



**OSCEOLA COUNTY
ELECTRIC VEHICLE
MASTER
PLAN**
March 2024



**OSCEOLA
COUNTY** *be first
to what's next.*

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1

INTRODUCTION

This Electric Vehicle Master Plan (EVMP) is Osceola County’s comprehensive framework for developing extensive, convenient, and accessible electric vehicle (EV) charging stations. Osceola County intends to utilize this plan to obtain funding for EV infrastructure improvements within the charging gaps identified in the market. The framework described in this Master Plan supports the goals and objectives of not only the State’s long-range transportation plan, the Florida Transportation Plan (FTP), but also those goals set by Osceola County.

Implementation of additional EV charging stations in Osceola County will build on the existing EV charging network and will continue to grow as the number of EVs on the road increases. The network will give EV drivers confidence and flexibility when traveling for work, recreation, or exploration regardless of distance traveled or weather conditions. Deployment of the new EV infrastructure will require a close relationship between the public and private sectors. The charging stations included in this Master Plan are Level 2 and Level 3 chargers, which are direct current fast chargers (DCFC) that provide the fastest charging speed compared to Level 2 where charging a full battery may take a few hours.

The Florida Department of Transportation (FDOT) released its Master Plan for the development of EV charging station infrastructure according to the requirements in Section 339.287, Florida Statutes (F.S.) in 2021. Their EVMP provided a foundation for the development of this Plan.

EVMP Objectives

SUPPORT

both short-range
and long-range EV
travel

ENCOURAGE

the expansion of EV
use in Osceola County

SERVE

evacuation routes
in Osceola County

This EVMP was developed to enhance the environment and strengthen the economy by advancing the use of EVs in Osceola County. The beginning of implementation is the identification of challenges and opportunities for expanding the EV charging infrastructure, which includes hardware technology, space availability, and site amenities.

County Characteristics

With Osceola County’s location near Walt Disney World and Universal Studios, Osceola County had roughly 9.4 million domestic visitors in 2022 in addition to their 422,545¹ residents utilizing their roadways. *Figure 1: Osceola County Population Growth* displays Osceola County’s projected population growth through 2040.

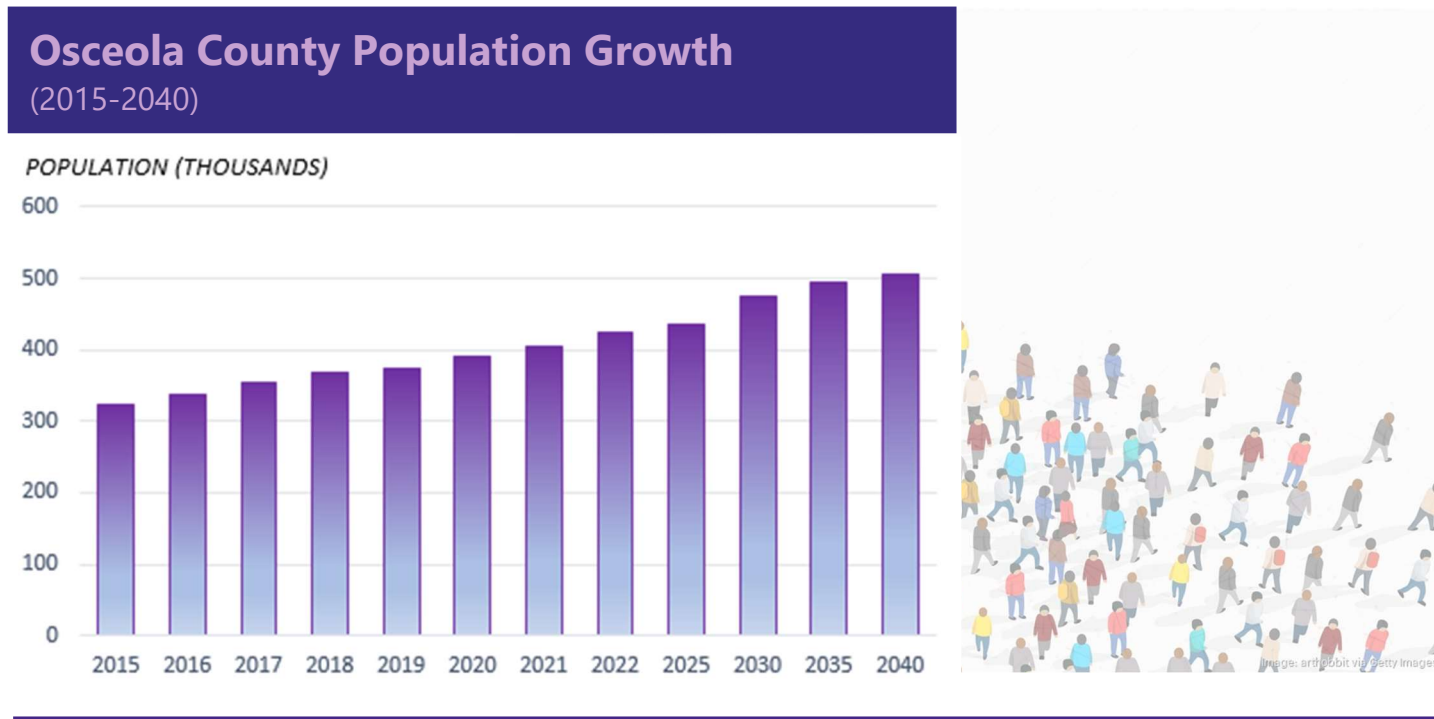


Figure 1: Osceola County Population Growth²

Florida is the third most populated state in the nation, and has **over 233,195 registered EVs within the state, second behind California** (see *Figure 2: Electric Vehicles by State*). Over the past few years, EV adoption has grown steadily in Osceola County and across the US for a variety of uses, such as personal travel, Transportation Network Companies (TNCs), Gig (Guarantee Independence and Growth) Companies, and public transit Battery Electric Buses (BEB). Between the years of 2018 and 2021, a little over 4,000 light-duty EVs were registered in Osceola County. The county offers **more than 100 publicly available DCFC ports** and more than 150 publicly available Level 2 chargers shown in *Figure 3: Osceola County Charging Station Locations*. With the anticipated increase of future EV charging needs, the State added more than 4,000 miles to its EV Alternative Fuel Corridor (AFC) designated network through the recent Round 6 AFC nomination cycle, including along US-441 from Okeechobee to the Florida-Georgia border and SR-60 between Clearwater Beach and Vero Beach³. **The funds for EV charging stations from the grant opportunities in Section 4 will be utilized to increase the EV infrastructure throughout Osceola County.**

¹ <https://www.census.gov/quickfacts/fact/table/osceolacountyflorida/PST045223>.

² <https://www.osceola.org/>.

³ https://www.fhwa.dot.gov/environment/alternative_fuel_corridors/ready/.

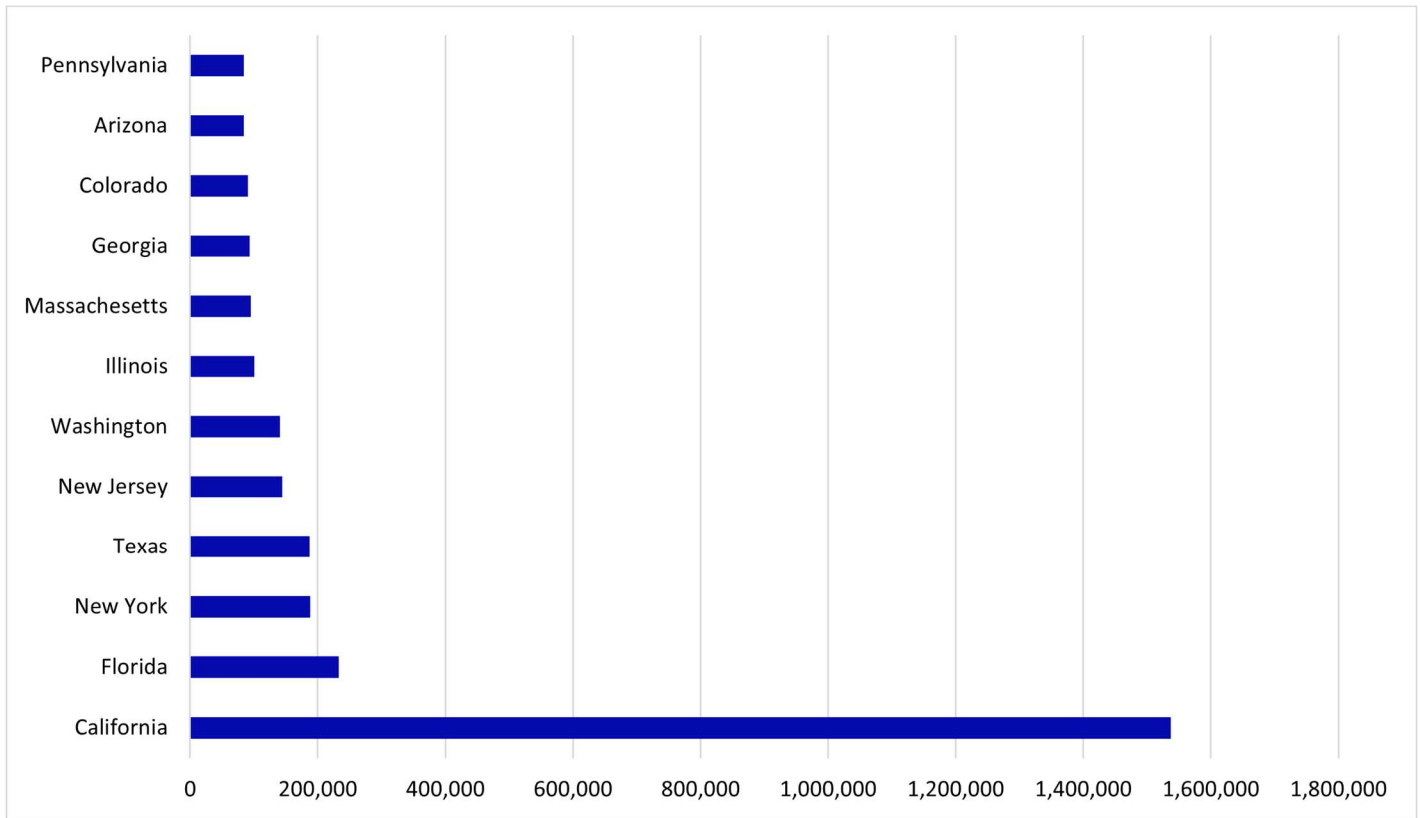


Figure 2: Electric Vehicles by State⁴

While Osceola County currently attracts many tourists visiting the Central Florida attractions, they are in the process of attracting tech companies to relocate to Osceola County and become a tech hub. Increasing their EV infrastructure would help show tech companies that Osceola County is willing to invest in innovative technology. Osceola County is currently investing in the construction of an area that will be home to high-tech innovation and creation. NeoCity is considered “the epicenter of cutting-edge technology and innovation.”⁵ It is a collaboration between universities, institutions, and companies to create a vibrant ecosystem of smart sensors, photonics, and optics.

⁴ <https://www.autosinnovate.org/EVDashboard>.

⁵ <https://www.neocityfl.com/>.

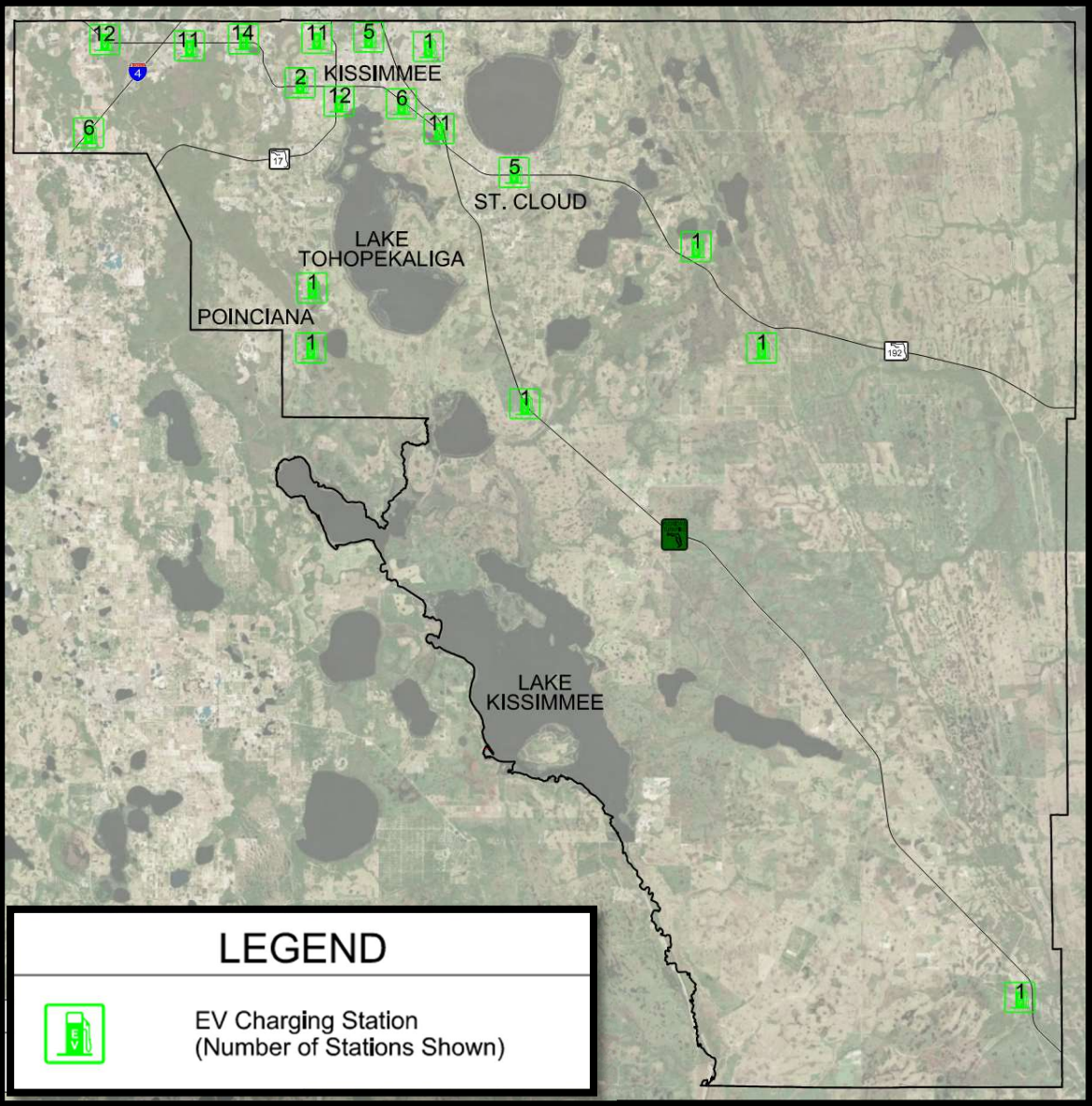


Figure 3: Osceola County Charging Station Locations⁶

Figure 4: Electric Vehicle AFC Destinations shows the existing DCFCs within one mile of a designated AFC. To meet national requirements, the EV charging stations must be publicly available, located no more than 50 miles apart or one mile from the nearest corridor interchange, and have at least four DCFC ports for rapid charging. Charging stations that meet these requirements are labeled as “Corridor-Ready” while those that do not meet these criteria are labeled as “Corridor-Pending”.

⁶ <https://www.plugshare.com/>.

In addition to meeting the requirements for EV charging station infrastructure, Osceola County must comply with the Justice40 initiative in Executive Order 14008⁷, which aims to identify underserved or disadvantaged communities as shown in *Figure 4*.

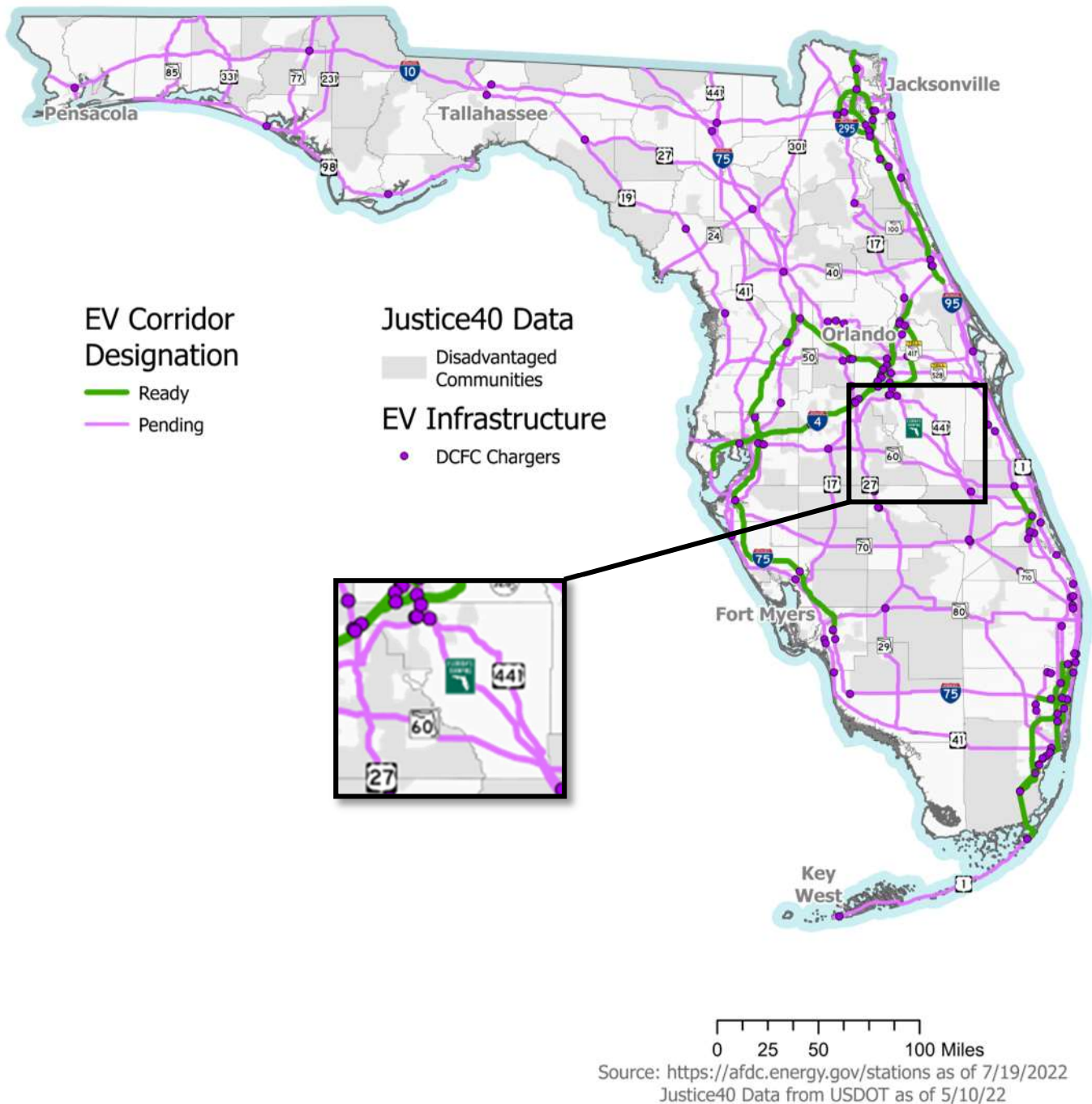


Figure 4: Electric Vehicle AFC Destinations⁸

⁷ <https://www.regulations.gov/document/EPA-HQ-OPPT-2021-0202-0012>.

