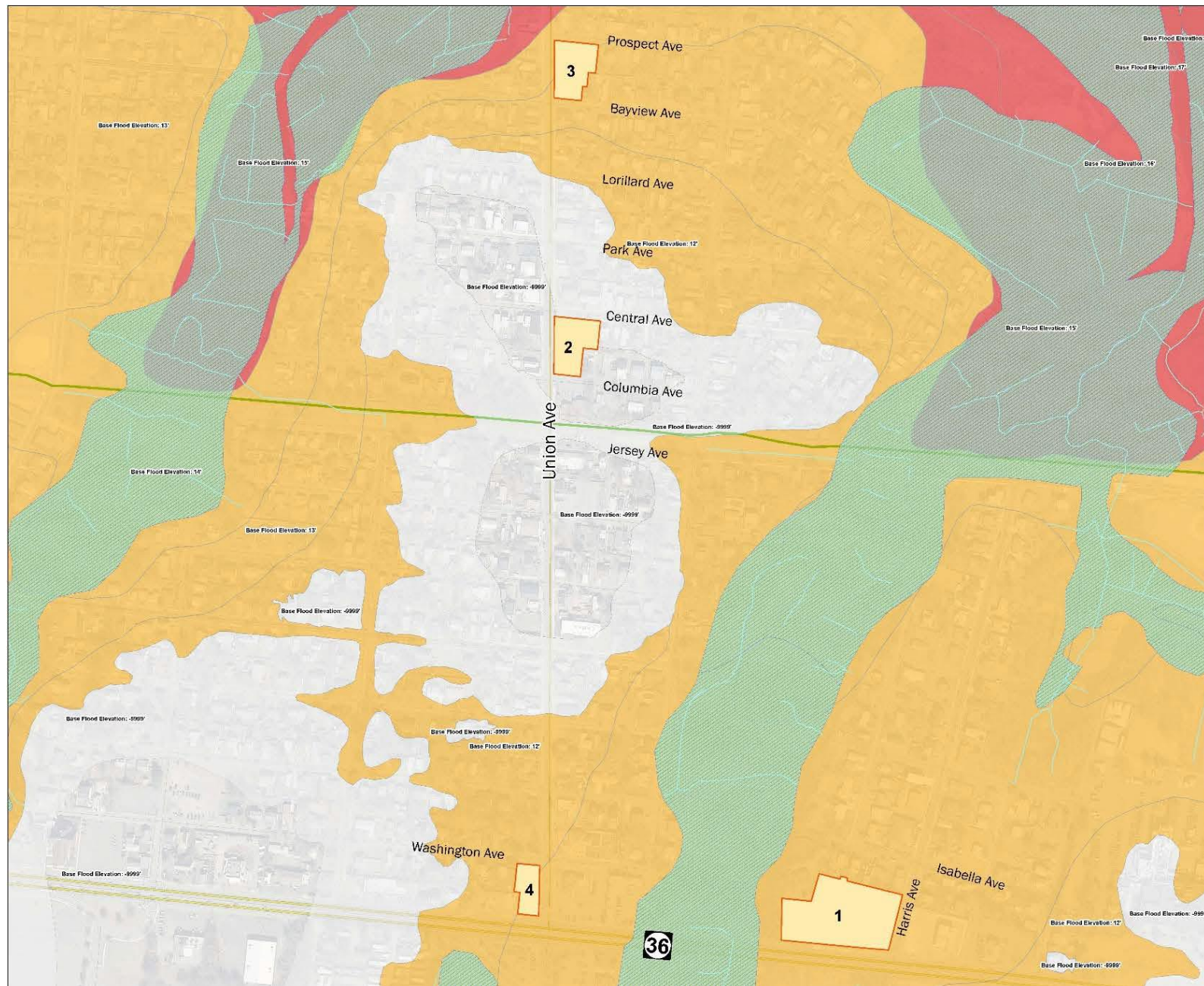
T&M Associates
 11 Tindall Road
 Middletown, NJ 07748-2792
 Phone: 732-671-6400
 Fax: 732-671-7365

Prepared by: RED, August 8, 2016
 Revised by: JAC, December 27, 2016
 Source: NJDEP, USGS, FEMA, NJDOT, Monmouth County, T&M Associates, MOD-IV
 File Path: H:\KUPL\00020\GIS\Projects\Figure 1 - Potential Vulnerability by Improvement Value.mxd

Potentially Vulnerable Parcels Beers Street Neighborhood Plan Keyport Borough, Monmouth County, New Jersey



NOTE: This map was developed using New Jersey Department of Environmental Protection Geographic Information System digital data, but this secondary product has not been verified by NJDEP and is not State-authorized.



Commercial Corridor Redevelopment Plan Natural Constraints

Borough of Union Beach
Monmouth County
New Jersey

Legend

- Redevelopment Plan Areas
- Henry Hudson Trail
- Streams
- Wetlands
- Existing Flood Zone
- X
- 0.2% Annual Flood Hazard
- AE
- VE



11 Tindall Road
Middletown, NJ 07748-2792
Phone: 732-671-6400
Fax: 732-671-7365

NOTE: This map was developed using New Jersey Department of Environmental Protection Geographic Information System digital data, but this secondary product has not been verified by NJDEP and is not State authorized.

Prepared by: MJM, 8/2/2016
Source: Borough of Union Beach, Monmouth County, NJ DEP
H:\UBCH\02759\GIS\Projects\Study Area Overview.mxd



Redevelopment Overlay

- Greater densities permitted with incorporation of sustainable/resilient design elements
 - Written design concept statement required
 - Elements Include:
 - Coverage bonus with the use of pervious pavement
 - Rain garden requirement
 - Native and drought tolerant species requirement
 - Rainwater recycling is recommended
 - May substitute LEED standards

QUESTIONS?