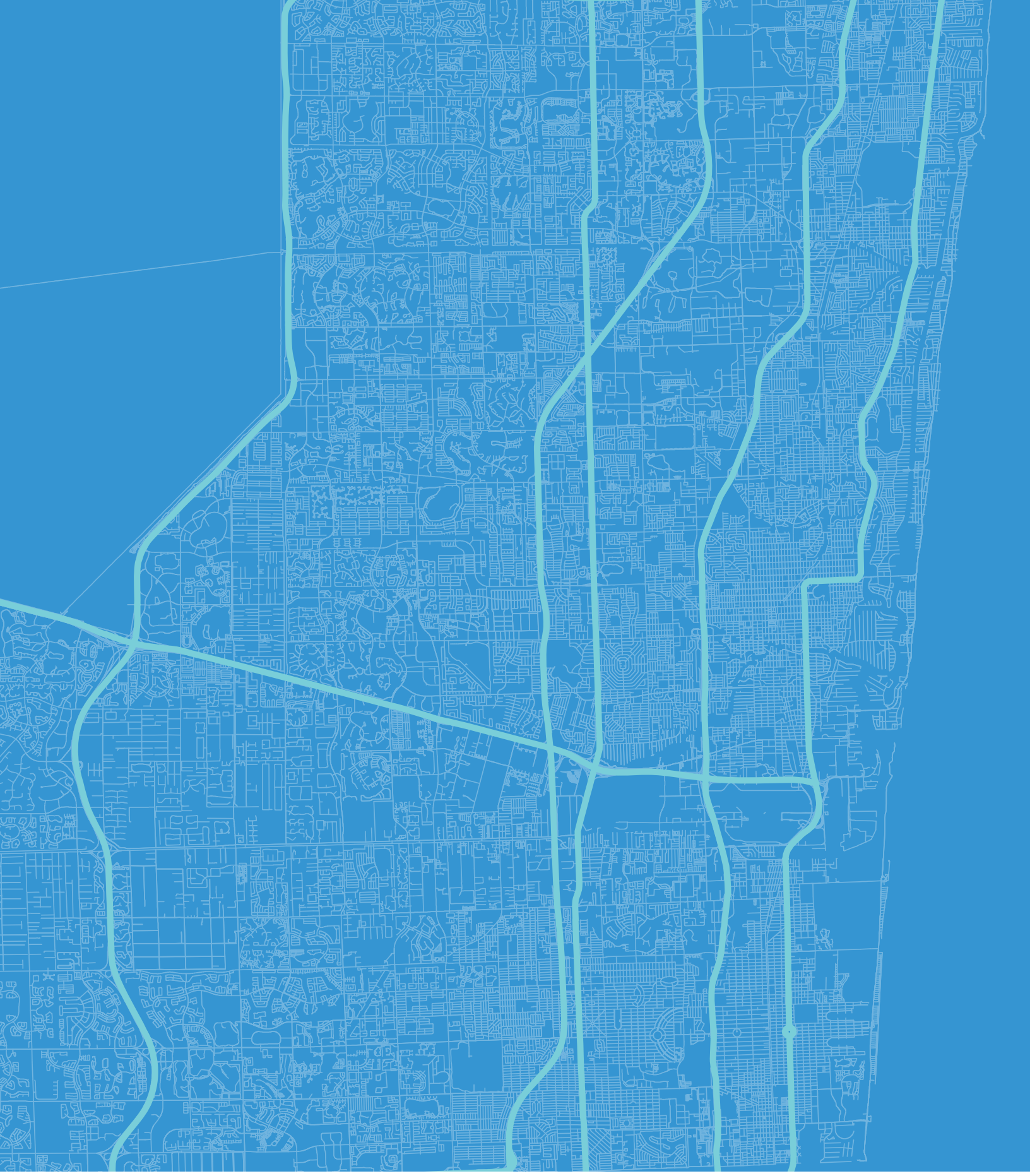


APPENDIX A

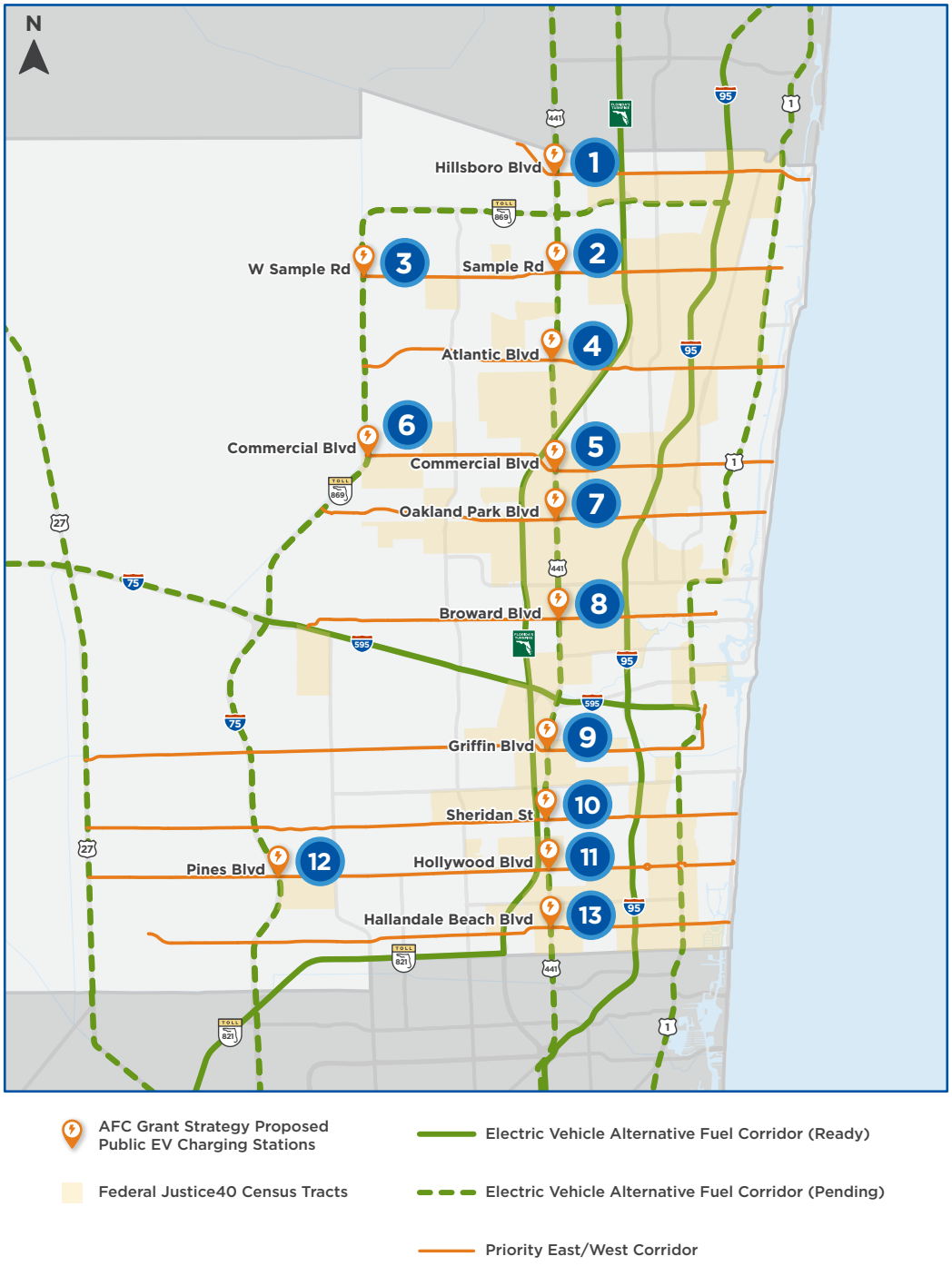
Broward MPO
Metropolitan Planning Organization

APPENDIX A

AFC GRANT STRATEGY PROPOSED EV CHARGING STATION LOCATION SUMMARIES

EV charging station location summaries are developed for each of the proposed 13 AFC grant strategy stations. The summaries on the subsequent pages provide EV charging suitability information for each site, as well as information about land use context. The purpose of the non-residential land use map is to highlight potential properties where EV charging stations could be located within one mile of priority intersections along Pending AFCs.

Figure 23: Broward MPO Grant Strategy Map



1 Hillsboro Boulevard at US 441

Parkland, Coconut Creek

The Hillsboro Boulevard Station is located at the intersection of Hillsboro Boulevard and US 441. Hillsboro Boulevard acts as a major, non-limited access east-west corridor connecting Parkland to north-central and north-east Broward County.

The Hillsboro Boulevard Station Location is served by a large amount of commercial, industrial, and recreational land uses with some institutional uses, providing a large variety of potential partners for future charging station locations.

Site Location Information

% of Trips Ending over 20 miles:	8.63%
Population Density:	4,057 per sq mi
Demand Score:	Medium Demand
Supply Score:	Medium Supply
Composite Score:	Medium Need
Justice40 Tracts:	1

Low | Medium | High

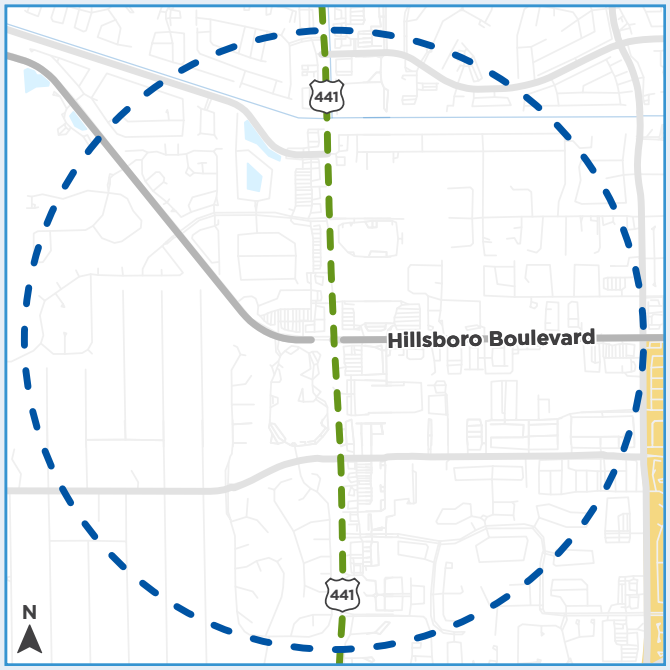
Legend

- 1-mile Hub Radius
- Electric Vehicle AFC (Ready)
- Electric Vehicle AFC (Pending)
- Justice40 Census Tracts

Non-Residential Land-Use Category

- Commercial
- Industrial
- Institutional
- Recreational

Street Network and Priority Corridors



Non-Residential Land-Use Map

2 Sample Road at US 441

Coconut Creek, Coral Springs, Margate

The Sample Road Station is located at the intersection of Sample Road and US 441. Sample Road acts as a major, non-limited access east-west corridor connecting Coral Springs to Coconut Creek and northern Pompano Beach. Sample Road is directly served by the Sawgrass Expressway, Florida's Turnpike, and I-95.

The Sample Road Station Location is served by a large amount of commercial, institutional, and recreational land uses with some industrial uses, providing a large variety of potential partners for future charging station locations.

Site Location Information

% of Trips Ending over 20 miles:	7.34%
Population Density:	6,018 per sq mi
Demand Score:	High Demand
Supply Score:	Low Supply
Composite Score:	Highest Need
Justice40 Tracts:	1

Low | Medium | High

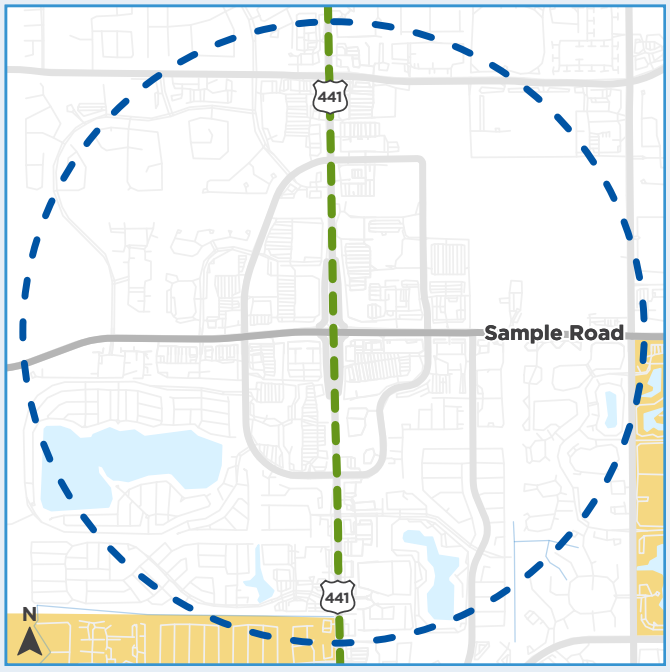
Legend

- 1-mile Hub Radius
- Electric Vehicle AFC (Ready)
- Electric Vehicle AFC (Pending)
- Justice40 Census Tracts

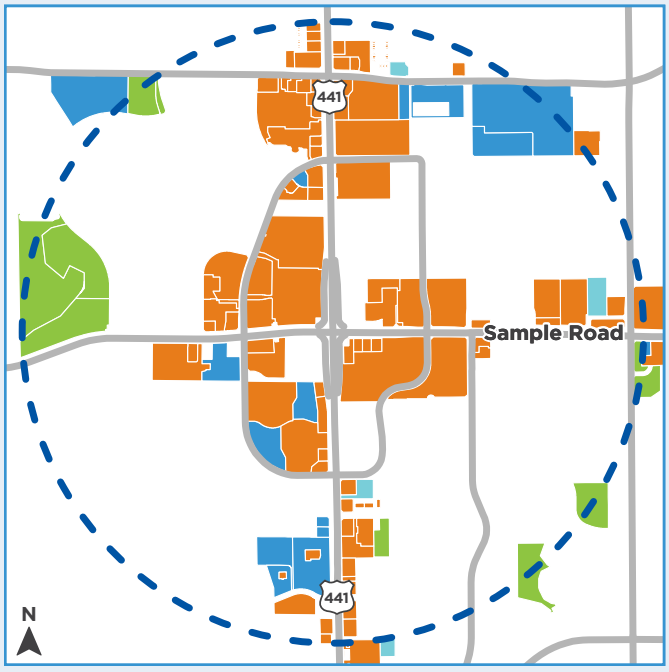
Non-Residential Land-Use Category

- Commercial
- Industrial
- Institutional
- Recreational

Street Network and Priority Corridors



Non-Residential Land-Use Map



3 West Sample Road at Sawgrass Expressway

Coral Springs

The West Sample Road Station is located at the intersection of Sample Road and the Sawgrass Expressway. West Sample Road acts as a major, non-limited access east-west corridor connecting the Sawgrass Expressway to Coral Springs.

The West Sample Road Station Location is served by a large amount of industrial use with some commercial, institutional, and recreational uses, providing a large variety of potential partners for future charging station locations. Additionally, the West Sample Road Station is near the Florida Panther's IceDen, the practice facility for the Florida Panthers, which also acts as a public skating facility.

Site Location Information

% of Trips Ending over 20 miles:	8.73%
Population Density:	6,130 per sq mi
Demand Score:	High Demand
Supply Score:	Low Supply
Composite Score:	Highest Need
Justice40 Tracts:	0

Low | Medium | High

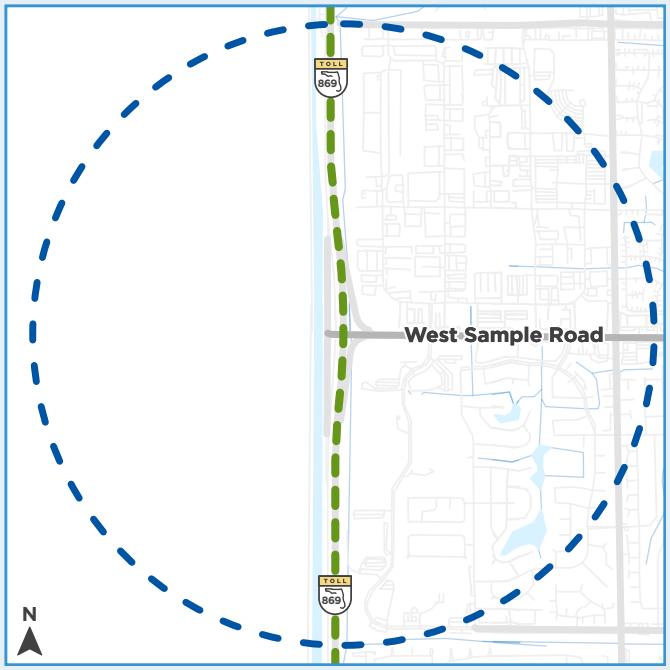
Legend

- 1-mile Hub Radius
- Electric Vehicle AFC (Ready)
- Electric Vehicle AFC (Pending)
- Justice40 Census Tracts

Non-Residential Land-Use Category

- Commercial
- Industrial
- Institutional
- Recreational

Street Network and Priority Corridors



Non-Residential Land-Use Map

4 Atlantic Boulevard at US 441

Margate, Coconut Creek

The Atlantic Boulevard Station is located at the intersection of Atlantic Boulevard and US 441. Atlantic Boulevard acts as a major, non-limited access east-west corridor connecting the cities of Margate and Coconut Creek to the city of Pompano Beach. Atlantic Boulevard is directly served by the Sawgrass Expressway, Florida's Turnpike, and I-95.