⁸ [https://hepgis.fhwa.dot.gov/fhwagis/ViewMap.aspx?map=Highway+Information|Electric+Vehicle+\(EV-%20Round+1,2,3,4,5+and+6\)](https://hepgis.fhwa.dot.gov/fhwagis/ViewMap.aspx?map=Highway+Information|Electric+Vehicle+(EV-%20Round+1,2,3,4,5+and+6)).

2

PLAN VISION AND GOALS

The Plan's procurement strategies include a transparent, market-based, competitive approach that balances required regulation with customer experience, as described in Section 5 Implementation. The FTP and EVMP are two foundational documents that have formed the development of this Plan and influence how Osceola County will address grant requirements. Both the FTP and EVMP address the need for a network of convenient, reliable, affordable, and reasonable charging infrastructure.

The following goals will guide Osceola County as it moves forward to continue building its EV infrastructure.

- ↳ Expand energy sources for transportation fuels
- ↳ Position Osceola County as a leader in EV infrastructure implementation
- ↳ Expand EV charging access to all users in Osceola County
- ↳ Anticipate changes in travel choices and transportation technologies toward EV adoption
- ↳ Enhance Osceola County's overall transportation system, including roadways within rural and urban disadvantaged communities
- ↳ Support emergency evacuation

Investments made with grant funds will aim to add EV infrastructure to areas within Osceola County that will be developed in the near future or have recently been developed that need access to additional EV charging stations. Once this Plan is approved and funding has been provided, the focus will shift to the procurement and implementation of charging infrastructure. As infrastructure is added to the charging network, planning efforts will transfer to conducting performance evaluations. Opportunities to increase the network will be monitored and explored throughout the charging station installation. Status reports of Osceola County's Plan will be provided monthly to Osceola County to monitor the EV infrastructure deployment progress and implement more efficient strategies for constructing new EV charging stations.

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CONDITION ANALYSIS

As EV charging infrastructure continues to expand in the state of Florida, FDOT prepared two plans focusing on the development of EV infrastructure along highway corridors. The Florida EV Roadmap study has reviewed the EV charging needs in the State in 2020⁹. There were charging sites identified near I-275 and I-75, along with the ones that could serve during evacuating due to natural disaster events.

An EV Owner Survey in Florida was included in the Florida Electric Vehicle Roadmap¹⁰. The following results were obtained:

- ↳ 86% of EV users believe that there is not enough charging infrastructure in Florida
- ↳ 80% of EV users who live in single-family homes charge at-home
- ↳ 74% of EV users reported that a majority of their charging is done at their residence
- ↳ 45% of EV users who live in multi-unit dwellings rely on public charging infrastructure

People’s preference for a charging location was the following:

- ↳ 42% public highways
- ↳ 37% at shopping and entertainment areas
- ↳ 10% at workplace
- ↳ 7% multi-unit dwellings
- ↳ 4% government facilities



Current Osceola County EV Infrastructure Needs

EV ownership and market adoption keep growing in Florida making the State the second highest in the nation. There are over 4,000 light-duty EVs registered in Osceola County¹¹. For the sales rate to continue to grow, the EV charging infrastructure requires expansion to fulfill the charging infrastructure gaps. As of October 2023, there are 104 charging stations in Osceola County with a total of 279 charging ports. Twenty of the charging stations host Level 3 fast charging (DCFC). 103 charging stations belong to seven networks and one station is non-networked, which is important to drivers as each network sets individual cost rates. Some networks offer discounted subscription plans. *Table 1: Public EV Charging Stations in Osceola County* summarizes the EV charging stations in Osceola County.

⁹ <https://planhillsborough.org/electric-vehicle-infrastructure-plan-evip/>.

¹⁰ https://driveelectricusa.org/wp-content/uploads/2021/01/EV_ROADMAP_REPORT_2020.pdf.

¹¹ <https://afdc.energy.gov/data/10962>.

EV Network	Number of Stations	Number of Chargers	Station Levels	Station Connector Types
Blink Network	12	49	Level 2	J1772
ChargePoint Network	26	51	Level 2	J1772
ChargeUp	5	14	Level 2 & Level 3	CHADEMO J1772 COMBO, J1772
FPLEV	1	4	Level 3	CHADEMO J1772 COMBO
Non-Networked	1	2	Level 2	J1772
RIVIAN Waypoints	2	2	Level 2	J1772
Shell Recharge	51	71	Level 2 & Level 3	CHADEMO J1772 COMBO, J1772
Tesla / Tesla Destination	6	86	Level 2 & Level 3	NACS, J1772

Table 1: Public EV Charging Stations in Osceola County¹²

Current Market Conditions

As the EV market is projected to grow, the rate of growth will depend on input variables, such as user behavior, travel demands, available vehicle models, technology advancements, and government policies. According to the Edison Electric Institute, at least 30% of new car sales should be EVs by 2030¹³. It is anticipated that Osceola County’s EV car sales are to be similar to this projection. As shown in *Figure 5: Annual EV Sales Forecast (2021-2030)*, the longer the timeline, the greater the variance between models. For the analysis, a consensus forecast of projected EV sales from 2021 to 2030 was developed by Edison Electric Institute in June 2022 with the Institute for Electric Innovation based on five independent forecasts. The major factors included customer preference, EV cost, and fuel efficiency.

¹² https://afdc.energy.gov/data_download.

¹³ Edison Electric Institute. Electric Vehicle Sales and the Charging Infrastructure Required Through 2030. <https://www.eei.org/-/media/Project/EEI/Documents/Issues-and-Policy/Electric-Transportation/EV-Forecast--Infrastructure-Report.pdf>.

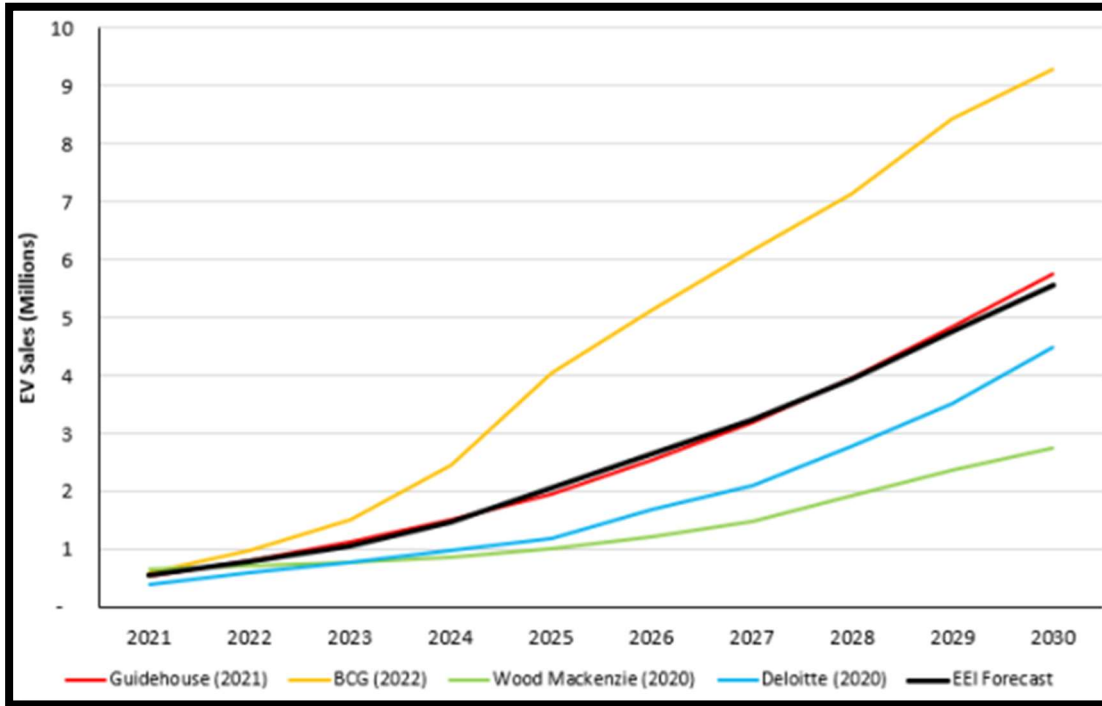


Figure 5: Annual EV Sales Forecast (2021-2030) ¹⁴

Future Projections

The nationwide data of new vehicle sales was used to determine the South Atlantic region's new vehicle sales projections, shown in the table in *Figure 6: Annual EV Sales Forecast, Percent of Total Light-Duty Vehicle Sales*. As the number of EVs increases, the need for additional charging infrastructure increases as well. To support current EV owners and encourage more drivers, it is important to create a reliable public charging network according to the EV sales forecast.

¹⁴Edison Electric Institute. Electric Vehicle Sales and the Charging Infrastructure Required Through 2030. <https://www.eei.org/-/media/Project/EEI/Documents/Issues-and-Policy/Electric-Transportation/EV-Forecast--Infrastructure-Report.pdf>.

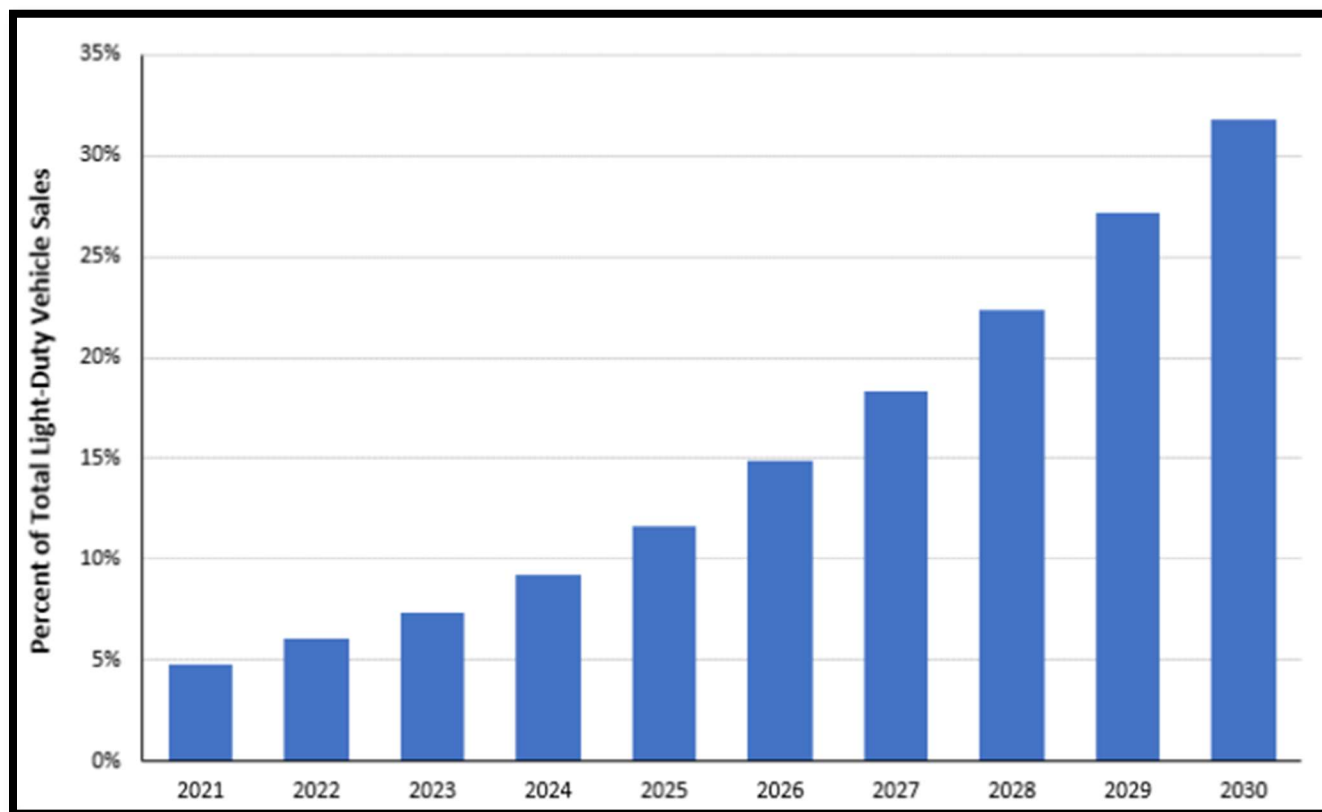


Figure 6: Annual EV Sales Forecast, Percent of Total Light-Duty Vehicle Sales¹⁵

Figure 7: Future Osceola County Development shows where future developments are expected through 2045 in Osceola County and where potential EV charging stations may be constructed to accommodate these developing areas. Figure 7 shows suggested areas based on the current information found, however, potential EV charging stations are not limited to only these areas.

With about 100 public charging stations and 250 charging ports in Osceola County, a 3% increase would be roughly 3 charging stations and 7.5 charging ports each year through 2030. With the 3% increase each year of new EVs purchased in Osceola County through 2030, it is recommended that 3 new public charging stations with two or three ports at each charging station be added each year to keep up with the potential demand. Additional private charging stations and charging ports are anticipated to be constructed on top of the public ones.

¹⁵ Edison Electric Institute. Electric Vehicle Sales and the Charging Infrastructure Required Through 2030. <https://www.eei.org/-/media/Project/EEI/Documents/Issues-and-Policy/Electric-Transportation/EV-Forecast--Infrastructure-Report.pdf>.

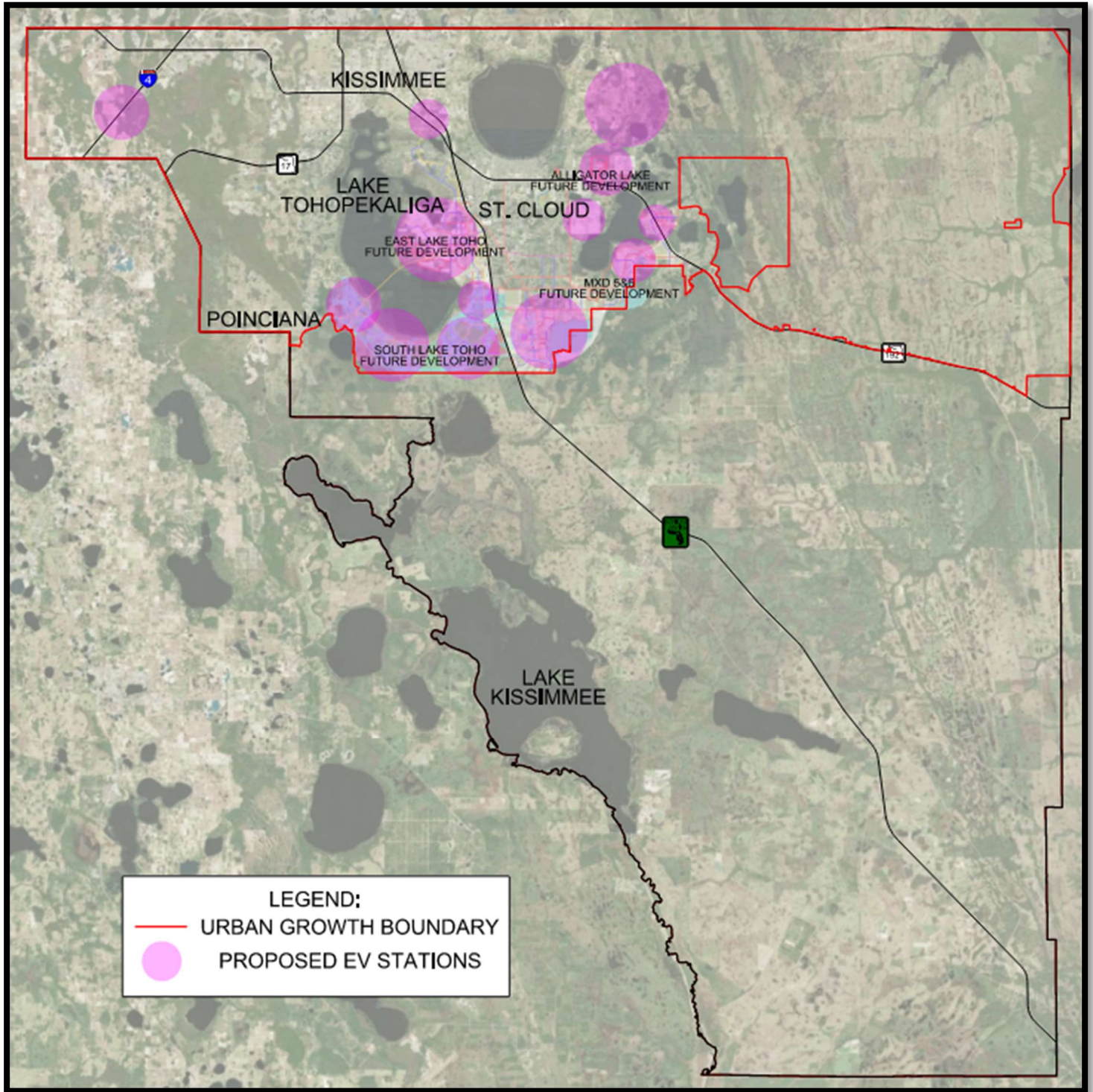


Figure 7: Future Osceola County Development

County Geography

Osceola County is located in Central Florida surrounded by Brevard County and Indian River County to the east, Orange County to the north, Polk County to the west, and Okeechobee County to the south. The Kissimmee River runs between the Polk and Osceola County lines, which flows into Lake Okeechobee and then into the Florida Everglades. In 2022, Osceola County was the fifth fastest-growing county in Florida behind Polk, Lee, Hillsborough, and Pasco.

Land Use and Travel Patterns

A majority of the population resides in the northwest quadrant of the County (adjacent to Polk and Orange County). The rest of the county is mainly ranch lands and undeveloped prairie, woods, and marshes. A study in 2022 stated that 76% of Osceola residents commute to work alone¹⁶ in addition to the 9.4 million tourists utilizing the existing roadways. *Figure 8: Existing Travel Patterns* shows the Annual Average Daily Trips (AADT) on the main roadways through Osceola County in 2022.

¹⁶ <https://reports.mysidewalk.com/8d101b5ae8>.

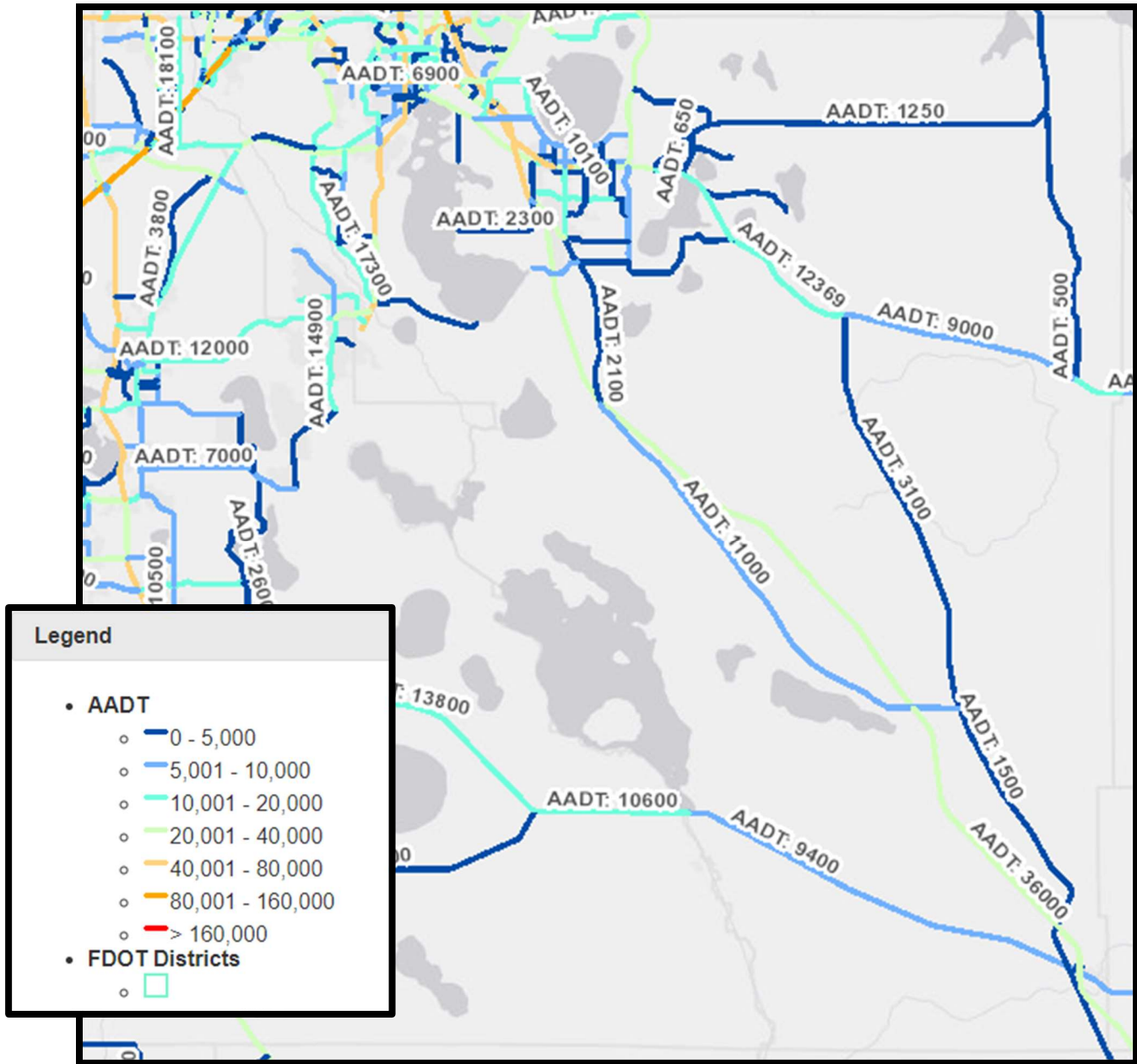


Figure 8: Existing Travel Patterns (Annual Average Daily Trips)¹⁷

Known Risks and Challenges

Deployment of technology infrastructures has a variety of risks. The expansion of charging station infrastructure may impact the availability of the skilled labor required to construct the EV charging stations and materials needed to meet the Buy America requirements. Ever-evolving technology could pose a challenge to a consistent consumer experience across the network. For example, a charging station could have been recently designed to use the most up-to-date technology, but by the time construction is complete the technology is out of date and will need to be updated to continue to work with all types of EVs. The incorporation of long-term operations and

¹⁷ <https://tdaappsprod.dot.state.fl.us/fto/>.

maintenance considerations furthers the risk to the overall program schedule and cost. Risks will be monitored and managed throughout the deployment of this Plan. The following are risks and challenges.

Technology

- Constantly changing technology of EV charging infrastructure
- Consolidation of equipment and service providers preventing an easy transfer with an ownership change
- Cybersecurity threats and consumer, grid, and network protection

Requirements

- Supply chain issues for Buy America requirements
- Alignment with planned upgrades
- Non-uniform permitting requirements for municipalities
- Ongoing maintenance and operations
- Contractor resource availability of skilled and trained labor

Cost

- Obligations for long-term operations and maintenance funding
- Cost escalations due to large-scale deployment resulting in material availability
- Less competition due to a lack of qualified contractors

Electrical Infrastructure

- Power supply availability
- Utility company requirements
 - Utility company typically designs and maintain EV charging stations

Locations

- Developing EV charging station priorities
- Determining where the EV charging stations will be used utilized the most

4

EV CHARGING INFRASTRUCTURE DEPLOYMENT






The Electric Vehicle Infrastructure Deployment Plan was developed by FDOT in 2022 and mainly focuses on implementing NEVI Programs to locate DCFC stations along the Alternative Fuel Corridors. One of the main requirements to qualify for NEVI Program funds is placing four DCFC chargers (at least 150 kWh) no further than 1 mile from the AFC and spaced no more than 50 miles with reliability of operations greater than 97% among other considerations. However, there are many other grant opportunities available for constructing new EV charging stations that are discussed more in detail later in this Section.

The United States Department of Energy (USDOE) National Plug-In Electric Vehicle Infrastructure Analysis¹⁸ was performed to study EV charging station infrastructure and what is needed to support it. It was concluded that with the growing market, higher demand for EV charging stations was observed in cities and communities rather than along interstate corridors due to 81% of the population living in communities adjacent to interstate corridors. Therefore, it was suggested to provide adequate charging coverage in communities surrounding the AFC to lessen drivers' concerns over having adequate charge range in addition to adding EV charging stations along the AFC.

Funding Sources

The required non-Federal match for NEVI formula funds is 20 percent¹⁹. Additional private-sector matching funds can also be used along with the following funding sources.

Additional funding sources that may be used to develop the EV charging network are the following:

-  Carbon Reduction Program (CRP)
-  National Highway Performance Program (NHPP)
-  Surface Transportation Block Grant Program (STBG)
-  Congestion Mitigation and Air Quality Program (CMAQ)
-  Rebuilding American Infrastructure with Sustainability and Equity (RAISE)

¹⁸ <https://www.energy.gov/eere/vehicles/articles/national-plug-electric-vehicle-infrastructure-analysis>.

¹⁹ <https://www.whitehouse.gov/wp-content/uploads/2023/10/Florida-Fact-Sheet.pdf>.

Bipartisan Infrastructure Law

The Bipartisan Infrastructure Law (BIL) includes up to a \$7.5 billion investment in electric vehicle charging to create a network of 500,000 EV chargers nationwide. The BIL provides funding for the deployment of electric vehicle chargers along highway corridors to facilitate long-distance travel, as well as within communities to provide convenient charging where people live, work, and shop. In addition, there are investments from the BIL for specific vehicles to transition to electric: school buses, transit buses, and passenger ferries to reduce emissions for their riders. Electric Vehicle Charging Infrastructure, National Electric Vehicle Infrastructure, and the Charging and Fueling Infrastructure Discretionary Grant Program are all part of the Bipartisan Infrastructure Law and are described more in-depth in the following sections.

Electric Vehicle Charging Infrastructure

Under the Bipartisan Infrastructure Law, the Electric Vehicle Charging Infrastructure Program has EV funding located on a designated AFC throughout all states. FDOT has added over 4,000 miles to Florida's AFC in 2022, as shown in *Figure 3*. This opportunity serves the purpose of utilizing the available funding and improving the EV network in the State of Florida. For more information refer to FHWA's website on designated Alternative Fuel Corridors.

National Electric Vehicle Infrastructure

Under the Bipartisan Infrastructure Law, the National Electric Vehicle Infrastructure (NEVI) Formula Program has dedicated \$5 billion in funding to States to create EV charging infrastructure and establish interconnected networks. At first, this funding was directed to AFCs to build a national network mainly along the Interstate Highway System; however, after this goal is accomplished, the remaining funds may be used for public roads and other publicly accessible locations.

Charging and Fueling Infrastructure (CFI) Discretionary Grant Program

Under the Bipartisan Infrastructure Law, the \$2.5 for the Charging and Fueling Infrastructure (CFI) Discretionary Grant Program from March 14, 2023, is divided into two distinct \$1.25 billion grant programs to support EV charger deployment. These discretionary grant programs will ensure charger deployment meets the priorities such as supporting rural charging, building resilient infrastructure, climate change, increasing EV charging access in underserved and overburdened communities, and along designated AFCs.

The two grant programs within the CFI are the Community Charging and Fueling Grants (Community Program) and the Alternative Fuel Corridor Grants (Corridor Program). The Community Program aims to reduce greenhouse gas emissions by expanding on or filling in gaps to access public EV charging stations within the local community. The Corridor Program is designed to support the buildout of current AFCs and other corridors along major highways.

Carbon Reduction Program

The U.S. Department of Transportation (DOT) established a Carbon Reduction Program (CRP) formula for States to use to reduce transportation emissions. The funding is available for the following activities: truck stop electrification, diesel engine retrofits, vehicle-to-infrastructure communications equipment, public transportation, port electrification, and deployment of alternative fuel vehicles. Funding can also be utilized to support the development of state carbon reduction strategies in accordance with designated metropolitan planning organizations.

National Highway Performance Program

The Fixing America's Surface Transportation (FAST) Act includes approximately \$23.3 billion per year for the National Highway Performance Program (NHPP) which supports and maintains the condition of the National Highway System (NHS) and enables the construction of new facilities along the NHS. This program ensures the use of Federal-aid funds goes toward achieving performance targets set in a State's asset management plan for the NHS.

Surface Transportation Block Grant Program

The Surface Transportation Block Grant (STBG) Program has the most flexible rules to be eligible for funds among all Federal-aid highway programs. The FAST Act provides an estimated annual average of \$11.7 billion for STBG which are available to States and localities.

Congestion Mitigation and Air Quality (CMAQ) Improvement Program

The Congestion Mitigation and Air Quality (CMAQ) Improvement Program is a funding source for State and local governments for transportation projects and programs that help meet the requirements of the Clean Air Act (CAA). These projects and programs include electric vehicles and charging stations or other projects that reduce congestion and improve air quality in areas that do not meet the National Ambient Air Quality Standards. States that meet the air quality standards may still use CMAQ funds for Surface Transportation Block Grant-eligible projects. Funds are distributed to each State DOT on an annual basis and range from \$10 million to \$488 million based on a formula.

Rebuilding American Infrastructure with Sustainability and Equity (RAISE)

The Rebuilding American Infrastructure with Sustainability and Equity (RAISE) grant is for surface transportation projects that improve safety, environmental sustainability, quality of life, mobility and community connectivity, economic competitiveness and opportunity, state of good repair, partnership and collaboration, and innovation. Each year they will award between \$1 million and \$25 million to eligible projects.

5

IMPLEMENTATION

Effective implementation of this Plan is key to accomplishing the identified goals. Coordination with local building permit offices is required for installing electric vehicle supply equipment (EVSE) to determine load demand for DCFCs and Level 2 chargers. The existing Florida Statutes and Rules regarding EVSE are mentioned below²⁰.

EVSE Financing Authorization

Florida Statutes Title XI. Intergovernmental Programs § 163.08:

Local governments within Florida may offer funding for EVSE projects to private landowners.

Authorization for Alternative Fuel Infrastructure Incentives

Florida Statutes Title XIV. Taxation and Finance § 212.055:

Local governments may use income from the infrastructure surtax to offer incentives to private property owners to install EVSE equipment. A local government ordinance must be in place.

EVSE Supply Equipment Utility Regulation

Florida Statutes Title XXVII. Railroad and Other Regulated Utilities § 366.94:

Electricity sold from publicly available non-utility EVSE infrastructure is not subject to regulation of rate, terms, or conditions.

EVSE Rules

Florida Statutes Title XXVII. Railroad and Other Regulated Utilities § 366.94:

Prohibits non-EV vehicles from using or blocking space allocated for plug-in vehicle charging. The state must provide definitions, methods of sale, labeling requirements, and price posting requirements for EVSE.

EV Insurance Regulation

Florida Statutes Title XXXVII. Insurance § 627.06535:

Insurance companies may not impose surcharges, or any additional fees based on the vehicle being electrified, unless justified and approved by the Florida Office of Insurance Regulation.

EVSE Policies for Condominiums

Florida Statutes Title XL. Real and Personal Property § 718.113:

Condominium associations must allow residents to install, at their own cost, EVSE infrastructure to charge a vehicle.

EVSE may be located where electric power supply and parking spaces are available. Public charging stations are typically found street-side or at retail shopping centers, government facilities, and other parking areas such as parks or other public spaces. Electrify America has provided a design vision of what a public charging station should look like with access to customer lounges and event spaces²¹. Private charging stations are typically found at residences, workplaces, and hotels.

²⁰ <https://www.flsenate.gov/laws/statutes>.

²¹ <https://thenextweb.com/news/what-ev-charging-stations-should-look-like>.

DCFC Installation Site – Long-Range Travel²²



D DCFC STATIONS
2 LEVEL 2 CHARGERS

Level 2 Installation Site – Community Charging²³



The installation process includes certain steps that must be followed to comply with laws and regulations:

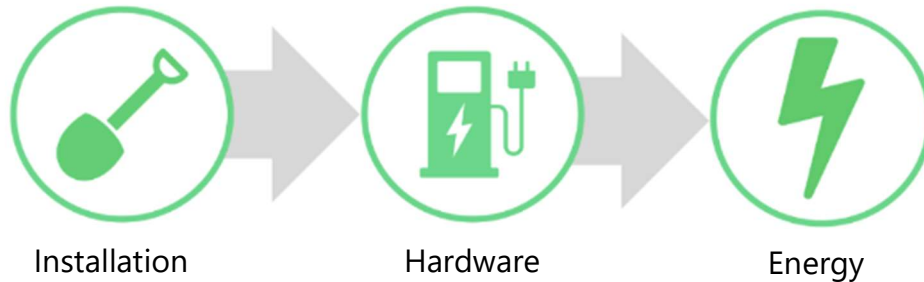
- **Coordination:** Coordinate with the utility company supplying the power to the EV charging station and see what their requirements are for installation.
- **Identify:** A licensed electrician to install charging equipment.
- **Assess:** A licensed electrician must perform an assessment and inspect the electric service. This is useful

²² <https://fdotwww.blob.core.windows.net/sitefinity/docs/default-source/planning/fto/fdotevmp.pdf>.

²³ <https://fdotwww.blob.core.windows.net/sitefinity/docs/default-source/planning/fto/fdotevmp.pdf>.

for locating a perfect spot for stations and the amount of work and time required to install the suitable equipment.

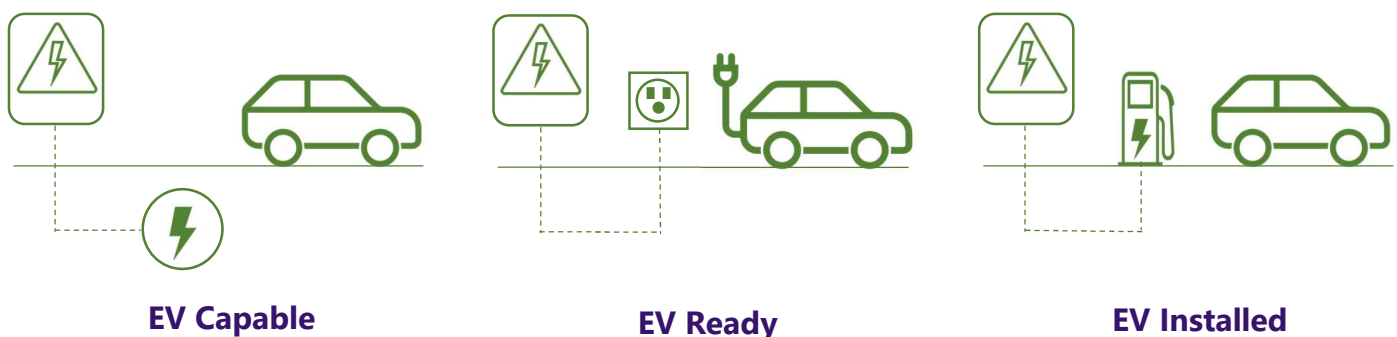
- **Permit:** A licensed electrician must obtain the permit for installation from the appropriate jurisdiction.
- **Install:** A licensed electrician may proceed with the installation after a permit is secured.
- **Inspection:** A licensed electrician must contact the permitting office to schedule a final inspection after installation is complete. A charging station is available for use as soon as inspection is passed.



Safety Guidelines

Developing charging station infrastructure requires analysis and site design solutions that utilize considerations that cover a majority of potential EVSE applications. For Level 1 charging stations, a 120V circuit is sufficient. It is necessary to consider that Level 2 EVSE is recommended, which requires 208-240 volts and 15-30 amps. Therefore, the installation of dedicated branch circuits/new panels may be the highest priority to reduce safety risks during peak loads where multiple vehicles would be charging simultaneously. Most sites have an advanced metering system and a network link to track usage, send customers’ bills, and manage electrical load. Wi-Fi, Ethernet, or cellular connections may be used for telecommunication purposes. The main complication with such network connection arises in garages where the signal can be lost or poor.

EV Readiness









Each EV charging station location should be evaluated for safety as well. For example, charging stations should be placed in well-lit areas, not at the back of shopping centers or in obscure areas. It is recommended that a

minimum luminance of 1.5 horizontal foot-candle²⁴ be used around the EV charging stations. Proper drainage should also be reviewed at each location to verify that there will not be any standing water surrounding the EV charging stations following a typical Florida thunderstorm.

²⁴ 2024 FDOT Design Manual Lighting Section. https://fdotwww.blob.core.windows.net/sitefinity/docs/default-source/roadway/fdm/2024/2024fdm231lighting.pdf?sfvrsn=656269b5_1.

Site Design Elements²⁵







INSTALLATION

	Charge Level
	Proximity to Power
	Mounting Approach
	Number of Cord Sets
	Parking Space Dimension
	Environmental Conditions
	Technology
	Hazards

ACCESS

	Network Connection
	Accessibility
	Proximity to Traffic
	Proximity to Building
	Proximity to Elevator
	Lighting
	Signage
	Pedestrian Traffic

OPERATION

	Host-Operator Agreements
	Visibility
	Location in Lot
	Metering
	Length of Stay
	Futureproofing

²⁵ https://www.transportationandclimate.org/sites/default/files/EV_Siting_and_Design_Guidelines.pdf.

Planning

Osceola County's role is to facilitate the inclusion of and the ability to incorporate electrified mobility into the County's transportation infrastructure. The following planning actions and associated activities will develop a future network that is resilient, equitable, accessible, and reliable.

The planning implementation stage focuses on developing the data-driven criteria and evaluation of success with performance analytics as leading indicators informing the need to evolve with market trends. The goal of the planning implementation stage is to continuously measure, collaborate, and update throughout this Plan to provide efficiency and effectiveness in the delivery of future EV charging infrastructure.