The Atlantic Boulevard Station Location is served by a large amount of commercial and institutional, with some industrial and recreational uses, providing a large variety of potential partners for future charging station locations.

Site Location Information

% of Trips Ending over 20 miles:	7.34%
Population Density:	6,018 per sq mi
Demand Score:	High Demand
Supply Score:	Low Supply
Composite Score:	Highest Need
Justice40 Tracts:	4

Low | Medium | High

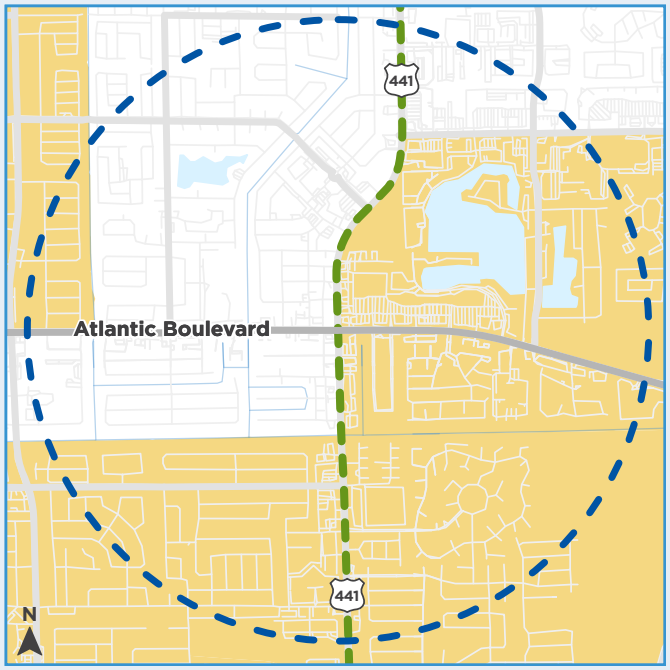
Legend

- 1-mile Hub Radius
- Electric Vehicle AFC (Ready)
- Electric Vehicle AFC (Pending)
- Justice40 Census Tracts

Non-Residential Land-Use Category

- Commercial
- Industrial
- Institutional
- Recreational

Street Network and Priority Corridors



Non-Residential Land-Use Map

5 Commercial Boulevard at US 441

Tamarac, North Lauderdale, Lauderdale Lakes, Fort Lauderdale

The Commercial Boulevard Station is located at the intersection of Commercial Boulevard and US 441. Commercial Boulevard acts as a major, non-limited access east-west corridor connecting Sunrise, Tamarac, and North Lauderdale to the Fort Lauderdale Executive Airport, Oakland Park, and northern Fort Lauderdale. Commercial Boulevard is directly served by the Sawgrass Expressway, Florida's Turnpike, and I-95.

The Commercial Boulevard Station Location is served by a large amount of commercial, industrial, institutional, and recreational land uses, providing a large variety of potential partners for future charging station locations.

Site Location Information

% of Trips Ending over 20 miles:	6.48%
Population Density:	7,022 per sq mi
Demand Score:	Medium Demand
Supply Score:	Low Supply
Composite Score:	High Need
Justice40 Tracts:	8

Low | Medium | High

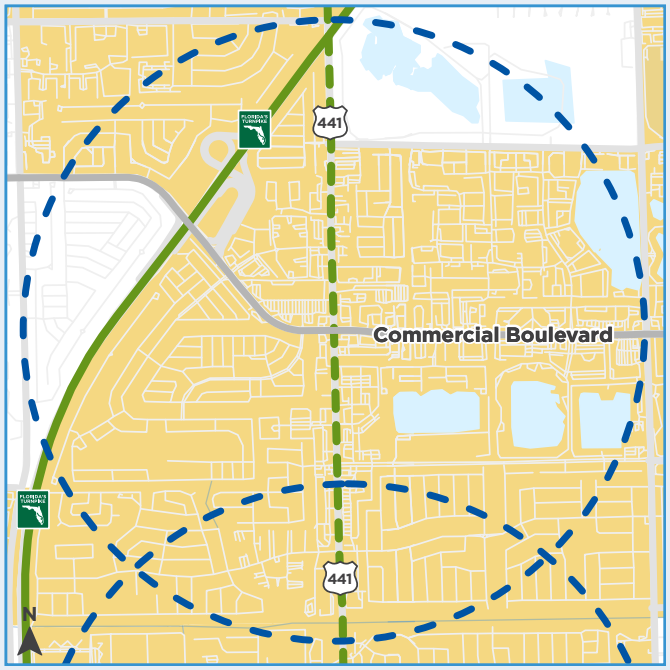
Legend

- 1-mile Hub Radius
- Electric Vehicle AFC (Ready)
- Electric Vehicle AFC (Pending)
- Justice40 Census Tracts

Non-Residential Land-Use Category

- Commercial
- Industrial
- Institutional
- Recreational

Street Network and Priority Corridors



Non-Residential Land-Use Map

6 West Commercial Boulevard at Sawgrass Expressway

Tamarac, Sunrise

The West Commercial Boulevard Station is located at the intersection of Commercial Boulevard and the Sawgrass Expressway. Commercial Boulevard acts as a major, non-limited access east-west corridor connecting the Sawgrass Expressway to the cities of Sunrise, Tamarac, and North Lauderdale.

The West Commercial Boulevard Station Location is served by a large amount of industrial land uses with some commercial, institutional, and recreational uses, providing a large variety of potential partners for future charging station locations.

Site Location Information

% of Trips Ending over 20 miles:	8.44%
Population Density:	5,727 per sq mi
Demand Score:	Medium Demand
Supply Score:	Low Supply
Composite Score:	High Need
Justice40 Tracts:	1

Low | Medium | High

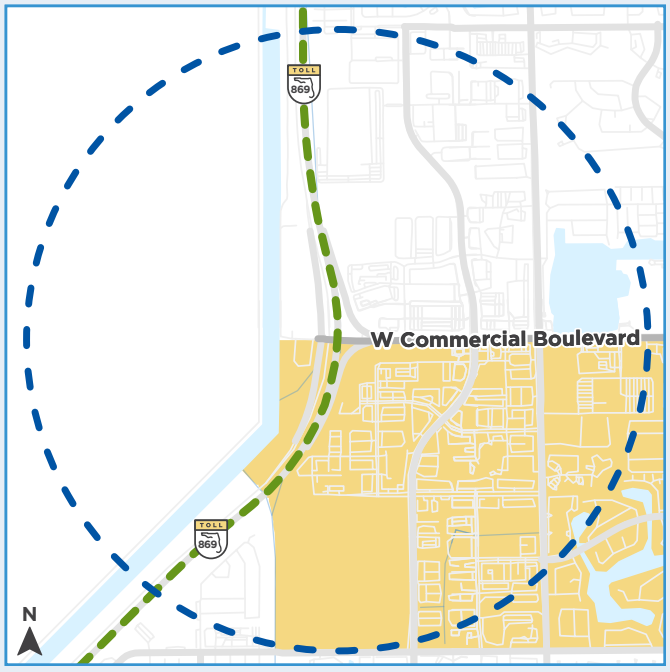
Legend

- 1-mile Hub Radius
- Electric Vehicle AFC (Ready)
- Electric Vehicle AFC (Pending)
- Justice40 Census Tracts

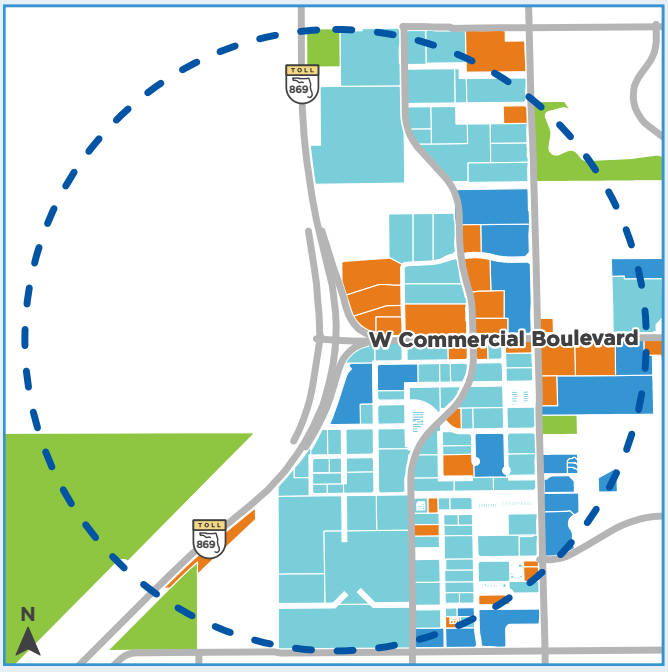
Non-Residential Land-Use Category

- Commercial
- Industrial
- Institutional
- Recreational

Street Network and Priority Corridors



Non-Residential Land-Use Map



7 Oakland Park Boulevard at US 441

Lauderdale Lakes, Lauderhill

The Oakland Park Boulevard Station is located at the intersection of Oakland Park Boulevard and US 441. Oakland Park Boulevard acts as a major, non-limited access east-west corridor connecting the cities of Sunrise and Lauderdale Lakes to Oakland Park and northern Fort Lauderdale.

The Oakland Park Boulevard Station Location is served by a large amount of commercial and institutional land uses with some industrial and recreational uses, providing a large variety of potential partners for future charging station locations.

Site Location Information

% of Trips Ending over 20 miles:	5.63%
Population Density:	9,928 per sq mi
Demand Score:	Medium Demand
Supply Score:	Low Supply
Composite Score:	High Need
Justice40 Tracts:	9

Low | Medium | High

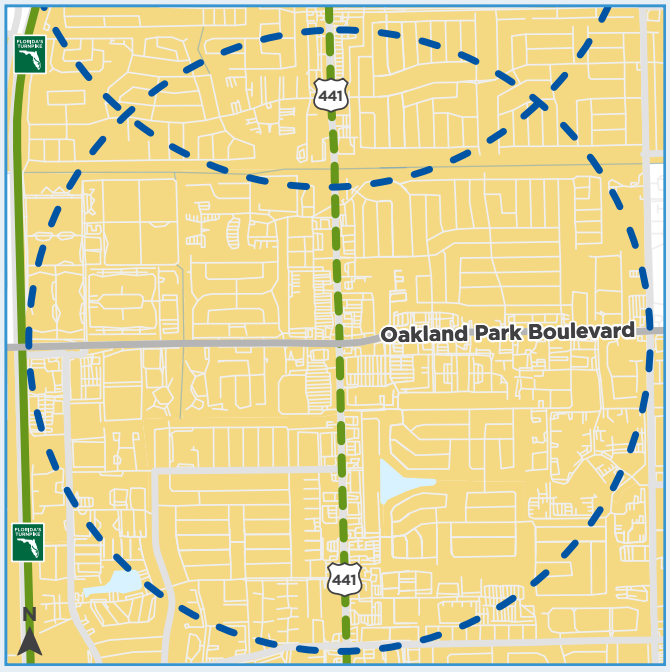
Legend

- 1-mile Hub Radius
- Electric Vehicle AFC (Ready)
- Electric Vehicle AFC (Pending)
- Justice40 Census Tracts

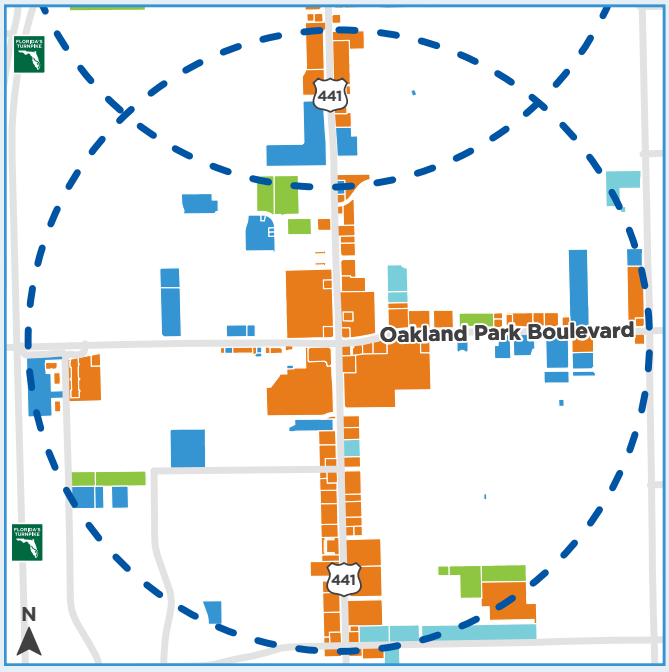
Non-Residential Land-Use Category

- Commercial
- Institutional
- Industrial
- Recreational

Street Network and Priority Corridors



Non-Residential Land-Use Map



8 Broward Boulevard at US 441

Plantation, Lauderhill, Fort Lauderdale

The Broward Boulevard Station is located at the intersection of Broward Boulevard and US 441. Broward Boulevard acts as a major, non-limited access east-west corridor connecting the cities of Plantation and Lauderhill to downtown Fort Lauderdale. The Fort Lauderdale TriRail Park-and-Ride Station is located along Broward Boulevard by I-95 in Fort Lauderdale.

The Broward Boulevard Station Location is served by a large amount of commercial, institutional, and recreational land uses with some industrial uses, providing a large variety of potential partners for future charging station's locations. Additionally, the Fort Lauderdale Country Club is located within the station 1-mile radius along Broward Boulevard.

Site Location Information

% of Trips Ending over 20 miles:	5.83%
Population Density:	3,885 per sq mi
Demand Score:	Medium Demand
Supply Score:	Medium Supply
Composite Score:	Medium Need
Justice40 Tracts:	3

Low | Medium | High

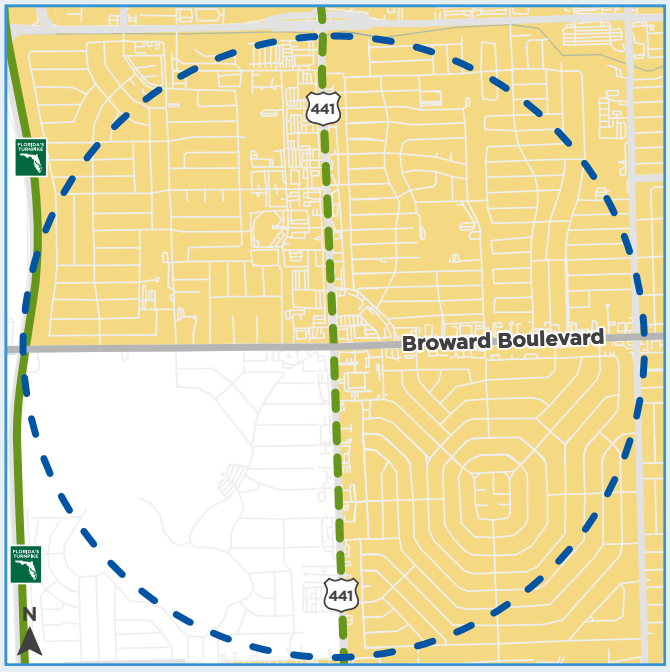
Legend

- 1-mile Hub Radius
- Electric Vehicle AFC (Ready)
- Electric Vehicle AFC (Pending)
- Justice40 Census Tracts

Non-Residential Land-Use Category

- Commercial
- Industrial
- Institutional
- Recreational

Street Network and Priority Corridors



Non-Residential Land-Use Map

9 Griffin Road at US 441

Davie, Dania Beach, Hollywood

The Griffin Road Station is located at the intersection of Griffin Road and US 441. Griffin Road acts as a major, non-limited access east-west corridor connecting Weston and Southwest Ranches to Davie and Cooper City, with connections further east to Dania Beach and the Fort Lauderdale International Airport.

The Griffin Road Station Location is served by a large amount of commercial, industrial, institutional, providing a large variety of potential partners for future charging station locations. Additionally, the Seminole Hard Rock Casino is located within the station's 1-mile radius along US 441.

Site Location Information

% of Trips Ending over 20 miles:	8.72%
Population Density:	3,139 per sq mi
Demand Score:	High Demand
Supply Score:	High Supply
Composite Score:	Medium Need
Justice40 Tracts:	3

Low | Medium | High

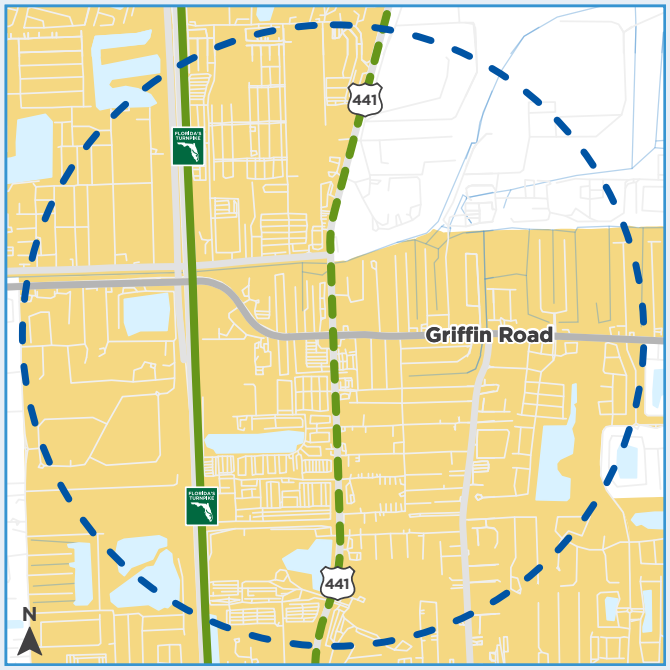
Legend

- 1-mile Hub Radius
- Electric Vehicle AFC (Ready)
- Electric Vehicle AFC (Pending)
- Justice40 Census Tracts

Non-Residential Land-Use Category

- Commercial
- Industrial
- Institutional
- Recreational

Street Network and Priority Corridors



Non-Residential Land-Use Map

10 Sheridan Street at US 441

Hollywood

The Sheridan Street Station is located at the intersection of Sheridan Street and US 441. Sheridan Street acts as a major, non-limited access east-west corridor connecting Southwest Ranches, Pembroke Pines, and Cooper City to Hollywood.