ACTION

Collect, maintain, and leverage information and data, including performance measures, to make informed decisions

- Establish initial conditions and continually measure the performance of factors contributing to the success of this Plan.
- Monitor trends and conditions impacting future deployments, including adoption rates, weather patterns, land use, and roadway improvements.
- Review current Florida AFC nominations and see where additional EV charging stations can be included along AFCs within Osceola County to fill local and state needs.

ACTION

Collaborate with partners to support the development and operations of the EV charging infrastructure network

- Continue stakeholder engagement with electric utilities, EV infrastructure providers, site hosts, trade associations, environmental groups, and other interested parties.
- Partner with skilled resources and talent-providing agencies, including local universities (like the University of Central Florida, Rollins College, Johnson University, and Valencia College), CareerSource Florida, the Kissimmee Economic Development, and the St Cloud Economic Development, to plan for training and workforce development.

ACTION

Plan for procurement of EV charging infrastructure

- Solicit input from different stakeholders in the tech industry such as the Board of County Commissioners, NeoCity, utility companies, and tech companies.
- Prepare procurement documents, including minimum technical requirements and criteria for installation, operations, and maintenance, that meet all County, State, and Federal requirements.

ACTION

Monitor potential risks that can delay efficient and effective deployment

- Monitor the number of EV light-duty sales within Osceola County to increase or decrease the number of EV charging stations proposed each year.
- Monitor nationwide availability of and inflation impacts on EV infrastructure components and consider waivers, such as Buy America, to facilitate material acquisition.
- Utilize existing programs to strengthen the available workforce programs for EV infrastructure

construction.

- Perform analyses to “right size” contracts while still ensuring adequate competition.
- Develop an approach to environmental and other required documents.

Installation and Operations

Osceola County's role is to facilitate the procurement of resources to install, operate, and maintain the EV charging infrastructure to build out the local, Interstate, and AFC networks. The following contracting actions and associated activities will be used to develop procurement documents that are logically sequenced concerning deployment readiness, transparent to the industry, and result in equitable participation and training of workers.

The installation and operations implementation strategy focuses on further developing the contractual requirements which clearly define the program goals, objectives, and performance expectations. This implementation strategy builds on the efforts of the planning implementation strategy and furthers collaborative engagement with partners. The goal of the installation and operations implementation strategy is to provide a detailed schedule of activities that maximizes the deployment effectiveness of this Plan while maximizing value to the County. The implementation requirements will follow Federal guidelines for minimum standards.

ACTION

Coordinate with stakeholders to identify needs and gaps within the overall EV network

- Develop a defined approach to site deployments that considers the stakeholder needs, infrastructure requirements, open and publicly accessible locations, and site readiness. These considerations include:
 - a. New locations where developments are being constructed or will be constructed in the near future that meet minimum standards.
 - b. Discussions with local stakeholders such as Walt Disney World, Universal Studios, NeoCity, Kissimmee Economic Development, St. Cloud Economic Development, hotel companies, and tech companies.
 - c. Rural, disadvantaged, and underserved areas.
 - d. Hurricane evacuation routes and AFC connectors to Interstates.
 - e. Interchange/intersections with SHS and NHS that support the overall EV network.
 - f. Existing charging locations for upgrades to meet constantly changing requirements.
 - g. Utility readiness and alignment with utility expansion plans.
 - h. "Smart hub" locations with regional charging nuclei around Osceola County that include provisions for future expansion of charging infrastructure.
 - i. Coordination with neighboring county deployments.
 - j. Safety considerations and access to amenities and other services
- Ensure stations are future-proofed, including providing access to necessary equipment for maintenance and repairs.
- Identify and develop "smart hubs", which include charging locations with more than four ports as well as additional amenities, to fill the gaps in high-traffic areas.

ACTION

Focus operations and maintenance on station uptime and reliability through performance reporting

- Develop operation and maintenance requirements based on the grant requirements to be provided by the contractor/vendor.
- Monitor contract requirements, including performance measures, disadvantaged and small business enterprise utilization, incidents and maintenance inspections, software and hardware updates, and cybersecurity and safety events.
- Develop an asset information and tracking mechanism, which may include a Geographic Information System (GIS), for program element and product performance evaluation.
- Require a real-time operation data feed for the station and charger operations for use by a third-party application and further information dissemination through appropriate public-facing dashboards.

ACTION

Deploy a competitive, market-driven procurement process that supports performance-based management and continuous innovation

- Conduct industry forums to garner interest and assess the availability and ability to compete and deliver.
- Publish advance procurement schedules to align resources.
- Tailor procurements to align with funding availability and site scheduling considerations.
- Ensure timely, transparent, and competitive procurement of electric vehicle infrastructure services. This procurement will comply with Federal, State, and County regulations and is not a grant program. Procurement is not a formula-based grant process, but a competitively bid procurement with near-term implementation expected.
- Allow flexibility in the procurement process for vendors to propose sites based on market and community needs. This includes proposing less than four DCFCs per site, spacing sites more than 50 miles apart, and providing charging above 150 kW.
- Establish market-based procurement that accommodates diverse implementation strategies from a wide variety of vendors. The use of diverse strategies can facilitate market-sensitive charging infrastructure design creating the best value for the County's residents.
- Develop scoring criteria that emphasize best value to the County, which may include long-term performance, system reliability and operability, warranties, redundancies, adaptability for future needs, and diversity in solutions and vendors.

Emergency Preparedness and Resiliency

Providing access to reliable DCFCs during emergency hurricane events for the safety of Osceola County's residents and visitors is the paramount goal for the County. Osceola County's unique circumstances to prepare for natural disasters require innovative solutions, like mobile charging, to ensure Osceola County's residents and visitors can safely evacuate before and return home after a storm. Additionally, assistance for stranded motorists and management of traffic flow during events ensures that Osceola County can continue to meet its Federally required safety and travel-time reliability performance targets. Osceola County will continue to investigate and assess mobile charging options.

In addition to considering evacuation needs when determining DCFC locations, the following actions may be used to achieve this implementation strategy.

ACTION

Deploy a program and conduct mechanism to allow for the availability and funding for mobile charging

- Assess the need for mobile charging, considering stranded motorists, major events, emergencies, storms, power outages, and other risks.
- Identify potential opportunities to provide mobile charging.
- Strategically implement mobile charging solutions to meet anticipated emergency and evacuation needs, which may include procurement.
- Strategically implement mobile charging solutions to meet emergency and evacuation needs, which may include procurement of equipment or vendors, partner agreements, or other mechanisms.

ACTION

Build a network with redundancy and resiliency that supports uninterrupted availability and accessibility

- Identify solutions for hardening stations to withstand storms and ensure operator safety, such as auto station shut-off, waterproofing, elevated foundations, and structures.
- Include energy storage capacity, solar power generation, generator hookup points, and battery storage in station design criteria for select stations in critical evacuation areas.
- Develop standard operating criteria for the maintenance and repair of charging sites before, during, and after major storm events.

6

EQUITY CONSIDERATIONS

Justice40 (J40)²⁶ was developed to address gaps in transportation infrastructure and public services by making at least 40% of the benefits from grants and programs to improve disadvantaged communities. It is a government-wide initiative rather than a one-time investment that will help to increase affordable transportation options, fight climate change, and improve access to resources and quality of life in every state in the country.

EV charging station locations according to the following Justice40 guidelines:

- ↪ Enable reliable access to affordable charging;
- ↪ Reduce transportation emissions from petroleum-fueled vehicles by increasing EV ownership;
- ↪ Increase EV charging sites in areas where EV growth is expected, instead of areas where EV usage is already existing;
- ↪ Increase energy resilience by advancing EVs as another alternative fuel source;
- ↪ Increase access to the electric grid by opening EV charging stations to all EV users;
- ↪ Increase the clean energy job pipeline, job training, and enterprise creation in disadvantaged communities – incentivize contractors’ selection to hire and train residents and help advance minority-owned, women-owned, veteran-owned, and small businesses in alternative fuel specialization.

Build America, Buy America Act (BABAA)

The Build America, Buy America Act²⁷ is a set of requirements for infrastructure projects to be manufactured in the United States to create more jobs for American workers and to use American-made products and materials. The main principles are the following:

- ↪ All iron, steel, manufactured goods, and construction materials used in projects that are federally funded must be manufactured in the United States.
- ↪ Tools, equipment, or supplies are excluded from the requirement.
- ↪ A certification from the manufacturer of the items shall meet all the requirements.
- ↪ Waivers can be applied due to nonavailability, unreasonable cost, and/or public interest.

The BABAA defines infrastructure to include, at a minimum: roads, bridges, public transportation, dams, ports, railroads, freight and intermodal facilities, airports, water systems, electrical transmission facilities and systems, utilities, broadband, buildings, and energy distribution systems, including EV charging infrastructure²⁸.

²⁶ <https://www.energy.gov/justice/justice40-initiative>.

²⁷ <https://www.energy.gov/management/build-america-buy-america>.

²⁸ <https://bipartisanpolicy.org/explainer/build-america-buy-america-in-the-bipartisan-infrastructure-law/>.

Labor and Workforce

The following criteria will assist in developing a non-discriminatory workforce for the acquisition, installation, operation, and maintenance of the DCFCs:

- ↪ Hire at least one pre-apprentice or apprentice who may provide any of the following services: installation, operation, or maintenance.
- ↪ Ensure all workers are highly trained with applicable certificates from officially recognized programs (e.g. Electric Vehicle Infrastructure Training Program).
- ↪ Specific training, on or off the job site, may be provided, and cost(s) may be limited as part of the bid package and shall be diligently committed to and noted in the bid package.

On February 21, 2023, the Federal Highway Administration published a Federal Register notice that it is establishing a temporary public interest waiver to waive Buy America requirements for steel, iron, manufactured products, and construction materials in EV chargers²⁹.



²⁹ [https://hntb-my.sharepoint.com/personal/sparinella_hntb_com/Documents/Microsoft%20Teams%20Chat%20Files/On%20February%2021,%202023,%20the%20Federal%20Highway%20Administration%20published%20a%20Federal%20Register%20notice%20that%20it%20is%20establishing%20a%20temporary%20public%20interest%20waiver%20to%20waive%20Buy%20America%20requirements%20for%20steel,%20iron,%20manufactured%20products,%20and%20construction%20materials%20in%20electric%20vehicle%20\(EV\)%20chargers.](https://hntb-my.sharepoint.com/personal/sparinella_hntb_com/Documents/Microsoft%20Teams%20Chat%20Files/On%20February%2021,%202023,%20the%20Federal%20Highway%20Administration%20published%20a%20Federal%20Register%20notice%20that%20it%20is%20establishing%20a%20temporary%20public%20interest%20waiver%20to%20waive%20Buy%20America%20requirements%20for%20steel,%20iron,%20manufactured%20products,%20and%20construction%20materials%20in%20electric%20vehicle%20(EV)%20chargers.)

7

STAKEHOLDER ENGAGEMENT

The input and feedback from the public and stakeholders are essential in developing this EV Master Plan. The information and ideas requested and/or received help to frame the work needed to be done to improve EV infrastructure in rural, underserved, and disadvantaged communities, and still follow the NEVI program guidelines. These inputs were gathered for this document below.

Osceola County Coordination

Stakeholder engagement will occur further once the need and locations for potential charging stations have been proposed.

Potential Locations

New potential EV charging station locations:

1. SunRail stations
 - a. Tupperware
 - b. Kissimmee
 - c. Poinciana
2. Park n' Ride
 - a. Kissimmee/St. Cloud Turnpike Lot
 - b. SunRail stations
3. Northeast and Central Osceola County near developing areas
4. Along major roadways, i.e. I-4, US 192, Turnpike
5. Osceola Arts
6. Local parks

Users

Potential additional users for the EV charging stations are:

1. Local
2. Government
3. Transit

Next Steps

1. Apply for grants

8

CONTRACTING

The installation will be implemented through third-party contractors, most likely the utility agencies that will be powering the charging stations. Operations and maintenance will be completed either by Osceola County or third parties, depending on the location. These processes will utilize the FDOT procedures for qualification and selection based on price in accordance with 23 Code of Federal Regulations (CFR) 635 and/or 23 CFR 636³⁰. On June 6, 2022, the Department released an RFI to obtain feedback and recommendations for the planning, coordination, and development of EV charging infrastructure within the State of Florida. The purpose of this procedure was to collect information and suggestions from the potential market participants to support the deployment of direct fast current charge EV infrastructure. This information may be also utilized for the successful implementation of EV charging stations in Osceola County.

The following need to be incorporated:

- ↪ Site area including amenities.
- ↪ Accessibility requirements include Section 553.5041, F.S., and the Americans with Disabilities Act (ADA).
- ↪ Technical requirements according to NEVI guidelines.
- ↪ Operation and Maintenance.
- ↪ Utilization of Disadvantaged and Small Business Enterprise.
- ↪ Workforce and community engagement.
- ↪ Performance measures.
- ↪ Data and reporting obligations.
- ↪ Warranty demands and handover clause.

The contracts should include payment arrangements to provide the appropriate and reliable EV charging infrastructure. Contractors may utilize private funding sources to construct alternative charging technology – DCFCs. Payment for completion of EV charging equipment installation will provide the supplies for construction and maintenance. Payments for the operation and maintenance to the contractor and/or vendor will be available for the EV infrastructure in rural, disadvantaged, and underserved areas. Payment for minor grid upgrades may be included.

³⁰ <https://www.ecfr.gov/current/title-23>.

9

CYBERSECURITY

Osceola County and the State of Florida are committed to providing secure and safe public services and systems. The assurance against cyber-attacks, data breaches, and the loss of privacy is an essential step in developing EV charging stations. Potential sources and types of cybersecurity threats against EV infrastructure are evolving and regularly scheduled risk assessments are prudent and necessary to provide protection. The exploitation of a single DCFC can cause issues such as relay chatter, various power quality issues, and phase instability which could cause cascading effects upstream. The cybersecurity strategy is based on contractual criteria requiring the development and submission of a cybersecurity plan, including when software updates are required. If Osceola County owns and maintains any of the EV charging stations, they will be required to create a cybersecurity plan. Any third parties that are funded by Osceola County, then the third party will need to create a cybersecurity plan with input from Osceola County.

The cybersecurity plan requires a full-scope risk assessment to identify the comprehensive threat surface presented by and against the elements of stakeholder partners and users such as grid operators, vehicles, original equipment manufacturers, vendors, and charging network operators. The EV infrastructure within the Osceola County transportation system must fulfill the following requirements:

- Protection from unauthorized intrusion.
- Protection from unintended damage, unauthorized access, loss of data, service availability, privacy breach, or similar threats among stakeholder partners and user systems.
- Compliance with the Payment Card Industry needs.
- Document that security operations and certification are maintained for System and Organization Controls.

The cybersecurity plan will contain information about the risk assessments and structured processes for selecting and implementing cybersecurity controls. The governing and oversight of the EV infrastructure cybersecurity plan shall be provided before the installation of EV charging equipment, including risk assessment schedules and process reviews.

ISO Standard 15118

ISO 15118³¹ is a digital communication protocol that protects the information exchanged between the EV and the charging station. The Plug&Charge (PnC) permits the charging station to charge the EV without the driver identifying themselves first, which is supported by EV manufacturers like Audi, Daimler, Ford, Lucid, Porsche, and VW. A payment account and a vehicle with ISO 15118 technology are required for PnC authorization and payment to occur. This protocol supports the following cases:

1. *PnC*: no need for a card or app to start charging.
2. *Smart charging*: two-way communication between the EV and the charge point operator (CPO) to exchange energy data and support load management.

³¹ <https://www.securetechalliance.org/wp-content/uploads/EV-Charging-Open-Pmt-Framework-WP-FINAL2-Feb-2021.pdf>.

3. *Bi-directional charging*: two-way energy flow.

4. *Wireless charging*: charging with a magnetic coil instead of a cable.

Secure communication between stakeholders is achieved by using digital certificates which are essential for the authentication process. This is an initial requirement for any charging station based on ISO 15118 standards.

10

CIVIL RIGHTS

Osceola County will follow the State and Federal civil rights laws to deliver this Master Plan. The following outlines the County's approach to delivering this Plan.

Title VI, Civil Rights Current Assurances

Osceola County is compliant with the Statutory and Regulatory Authorities as outlined in the U.S. Department of Transportation, Standard Title VI/Non-Discrimination Assurances – DOT Order No. 105-2A³². The Chief Executive Officer will attest and sign the performed work according to Title VI/Nondiscrimination Assurance³³ as part of each bid proposal.

A Title VI program and nondiscrimination policy document will be prepared for Osceola County's EV charging station project after the Master Plan is approved. The following items will be included in the document:

- ↪ Certifications and assurances;
- ↪ Compliance procedures, records management, public participation;
- ↪ Service standards and policies;
- ↪ Demographic analysis;
- ↪ Service monitoring;
- ↪ Appendices.

ADA and Section 504 of the Rehabilitation Act

Title II of the ADA (1990, Public Law 101-336)³⁴ along with Florida's Section 504 of the Rehabilitation Act³⁵ prohibits discrimination based on disability in programs that receive financial assistance from the federal government.

Design Standards

Osceola County will be compliant with the Design Recommendations for Accessible Electric Vehicle Charging Stations³⁶ and U.S. Department of Transportation under 49 CFR Part 27, §27.75(b)³⁷ – accessible parking for persons with disabilities.

³² <https://www.fdot.gov/equalopportunity/titlevi.shtm>.

³³ <https://www.fdot.gov/programmanagement/lp/lap/titlevi.shtm>.

³⁴ <https://www.eeoc.gov/statutes/titles-i-and-v-americans-disabilities-act-1990-ada>.

³⁵ <https://disabilityrightsflorida.org/disability-topics/disability-topic-info/section-504-of-the-rehabilitation-act-of-1973>.

³⁶ <https://www.transportation.gov/grants/dot-navigator/design-recommendations-accessible-electric-vehicle-charging-stations>.

³⁷ <https://www.ecfr.gov/current/title-49/subtitle-A/part-27/subpart-B/section-27.75>.

Public Meeting Guidelines

Title II, Regulation Supplement and outlined in Subpart B – General Requirements, Section 35.130³⁸ outlines will be utilized while performing meetings and events regarding EV Charging Stations Infrastructure. Relay Services may be used for people who are Deaf, Hard of Hearing, Deaf/Blind, Speech Disabled. Public participation requests will be addressed despite race, color, national origin, age, sex, religion, disability, or family status.

³⁸ <https://www.ecfr.gov/current/title-28/chapter-I/part-35/subpart-B/section-35.130>.

11

PROGRAM EVALUATIONS

If the EV charging stations are funded by Osceola County but constructed by a third party, then the third party shall provide Osceola County with the real-time status of their charging stations. They shall also provide monthly reports on the progress in expanding the EV infrastructure deployment, how EV sites are implemented, and how they can improve the deployment, operations and maintenance, and environment of the EV charging stations.