The Sheridan Street Station Location is served by a large amount of commercial and institutional land uses with some industrial and recreational uses, providing a large variety of potential partners for future charging station locations. Additionally, the Hollywood Reservation of the Seminole Tribe is located within the station's 1-mile radius along Sheridan Street.

Site Location Information

% of Trips Ending over 20 miles:	7.09%
Population Density:	5,566 per sq mi
Demand Score:	High Demand
Supply Score:	Low Supply
Composite Score:	Highest Need
Justice40 Tracts:	4

Low | Medium | High

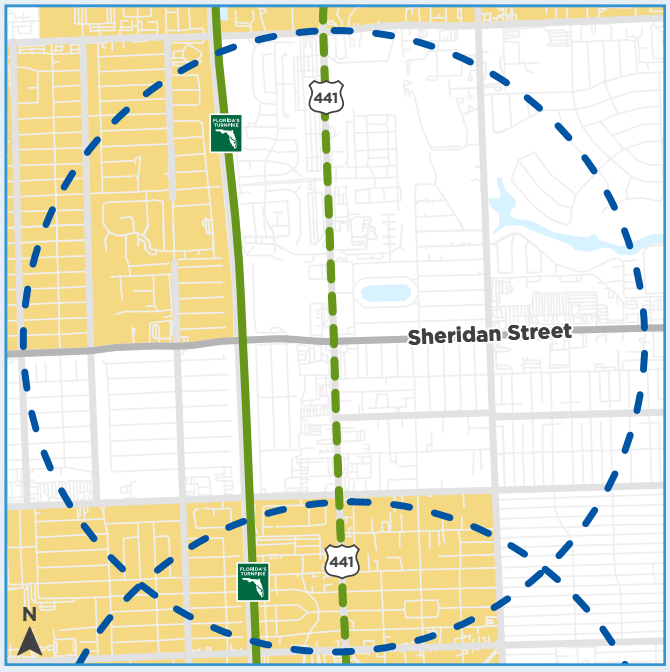
Legend

- 1-mile Hub Radius
- Electric Vehicle AFC (Ready)
- Electric Vehicle AFC (Pending)
- Justice40 Census Tracts

Non-Residential Land-Use Category

- Commercial
- Industrial
- Institutional
- Recreational

Street Network and Priority Corridors



Non-Residential Land-Use Map

11 Hollywood Boulevard at US 441

Hollywood, Pembroke Pines

The Hollywood Boulevard Station is located at the intersection of Hollywood Boulevard and US 441. Hollywood Boulevard acts as a major, non-limited access east-west corridor connecting Hollywood to Florida's Turnpike and Pembroke Pines. Hollywood Boulevard is directly served by I-75 (as Pines Boulevard), Florida's Turnpike, and I-95.

The Hollywood Boulevard Station Location is served by a large amount of commercial, industrial, and institutional land uses with some recreational uses, providing a large variety of potential partners for future charging station locations.

Site Location Information

% of Trips Ending over 20 miles:	6.26%
Population Density:	6,706 per sq mi
Demand Score:	Medium Demand
Supply Score:	Low Supply
Composite Score:	Highest Need
Justice40 Tracts:	5

Low | Medium | High

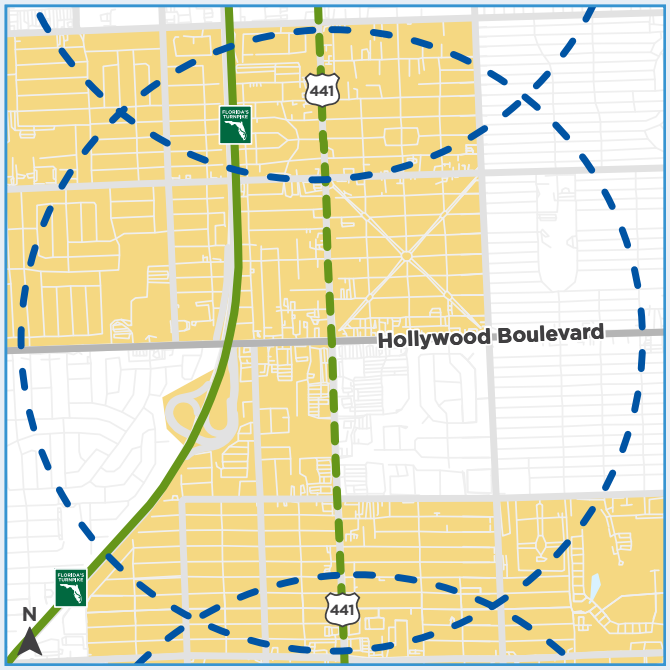
Legend

- 1-mile Hub Radius
- Electric Vehicle AFC (Ready)
- Electric Vehicle AFC (Pending)
- Justice40 Census Tracts

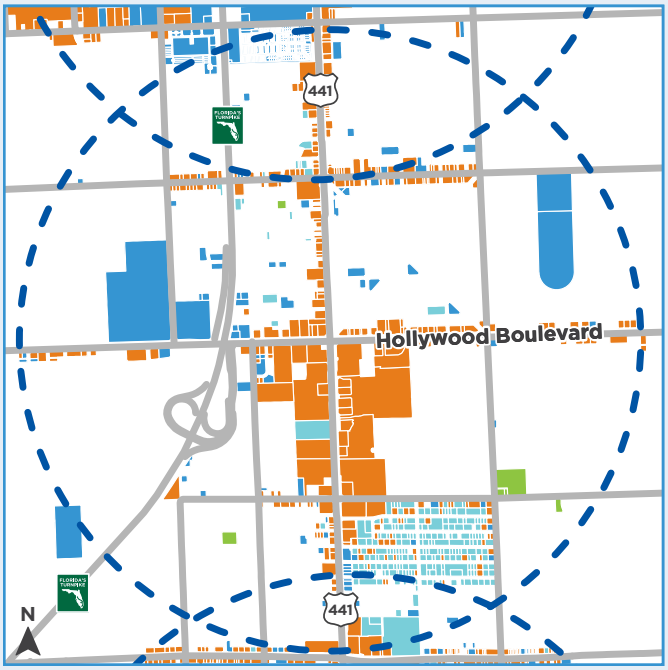
Non-Residential Land-Use Category

- Commercial
- Industrial
- Institutional
- Recreational

Street Network and Priority Corridors



Non-Residential Land-Use Map



12 Pines Boulevard at I-75

Pembroke Pines

The Pines Boulevard Station is located at the intersection of Pines Boulevard and I-75. Pines Boulevard acts as a major, non-limited access east-west corridor connecting Pembroke Pines to Hollywood. Pines Boulevard is directly served by I-75, Florida's Turnpike (as Hollywood Boulevard), and I-95 (as Hollywood Boulevard).

The Sample Road Station Location is served by a large amount of commercial and recreational land uses with some industrial and institutional uses, providing a large variety of potential partners for future charging station locations.

Site Location Information

% of Trips Ending over 20 miles:	11.72%
Population Density:	4,761 per sq mi
Demand Score:	Medium Demand
Supply Score:	Low Supply
Composite Score:	High Need
Justice40 Tracts:	2

Low | Medium | High

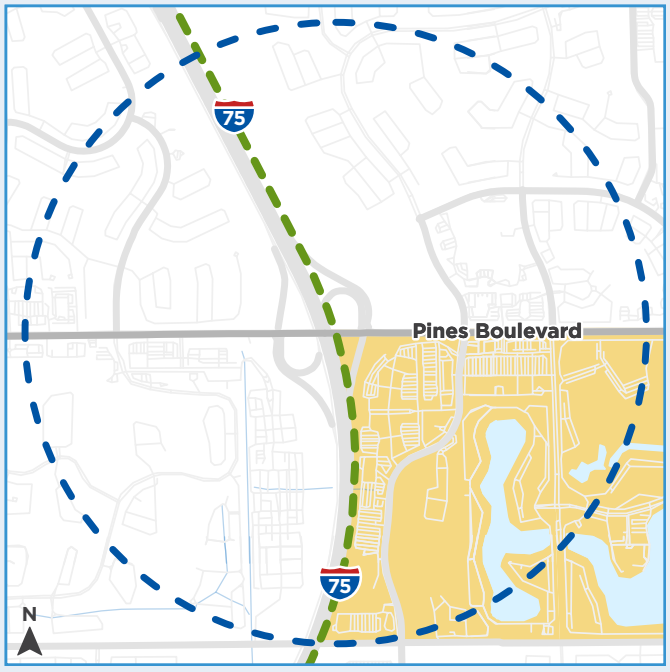
Legend

- 1-mile Hub Radius
- Electric Vehicle AFC (Ready)
- Electric Vehicle AFC (Pending)
- Justice40 Census Tracts

Non-Residential Land-Use Category

- Commercial
- Industrial
- Institutional
- Recreational

Street Network and Priority Corridors



Non-Residential Land-Use Map

13 Hallandale Beach Boulevard at US 441

Miramar, West Park, Pembroke Park, Hollywood

The Hallandale Beach Boulevard Station is located at the intersection of Hallandale Beach Boulevard and US 441. Hallandale Beach Boulevard acts as a major, non-limited access east-west corridor connecting Miramar to West Park, Pembroke Park, and Hallandale Beach.

The Hallandale Beach Boulevard Station Location is served by a large amount of commercial and industrial land uses, with some institutional and recreational land uses, providing a large variety of potential partners for future charging station locations.

Site Location Information

% of Trips Ending over 20 miles:	6.26%
Population Density:	6,706 per sq mi
Demand Score:	Medium Demand
Supply Score:	Low Supply
Composite Score:	Highest Need
Justice40 Tracts:	5

Low | Medium | High

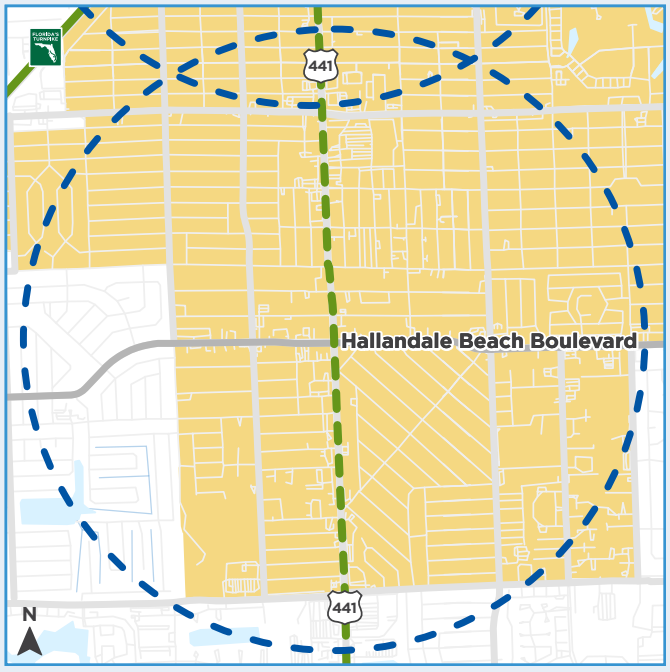
Legend

- 1-mile Hub Radius
- Electric Vehicle AFC (Ready)
- Electric Vehicle AFC (Pending)
- Justice40 Census Tracts

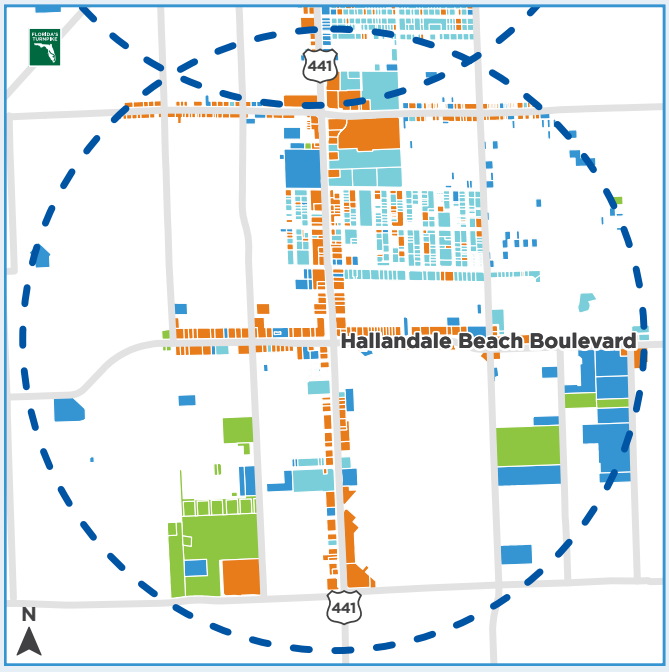
Non-Residential Land-Use Category

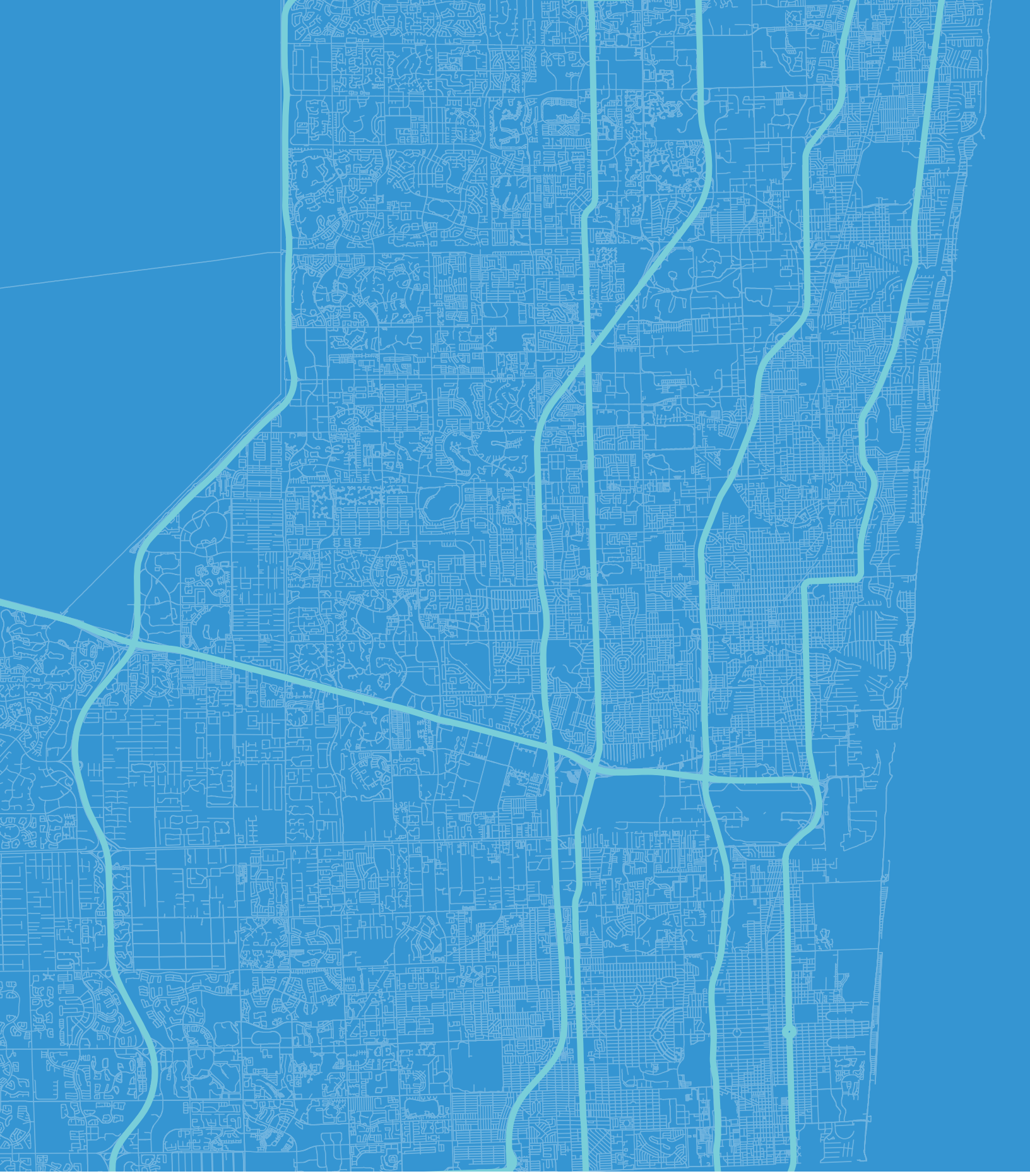
- Commercial
- Industrial
- Institutional
- Recreational

Street Network and Priority Corridors



Non-Residential Land-Use Map





APPENDIX B

Broward MPO
Metropolitan Planning Organization

APPENDIX B

SFRTA STATION PRIORITIZATION SUMMARY

The SFRTA station prioritization focuses on the potential for regional partnerships to address gaps in EV charging coverage in Broward County, as well as access to regional transit service. The South Florida Regional Transportation Authority (SFRTA) operates the regional commuter rail service Tri-Rail. The parking lots that serve the Broward County Tri-Rail stations were prioritized for potential grant-funded EV charging stations. The factors considered for site suitability are:

- Is the site within 1 mile of an existing AFC?
- Are the station parking lots owned by the SFRTA?
- Is the volume of train boardings low, medium, or high?
- Is the station in a Federal Justice 40 US Census Tract?

Each parking lot was ranked individually and then combined if all lots had the same owner. Table 11 highlights the scoring guide used to rank the Tri-Rail stations.

Table 11: SFRTA Station Scoring Guide

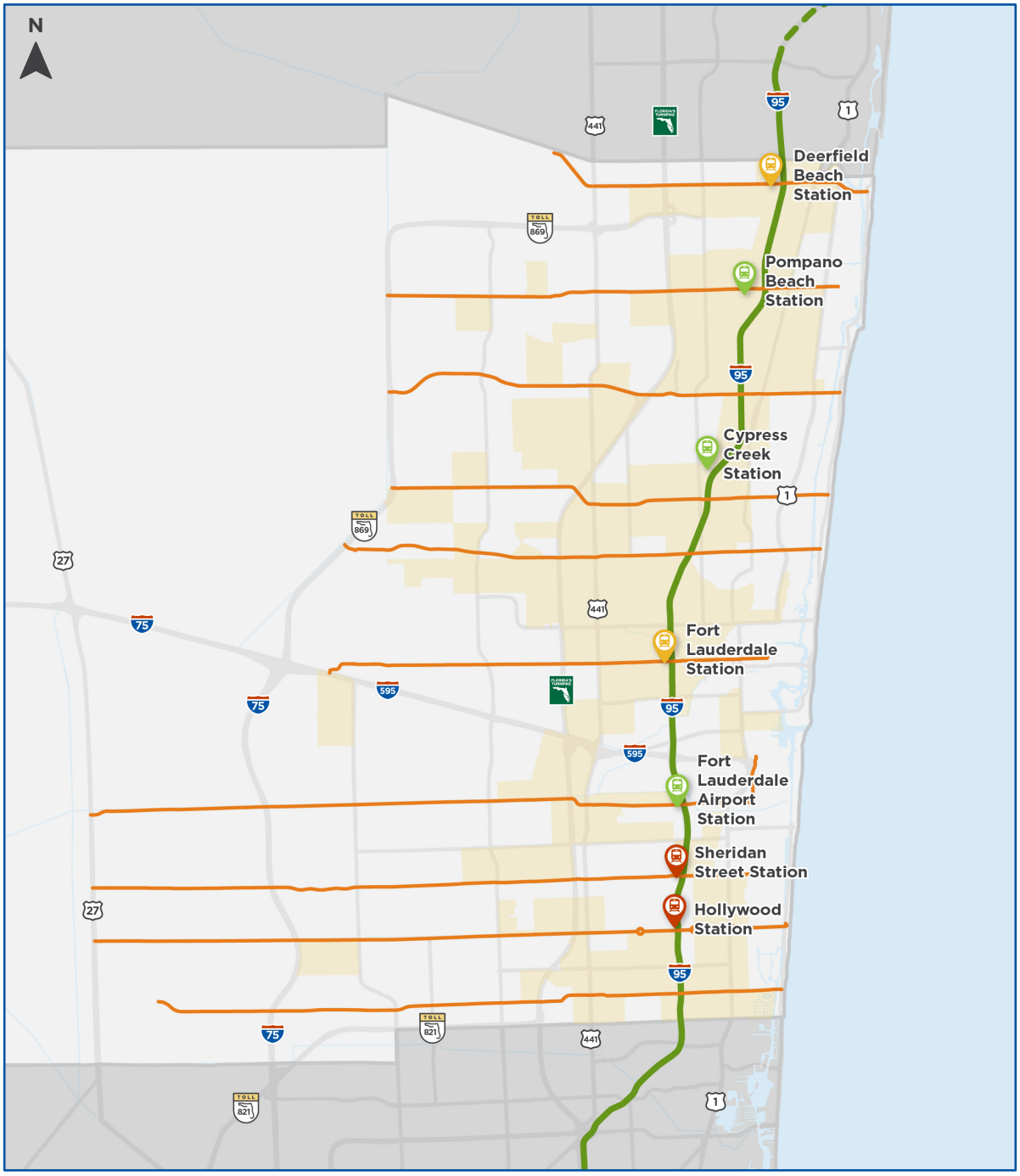
Within 1 Mile of an AFC?	Has a lot owned by SFRTA?	Volume of Boardings	Equity – Within a Justice 40 Tract?
3 = Yes	3 = Yes	3 = High	1 = Yes
		2 = Medium	
0 = No	0 = No	1 = Low	0 = No

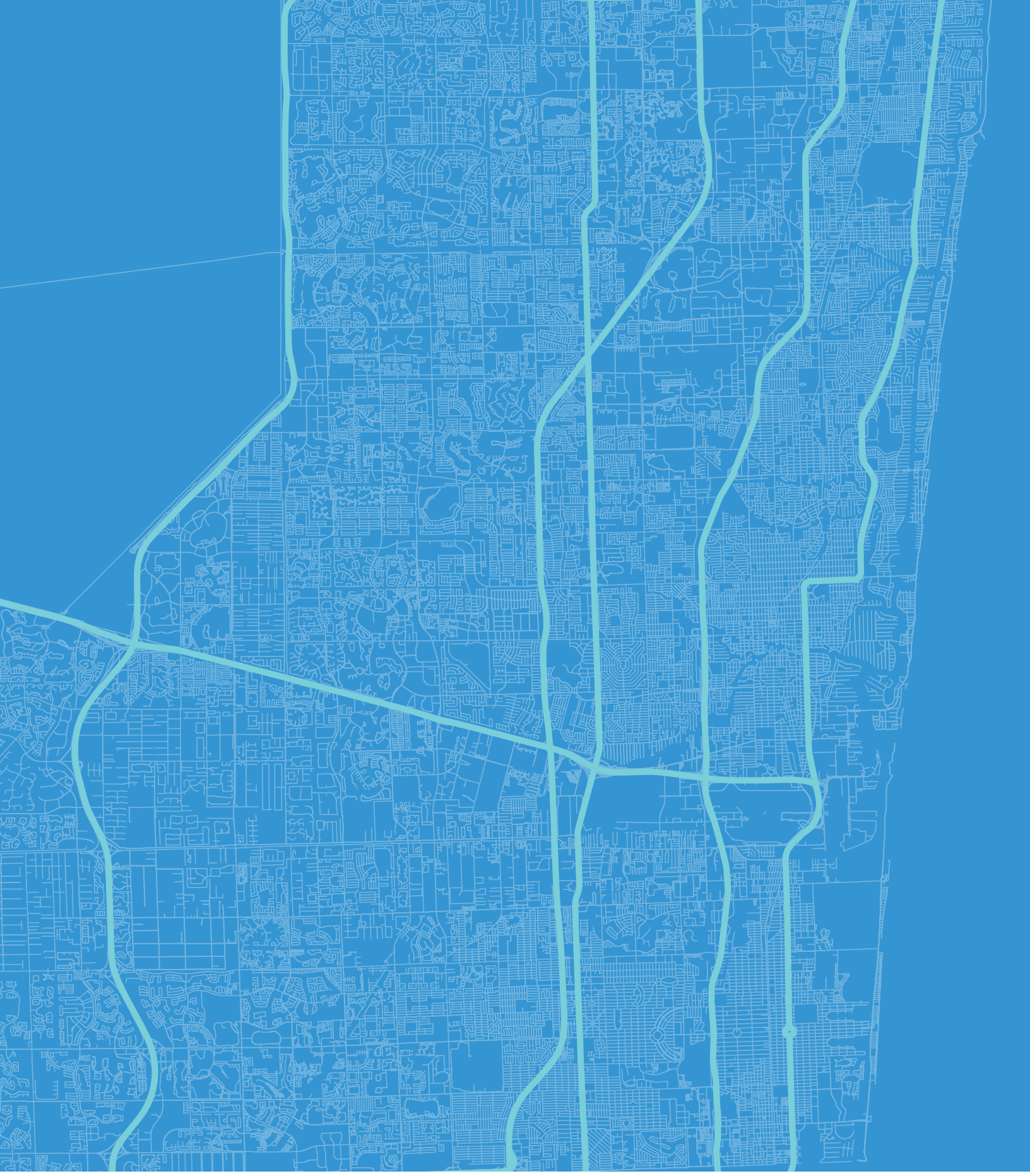
The table below summarizes the results of the prioritization scoring. A map illustrating the station prioritization results is also provided.

Table 12: SFRTA Station Scoring Results

Station Served	W/in 1 Mile of an AFC?	Has lot owned by SFRTA?	Volume of Boardings	Equity	Total Score	W/in High Priority EV Charging Zip Code?	Lot Location Notes
Cypress Creek	3	3	3	1	10	No	West Lot – SFRTA
Fort Lauderdale Airport	3	3	3	0	9	No	East Lot – SFRTA
Pompano Beach	3	3	2	1	9	No	West Lot – SFRTA; East Garage – SFRTA
Deerfield Beach	3	3	1	1	8	No	West Lot – SFRTA
Fort Lauderdale Airport	3	0	3	0	6	No	West Garage – City of Dania Beach
Fort Lauderdale – Broward Boulevard	3	0	2	1	6	No	All lots – FDOT
Deerfield Beach	3	0	1	1	5	No	East Lot – FDOT
Hollywood	3	0	1	0	4	Yes	West Lot – FDOT
Sheridan Street	3	0	1	0	4	Yes	East Lot - FDOT

Figure 24: SFRTA Station Prioritization Results





APPENDIX C

Broward MPO
Metropolitan Planning Organization

APPENDIX C

AFC GRANT STRATEGY STATION OPINION OF PROBABLE COST

PRELIMINARY OPINION OF PROBABLE CONSTRUCTION COSTS

Project: Broward MPO AFC Grant Strategy Station OPC
2 ports ~150kW and 4 ports ~19kW

Job Number: 42121111

Client: Broward Metropolitan Planning Organization

Date: 5/30/2024

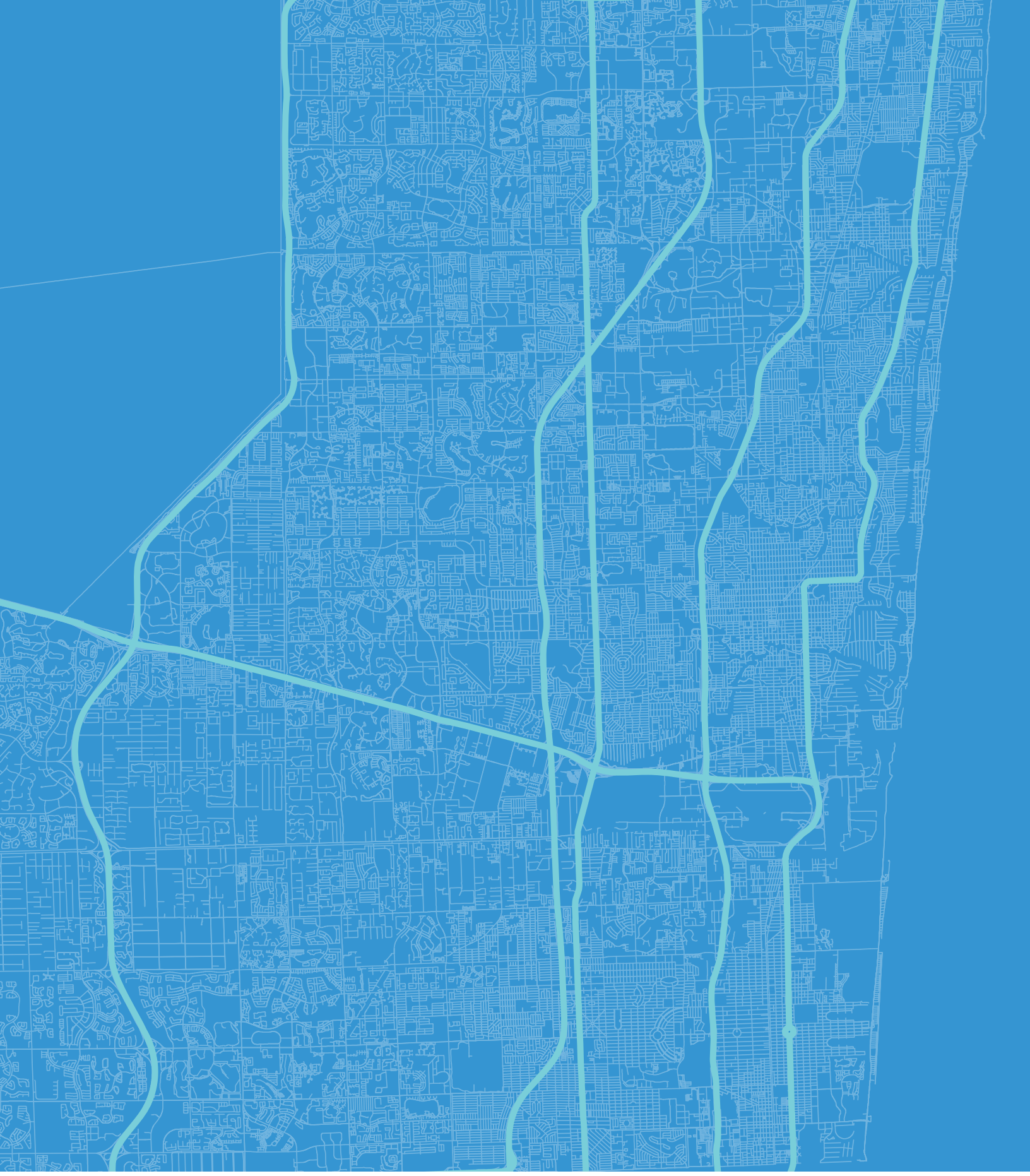
DESCRIPTION	QUANTITY	UNIT	COST / UNIT	TOTAL COST
Design Service				
Engineering Design	1		$ 42,000.00	$ 42,000.00
Permitting Services	1		$ 8,500.00	$ 8,500.00
Construction Phase Services	1		$ 15,000.00	$ 15,000.00
			Subtotal	**$ 65,500.00**
Utility Connection				
Primary Splice - 15kV 3-phase cable	1	EA	$ 500.00	$ 500.00
Primary Cable - 3-Phase Main Feeder	200	LF	$ 25.00	$ 5,000.00
6" Service PVC Conduit (Qty assumes 2 sets)	400	LF	$ 30.00	$ 12,000.00
500 kVa three-phase Transformer - including concrete pad	1	EA	$ 40,000.00	$ 40,000.00
Meter Cabinet	1	EA	$ 5,000.00	$ 5,000.00
			Subtotal	**$ 62,500.00**
EVCS				
300kW Dual Port Charger (~150kW/port when charging simultaneously)	1	EA	$ 145,000.00	$ 145,000.00
19kW Single Port Chargers	4	EA	$ 8,000.00	$ 32,000.00
E-Bike System (5 Dock Stations)	1	EA	$ 30,000.00	$ 30,000.00
			Subtotal	**$ 207,000.00**
Electrical Construction				
600 Amp 480V Panel	1	EA	$ 6,000.00	$ 6,000.00
600 Amp Main Breaker	1	EA	$ 4,900.00	$ 4,900.00
500amp/3-phase Breaker	1	EA	$ 4,900.00	$ 4,900.00
200amp/3-phase Breaker	1	EA	$ 2,500.00	$ 2,500.00
4-wire #3/0 AWG CU (Panel to Stepdown Transformer)	200	LF	$ 44.00	$ 8,800.00
150 kVa Stepdown Transformer	1	EA	$ 20,000.00	$ 20,000.00
4-wire #3/0 AWG CU (Stepdown Transformer to Sub-Panel; Qty assumes 2 sets per run)	400	LF	$ 10.00	$ 4,000.00
400 Amp 208V Sub-Panel	1	EA	$ 4,900.00	$ 4,900.00
400 Amp Sub-Panel Main Breaker	1	EA	$ 4,900.00	$ 4,900.00
4-wire 350 MCM CU (Utility Transformer to Panel; Qty assumes 2 sets per run)	400	LF	$ 12.00	$ 4,800.00
3" PVC Conduit (Utility Transformer to Panel; Qty assumes 3 conduits per run)	600	LF	$ 30.00	$ 18,000.00
Branch Feeder (Panel to 300kW Charger)				
3-wire 250 MCM CU (Panel to Charger; Qty assumes 2 sets per run w/ # of chargers)	400	LF	$ 30.00	$ 12,000.00
#2 AWG Ground (Panel to Charger)	200	LF	$ 3.00	$ 600.00
3" PVC Conduit (Panel to Charger; Qty assumes 2 conduits per run w/ # of chargers)	400	LF	$ 30.00	$ 12,000.00
Branch Feeder (Sub-Panel to 19kW Charger)				
2-wire #2 AWG CU (Panel to Charger; Qty assumes 1 set per run x # of chargers)	800	LF	$ 5.00	$ 4,000.00
#8 AWG Ground (Panel to Charger)	800	LF	$ 1.50	$ 1,200.00
1" PVC Conduit (Panel to Charger; Qty assumes 1 conduit per run x # of chargers)	800	LF	$ 11.00	$ 8,800.00
Manholes/handholes/junction box (size TBD)	4	E.A.	$ 2,500.00	$ 10,000.00
Trench Excavation and Backfill	1,000	L.F.	$ 20.00	$ 20,000.00
Boring Mobilization	1	EA	$ 5,975.00	$ 5,975.00
Conduit Case Boring	600	L.F.	$ 119.50	$ 71,700.00
			Subtotal	**$ 229,975.00**
Limited Site Work				
Asphalt Placement - 2" Surface, 4" Binder, 6" Stone Base)	1,500	SQ. FT.	$ 5.00	$ 7,500.00
Landscaping Allowance (assume $2000 per port)	6	EA	$ 2,000.00	$ 12,000.00
Light Poles Steel with Concrete base (assume 0.5 per port)	3	E.A.	$ 2,700.00	$ 8,100
Parking Lot Signage	1	L.S.	$ 5,000.00	$ 5,000.00
Pavement Striping	1	L.S.	$ 2,500.00	$ 2,500.00
Fencing around switchgear	1	L.S.	$ 3,000.00	$ 3,000.00
			Subtotal	**$ 38,100.00**

DESCRIPTION	TOTAL COST
Design Service	$ 65,500.00
Utility Connection	$ 62,500.00
EVCS	$ 207,000.00
Electrical Construction	$ 229,975.00
Limited Civil Work	$ 38,100.00
RSMeans Location Index Adjustment - (No Adjustment Assumed for this Location)	
Contingencies (Assume 25% of Constr. Costs)	$ 150,768.75
Total	**$ 753,843.75**

Assumptions:

1. This Opinion of Probable Construction Cost (OPCC) is based on current industry pricing (RSMeans, contractor information and pricing, publicly available data, etc.) that we have readily available and does not guarantee pricing.
2. This OPCC is not intended to serve as a comprehensive and complete analysis of development and construction costs.
3. Any items not specifically noted in this OPCC shall be added by the Client.
4. This OPCC assumes a balanced site that no rock or similar material will be encountered during construction.
5. This OPCC assumes a new service is required.
6. This OPCC assumes that the meter is placed on or adjacent to the transformer
7. This OPCC assumes a maximum of 200 feet spacing for each of the following: primary splice to transformer, transformer to panel, and panel to farthest charger.