12

ACRONYMS

AADT

Annual Average Daily Trips

ADA

Americans with Disabilities Act

AFC

Alternative Fuel Corridor

BABAA

Build America, Buy America Act

BEB

Battery Electric Bus

BIL

Bipartisan Infrastructure Law

CFI

Charging and Fueling Infrastructure

CFR

Code of Federal Regulations

CMAQ

Congestion Mitigation and Air Quality

CRP

Carbon Reduction Program

DCFC

Direct Current Fast Charger

EV

Electric Vehicle

EVMP

Electric Vehicle Master Plan

EVSE

Electric Vehicle Supply Equipment

FAST

Fixing America's Surface Transportation

FDEP

Florida Department of Environmental Protection

FDOT

Florida Department of Transportation

FPSC

Florida Public Service Commission

FS

Florida Statute

FTP

Florida Transportation Plan

Gig

Guarantee Independence and Growth

Justice40

J40

kW

Kilowatt

MW

Megawatt

NEVI

National Electric Vehicle Infrastructure

NHPP

National Highway Performance Program

NHS

National Highway System

PnC

Plug&Charge

PPEP

Partner and Public Engagement Plan

RAISE

Rebuilding American Infrastructure with Sustainability and Equity

RFI

Request for Information

RFP

Request for Proposal

SHS

State Highway System

SIS

Strategic Intermodal System

STBG

Surface Transportation Block Grant

TNCs

Transportation Network Companies

U.S.

United States

USDOE

United States Department of Energy

APPENDIX A

RESEARCH & DISCOVERY MEMO



TECHNICAL MEMORANDUM

Date: December 1, 2023

To: Steve Kane, PE (Osceola County)

From: Sarah Parinella, PE (HNTB)

Cc: Nicholas Hartley, PE (Osceola County)
Gregory Krueger, PE (HNTB)
Robert Denney, PE (HNTB)

Re: EV Charging Station Master Plan – Research and Discovery

Introduction

HNTB, as the General Engineering Consultant, was tasked by Osceola County to develop a master plan to deploy a charging network to support electric vehicles (EV) in urban areas throughout Osceola County, Florida. Planning and creating such a network will support the current EV owners and encourage more individuals to transition to new technology. The development of widespread, convenient, and accessible charging stations is necessary to accommodate the needs of residents, workers, and visitors.

This Technical Memorandum documents the findings of EV charging infrastructure within Osceola County and what is required to construct additional charging stations. The existing infrastructure conditions were identified through the available documents and design standards reviewed during the discovery phase. To reduce the potential costs of constructing new charging stations, various grant opportunities were assessed in order to determine eligibility and develop an action plan. In order to pursue these grant opportunities, plans will be required for potential charging station locations and connections to the electric utility providers.

Preliminary coordination with electric utility providers, like Duke Energy, Kissimmee Utility Authority (KUA), and Orlando Utilities Commission (OUC) established the necessary criteria to install electric vehicle supply equipment (EVSE). The future projections of EV adoption were determined by comparing state and national averaged trends.

Potential Area of Deployment

Florida is the third most populated state in the nation, and it has the second highest number of registered electric vehicles after California with over 233,195 vehicles (see *Figure 1: Electric Vehicles by State*) as of 2023. Over the past few years, EV adoption has grown steadily in Osceola County and across the US for a variety of uses, such as personal travel, Transportation Network Companies (TNCs), Gig (Guarantee Independence and Growth) Companies, and public transit Battery Electric Bus (BEB). Between the years

of 2018 and 2021, a little over 4,000 light-duty EVs were registered in Osceola County. The counties with less than 1,000 vehicles registered are depicted in *Figure 2*, while the counties with more than 1,000 vehicles registered are shown in *Figure 3*.

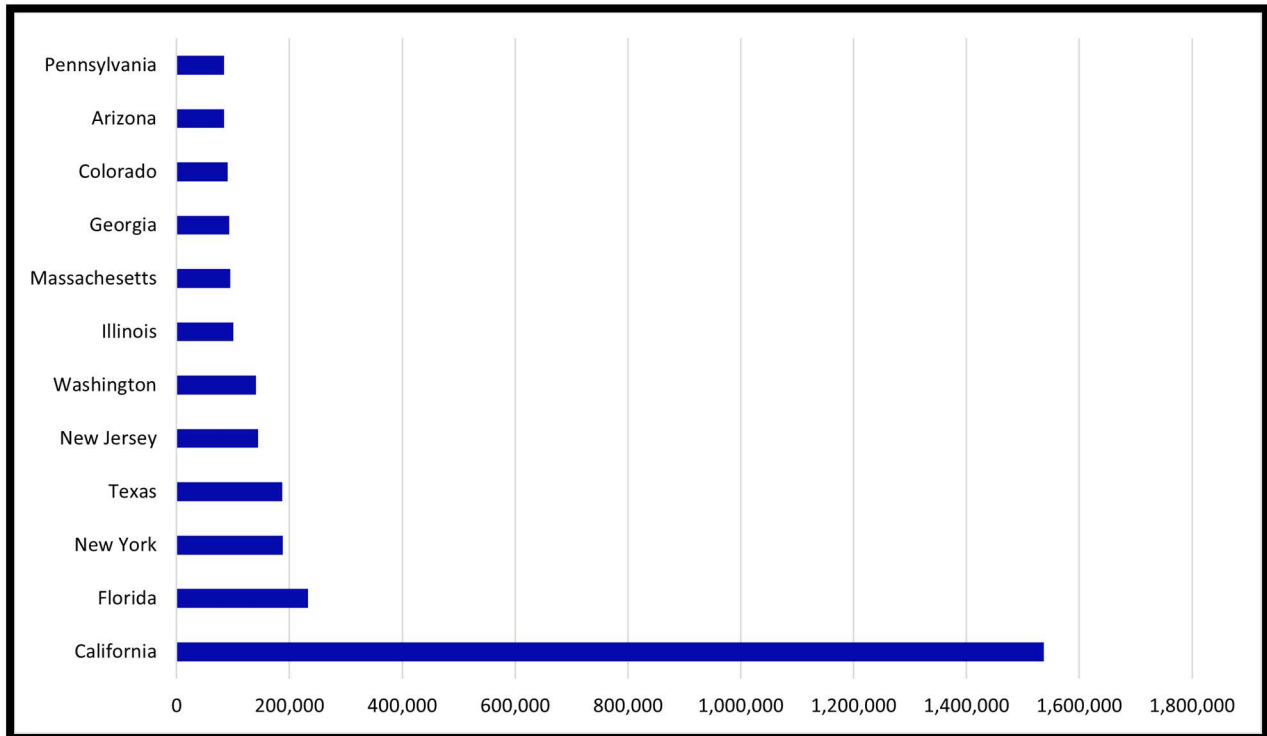


Figure 1: Electric Vehicles by State (June 2023)¹

¹ U.S. Light-Duty Electric Vehicles Sales (2011-2023). <https://www.autosinnovate.org/EVDashboard>.

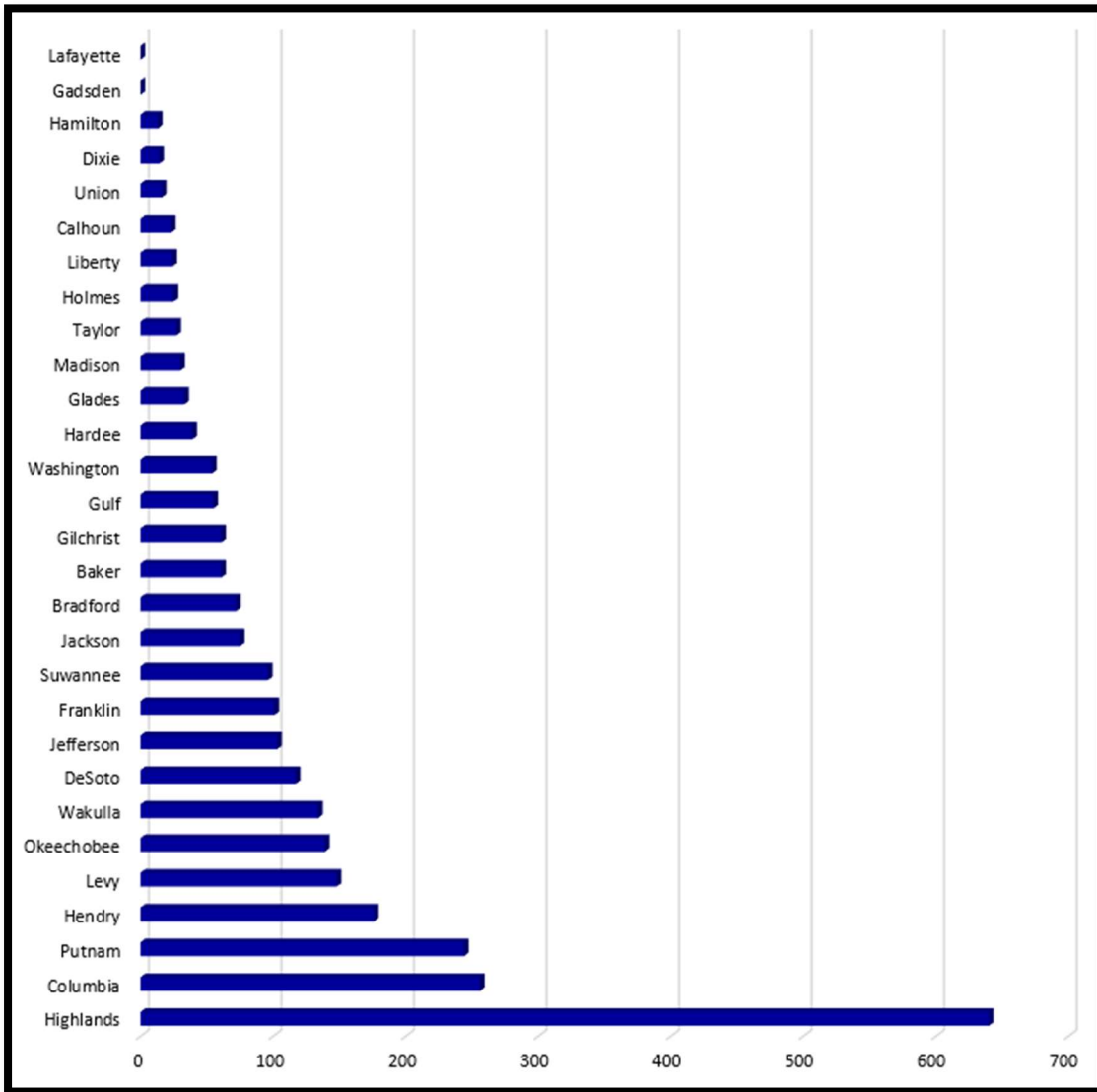


Figure 2: Electric Vehicles Registered by County (2018-2021)²

² State EV Registration Database. <https://www.atlasevhub.com/materials/state-ev-registration-data/#data-format>.

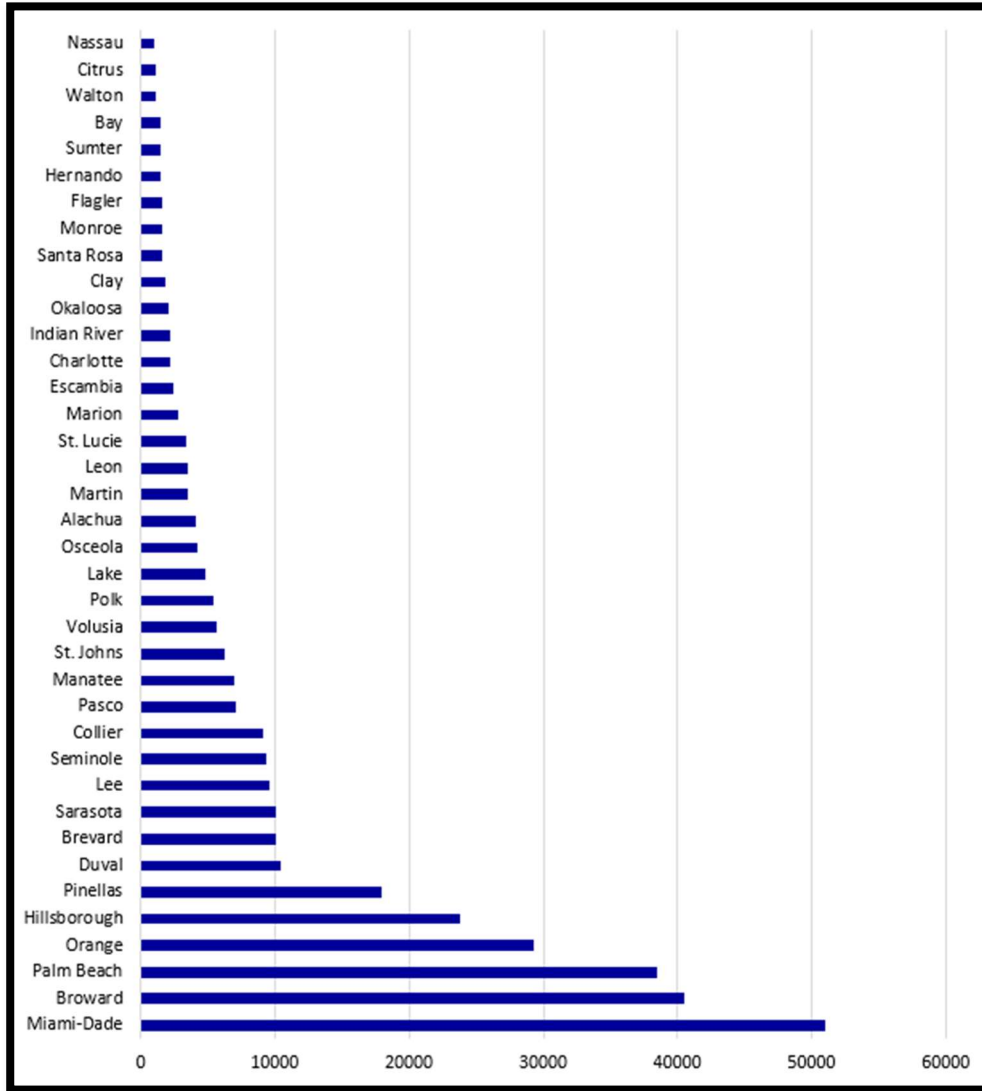


Figure 3: Electric Vehicles Registered by County (2018-2021)³

Osceola County’s Urban Growth Boundary (UGB) was established for the 2040 Osceola County Comprehensive Plan which is used as a long-term growth strategy to achieve a compact urban area and identify areas for future urban development. The urban growth boundary is shown in *Figure 4: Urban Growth Boundary*.

³ State EV Registration Database. <https://www.atlasevhub.com/materials/state-ev-registration-data/#data-format>.

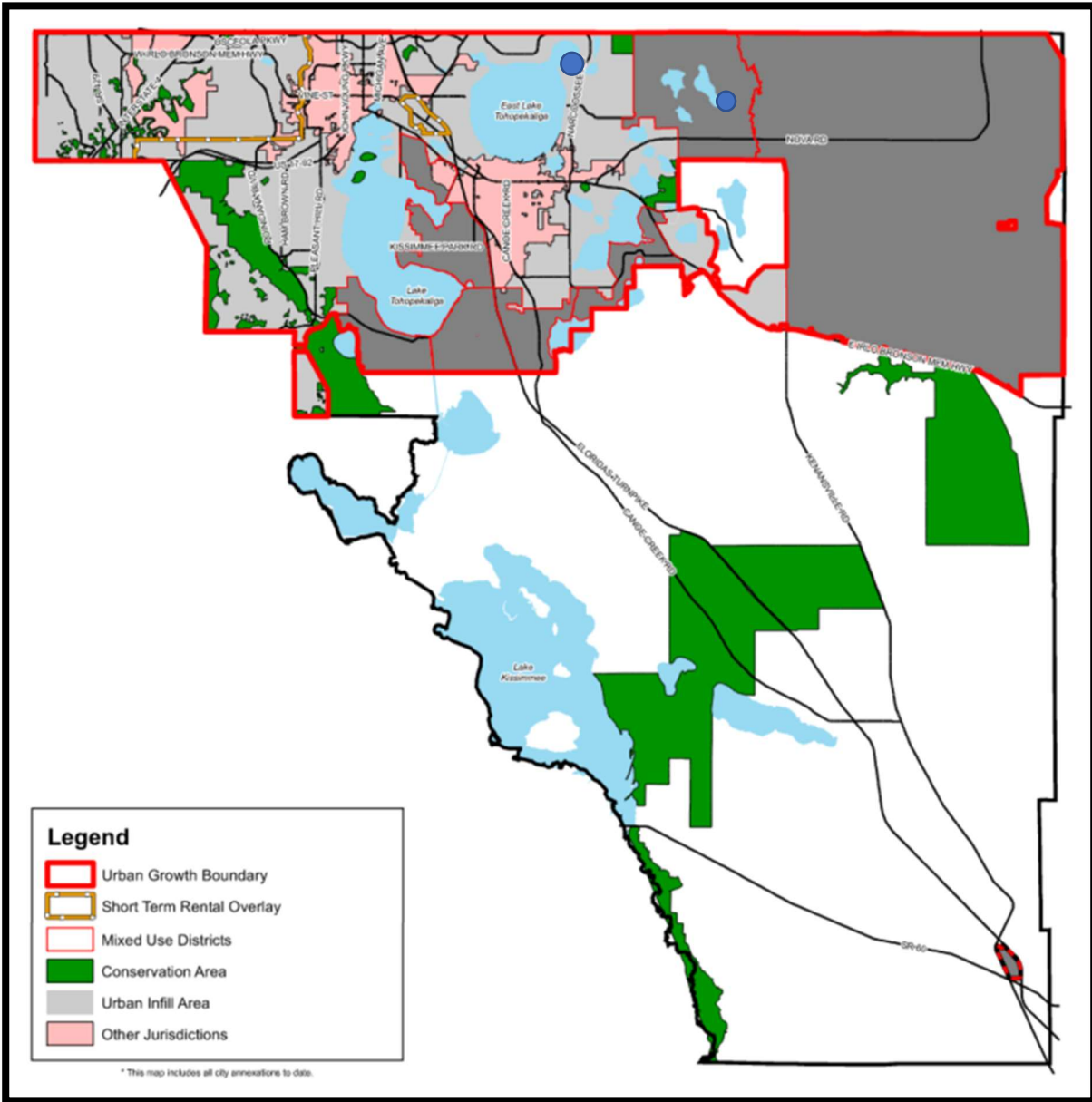


Figure 4: Urban Growth Boundary⁴

Electric Vehicle Technology

This section describes the basic electric vehicle technologies that are either available in the marketplace or coming to market in the near future. The two main electric vehicle configurations are Battery Electric Vehicle (BEV) and Plug-In Hybrid Electric Vehicle (PHEV) are described below. Another developing fuel market is Fuel Cell Electric Vehicles (FCEVs), which are powered by hydrogen.

⁴ FLU 2A: Urban Infill/Expansion and Overlay Areas – 2040.
<https://www.osceola.org/core/fileparse.php/2731/urlt/FLU-2A-2040.pdf>.

Battery Electric Vehicle (BEV)

Battery Electric Vehicles (BEVs) are fully powered by the battery energy storage system installed in the vehicle as shown in *Figure 5: Battery Electric Vehicle*. A BEV is recharged by connecting to the electrical grid using a connector system. Most advanced BEVs are capable of recapturing some energy by utilizing a regenerative braking system. Generally, BEVs can recover 5 to 15 percent of the energy by applying regenerative braking.