These OPC's are not intended for basing financial decisions, or securing funding.
Since Kimley-Horn & Associates, Inc. has no control over the cost of labor, materials, equipment, or services furnished by others, or over methods of determining price, or over competitive bidding or market conditions, any and all opinions as to the cost herein, including but not limited to opinions as to the costs of construction materials, shall be made on the basis of experience and best available data. Kimley-Horn & Associates, Inc. cannot and does not guarantee that proposals, bids, or actual costs will not vary from the opinions on costs shown herein. The total costs and other numbers in this Opinion of Probable Cost have not been rounded. This practice of not rounding is not intended to reflect or imply a level of certainty with respect to accuracy of the amount.



APPENDIX D

Broward MPO
Metropolitan Planning Organization

APPENDIX D

EXISTING CONDITIONS AND NEEDS ASSESSMENT MEMO

February 9, 2024

Mr. Levi Stewart-Figueroa
Broward Metropolitan Planning Organization
100 W Cypress Creek Road #650
Fort Lauderdale, FL 33309

RE: Electric Vehicle Corridor Master Plan (EVMP) Existing Conditions and Future Needs Assessment

Dear Mr. Stewart-Figueroa:

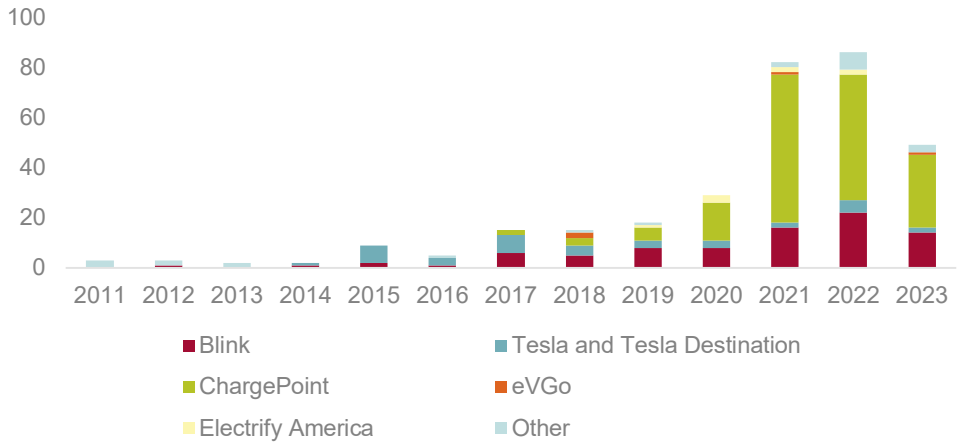
The purpose of this memo is to provide a summary of existing conditions and future forecast for the electric vehicle (EV) market and public EV charging infrastructure in Broward County.

TASK 2. EXISTING EV MARKET AND PUBLIC EV CHARGING INFRASTRUCTURE ASSESSMENT

Task 2.1. Existing Public EV Charging Infrastructure

As of October 2023, there are 320 public EV charging stations in Broward County. 68% of these stations have been built in the last three years. Figure 1. below displays the number of charging stations opened per year within Broward County by charging network.

Figure 1. Growth in Broward County Public EV Charging Stations by Year and Network Provider

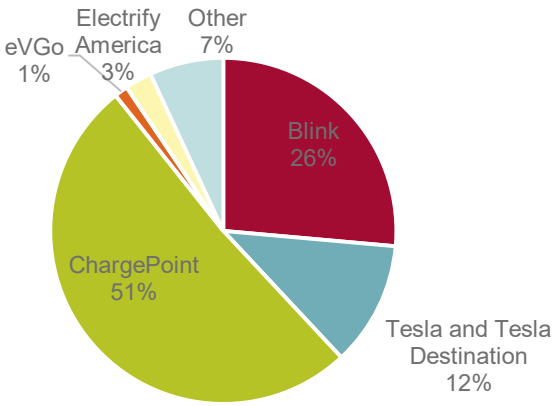


Source: https://afdc.energy.gov/fuels/electricity_locations.html

Kimley»Horn

The largest public EV charging network provider in Broward County is Charge Point, which represents 51% of the charging stations within the County. The three largest operators in Broward County – Blink, Tesla, and ChargePoint –operate a combined 89% of the public EV charging stations. Figure 2 shows the share of total public EV charging stations in Broward County by network provider.

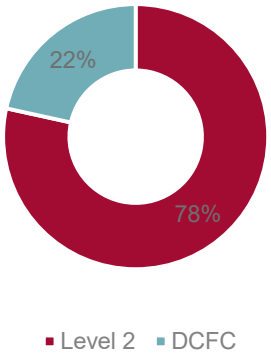
Figure 2. Share of Total Public EV Charging Stations in Broward County By Network Provider



Source: https://afdc.energy.gov/fuels/electricity_locations.html

There are 932 public EV charging ports in Broward County. Of these, 22% are DC Fast Charging (DCFC) and 78% are Level 2. Figure 3 and Table 1 show the share of public EV charging port by port type in Broward County.

Figure 3. Share of Public EV Charging Ports by Level of Charger in Broward County



Source: https://afdc.energy.gov/fuels/electricity_locations.html

Kimley»Horn

Table 1. Share of Public EV Charging Ports by Level of Charger in Broward County

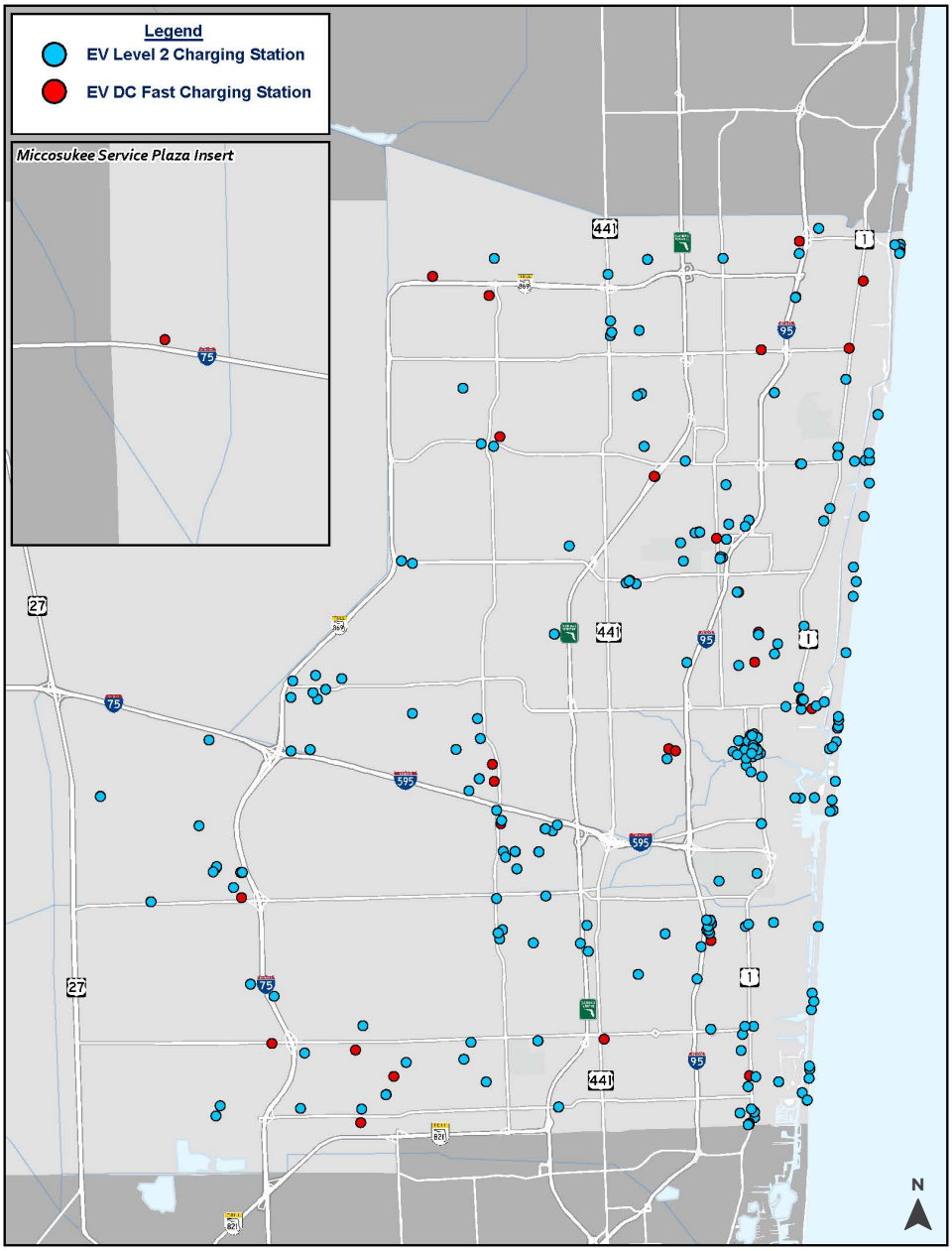
Level 2	DCFC	Total
731	201	932

Source: https://afdc.energy.gov/fuels/electricity_locations.html

Figure 4 is a map of all public EV charging stations in Broward County. The map also illustrates the charging level available at each station.

Kimley»Horn

Figure 4. Broward County Existing Charging Stations



Source: https://afdc.energy.gov/fuels/electricity_locations.html

Kimley»Horn

Task 2.2. Alternative Fuel Corridors

The U.S. Department of Transportation Federal Highway Administration (FHWA) designates a national network of alternative fuel corridors (AFCs). The national networks apply to several alternative fuel sources including electric vehicles (EVs), hydrogen, propane, and natural gas.

FHWA designates AFCs by soliciting nominations from states. Once designated, areas along the AFCs are eligible for grants to fund the construction of alternative fuel stations.

Each fuel type has specific requirements to designate an AFC as pending or ready. Pending means the corridor does not meet the minimum criteria for alternative fuel spacing, siting, and capacity requirements. A Ready designation means that corridors have met the minimum fuel station requirements.

For EV AFCs, the requirement to be designated “Ready” is to have public DCFC charging stations no greater than 50 miles between two charging stations along an AFC corridor. The stations shall be no further than 5 miles from as AFC. Additionally, each DCFC site should have both J1772 combo (CCS) and CHAdeMO connectors. Because Tesla stations are proprietary, they currently are not able to qualify an AFC for “Ready” designation.

Table 2 provides a summary of the status of EV AFC designations in Broward County. The map on the subsequent page shows the corridors designated and what the status is for each alternative fuel type. Figure 5 displays the EV AFCs by designation status in Broward County.

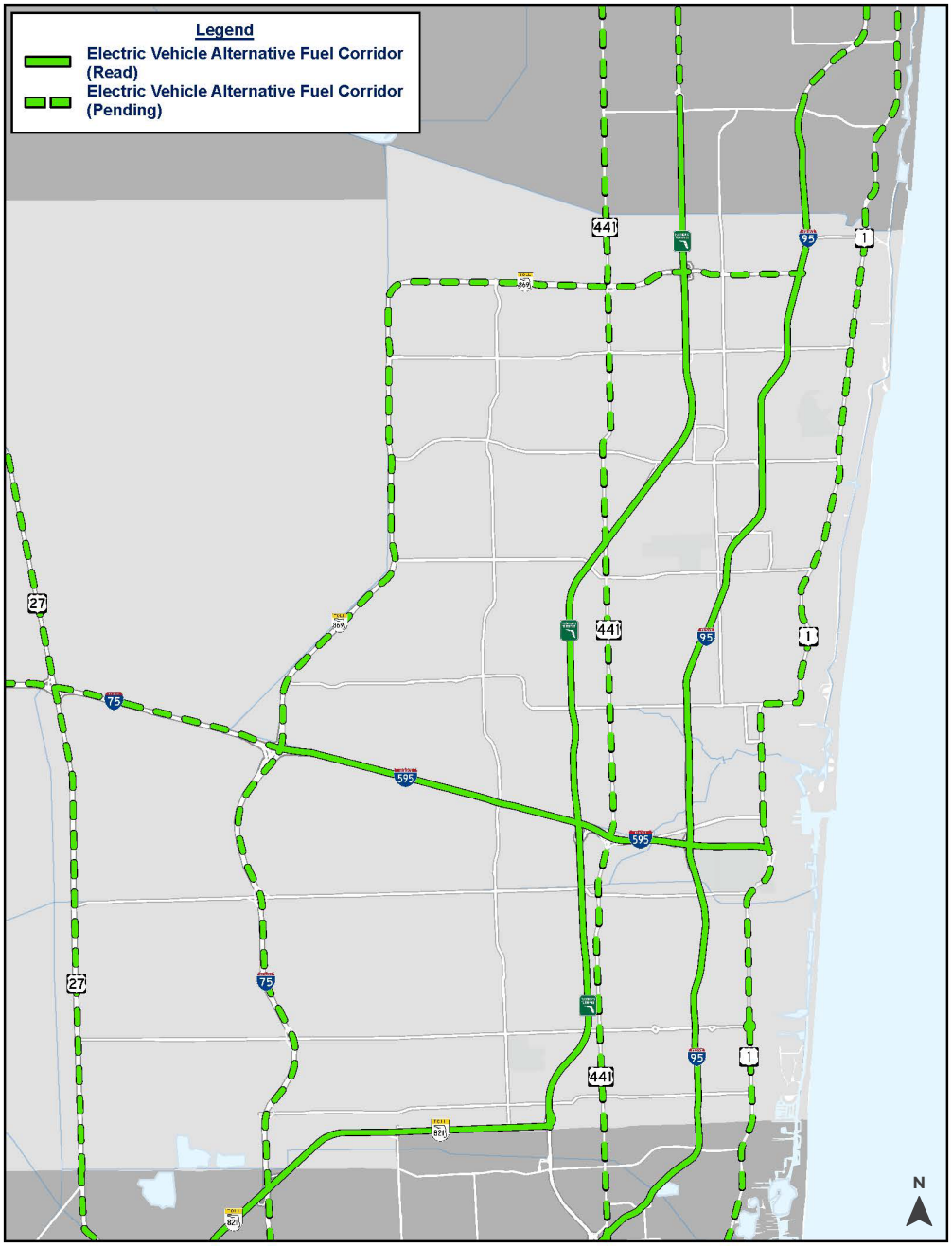
Table 2. Broward County Electric Vehicle Alternative Fuel Corridors

Corridor Name	AFC Number	Designation Round	Status
I-595	595	4	Ready
I-75	75	4	Ready
I-95	95	4	Ready
SR-821 Ronald Reagan Turnpike	821	4	Ready
SR-869 Sawgrass Expressway	869	6	Pending
SR-91 Florida's Turnpike	91	4	Ready
US-1	1	6	Pending
US-27	27	6	Pending
US-441	441	6	Pending

Source: https://www.fhwa.dot.gov/environment/alternative_fuel_corridors/

Kimley»Horn

Figure 5. Broward County Electric Vehicle (EV) Alternative Fuel Corridors



Source: https://www.fhwa.dot.gov/environment/alternative_fuel_corridors/

Kimley»Horn

Task 2.3. Current Public EV Charging Needs Analysis

This analysis focuses on identifying where public EV charging infrastructure is needed most in Broward County, with priority given to areas of need along the AFCs. The analysis combines factors related to market demand, infrastructure supply, and equity considerations to create a composite score for public EV charging infrastructure needs. The highest score possible highlights areas with a low supply of public EV charging infrastructure and high demand for public charging. Zip codes within federally designated Justice40 census tracts are given one additional point to a zip code's composite score.

Table 3 summarizes the composite score matrix. Table 4 summarizes the criteria used to create the composite score for each zip code in Broward County. Figure 6 through 8 illustrate the geographic results of the scoring analysis.

Figure 9 highlights the equity gap that exists related to public EV charging access. 31% of public EV charging ports are located within a Justice40 census tract, which 37% of the Broward County population lives within a Justice40 census tract. Investing in public EV charging in Justice40 census tracts can help close this charging access gap.

Table 3. Broward County Public EV Charging Needs Composite Scoring Matrix

Demand	High = 3	6+	5	4
	Medium = 1	5	4	3
	Low = 1	4	3	2
	Equity + 1	Low = 3	Medium = 2	High = 1
		Supply		

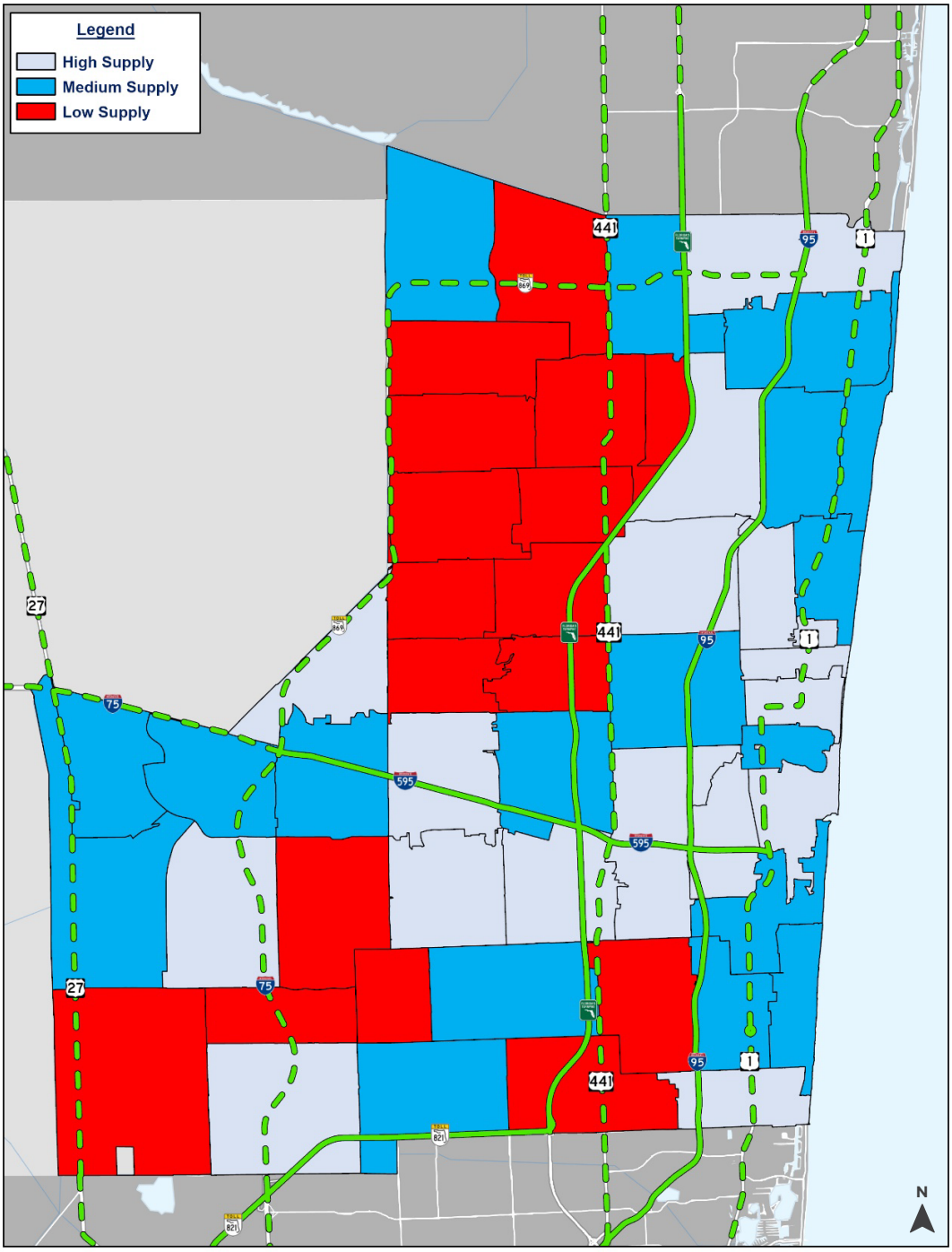
Kimley»Horn

Table 4. Broward County Public EV Charging Needs Analysis Criteria

Focus Area	Criteria	Description	Purpose	Scoring
Supply	Ports Per 100k Population	The number of public EV charging ports per 100,000 population within each Broward County zip code	Measure residential access to public EV charging	High 1 Medium 2 Low 3
	DCFC Ports Per 100k	The number of public DCFC EV charging ports per 100,000 population within each Broward County zip code.	Measure residential access to public EV fast charging	High 1 Medium 2 Low 3
Demand	Population	Population density within each Broward County zip code	Measure population density	High 3 Medium 2 Low 1
	Registered EVs	Total number of EVs registered in each Broward County zip code	Measure the total number of EVs registered in each zip code	High 3 Medium 2 Low 1
	Total Trips	Total trips that end in each zip code	Measure total trip volume that ends in each zip code	High 3 Medium 2 Low 1
	Total Trips Over 20 miles	Total trips over 20 miles that end in a zip code	Measure volume of longer distance trips that end in a zip code	High 3 Medium 2 Low 1
Equity	Zip Code within a designated equity area	Zip code within a federally designated Justice40 census tract or Broward MPO Equity identified equity area	Measure location of disadvantaged communities that are marginalized, underserved, and overburdened by pollution.	Yes 1 No 0

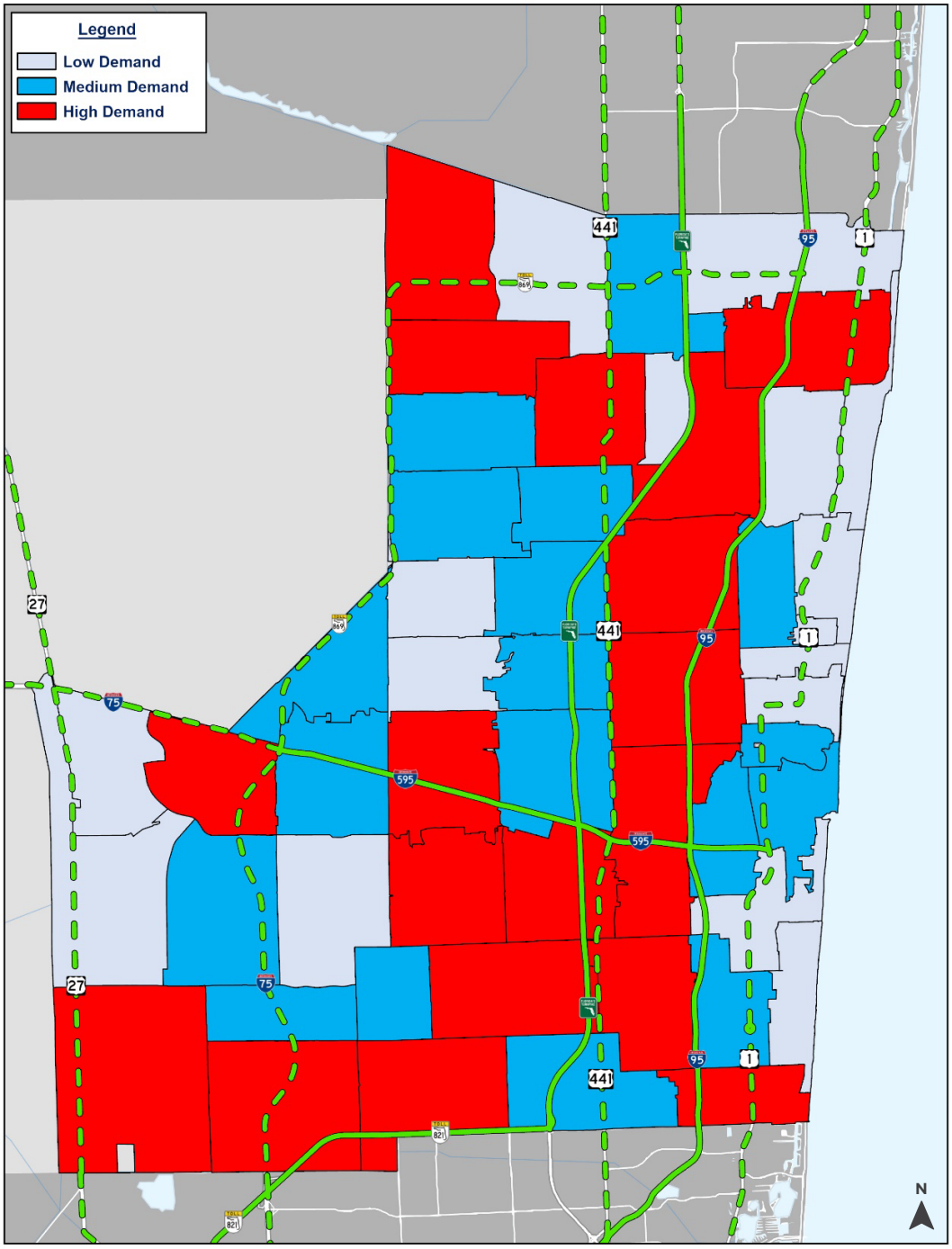
Kimley»Horn

Figure 6. Supply Score by Zip Code



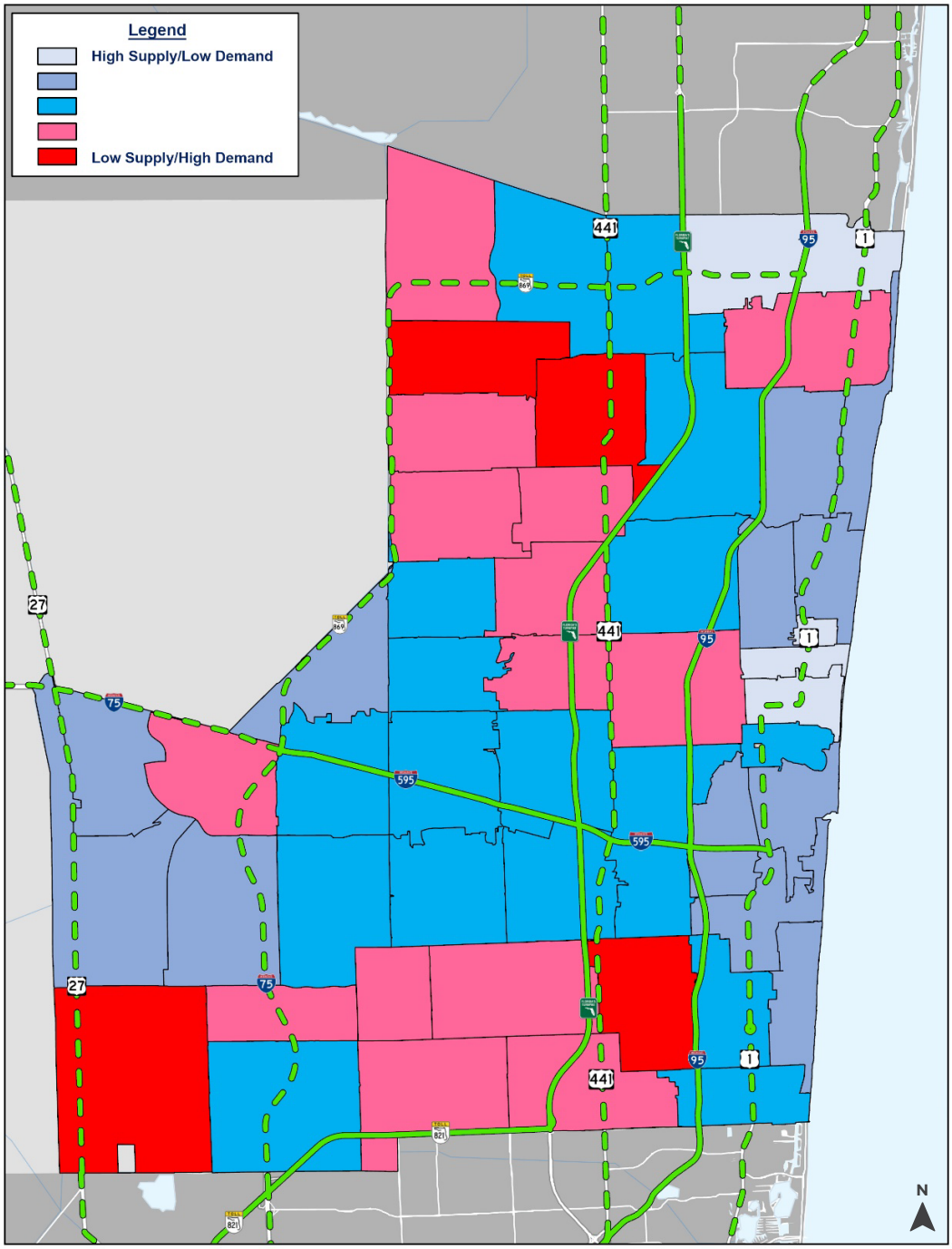
Kimley»Horn

Figure 7. Demand Score by Zip Code



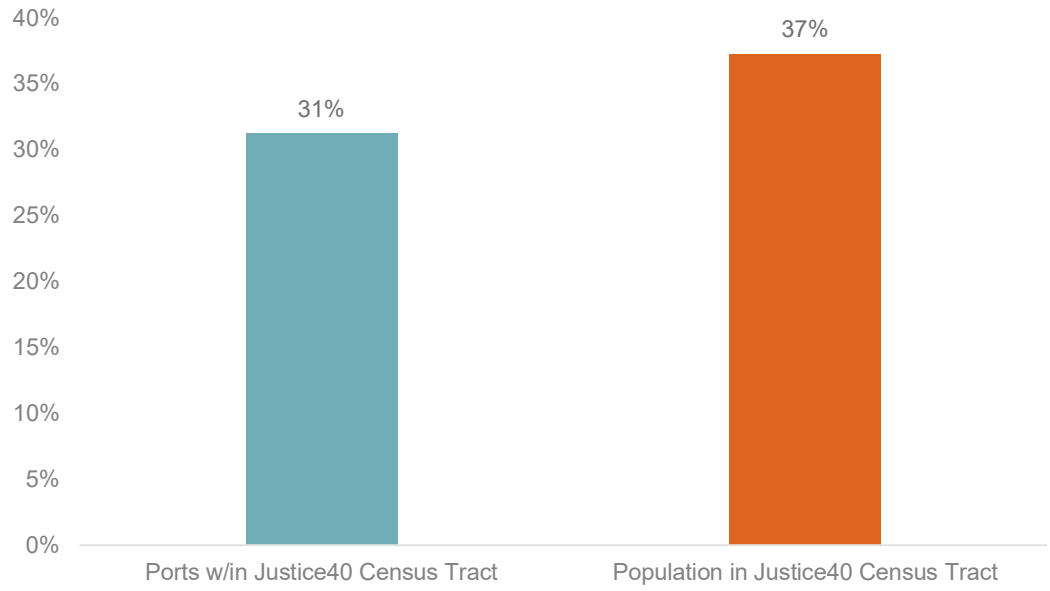
Kimley»Horn

Figure 8. Composite Score by Zip Code



Kimley»Horn

Figure 9. Broward County Public EV Charging Equitable Access Gap



Source: https://afdc.energy.gov/fuels/electricity_locations.html

Task 2.3.1. SFRTA Station Ranking Analysis

This analysis focuses on the potential for regional partnerships to address gaps in EV charging coverage in Broward County. The South Florida Regional Transportation Authority (SFRTA) operates the regional commuter rail service Tri-Rail. The parking lots that serve the Broward County Tri-Rail stations were prioritized for potential grant-funded EV charging stations. The factors considered for site suitability are:

- Is the site within 1 mile of an existing AFC?
  Is the station parking lots owned by the SFRTA?
- Is the volume of train boardings low, medium, or high?
- Is the station in a Federal Justice 40 US Census Tract?

Each parking lot was ranked individually and then combined if all lots had the same owner. Table 5 highlights the scoring guide used to rank the Tri-Rail stations.

Table 5. SFRTA Station Scoring Guide

Within 1 Mile of an AFC?	Has a lot owned by SFRTA?	Volume of Boardings	Equity – Within a Justice 40 Tract?
3 = Yes	3 = Yes	3 = High	1 = Yes
		2 = Medium	
0 = No	0 = No	1 = Low	0 = No

Kimley»Horn

Table 6 below shows the prioritization results using the SFRTA station scoring guide. Additionally, the location of stations within zip codes scoring "High Demand, Low Supply" based on the EV needs composite scoring was considered for site prioritization.