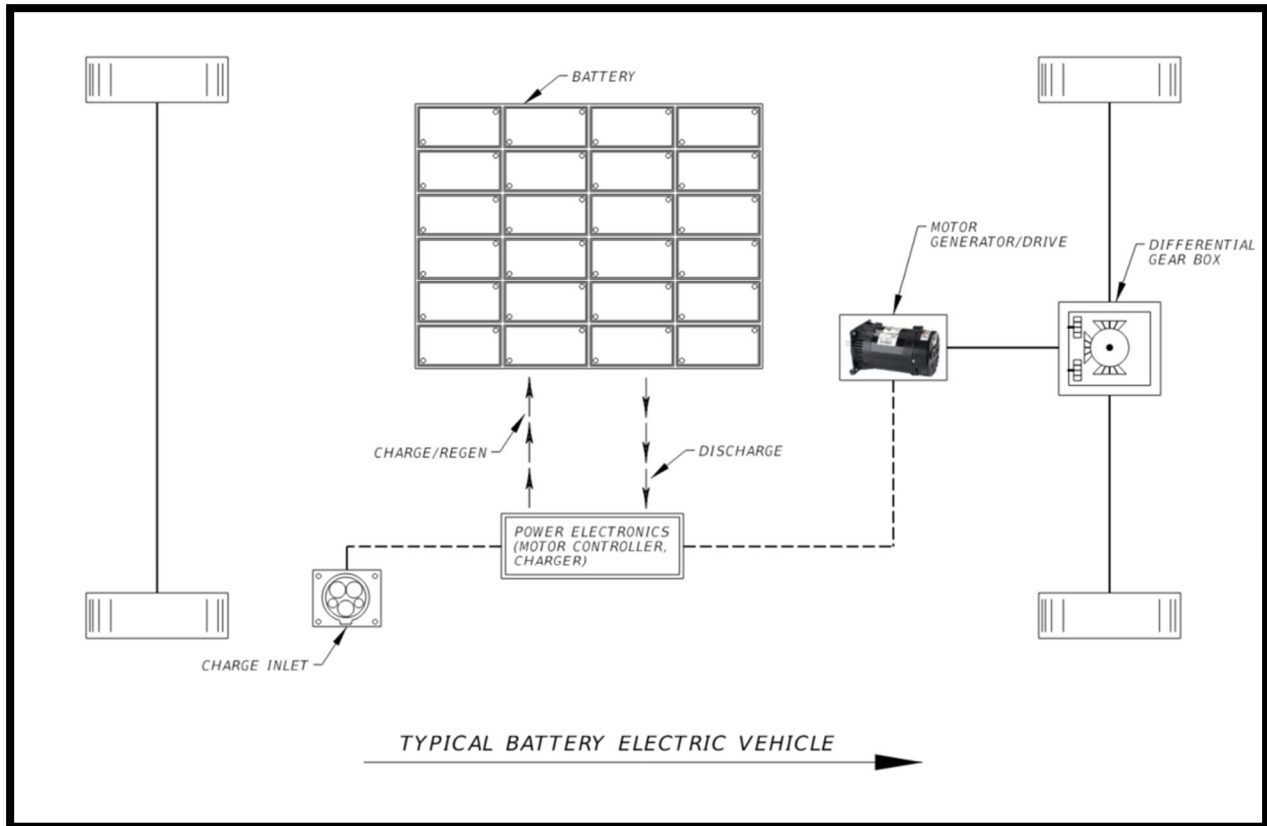


Figure 5: Battery Electric Vehicle⁵

Plug-In Hybrid Electric Vehicle (PHEV)

Plug-In Hybrid Electric Vehicles (PHEVs) are powered by two sources of energy. The typical PHEV utilizes a battery and gasoline or diesel. There are two main design configurations for PHEV: a Series Hybrid shown in *Figure 6: Series PHEV*, and a Parallel Hybrid shown in *Figure 7: Parallel PHEV*. A Series Hybrid typically requires a more powerful battery than a Parallel Hybrid since the series vehicle utilizes solely an electric drive system gasoline-powered generator while the hybrid one uses both a combustion engine and an electric drive system simultaneously.

⁵ ETEC. (May 2010). *Electric Vehicle Charging Infrastructure Deployment Guidelines for the Greater San Diego*, 3.

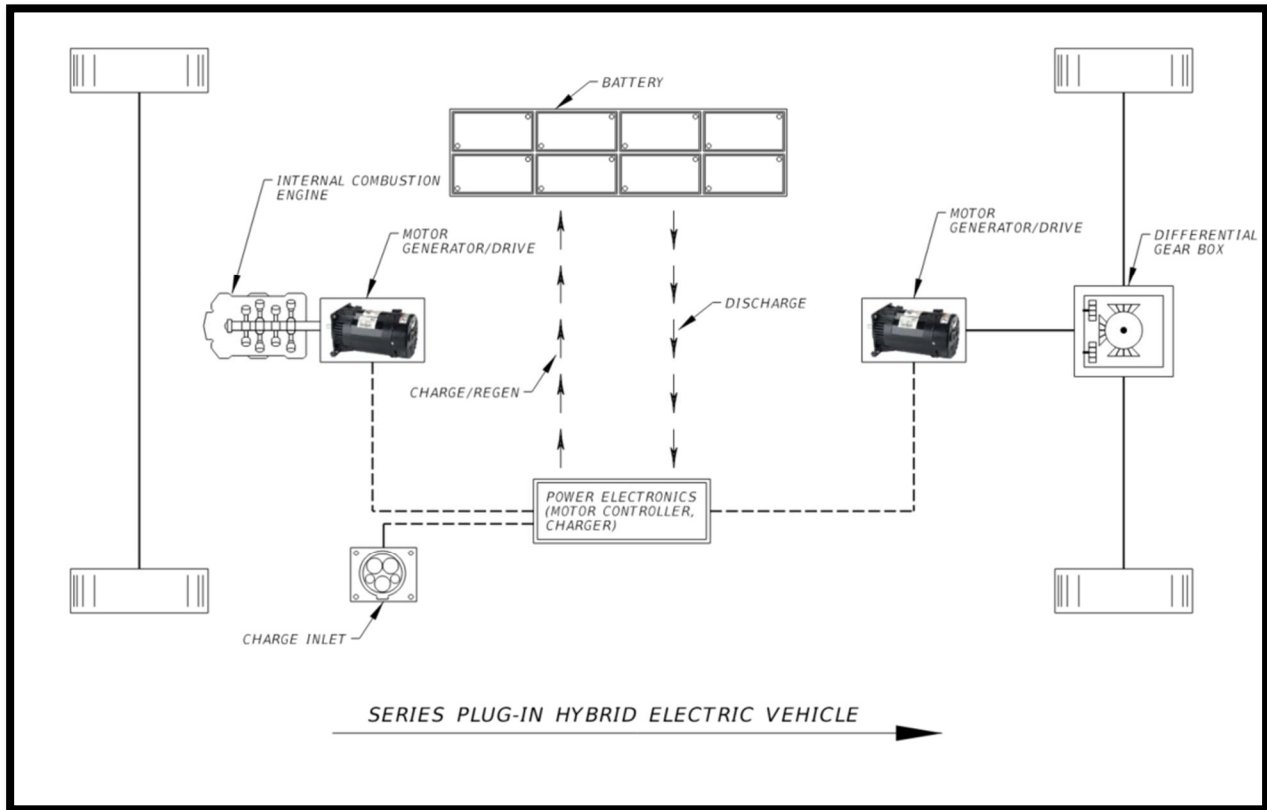


Figure 6: Series Plug-In Hybrid Electric Vehicle⁶

⁶ ETEC. (May 2010). *Electric Vehicle Charging Infrastructure Deployment Guidelines for the Greater San Diego*, 4.

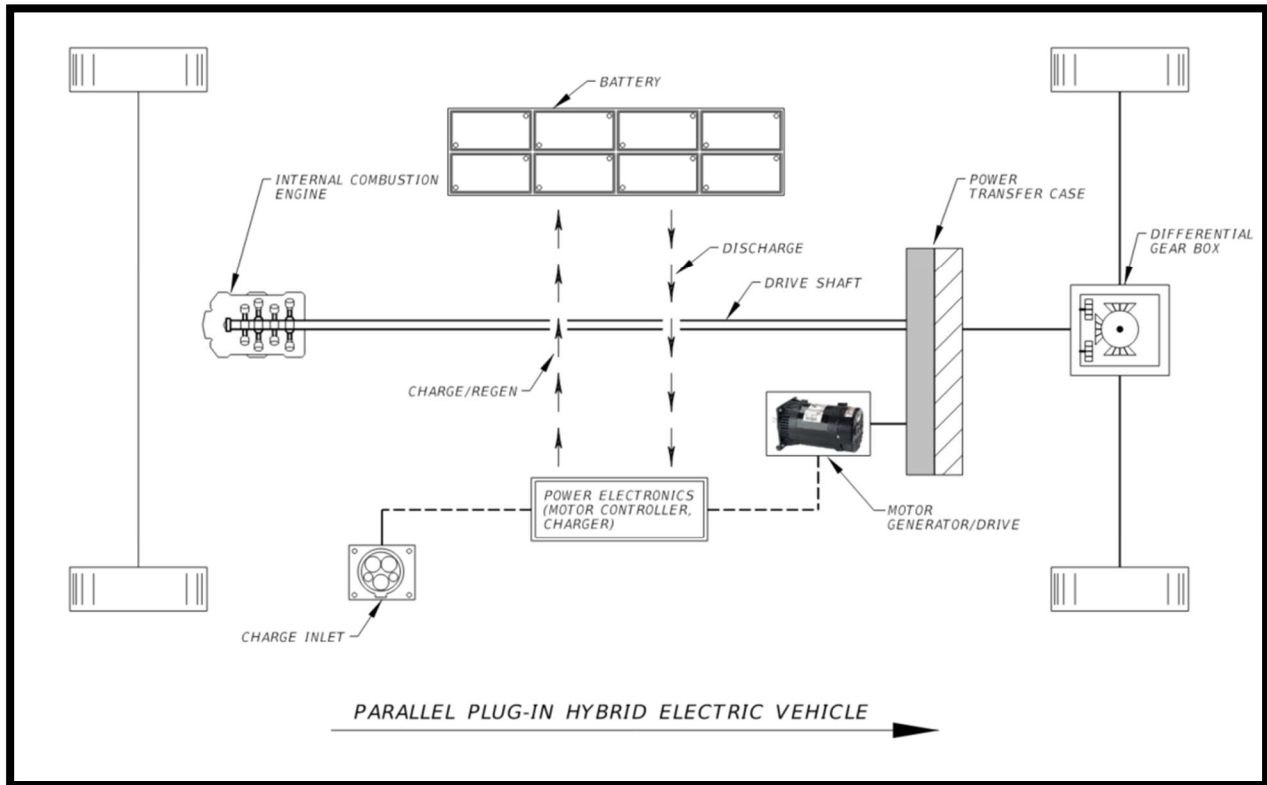


Figure 7: Parallel Plug-In Hybrid Electric Vehicle⁷

PHEV manufacturers combine the battery and internal combustion engine in various ways. One utilizes only the battery for the first few miles with a combustion engine to be used for the remaining duration of travel. Others may use the battery power for sustaining motion and the combustion engine for acceleration and higher energy demands on highways.

Fuel Cell Electric Vehicles (FCEVs)

Fuel Cell Electric Vehicles (FCEVs) draw power from hydrogen and a battery as shown in *Figure 8: Hydrogen Fuel Cell Vehicle*. The battery is recharged during braking and provides extra power during short accelerations, when idling, or when the fuel cell is low. The size of the hydrogen fuel tank determines how much energy is stored, unlike most cars that depend on the size of the battery.

Currently hydrogen fuel infrastructure is located primarily in California and Hawaii with future hydrogen stations planned to be constructed in the Northeastern states. However, FCEV manufacturers are potentially creating Plug-In hydrogen vehicles in the near future so they will use EV charging stations and will require hydrogen stations in more states.

⁷ ETEC. (May 2010). *Electric Vehicle Charging Infrastructure Deployment Guidelines for the Greater San Diego*, 4.

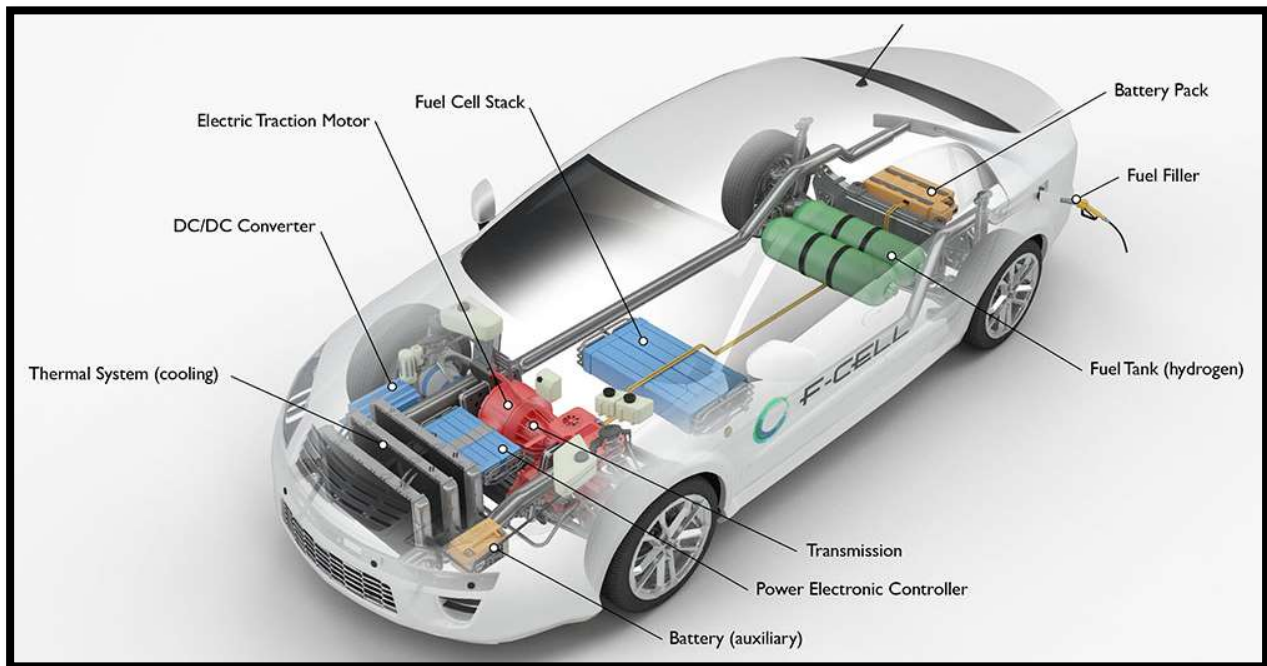


Figure 8: Hydrogen Fuel Cell Vehicle⁸

Electric Vehicle Supply Equipment (EVSE)

An electric vehicle charging station, also known as Electric Vehicle Supply Equipment (EVSE), is a device that supplies electrical power for recharging vehicles, for example, EVs, electric trucks, electric buses, and plug-in hybrid vehicles. Charging stations may be located where electric power supply and a large number of parking spaces are available. Public charging stations are typically found street-side or at retail shopping centers, government facilities, and other public parking areas. Private charging stations are typically found at residences, workplaces, and hotels.

Battery Charging

As an emerging market, EV charging station parking areas have been becoming more numerous to appeal to a variety of user expectations. To successfully deploy more charging areas for EVs in Osceola County, it is critical to determine the system’s baseline level of needs. Battery capacity is measured in kilowatt-hours (kWh) and the battery capacity for a full battery range from 40 kWh to as much as 180 kWh⁹. A PHEVs’ capacity is smaller in comparison due to the vehicle having two sources of fuel. The amount of time required to fully charge an EV battery depends on the battery capacity and the amount of electric power (kW) that the electric circuit can deliver to the battery. There are two main types of charging AC (Level 1 and Level 2) and DC (Level 3) as shown in *Figure 9: AC and DC Charging*¹⁰.

⁸ Alternative Fuels Data Center. https://afdc.energy.gov/vehicles/fuel_cell.html

⁹ Max Battery Gives Rivian R1S and R1T 400-Plus-Mile Range Estimates. <https://www.caranddriver.com/news/a45434294/rivian-r1s-r1t-max-battery-details/>.

¹⁰ Charger Types and Speeds. <https://www.transportation.gov/rural/ev/toolkit/ev-basics/charging-speeds>.

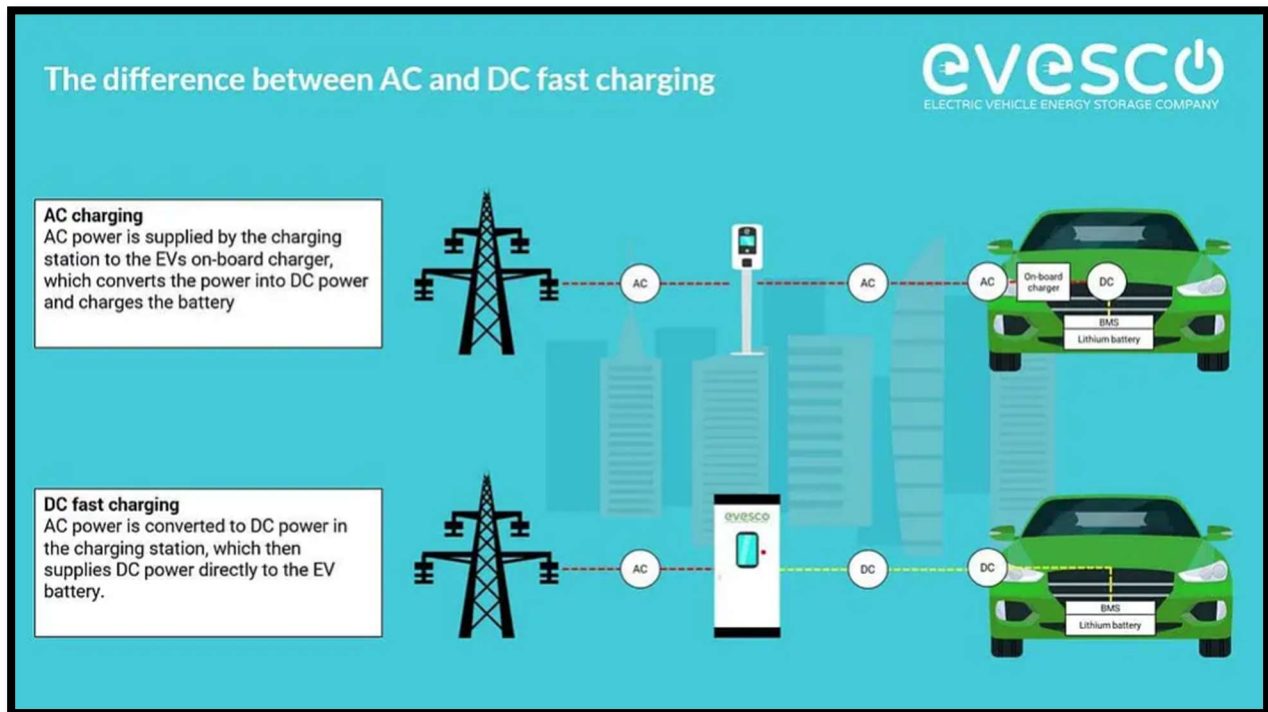


Figure 9: AC and DC Charging¹¹

Level 1

Level 1 charging station uses a standard 120 V branch circuit with an amp rating of 12 amps. The charging cord set typically uses a standard 3-prong plug (NEMA 5-15P/20P) with a Charge Circuit Interrupting Device (CCID) located in the power supply cable. The vehicle connector used is approved by the SAE Standard J1772. This charging level would be best suited for hotel areas where vehicles can charge overnight due to very long charging times. These charging stations are starting to become less common since charging stations have become more efficient and patrons do not have time to wait for their vehicle to charge for longer than an hour.