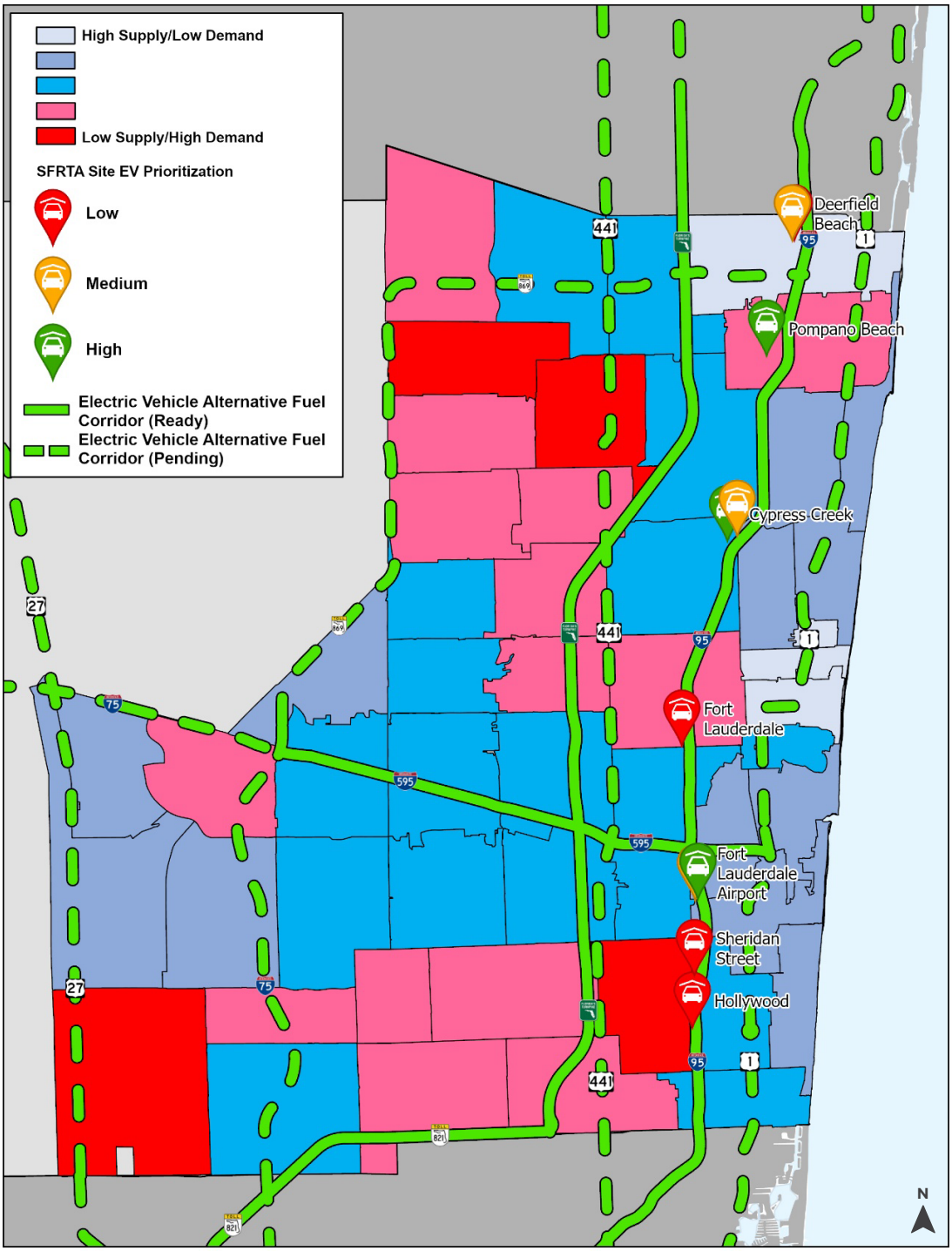
Table 6. SFRTA Station Scoring Results

Station Served	W/in 1 Mile of an AFC?	Has lot owned by SFRTA?	Volume of Boardings	Equity	Total Score	W/in High Priority EV Charging Zip Code?	Lot Location Notes
Cypress Creek	3	3	3	1	10	No	West Lot – SFRTA
Fort Lauderdale Airport	3	3	3	0	9	No	East Lot – SFRTA
Pompano Beach	3	3	2	1	9	No	West Lot – SFRTA; East Garage – SFRTA
Deerfield Beach	3	3	1	1	8	No	West Lot – SFRTA
Fort Lauderdale Airport	3	0	3	0	6	No	West Garage – City of Dania Beach
Fort Lauderdale – Broward Boulevard	3	0	2	1	6	No	All lots – FDOT
Deerfield Beach	3	0	1	1	5	No	East Lot – FDOT
Hollywood	3	0	1	0	4	Yes	West Lot – FDOT
Sheridan Street	3	0	1	0	4	Yes	East Lot - FDOT

Figure 10 displays the scoring results above and the composite scoring for the zip codes within the county.

Kimley»Horn

Figure 10. SFRTA Station Prioritization Results



Kimley»Horn

TASK 3. FUTURE EV NEEDS IN BROWARD COUNTY

This section provides a summary forecast of the market demand for EVs in Broward County and how the demand will impact public EV charging needs over the next seven years. Key notes about the needs are:

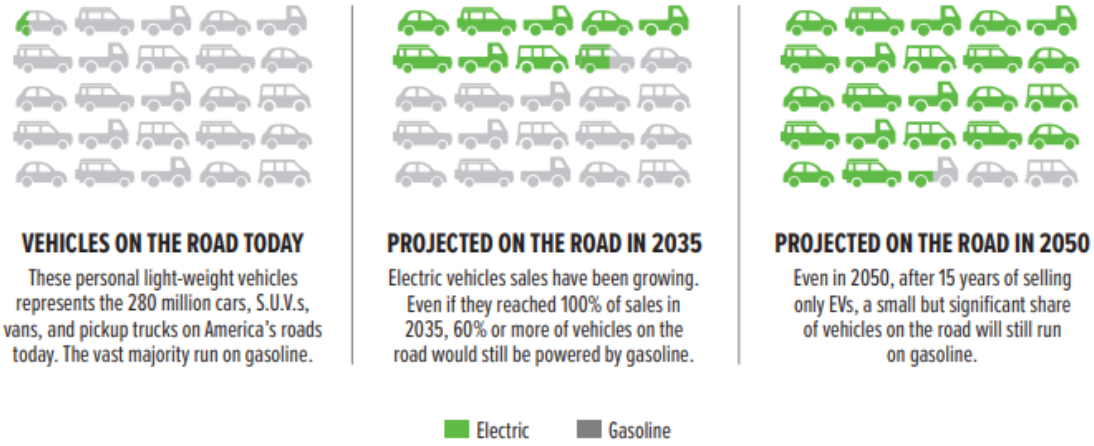
- The number of EVs in Broward are projected to increase by 546% and account for 32% of all vehicles on the road by 2030.
- While most charging will occur at home, 12% of charging needs will be met with public non-work charging stations.
- Demand for public charging will grow exponentially as the number of EVs on the road grows exponentially.
- There is a significant gap in the number of public charging ports needed in Broward County today, with the greatest need being for additional Level 2 charging ports.
- To keep pace and meet demand between now (2023) and 2030, there will need to be 1,286 public EV charging ports build annually. Currently, there are 932 public EV charging ports in Broward County.

The sections that follow provide a more detailed description of the trends, assumptions, and findings associated with the EV market forecast for Broward County.

National Trends

The transition to EVs will take time. According to the USDOT US National Blueprint for Transportation Decarbonization, even if EV sales reach 100% by 2035 60% or more of vehicles on the road would still be powered by gasoline. Even out to 2050 there will still be some vehicles powered by gasoline. The Broward County EV scenarios are developed with the assumption that even with rapid EV sales growth, most vehicles on the road in the medium term (out to 2030) will run on gasoline.

Figure 11. USDOT National EV Transition Scenario Illustration

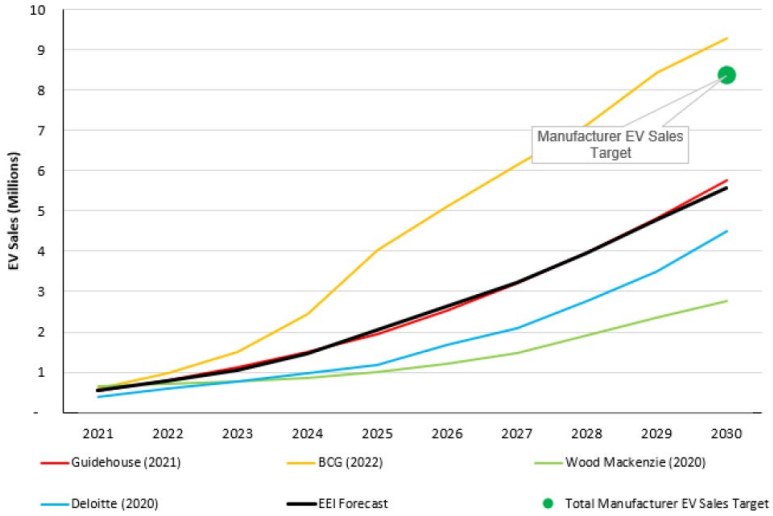


Source: The U.S. National Blueprint for Transportation Decarbonization. 2023.

Kimley»Horn

The Broward County EV market forecast uses a moderate growth scenario. The growth rate is from the Edison Electric Institute's Electric Vehicle Sales and Charging Infrastructure Required Through 2030 report from 2022. EEI developed a "Goldilocks" growth scenario that is lower than many optimistic forecasts, including those of major vehicle manufactures. While moderate, the scenario still projects a 1,000% increase in EV sales growth over a ten-year period. In 2030, EV sales are projected to be 32% of annual light-duty vehicles in the US. In the chart below, the EEI forecast is the black line.

Figure 12. EEI Annual EV Sales Forecast vs 2030 Total Manufacturer EV Sales Target

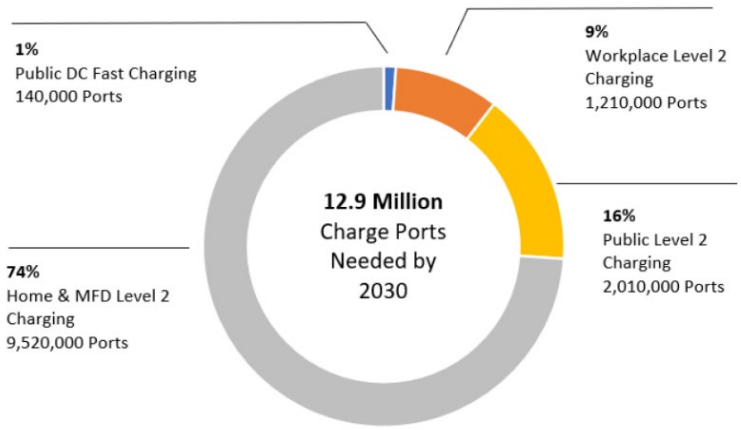


Source: Electric Vehicle Sales and the Charging Infrastructure Required Through 2030.

The EEI report also estimated the number of ports needed to support EV growth in the United States. Nationally, the majority of EV charging will take place at home. Most public charging will be Level 2 charging at work or other public charging locations, like at shopping centers or other daily destinations. Public DC Fast Charging will represent a small number of total ports, and primarily be used by people traveling longer distances from home. The EEI national forecast is for 17% of EV charging to occur at public non-work charging ports.

Kimley»Horn

Figure 13. National EV Charging Infrastructure Need in 2030 Based on EEI Forecast

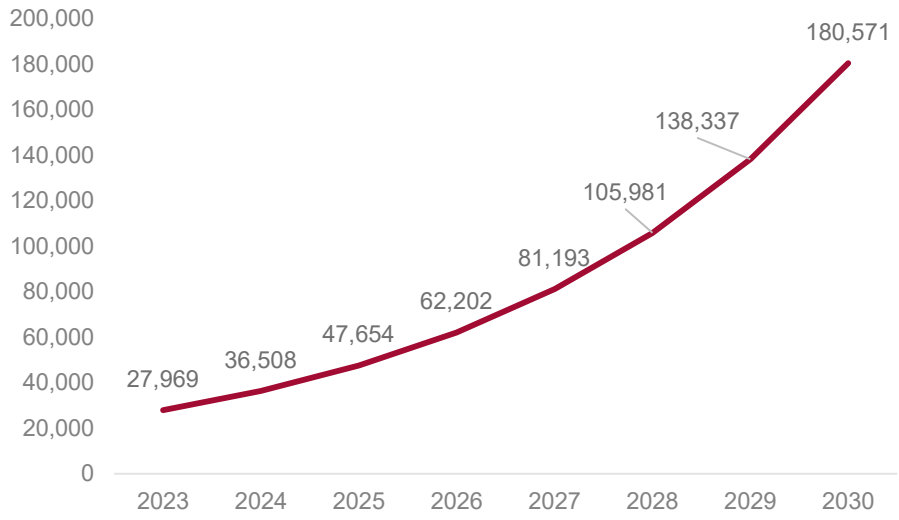


Source: Electric Vehicle Sales and the Charging Infrastructure Required Through 2030.

Broward County 2030 EV Growth Forecast

The number of EVs in Broward County are forecast to increase by 546% and account for 32% of all vehicles on the road by 2030. Today, EVs represent 2% of vehicles on the road in Broward County.

Figure 14. Broward County EV Forecast



Sources: Florida Highway Safety and Motor Vehicles; Electric Vehicle Sales and the Charging Infrastructure Required Through 2030.

Kimley»Horn

EV Scenarios and Access to Home Charging

The ratio of single-family to multi-family housing units is important for EV projections. Access to EV charging at multi-family housing is limited. It will mean more people will need access to public charging throughout the day. This will impact travel choices and influence peak power demand on the electric grid.

According to the US Census, the national housing distribution is 72% single-family housing units and the state of Florida is 61%. The 49% of housing units in Broward County are single-family.

49% single-family housing units is used with Broward County's EV forecast as a "business as usual" scenario. The assumption is that if you live in a single-family house you have access to EV charging at home. 61% single-family housing units is used as a number to show how policy changes and incentives for multi-family EV charging can influence public charging demand, as well as compare to home-based charging across the state.

Broward County EV Infrastructure Forecasting Tools and Data

The EV Infrastructure forecasts developed for this project use several data sources and tools. Below is a summary of the tools and data sources.

- **US Department of Energy Electric Vehicle Infrastructure Projection Tool (EVI-Pro) Lite.** This tool is used to project consumer demand for electric vehicle charging infrastructure. The Miami-Fort Lauderdale-Pompano Beach region (Miami-Dade, Broward, and Palm Beach County) is used to develop the forecasts for this report.
- **Florida Department of Highway Safety and Motor Vehicles.** The department provided vehicle registration data for all counties in Florida as well as zip code data for Broward County. The number of battery electric vehicles in Broward County was used to develop the Broward County EV infrastructure forecasts.
- **Edison Electric Institute.** The EEI Electric Vehicle Sales and the Charging Infrastructure Required Through 2030 report was used to develop the growth rates for the Broward County EV and EV infrastructure forecasts.

Growth in EV Sales in Florida

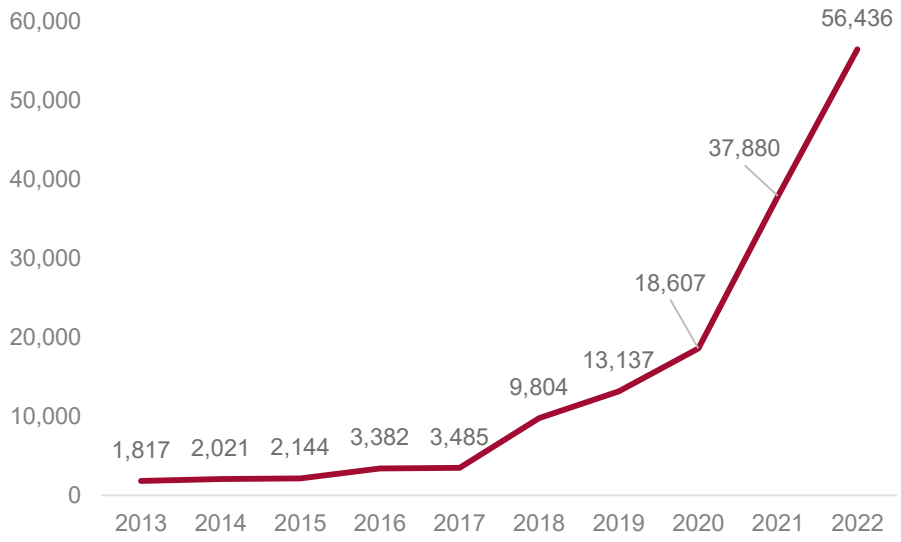
Florida is the second largest EV market in the US and accounts for 7% of all EVs on the road in the US. For comparison, there are 903,600 EVs registered in California and 168,000 in Florida according to the US Department of Energy.

By market share, or EVs as a share of total registered vehicles on the road, Florida is only ranked 17th with 1.58% of vehicles on the road EVs. California is the top state with 6.22% market share.

By sales, Florida is the second largest market in the US after California. Sale of EVs have grown significantly over the past 10 years. Over the past 10 years, EV sales have increased by 3,006%. Over the past five years, EV sales in Florida have increased by 476%. The chart below illustrates this growth.

Kimley»Horn

Figure 15. Florida Annual EV Sales 2013 to 2022



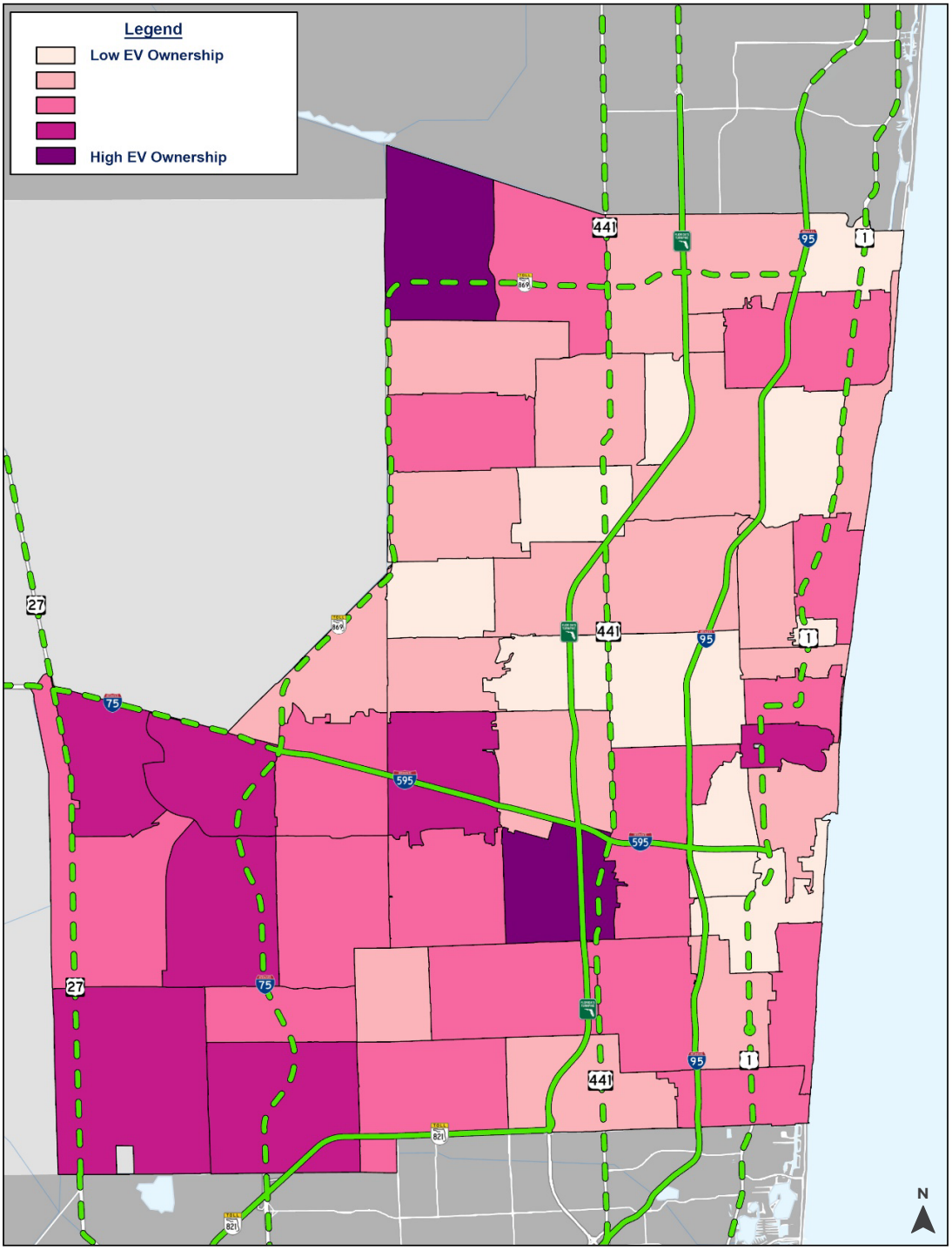
Source: Alliance for Automotive Innovation

Broward County EV Registration

As with the rest of the sate and nation, EV registration has rapidly grown in Broward County. As of 2023, there are 27,696 EVs registered in Broward County, which is the 2nd highest number and 3rd highest per capita in Florida. EV adoption is not uniform in the county and is concentrated in a few zip codes. EVs registered in Broward County zip codes range from as low as 91 to as high as 1,763. Figure 16 displays the EV registration per zip code, as provided by the Florida Department of Highway Safety and Motor Vehicles.

Kimley»Horn

Figure 16. Broward County EV Registration by Zip Code

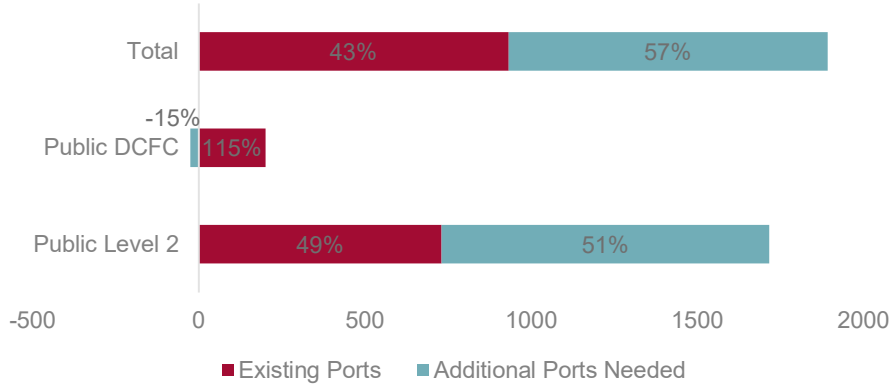


Kimley»Horn

EV Charging Infrastructure Needed Today

There is a significant gap in the number of public charging ports needed in Broward County today, with the greatest need being for additional Level 2 charging ports. Today, existing ports only cover 49% of the forecasted need for public charging ports. In total, there is a gap of 960 public charging ports. The chart below summarizes the total port gap as well as the gaps for Level 2 and DCFC ports.

Figure 17. Broward County Existing Ports Needed Today (2023)

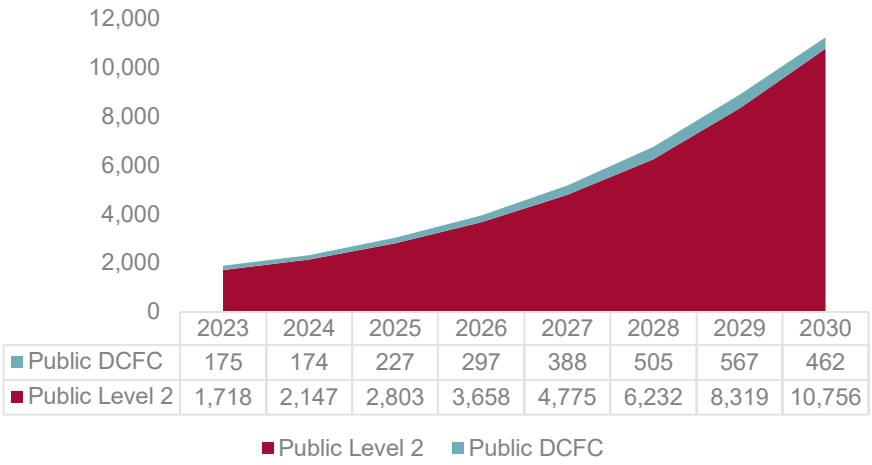


EV Charging Infrastructure Demand to 2030

Demand for public charging will grow exponentially as the number of EVs on the road grows exponentially as well. On average, there will need to be 1,286 public charging ports constructed per year for the next eight years to meet public charging demand in 2030. Most of the need is for Level 2 charging ports. In 2030, DCFC ports are forecast to account for 4% of all ports in Broward County. The chart below summarizes the ports needed in each year from 2023 to 2030 in Broward County.

Kimley»Horn

Figure 18. Broward County EV Public Charging Infrastructure Forecast 2023 to 2030



	2023	2024	2025	2026	2027	2028	2029	2030
Public DCFC	175	174	227	297	388	505	567	462
Public Level 2	1,718	2,147	2,803	3,658	4,775	6,232	8,319	10,756

2030 EV Public Charging Infrastructure Demand Scenario Comparison

Access to home charging can have a significant impact on demand for public charging. The two scenarios illustrate how policy changes like requirements for charging at multi-family buildings can change public charging demand.

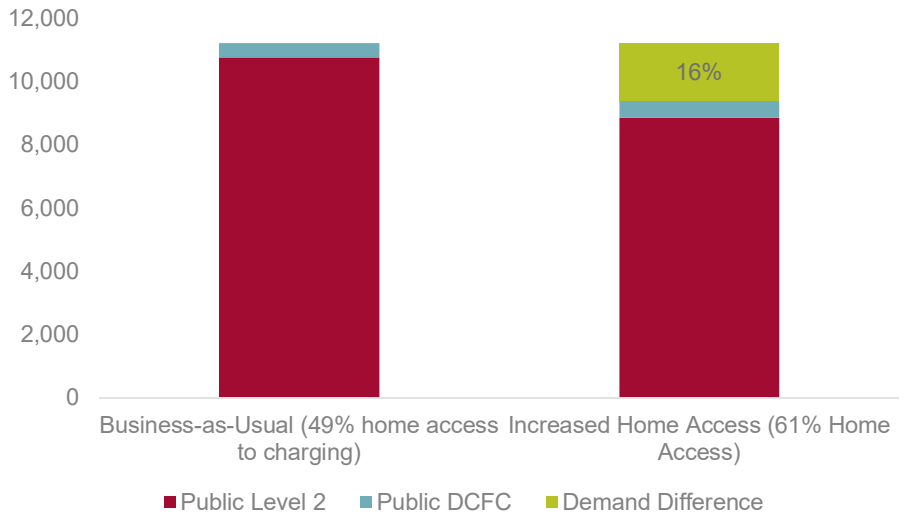
The “Business-as-Usual” scenario uses 49% home access. The assumption is that if you live in a single-family house, you have access to home charging and if you live in a multifamily building, you do not. Currently in Broward County 49% of housing units are single-family. The “Increased Home Access” scenario uses 61% home access. In the state of Florida, 61% of housing units are single-family. For comparison, the scenarios compare if there is a 12% increase in home access.

The ”Business-as-Usual” scenario requires 11,217 pubic charging ports in 2030. By comparison, the 61% scenario requires 9,391 public charging ports in 2030.

This difference translates to a 16% reduction in public charging infrastructure demand. Said another way, a 12% increase in home access can result in a 16% reduction in public charging demand. The difference can be explained by vehicles having more time to charge overnight while people are home. The chart below illustrates the differences between the two scenarios.

Kimley»Horn

Figure 19. Broward County Public EV Charging Demand Scenario Comparison



Impact of Public Charging Demand on Electrical Grid

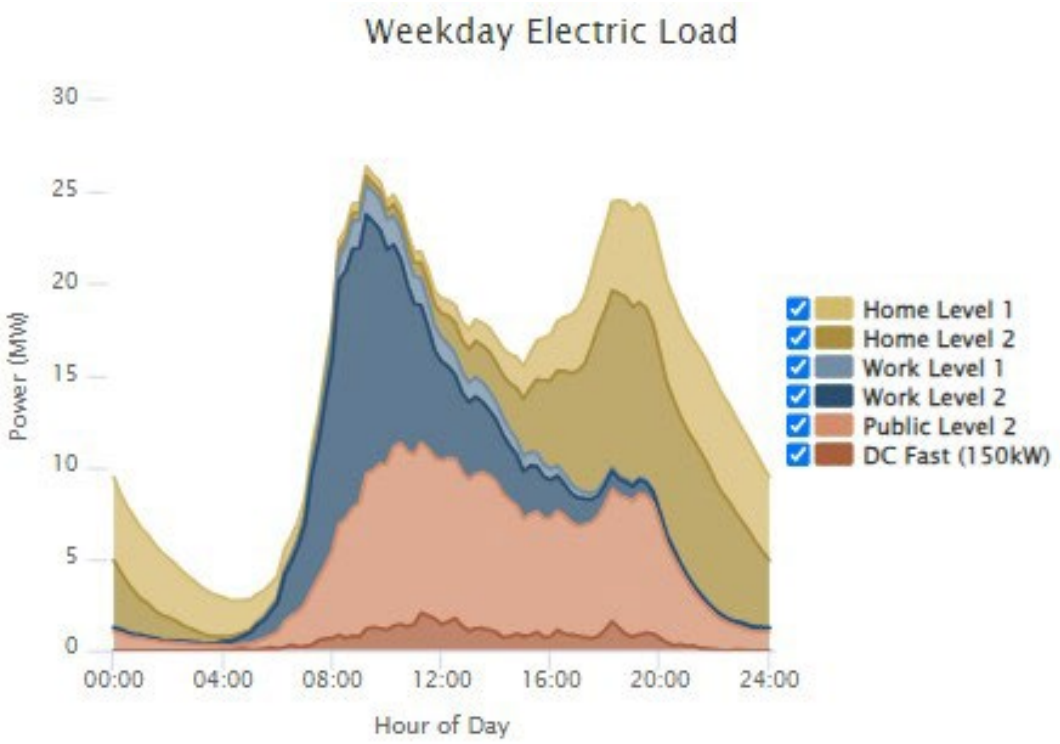
The two charts are based on load profile for the number of EVs currently registered in Broward County. The load profiles were created using the US Department of Energy EVI-Pro Lite Load Profile Tool. The tool considers regional factors like commute patterns, weather, and demographics.

Profile one below shows the time-of-day electrical demand if 50% of EV owners have access to home charging. Profile two shows the time-of-day electrical demand if 75% of EV owners have access to home charging.

With less access to home charging, peak demand is pushed to the middle of the day when there are more demands on the electrical grid. With more access to home charging, public charging demand can be reduced (fewer public ports needed) and charging can take place in the evening when there is more electrical grid capacity.

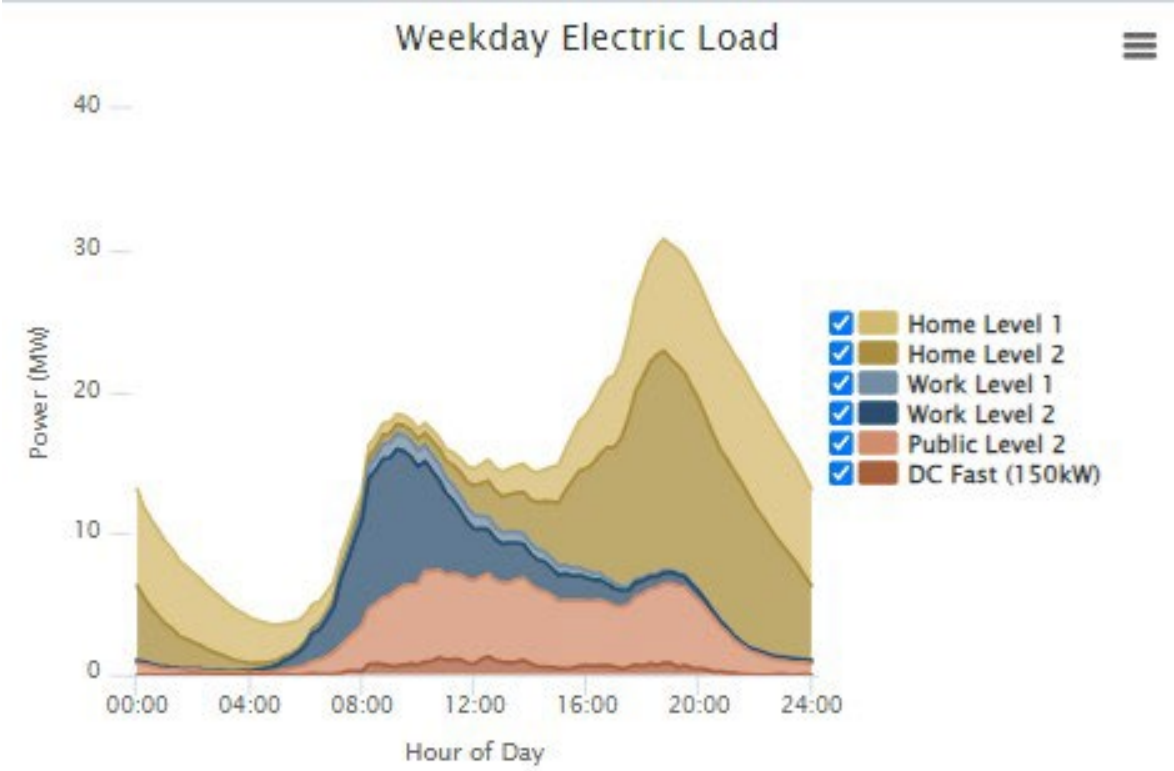
Kimley»Horn

Figure 20. Electric Load Profile for EVs currently registered in Broward with 50% Access to Home Charging



Kimley»Horn

Figure 21. Electric Load Profile for EVs currently registered in Broward with 75% Access to Home Charging



Kimley»Horn

Very truly yours,

KIMLEY-HORN AND ASSOCIATES, INC.

Bradley Davis, AICP
Project Manager

kimley-horn.com | 477 S Rosemary Ave, Suite 215, West Palm Beach, Florida, 33401 | 561 840 0848


Broward
MPO
Metropolitan Planning Organization