Level 2

Level 2 charging station utilizes a single-phase branch circuit with a voltage of 240 V and up to 60 amps. This charging level is primarily used and is preferred since it allows for a much faster battery charge. Due to higher voltage, Level 2 has a higher level of safety requirements under the National Electric Code (NEC). This charging level would be best suited at workplace areas and shopping plazas, where users would have a significant amount of time to leave their vehicles charged. These charging stations are most common and are starting to be installed in homes instead of Level 1 charging stations.

¹¹ Levels of EV Charging. [The Different Levels of EV Charging Explained - EVESCO \(power-sonic.com\)](https://www.power-sonic.com/ev-charging-explained/).

Level 3 (DCFC)

Direct Current Fast Charging (DCFC) is designed for commercial and public charging applications, and it is intended to recharge EVs at a quick pace similar to gasoline service stations. It uses the off-board charger that provides the AC to DC converter. Meanwhile, the vehicle’s on-board battery system manages the off-board charger to deliver DC directly to the battery. The off-board charger uses a branch circuit at 480 V and 105, and 800 V and 340 amps. This charging level can be more beneficial at gas stations and high-traffic areas so that EVs can be recharged for long-distance travel.

Charging stations provide connectors that conform to a variety of international standards. DC charging stations are commonly equipped with multiple connectors to be able to charge a wide variety of vehicles that utilize competing standards, as shown in *Figure 10: Connector Designs*. The North American Charging Standard (NACS) is the updated name for the charging connector from Tesla.











	Japan	N. America	Europe	China	All Markets (except EU)
AC	 J1772 (Type 1)	 J1772 (Type 1)	 Mennekes (Type 2)	 GB/T	
DC	 CHAdemo	 CCS1	 CCS2	 GB/T	 NACS

Figure 10: Connector Designs¹²

Existing EV Charging Infrastructure

The first public EV charging Station Hub was installed by KUA at the Kissimmee Civic Center which includes one Level 3 and three Level 2 chargers shown in *Figure 11: EV Charging Station Hub at Kissimmee Civic Center*.

¹² EV Charging Connector Types: A Complete Guide. <https://www.power-sonic.com/blog/ev-charging-connector-types/>.



Figure 11: EV Charging Station Hub at Kissimmee Civic Center¹³

As of October 2023, there are approximately 104 charging stations in Osceola County with a total of 279 charging ports. Twenty of the charging stations host Level 3 fast charging (DCFC). The 103 charging stations belong to seven networks, and one station is non-networked which is important to drivers as each network sets individual cost rates. Some networks offer discounted subscription plans. *Table 1* below summarizes the EV charging stations in Osceola County.

EV Network	Number of Stations	Number of Chargers	Station Levels	Station Connector Types
Blink Network	12	49	Level 2	J1772
ChargePoint Network	26	51	Level 2	J1772
ChargeUp	5	14	Level 2 & Level 3	CHADEMO J1772 COMBO, J1772
FPLEV	1	4	Level 3	CHADEMO J1772 COMBO
Non-Networked	1	2	Level 2	J1772
RIVIAN Waypoints	2	2	Level 2	J1772
Shell Recharge	51	71	Level 2 & Level 3	CHADEMO J1772 COMBO, J1772
Tesla / Tesla Destination	6	86	Level 2 & Level 3	TESLA, J1772

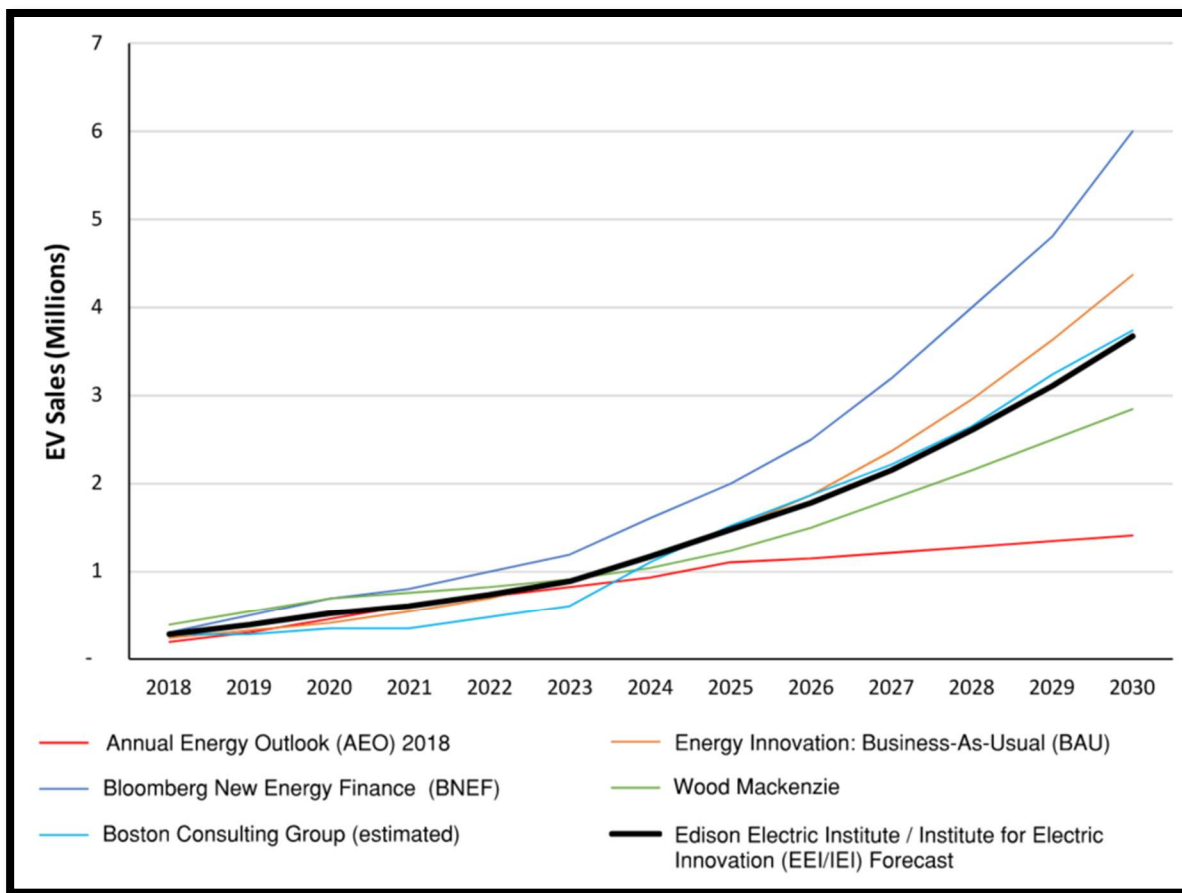
Table 1: Public EV Charging Stations in Osceola County¹⁴

¹³ KUA completes first EV Charging Station Hub. <https://kua.com/news/kua-completes-first-ev-charging-station-hub/>.

¹⁴ Alternative Fuels Data Center. https://afdc.energy.gov/data_download.

Future Projections

As the EV market is projected to grow, the rate of growth will depend on input variables, such as user behavior, travel demands, available vehicle models, technology advancements, and government policies. According to the Biden-Harris Administration, at least 50% of new car sales should be EVs by 2030¹⁵. We anticipate Osceola County’s EV car sales to be similar to this projection. As shown in *Figure 12: Annual EV Sales Forecast (2018-2030)*, the longer the timeline, the greater the variance between models. For the analysis, a consensus forecast of projected EV sales from 2018 to 2030 was developed by Edison Electric Institute with the Institute for Electric Innovation based on five independent forecasts. The major factors included customer preference, EV cost, and fuel efficiency.



*Figure 12: Annual EV Sales Forecast (2018-2030)*¹⁶

The nationwide data of new EV registrations was used to determine Florida’s EV projections, shown in the table in *Figure 13: Florida Vehicle Registration Counts* where the asterisk (*) is used for existing data and

¹⁵ Made-in-America National Network of Electric Vehicles Chargers. <https://www.whitehouse.gov/briefing-room/statements-releases/2023/02/15/fact-sheet-biden-harris-administration-announces-new-standards-and-major-progress-for-a-made-in-america-national-network-of-electric-vehicle-chargers/>

¹⁶ Electric Vehicle Sales Forecast and Charging Infrastructure Required Through 2030. https://www.edisonfoundation.net/-/media/Files/IEI/publications/IEI_EEI-EV-Forecast-Report_Nov2018.ashx

the rest is predicted based on the projected trend from the existing data. As the number of EVs increases, the need for additional charging infrastructure increases as well. In order to support current EV owners and encourage more drivers, it is important to create a reliable public charging network according to the EV sales forecast.

YEAR	BEV	PHEV	OTHER	TOTAL	% BEV	% PHEV	% OTHER
* 2016	11,600	10,100	15,603,000	15,624,700	0.074%	0.065%	99.86%
* 2017	15,900	13,400	16,104,600	16,133,900	0.099%	0.083%	99.82%
* 2018	27,400	17,400	16,503,000	16,547,800	0.166%	0.105%	99.73%
* 2019	40,300	20,400	16,775,200	16,835,900	0.239%	0.121%	99.64%
* 2020	58,200	22,400	17,012,600	17,093,200	0.340%	0.131%	99.53%
* 2021	95,600	32,200	17,314,800	17,442,600	0.548%	0.185%	99.27%
* 2022	168,000	45,800	17,575,800	17,789,600	0.944%	0.257%	98.80%
2023	153,771	44,486	17,962,486	18,160,743	0.847%	0.245%	98.91%
2024	177,321	49,832	18,278,500	18,505,654	0.958%	0.269%	98.77%
2025	200,871	55,179	18,594,514	18,850,564	1.066%	0.293%	98.64%
2026	224,421	60,525	18,910,529	19,195,475	1.169%	0.315%	98.52%
2027	247,971	65,871	19,226,543	19,540,386	1.269%	0.337%	98.39%
2028	271,521	71,218	19,542,557	19,885,296	1.365%	0.358%	98.28%
2029	295,071	76,564	19,858,571	20,230,207	1.459%	0.378%	98.16%
2030	318,621	81,911	20,174,586	20,575,118	1.549%	0.398%	98.05%

Figure 13: Florida Vehicle Registration Counts¹⁷

Electric Companies

There are three electric companies located in Osceola County: Duke Energy, Kissimmee Utility Authority (KUA), and Orlando Utilities Commission (OUC). Service areas for each of the utility companies are shown in *Figure 14: Electric Company Service Areas*. Depending on the location of the proposed charging stations will determine which electric company will need to be coordinated with. Coordination has begun with all three utility companies; however, we are awaiting callbacks from OUC and KUA. Each utility company was asked the following questions pertaining to the process of constructing new charging stations.

1. Do you have any established design standards for installing electric vehicle charging stations?
2. What charging stations do you use?
3. What is the process of installing new charging stations?
4. Who would construct or maintain the charging stations?

The installation process includes certain steps that must be followed in order to comply with laws and regulations:

1. Identify: licensed electricians to install charging equipment.
2. Assess: licensed electrician must perform an assessment and inspect the electric service. This is

¹⁷ Alternative Fuels Data Center: Vehicle Registration Counts by State (energy.gov).
<https://afdc.energy.gov/vehicle-registration?year=2022>.

useful for locating a perfect spot for stations, the amount of work, and the time required to install the suitable equipment.

3. Permit: licensed electrician must obtain the permit for installation from the appropriate jurisdiction.
4. Install: licensed electrician may proceed with installation after a permit is secured.
5. Inspection: licensed electrician must contact the permitting office to schedule the final inspection after installation is complete. The charging station is available for use as soon as the inspection is passed.

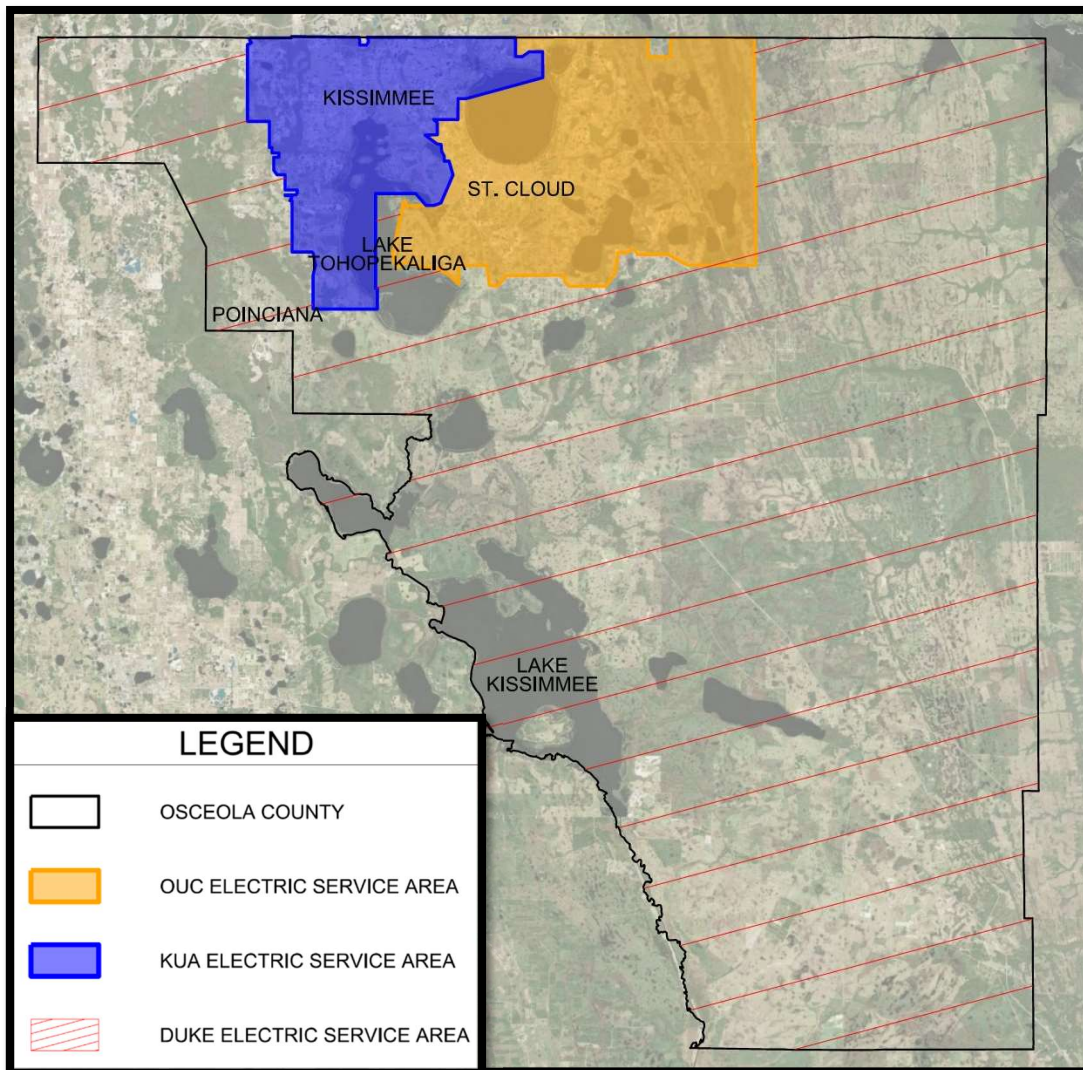


Figure 14: Electric Company Service Areas¹⁸

¹⁸ Developed by HNTB. <https://www.osceola.org/agencies-departments/>.

Duke Energy

Duke Energy has nearly 600 EV charging stations located throughout Florida thanks to their Park & Plug pilot program. New locations can apply to be a part of the program if they have public access 24/7, are near major corridors, are safe and well-lit, near retail, restaurant, or other helpful amenities, and are located in the Duke Energy service area. The form to apply can be found at this website: [Park and Plug – EV Charging - Duke Energy Florida \(duke-energy.com\)](https://www.duke-energy.com/park-and-plug). Duke Energy mentioned that they outsource all of its standards and installation processes to the Project Designer or Engineer.

Duke Energy has a commercial charger rebate for qualifying businesses, cities, schools, and apartment complexes that install EV chargers for fleets, school buses, and transit buses. These EV charges must be on a separate meter and the customer must be a current Duke Energy Florida commercial customer. Duke Energy will provide a rebate of \$627 for a public Level 2 charger and \$4,195 for a public Level 3 (DCFC) charger. In order to receive the rebate, customers must submit an application, receive Pre-Approval, install the chargers, and upload the proof of installation. A maximum of 10 chargers will be paid for at each location. See Appendix A for the Commercial EV Charger Rebate Checklist.

Kissimmee Utility Authority (KUA)

KUA currently has 60 EV chargers located throughout Kissimmee that are either Level 2 or Level 3 chargers and are completely powered by their Community Solar Program. To install new charging stations, a five-year EVSE service agreement is required. They also require that KUA handles all of the engineering, installation, maintenance, and warranties for the life of the charger. Information about adding new charging stations at commercial locations is limited on their EV website ([Electric Vehicles \(EV\) | Kissimmee Utility Authority \(kua.com\)](https://www.kua.com/electric-vehicles)), but the information provided by KUA is in Appendix B.

The process of installing EVSE chargers with KUA is as follows:

1. Submit conceptual plans
2. How many EV chargers are needed
3. Amount of kW desired
4. Desired locations

Once the EVSE service agreement is signed, the design standards will be shared with the owner.

Orlando Utilities Commission (OUC)

OUC has two types of programs for installing commercial charging stations. The first type is where OUC owns, installs, and maintains the charging station for a fixed monthly fee over a contracted period of time. The fee is determined by site characteristics and the equipment type. The other type is where OUC designs, procures, and installs the charging station but the customer pays for the equipment and installation. See Appendix C for the Plug-In & Charge Up EV Charging Services Catalog to see the different charging stations available.

Grant Opportunities

Federal and state grant opportunities to fund potential EV locations have been summarized by each grant identified in the subsequent sections:

Bipartisan Infrastructure Law

The Bipartisan Infrastructure Law includes up to a \$7.5 billion investment in electric vehicle charging to create a network of 500,000 electric vehicle chargers nationwide. Florida is estimated to receive approximately \$2.8 billion over five years as part of an investment toward improving public transit across the state¹⁹. By utilizing this investment, owning electric vehicles will become more convenient, and additional jobs will be created across the country. The Bipartisan Infrastructure Law provides funding for the deployment of electric vehicle chargers along highway corridors to facilitate long-distance travel and within communities to provide convenient charging where people live, work, and shop. In addition, there are investments from the Bipartisan Infrastructure Law for specific vehicles to transition to electric: school buses, transit buses, and even passenger ferries to reduce emissions for their riders. Electric Vehicle Charging Infrastructure, National Electric Vehicle Infrastructure, and the Charging and Fueling Infrastructure Discretionary Grant Program are all part of the Bipartisan Infrastructure Law and are described more in-depth in the following sections.

Electric Vehicle Charging Infrastructure

Under the Bipartisan Infrastructure Law, the Electric Vehicle Charging Infrastructure Program has EV funding located on a designated Alternative Fuel Corridor (AFC) throughout all states. The Florida Department of Transportation (FDOT) has added over 4,000 miles to Florida’s AFC in 2022, as shown in the map below in *Figure 15: Electric Vehicle Corridor Destinations*. This opportunity serves the purpose of utilizing the available funding and improving the EV network in the State of Florida. For more information refer to FHWA’s website on designated Alternative Fuel Corridors.

¹⁹ Investing in America. <https://www.whitehouse.gov/wp-content/uploads/2023/10/Florida-Fact-Sheet.pdf>.

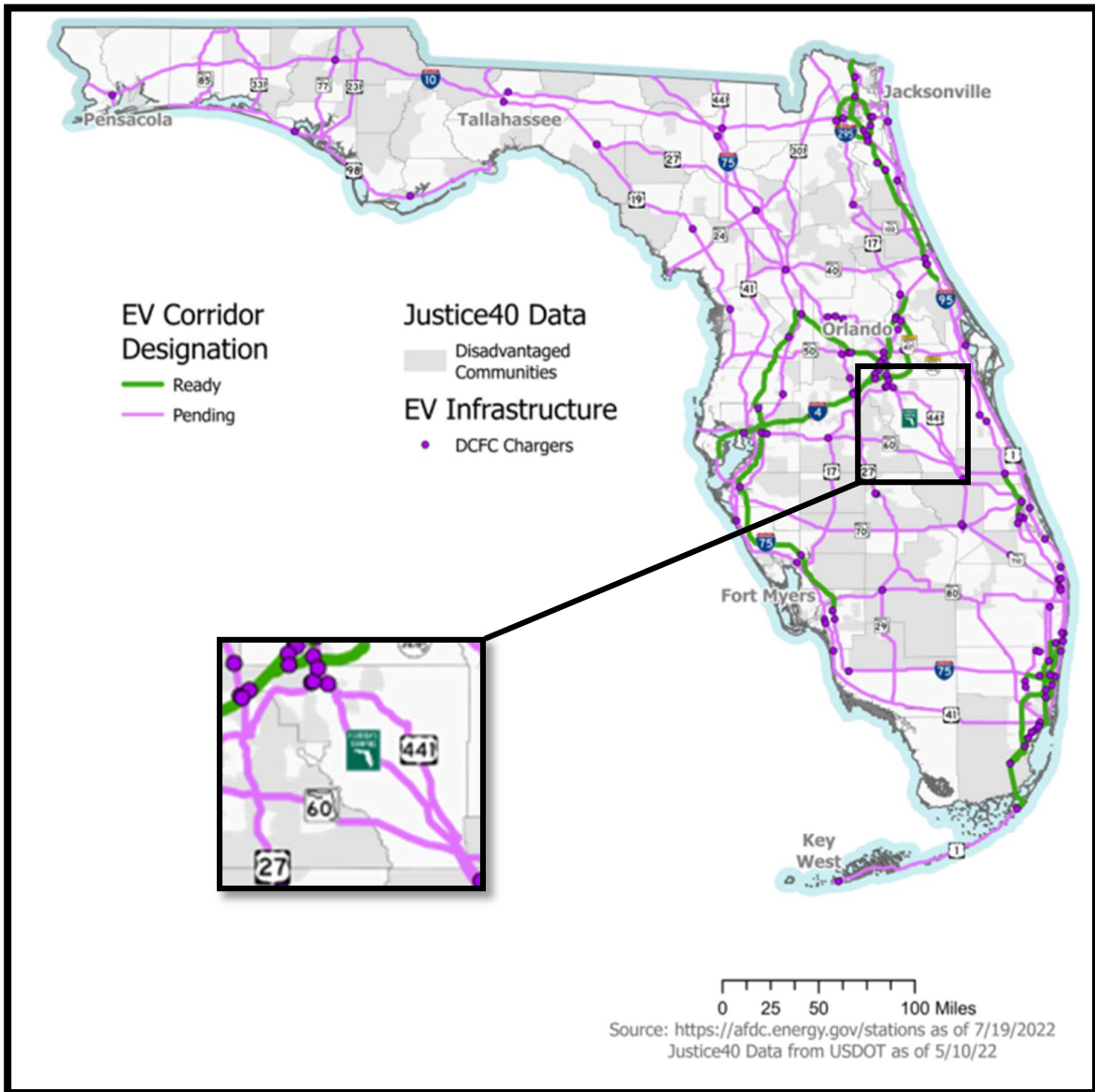


Figure 15: Electric Vehicle Corridor Destinations²⁰

National Electric Vehicle Infrastructure (NEVI)

Under the Bipartisan Infrastructure Law, the National Electric Vehicle Infrastructure (NEVI) Formula Program has dedicated \$5 billion in funding to States in order to create EV charging infrastructure and establish interconnected networks. At first, this funding was directed to AFCs to build a national network mainly along the Interstate Highway System; however, after this goal is accomplished, the remaining funds may be used for public roads and other publicly accessible locations.

²⁰ EV Infrastructure Master Plan. https://fdotwww.blob.core.windows.net/sitefinity/docs/default-source/emergingtechnologies/evprogram/fdotevmp.pdf?sfvrsn=b5888a_2.

Charging and Fueling Infrastructure Discretionary Grant Program

Under the Bipartisan Infrastructure Law, the \$2.5 billion for the Charging and Fueling Infrastructure Discretionary Grant Program from March 14, 2023, is divided into two distinct \$1.25 billion grant programs to support EV charger deployment. These discretionary grant programs will ensure charger deployment meets the priorities such as supporting rural charging, building resilient infrastructure, climate change, and increasing EV charging access in underserved and overburdened communities.

Congestion Mitigation and Air Quality (CMAQ) Improvement Program

The Congestion Mitigation and Air Quality (CMAQ) Improvement Program is a funding source for State and local governments for transportation projects and programs that help meet the requirements of the Clean Air Act (CAA). These projects and programs include electric vehicles and charging stations or other projects that reduce congestion and improve air quality in areas that do not meet the National Ambient Air Quality Standards. States that meet the air quality standards may still use CMAQ funds for Surface Transportation Block Grant eligible projects. Funds are distributed to each State DOT on an annual basis and range from \$10 million to \$488 million based on a formula.

Rebuilding American Infrastructure with Sustainability and Equity (RAISE)

The Rebuilding American Infrastructure with Sustainability and Equity (RAISE) grant is for surface transportation projects that improve safety, environmental sustainability, quality of life, mobility and community connectivity, economic competitiveness and opportunity, state of good repair, partnership and collaboration, and innovation. Each year they will award between \$1 million and \$25 million to eligible projects.

EV Charger Cost Elements

Typical elements for a workplace EVSE project include, but are not limited to, the following line items:

- EVSE unit(s)
- Contracted labor
- In-house labor
- Material/incidentals
- Equipment rental (backhoe, jackhammer, etc.)
- Sidewalk demolition and repair
- Optional EVSE equipment (e.g., RFID card reader)
- Signage and paint
- Permitting and inspection costs
- Incentives (if available)

A number of manufacturers offer EVSE, and product offerings vary in the types of features they include and the corresponding prices. Level 1 equipment ranges in cost from \$500 to \$1,000 per charging station; the price of Level 2 equipment ranges from about \$500 to \$7,000 (before incentives) per charging station; level 3 charging station can cost between \$20,000 and \$60,000 per unit, depending on the level of sophistication. To be noted, the ranges for installation costs do not include the possible power grid updates.



Design Considerations

Design considerations must be incorporated when designing EV charging station sites, such as safety, ADA accessibility, no conflict with bike and bus lanes, and Diversity, Equity, and Inclusion (DEI) concepts need to be considered. It is necessary to take into account the majority type of vehicles, the customers' charging needs, and the location where the station should be installed. Each EV charging station location should be evaluated for safety as well. For example, charging stations should be placed in well-lit areas, not at the back of shopping centers or in obscure areas. It is recommended that a minimum luminance of 1.5 horizontal foot-candle²¹ be used around the EV charging stations.

Conclusion

This Technical Memorandum has explored the different charging options, their deployment, and benefits for the fast-growing population of EV owners. The opportunities are associated with the increasing demand for the technology of electric vehicles; therefore, the importance of expanding the deployment to areas of interest. With the increasing demand for EVs, it is necessary to provide a supply accordingly, so that the future market would be accommodated as it continues to grow.

Respectfully,

A handwritten signature in black ink that reads "Sarah Parinella".

Sarah Parinella, PE
Project Engineer
Work (407) 547-3062
Email sparinella@hntb.com

²¹ 2024 FDOT Design Manual Lighting Section. [2024fdm231lighting.pdf \(windows.net\)](#)



EV Charging Station Master Plan – Research and Discovery
FY 23/24

Appendix A
Duke Information

Commercial EV Charger Rebate Checklist



This step-by-step resource has been designed to help our Florida customers understand the process of applying for a commercial EV charger rebate. Review and check each line item to help ensure all steps have been completed before submitting application.

BEFORE Applying:

- Consult with licensed electrician to determine the total cost of installing your charger.
- Based on your installation, you may want to also consult with an EV network provider to determine the cost of a maintenance and collection fee contract.
- Have your licensed electrician consult with a Duke Energy engineer to determine what, if any, upgrade costs are involved for your project.
- Decide if your chargers will be separately metered on the GST-1 rate or with a submeter.
 - If the submeter option is chosen, the master account must be under the GST-1 rate.
 - Check the GST-1 peak and off-peak hours. The peak hours may or may not be the best hours for the master account.

NEXT Steps:

- Fill out the application found online at [EV Complete | Commercial Charger Rebate](#).
- Email a site sketch to chargerrebateFL@duke-energy.com.

AFTER Installation:

Compile the following documentation:

- Determine contact name and address where check is to be mailed.
Note: This information may differ from the name/address found in the application
- Pictures of the installation
- Copy of EV charger invoice from where the charger was purchased
- Copy of electrician's invoice for the charger installation
- New account number and meter number on GST-1 rate

If submetering:

- Account number of the master account number on GST-1 rate
- Meter number of the sub-metered account

If chargers are for a fleet:

- Copy of registration for vehicles using the chargers
- Registrations must show vehicles in company name

If for a public charger site:

- Must comply with Florida charging statutes:
[Chapter 366 Section 94 - 2012 Florida Statutes - The Florida Senate \(flsenate.gov\)](#).
- Once you have completed your installation, upload your documentation through the payment portal link provided in your pre-approval email.



EV COMPLETE



EV Charging Station Master Plan – Research and Discovery
FY 23/24

Appendix B
KUA Information

EVSE Electric Vehicle Service Equipment Program



Level-II 7.68kW standard single phase 240-volt charger

- 5-year EVSE Service Agreement required.
- Contact KUA for pricing.
- KUA handles all engineering, installation, maintenance and warranties for the life of the charger.
- Charger is directly connected to KUA power only for reliability.
- KUA maintains EV network software called “Greenlots” to include Google GPS EV map locator.
- Electric vehicle user pays for the electric usage at the point of sale. Site owner does not pay for electric usage.
- Cost to charge an EV per session, KUA GSD rate 0.13429 cents per kWh plus \$1 access fee.
- Parking lot “EV parking only” signage and your logo on the charger if you prefer is included.



Level-III DCFC 50kW Fast Charger 208-volt 3-phase charger

- 5-year EVSE Service Agreement required.
- Contact KUA for pricing.
- KUA handles all engineering, installation, maintenance and warranties for the life of the charger.
- Charger is directly connected to KUA power only for reliability.
- KUA maintains EV network software called “Greenlots” to include Google GPS EV map locator.
- Electric vehicle user pays for the electric usage at the point of sale. Site owner does not pay for electric usage.
- Cost to charge an EV per session, KUA GSD rate 0.13429 cents per kWh plus \$1 access fee.
- Parking lot “EV parking only” signage and your logo on the charger if you prefer is included.



EV Charging Station Master Plan – Research and Discovery
FY 23/24

Appendix C
OUC Information



PLUG IN & CHARGE UP
EV CHARGING SERVICES CATALOG

WWW.OUC.COM/COMMERCIALEV

ouc 
The Reliable One®

EV CHARGING SERVICES

OUC – The **Reliable One** offers turnkey solutions for businesses to install cost-effective electric vehicle (EV) charging stations on their properties with options ranging from a single unit for a storefront to multiple stations that can power an entire fleet. As EV adoption evolves in Central Florida, charging stations can help attract customers needing to charge up while on the go and also clearly indicate green business initiatives.



CHARGING STATION OPTIONS

CHARGE-IT

OUC Owns, Installs & Maintains Stations

You can receive electric vehicle charging services from OUC for a fixed monthly fee over a contracted period of time. The fee is based on specific characteristics of your site and the equipment type.

OWN-IT

OUC Designs, Procures & Installs Stations

You pay for the equipment and installation that OUC provides and you own it immediately.

TYPES OF CHARGING LEVELS

A major differentiator for EV charging stations is the device's level of charging. Level 2 and Level 3 chargers are ideal for businesses.

LEVEL 2

This is the industry standard, most popular and cost-effective choice for typical businesses. It's ideal for customers who can leave their EV plugged in for a few hours while they're working or running errands around town.

LEVEL 3 (or DC Fast Charger)

This charger provides a quicker charge time than the Level 2. After only 30 minutes to an hour of charging, the Level 3 will charge a battery up to at least 80%. It is a universal charger, so any EV is compatible. The Level 3 charger is ideal for customers needing quick turnaround charging.



EV CHARGING STATION BASICS

Body Style – Style options include Wall, Pedestal, Dual Wall and Dual Pedestal. Body style should be determined according to location of charger and the number of charging ports needed.

Unit Power Rating – The energy needed to power the charging station, measured via volts, amps and kilowatts.

Charging Level – The power level provided by the charger related to charging time.

Number of Ports – One port equals one EV. For example, a Level 2 charger with two ports can charge two EVs at one time.

Connector Type – The connector used to attach an EV charger to the vehicle. All Level 2 chargers have J1772 connectors.

Cable Length (ft.) – The length of the cable that connects the charger to the EV. This is typically based on the station's amperage circuit.

Standard Product Warranty Term – All stations come with at least a one-year warranty at no cost; however, additional coverage can be added.

ChargePoint Network Compatibility – Each type of charger may come with special functionality to enhance its user experience, including automatic software updates; remote start, scheduling and reminders via the ChargePoint mobile app; energy tracking and added mile estimation; energy savings tracking; integration with the ChargePoint network for drivers to track charging session data in one place.

Retractable Cord – A clean cord technology (retractable cord) to keep cords safely off the ground.



Model: CT-4021, Dual Pedestal



CHARGEPOINT LEVEL 2

MODEL: CT-4011, PEDESTAL

PRODUCT FEATURES

Body Style	Pedestal
Unit Power Rating	208/240V 30A 7.2kW
Charging Level	2
Number of Ports	1
Connector Type	J-1772
Cable Length (ft.)	18
Standard Product Warranty Term	1 year
ChargePoint Network Compatible?	YES
Retractable Cord?	YES
Types of Unit Activation:	Phone app/ OTA/CC



MODEL: CT-4013, WALL

PRODUCT FEATURES

Body Style	Wall
Unit Power Rating	208/240V 30A 7.2kW
Charging Level	2
Number of Ports	1
Connector Type	J-1772
Cable Length (ft.)	18
Standard Product Warranty Term	1 year
ChargePoint Network Compatible?	YES
Retractable Cord?	YES
Types of Unit Activation:	Phone app/ OTA/CC



CHARGEPOINT LEVEL 2

MODEL: CT-4021, DUAL PEDESTAL

PRODUCT FEATURES

Body Style	Dual Pedestal
Unit Power Rating	208/240V 30A 7.2kW x 2
Charging Level	2
Number of Ports	2
Connector Type	J-1772
Cable Length (ft.)	18
Standard Product Warranty Term	1 year
ChargePoint Network Compatible?	YES
Retractable Cord?	YES
Types of Unit Activation:	Phone app/ OTA/CC



MODEL: CT-4023, DUAL WALL

PRODUCT FEATURES

Body Style	Dual Wall
Unit Power Rating	208/240V 30A 7.2kW x 2
Charging Level	2
Number of Ports	2
Connector Type	J-1772
Cable Length (ft.)	18
Standard Product Warranty Term	1 year
ChargePoint Network Compatible?	YES
Retractable Cord?	YES
Types of Unit Activation:	Phone app/ OTA/CC



CHARGEPOINT LEVEL 2

MODEL: CT-4025, DUAL PEDESTAL

PRODUCT FEATURES

Body Style	Dual Pedestal 8'CMK
Unit Power Rating	208/240V 30A 7.2kW x 2
Charging Level	2
Number of Ports	2
Connector Type	J-1772
Cable Length (ft.)	23
Standard Product Warranty Term	1 year
ChargePoint Network Compatible?	YES
Retractable Cord?	YES
Types of Unit Activation:	Phone app/ OTA/CC



MODEL: CT-4027, DUAL WALL

PRODUCT FEATURES

Body Style	Dual Wall 8'CMK
Unit Power Rating	208/240V 30A 7.2kW
Charging Level	2
Number of Ports	2
Connector Type	J-1772
Cable Length (ft.)	23
Standard Product Warranty Term	1 year
ChargePoint Network Compatible?	YES
Retractable Cord?	YES
Types of Unit Activation:	Phone app/ OTA/CC



CHARGEPOINT LEVEL 2

MODEL: CPF25, WALL

PRODUCT FEATURES

Body Style	Wall
Unit Power Rating	208/240V 30A 7.2kW
Charging Level	2
Number of Ports	1
Connector Type	J-1772
Cable Length (ft.)	18
Standard Product Warranty Term	1 year
ChargePoint Network Compatible?	YES
Retractable Cord?	NO
Types of Unit Activation:	RFID



CHARGEPOINT LEVEL 3

MODEL: CPE-200, PEDESTAL

PRODUCT FEATURES

Body Style	Pedestal
Unit Power Rating	480V 3phase 50kW
Charging Level	3
Number of Ports	1 (2 connectors)
Connector Type	Cha De Mo and J-1772
Cable Length (ft.)	8-1/2
Standard Product Warranty Term	1 year
ChargePoint Network Compatible?	YES
Retractable Cord?	NO
Types of Unit Activation:	Phone app/ OTA/CC



CHARGEPOINT LEVEL 3

MODEL: CPE-100, WALL/PEDESTAL

PRODUCT FEATURES

Body Style	Wall/Pedestal Optional
Unit Power Rating	480V-3phase 24kW
Charging Level	3
Number of Ports	1
Connector Type	SAE Combo J1772
Cable Length (ft.)	20
Standard Product Warranty Term	1 year
ChargePoint Network Compatible?	YES
Retractable Cord?	NO
Types of Unit Activation:	Phone app/ OTA/CC



NOTES





For more information on electric vehicles, visit

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